
The Nautical Almanac 2025



TheNauticalAlmanac.com

The Nautical Almanac

Table of Contents

Part	Page
Acknowledgement, Credits and Disclaimer	3
Calendar, yearly	4
Day of Week & Day Number of Year	5
Links Time signals Bowditch Terrestrial Almanac Pub. No. 249 Pub. No. 229 Sight Reduction Forms and Methods	6
Formulas for celestial navigation	7 to 9
Explanation of The Nautical Almanac Daily Pages	10 to 14
How the Daily Pages were generated	15

The Daily Pages	PDF page	Printed on page
January	16	2
February	26	22
March	35	40
April	46	62
May	56	82
June	66	102
July	76	122
August	86	142
September	97	164
October	107	184
November	117	204
December	127	224

Increments and Altitude Corrections	Page
Conversion of Arc to Time	138
Tables of Increments and Corrections for Sun, planets, Aries, Moon (" <i>the yellow pages</i> ")	139 to 158
Altitude Corrections for Sun, Planets, Stars (includes Refraction and Dip)	159 to 160
Altitude Corrections for the Moon	161 to 162

Astronomical Phenomena

Eclipses	163 to 166
Equation of Time curve- Sun	167
Moon Phases- date and time	168
Moon Phases-graphic form	169

Universal Plotting Sheet	170
Navigational Star Chart	171



fair winds, clear skies & following seas

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Acknowledgment and Credits

Dr. Enno Rodegerdts

The Nautical Almanac *Daily Pages* and Sun Almanacs found on our site were originally created from PyAlmanac written by the great Norwegian sailor Enno Rodegerdts. PyAlmanac used PyEphem to generate the almanacs and LaTeX provided the final formatting. Visit Dr. Rodegerdts site and learn of his voyages at <https://sv-inua.net/>

Without his work TheNauticalAlmanac.com wouldn't exist.

Andrew Bauer

Mr. Bauer has taken the initial work of Dr. Rodegerdts and improved it to the excellence found in the following Daily Pages. Attending foremost to the accuracy of data and then formatting Mr. Bauer created SkyAlmanac which draws from Brandon Rhodes work *Ephem* and *Skyfield* and provides a clear arrangement of figures required for celestial navigation. To that end his work was determined, tireless and efficient. In our mutual writing across many lines of longitude he has always been pleasant, friendly and most affable.

As he has said, *"The art of celestial navigation should be promoted, not discouraged, even in the modern day"*.

To both of these men we all owe a large debt of gratitude and thanks

Disclaimer and Warning

Prior to use verify the accuracy of The Nautical Almanac or data you download from our site. They SHOULD NOT and MUST NOT be relied upon for celestial navigation work of any sorts or any purpose whatsoever. You use them at your own risk or peril.

Errors & Corrections

Contact us if you find any significant errors and describe the correction that should be made.



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freely ye received, freely give

2025

January

wk	Su	M	Tu	W	Th	F	Sa
1				1	2	3	4
2	5	6	7	8	9	10	11
3	12	13	14	15	16	17	18
4	19	20	21	22	23	24	25
5	26	27	28	29	30	31	

February

wk	Su	M	Tu	W	Th	F	Sa
5							1
6	2	3	4	5	6	7	8
7	9	10	11	12	13	14	15
8	16	17	18	19	20	21	22
9	23	24	25	26	27	28	

March

wk	Su	M	Tu	W	Th	F	Sa
9							1
10	2	3	4	5	6	7	8
11	9	10	11	12	13	14	15
12	16	17	18	19	20	21	22
13	23	24	25	26	27	28	29
14	30	31					

April

wk	Su	M	Tu	W	Th	F	Sa
14			1	2	3	4	5
15	6	7	8	9	10	11	12
16	13	14	15	16	17	18	19
17	20	21	22	23	24	25	26
18	27	28	29	30			

May

wk	Su	M	Tu	W	Th	F	Sa
18					1	2	3
19	4	5	6	7	8	9	10
20	11	12	13	14	15	16	17
21	18	19	20	21	22	23	24
22	25	26	27	28	29	30	31

June

wk	Su	M	Tu	W	Th	F	Sa
23	1	2	3	4	5	6	7
24	8	9	10	11	12	13	14
25	15	16	17	18	19	20	21
26	22	23	24	25	26	27	28
27	29	30					

July

wk	Su	M	Tu	W	Th	F	Sa
27			1	2	3	4	5
28	6	7	8	9	10	11	12
29	13	14	15	16	17	18	19
30	20	21	22	23	24	25	26
31	27	28	29	30	31		

August

wk	Su	M	Tu	W	Th	F	Sa
31						1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	24	25	26	27	28	29	30
36	31						

September

wk	Su	M	Tu	W	Th	F	Sa
36		1	2	3	4	5	6
37	7	8	9	10	11	12	13
38	14	15	16	17	18	19	20
39	21	22	23	24	25	26	27
40	28	29	30				

October

wk	Su	M	Tu	W	Th	F	Sa
40				1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	23	24	25
44	26	27	28	29	30	31	

November

wk	Su	M	Tu	W	Th	F	Sa
44							1
45	2	3	4	5	6	7	8
46	9	10	11	12	13	14	15
47	16	17	18	19	20	21	22
48	23	24	25	26	27	28	29
49	30						

December

wk	Su	M	Tu	W	Th	F	Sa
49		1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	18	19	20
52	21	22	23	24	25	26	27
1	28	29	30	31			

2025

Day of Week, Week Number, Day of Year, Remaining Days of Year

Day of Month	1		Days remaining	Week number
	January			
	Day of Week	Day of Year		
1	Wed	1	364	1
2	Thu	2	363	
3	Fri	3	362	
4	Sat	4	361	
5	Sun	5	360	2
6	Mon	6	359	
7	Tue	7	358	
8	Wed	8	357	
9	Thu	9	356	
10	Fri	10	355	
11	Sat	11	354	
12	Sun	12	353	3
13	Mon	13	352	
14	Tue	14	351	
15	Wed	15	350	
16	Thu	16	349	
17	Fri	17	348	
18	Sat	18	347	
19	Sun	19	346	4
20	Mon	20	345	
21	Tue	21	344	
22	Wed	22	343	
23	Thu	23	342	
24	Fri	24	341	
25	Sat	25	340	
26	Sun	26	339	5
27	Mon	27	338	
28	Tue	28	337	
29	Wed	29	336	
30	Thu	30	335	
31	Fri	31	334	

Day of Month	2		Days remaining	Week number
	February			
	Day of Week	Day of Year		
1	Sat	32	333	5
2	Sun	33	332	6
3	Mon	34	331	
4	Tue	35	330	
5	Wed	36	329	
6	Thu	37	328	
7	Fri	38	327	
8	Sat	39	326	
9	Sun	40	325	7
10	Mon	41	324	
11	Tue	42	323	
12	Wed	43	322	
13	Thu	44	321	
14	Fri	45	320	
15	Sat	46	319	
16	Sun	47	318	8
17	Mon	48	317	
18	Tue	49	316	
19	Wed	50	315	
20	Thu	51	314	
21	Fri	52	313	
22	Sat	53	312	
23	Sun	54	311	9
24	Mon	55	310	
25	Tue	56	309	
26	Wed	57	308	
27	Thu	58	307	
28	Fri	59	306	

Day of Month	3		Days remaining	Week number
	March			
	Day of Week	Day of Year		
1	Sat	60	305	9
2	Sun	61	304	10
3	Mon	62	303	
4	Tue	63	302	
5	Wed	64	301	
6	Thu	65	300	
7	Fri	66	299	
8	Sat	67	298	
9	Sun	68	297	11
10	Mon	69	296	
11	Tue	70	295	
12	Wed	71	294	
13	Thu	72	293	
14	Fri	73	292	
15	Sat	74	291	
16	Sun	75	290	12
17	Mon	76	289	
18	Tue	77	288	
19	Wed	78	287	
20	Thu	79	286	
21	Fri	80	285	
22	Sat	81	284	
23	Sun	82	283	13
24	Mon	83	282	
25	Tue	84	281	
26	Wed	85	280	
27	Thu	86	279	
28	Fri	87	278	
29	Sat	88	277	
30	Sun	89	276	14
31	Mon	90	275	

Day of Month	4		Days remaining	Week number
	April			
	Day of Week	Day of Year		
1	Tue	91	274	14
2	Wed	92	273	
3	Thu	93	272	
4	Fri	94	271	
5	Sat	95	270	
6	Sun	96	269	15
7	Mon	97	268	
8	Tue	98	267	
9	Wed	99	266	
10	Thu	100	265	
11	Fri	101	264	
12	Sat	102	263	
13	Sun	103	262	16
14	Mon	104	261	
15	Tue	105	260	
16	Wed	106	259	
17	Thu	107	258	
18	Fri	108	257	
19	Sat	109	256	
20	Sun	110	255	17
21	Mon	111	254	
22	Tue	112	253	
23	Wed	113	252	
24	Thu	114	251	
25	Fri	115	250	
26	Sat	116	249	
27	Sun	117	248	18
28	Mon	118	247	
29	Tue	119	246	
30	Wed	120	245	

Day of Month	5		Days remaining	Week number
	May			
	Day of Week	Day of Year		
1	Thu	121	244	18
2	Fri	122	243	
3	Sat	123	242	
4	Sun	124	241	19
5	Mon	125	240	
6	Tue	126	239	
7	Wed	127	238	
8	Thu	128	237	
9	Fri	129	236	
10	Sat	130	235	
11	Sun	131	234	20
12	Mon	132	233	
13	Tue	133	232	
14	Wed	134	231	
15	Thu	135	230	
16	Fri	136	229	
17	Sat	137	228	
18	Sun	138	227	21
19	Mon	139	226	
20	Tue	140	225	
21	Wed	141	224	
22	Thu	142	223	
23	Fri	143	222	
24	Sat	144	221	
25	Sun	145	220	22
26	Mon	146	219	
27	Tue	147	218	
28	Wed	148	217	
29	Thu	149	216	
30	Fri	150	215	
31	Sat	151	214	

Day of Month	6		Days remaining	Week number
	June			
	Day of Week	Day of Year		
1	Sun	152	213	23
2	Mon	153	212	
3	Tue	154	211	
4	Wed	155	210	
5	Thu	156	209	
6	Fri	157	208	
7	Sat	158	207	
8	Sun	159	206	24
9	Mon	160	205	
10	Tue	161	204	
11	Wed	162	203	
12	Thu	163	202	
13	Fri	164	201	
14	Sat	165	200	
15	Sun	166	199	25
16	Mon	167	198	
17	Tue	168	197	
18	Wed	169	196	
19	Thu	170	195	
20	Fri	171	194	
21	Sat	172	193	
22	Sun	173	192	26
23	Mon	174	191	
24	Tue	175	190	
25	Wed	176	189	
26	Thu	177	188	
27	Fri	178	187	
28	Sat	179	186	
29	Sun	180	185	27
30	Mon	181	184	

Day of Week, Week Number, Day of Year, Remaining Days of Year

Day of Month	7		Days remaining	Week number
	July			
	Day of Week	Day of Year		
1	Tue	182	183	27
2	Wed	183	182	
3	Thu	184	181	
4	Fri	185	180	
5	Sat	186	179	
6	Sun	187	178	28
7	Mon	188	177	
8	Tue	189	176	
9	Wed	190	175	
10	Thu	191	174	
11	Fri	192	173	
12	Sat	193	172	
13	Sun	194	171	29
14	Mon	195	170	
15	Tue	196	169	
16	Wed	197	168	
17	Thu	198	167	
18	Fri	199	166	
19	Sat	200	165	
20	Sun	201	164	30
21	Mon	202	163	
22	Tue	203	162	
23	Wed	204	161	
24	Thu	205	160	
25	Fri	206	159	
26	Sat	207	158	
27	Sun	208	157	31
28	Mon	209	156	
29	Tue	210	155	
30	Wed	211	154	
31	Thu	212	153	

Day of Month	8		Days remaining	Week number
	August			
	Day of Week	Day of Year		
1	Fri	213	152	31
2	Sat	214	151	
3	Sun	215	150	32
4	Mon	216	149	
5	Tue	217	148	
6	Wed	218	147	
7	Thu	219	146	
8	Fri	220	145	
9	Sat	221	144	
10	Sun	222	143	33
11	Mon	223	142	
12	Tue	224	141	
13	Wed	225	140	
14	Thu	226	139	
15	Fri	227	138	
16	Sat	228	137	
17	Sun	229	136	34
18	Mon	230	135	
19	Tue	231	134	
20	Wed	232	133	
21	Thu	233	132	
22	Fri	234	131	
23	Sat	235	130	
24	Sun	236	129	35
25	Mon	237	128	
26	Tue	238	127	
27	Wed	239	126	
28	Thu	240	125	
29	Fri	241	124	
30	Sat	242	123	
31	Sun	243	122	36

Day of Month	9		Days remaining	Week number
	September			
	Day of Week	Day of Year		
1	Mon	244	121	36
2	Tue	245	120	
3	Wed	246	119	
4	Thu	247	118	
5	Fri	248	117	
6	Sat	249	116	
7	Sun	250	115	37
8	Mon	251	114	
9	Tue	252	113	
10	Wed	253	112	
11	Thu	254	111	
12	Fri	255	110	
13	Sat	256	109	
14	Sun	257	108	38
15	Mon	258	107	
16	Tue	259	106	
17	Wed	260	105	
18	Thu	261	104	
19	Fri	262	103	
20	Sat	263	102	
21	Sun	264	101	39
22	Mon	265	100	
23	Tue	266	99	
24	Wed	267	98	
25	Thu	268	97	
26	Fri	269	96	
27	Sat	270	95	
28	Sun	271	94	40
29	Mon	272	93	
30	Tue	273	92	

Day of Month	10		Days remaining	Week number
	October			
	Day of Week	Day of Year		
1	Wed	274	91	40
2	Thu	275	90	
3	Fri	276	89	
4	Sat	277	88	
5	Sun	278	87	41
6	Mon	279	86	
7	Tue	280	85	
8	Wed	281	84	
9	Thu	282	83	
10	Fri	283	82	
11	Sat	284	81	
12	Sun	285	80	42
13	Mon	286	79	
14	Tue	287	78	
15	Wed	288	77	
16	Thu	289	76	
17	Fri	290	75	
18	Sat	291	74	
19	Sun	292	73	43
20	Mon	293	72	
21	Tue	294	71	
22	Wed	295	70	
23	Thu	296	69	
24	Fri	297	68	
25	Sat	298	67	
26	Sun	299	66	44
27	Mon	300	65	
28	Tue	301	64	
29	Wed	302	63	
30	Thu	303	62	
31	Fri	304	61	

Day of Month	11		Days remaining	Week number
	November			
	Day of Week	Day of Year		
1	Sat	305	60	44
2	Sun	306	59	45
3	Mon	307	58	
4	Tue	308	57	
5	Wed	309	56	
6	Thu	310	55	
7	Fri	311	54	
8	Sat	312	53	
9	Sun	313	52	46
10	Mon	314	51	
11	Tue	315	50	
12	Wed	316	49	
13	Thu	317	48	
14	Fri	318	47	
15	Sat	319	46	
16	Sun	320	45	47
17	Mon	321	44	
18	Tue	322	43	
19	Wed	323	42	
20	Thu	324	41	
21	Fri	325	40	
22	Sat	326	39	
23	Sun	327	38	48
24	Mon	328	37	
25	Tue	329	36	
26	Wed	330	35	
27	Thu	331	34	
28	Fri	332	33	
29	Sat	333	32	
30	Sun	334	31	49

Day of Month	12		Days remaining	Week number
	December			
	Day of Week	Day of Year		
1	Mon	335	30	49
2	Tue	336	29	
3	Wed	337	28	
4	Thu	338	27	
5	Fri	339	26	
6	Sat	340	25	
7	Sun	341	24	50
8	Mon	342	23	
9	Tue	343	22	
10	Wed	344	21	
11	Thu	345	20	
12	Fri	346	19	
13	Sat	347	18	
14	Sun	348	17	51
15	Mon	349	16	
16	Tue	350	15	
17	Wed	351	14	
18	Thu	352	13	
19	Fri	353	12	
20	Sat	354	11	
21	Sun	355	10	52
22	Mon	356	9	
23	Tue	357	8	
24	Wed	358	7	
25	Thu	359	6	
26	Fri	360	5	
27	Sat	361	4	
28	Sun	362	3	1
29	Mon	363	2	
30	Tue	364	1	
31	Wed	365	0	

Useful Information

Time Signals- by telephone

WWV 303-499-7111 **WWVH** 808-335-4363

CHU English: 613-745-1576 (CHU provides only Eastern time announcements)

French: 613-745-9426

Time signals- by Radio

WWV (Fort Collins, Colorado) 2.5, 5, 10, 15, 20 MHz (male voice)

WWVH (Kauai, Hawaii) 2.5, 5, 10, 15 MHz (female voice)

CHU (Ottawa, Canada) 3330, 7850, and 14,670 kHz (USB)

Bowditch 2019- *The American Practical Navigator*

https://TheNauticalAlmanac.com/2019_Bowditch-American_Practical_Navigator.html

Organized in a convenient and useful manner. Download the Chapters, Parts or Tables you want or the entire work.

The Terrestrial Almanac Annual calendar and day planner for the entire year.

<https://TheNauticalAlmanac.com/TerrestrialAlmanac.html>

Pub. No. 249 Download individual Latitudes or Volumes

Epoch 2020 https://www.thenauticalalmanac.com/Pub_No_249_Epoch_2020.html

Epoch 2025 https://www.thenauticalalmanac.com/Pub_No_249_Epoch_2025.html

Pub. No. 229 Download individual Volumes covering a range of Latitudes

<https://TheNauticalAlmanac.com/Pub.No.229.html>

Sight Reduction Forms & Methods

<https://www.TheNauticalAlmanac.com/Methods.html>

Celestial Navigation

useful Formulas

About Calculators

The Casio *fx-300ES Plus* is an inexpensive calculator at about 11 USD. It features *natural input* so you enter a formula just as it would be written on paper. Entering degrees, minutes and seconds is very simple. The Casio *fx-300ES Plus* has 9 memory locations and you can review many of the previous entries you make using a special key on the calculator.

Determine Hc using a calculator

The formula

$$Hc = \text{asin}[\sin(\text{Declination}) * \sin(\text{Latitude}) + \cos(\text{Latitude}) * \cos(\text{Declination}) * \cos(\text{LHA})]$$

As it would be entered into the Casio calculator Note- Sin^{-1} is the arc-sin key

$$\text{Sin}^{-1}(\text{Sin}(\text{Ap Latitude}) \times \text{Sin}(\text{Declination}) + \text{Cos}(\text{Ap Latitude}) \times \text{Cos}(\text{Declination}) \times \text{Cos}(\text{LHA}))$$

Declination is the declination of the Celestial body you're observing. When the heavenly body's declination is *Contrary* name to your Ap Latitude enter a negative sign before it.

Latitude "The AP latitude is chosen to be the nearest whole degree in latitude to the DR latitude." *from Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310* Consider this to be where you are, think you are or where you would like to determine Hc for. Typically, you'll be using an *Assumed position Latitude* or *Ap Latitude* as it's called. *See Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310*

About LHA determination

Assumed Position longitude ($\alpha\lambda$) "The AP longitude is that nearest the DR longitude resulting in a whole degree of LHA for the observed body." *From Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310*

In Western Longitudes *see Bowditch 2019 Vol. 1 Chapter 19 section 1905 p. 313*

LHA is the Local Hour Angle derived by subtracting your Assumed Longitude ($\alpha\lambda$) whole degree value from the whole degree **GHA** (Greenwich Hour Angle) value. If GHA is less than the $\alpha\lambda$ then add 360° to it then subtract the $\alpha\lambda$. *Ignore the arc minutes of GHA and $\alpha\lambda$.*

Example when GHA is less than $\alpha\lambda$ **GHA** = $43^\circ 25.2'$ $\alpha\lambda$ = W $55^\circ 15.1'$

$$360^\circ + 43^\circ = 403^\circ \quad \text{Then....} 403^\circ - 55^\circ = 348^\circ \text{ (LHA)}$$

In Eastern Longitudes *see Bowditch 2019 Vol. 1 Chapter 19 section 1905 p. 313*

LHA, in Eastern Longitudes, is determined by adding the entire GHA figure (degrees and minutes) to the whole degree figure of the Assumed longitude ($\alpha\lambda$) *plus* the amount of arc minutes required to get to the next degree of the GHA. If the resulting LHA figure is greater than 360° then subtract 360° from the figure to obtain the LHA.

Example- **GHA** = $58^\circ 01.2'$ $\alpha\lambda$ = E $9^\circ 10.1'$ (ignore the 10.1')

Step 1- *get GHA degree difference;* $59^\circ - 58^\circ 01.2' = 0^\circ 58.8'$

Step 2- *add $\alpha\lambda$ degrees to difference found in step 1;* $9^\circ + 0^\circ 58.8' = 9^\circ 58.8'$ $\alpha\lambda$

Step 3- *get LHA;* $58^\circ 01.2' + 9^\circ 58.8' = 68^\circ$ (LHA)

Why would you want to determine Hc using a calculator?

It's faster than looking up in Pub. No. 249 and Pub. No. 229, highly accurate and you don't need a lot of printed out pages of Latitudes from Pub. No. 249 and Pub. No. 229. Pub. No. 249 Vol. 2 & 3 don't cover any declination greater than 29 degrees so you'd have to use Pub. No. 229 which is extremely large.

Celestial Navigation

Determine Z

$$Z = \arccos[(\sin(\text{Declination}) - \sin(\text{AP Latitude}) \times \sin(\text{Hc})) \div (\cos(\text{AP Latitude}) \times \cos(\text{Hc}))]$$

As it would be entered into the Casio calculator... Note- $\cos^{-1}$ is the arc-cosine key

$$\cos^{-1}((\sin(\text{Declination}) - \sin(\text{AP Latitude}) \times \sin(\text{Hc})) \div (\cos(\text{AP Latitude}) \times \cos(\text{Hc})))$$

If the heavenly body's declination is *Contrary name* to the Ap Latitude enter a negative sign before it.

To obtain Zn see the rules below for Northern and Southern latitudes.

Determine Z independent of Hc

$$Z = \tan^{-1} \left(\frac{\sin \text{LHA}}{(\cos L \tan d) - (\sin L \cos \text{LHA})} \right)$$

"L" is latitude and "d" is declination. When the heavenly body's declination is *Contrary name* to your Ap Latitude enter a negative sign before it.

As it would be entered into the Casio calculator... Note- $\tan^{-1}$ is the arc-tangent key

$$Z = \tan^{-1} ((\sin(\text{LHA}) \div (\cos(\text{AP latitude}) \times \tan(\text{declination}) - (\sin(\text{AP latitude}) \times \cos(\text{LHA})))$$

The sign convention used in the calculation of this azimuth formula is as follows:

from Bowditch Chapter 22 CALCULATIONS AND CONVERSIONS, page 331

- 1) If latitude and declination are of contrary name, declination is treated as a negative quantity;
- 2) If the local hour angle is greater than 180° , it is treated as a negative quantity. If the azimuth angle as calculated is negative, add 180° to obtain the desired value.

To obtain Zn apply the following rules

<u>In Northern Latitudes</u>	<u>In Southern Latitudes</u>
LHA greater than 180° Zn=Z	LHA greater than 180° Zn= $180^\circ - Z$
LHA less than 180° Zn= $360^\circ - Z$	LHA less than 180° Zn= $180^\circ + Z$

Determine Refraction $0.96 \div \tan \text{ of } (H_a)$

Gives good results down to about 8° from the horizon but not less.

Refraction (good overall formula from 90° to below 8° from the horizon)

$$R_0 = \cot \left(H_a + \frac{7.31}{H_a + 4.4} \right)$$

As it would be entered into the Casio calculator...

$$1 \div \tan((H_a + (7.31 \div (H_a + 4.4)))$$

Both refraction formulas use the standard pressure and temperature of;

1010 mb 10° C
29.83 in 53° F

Determine Dip using feet

0.97 x (Square Root of *He* (Height of Eye) in feet)

Determine Dip using meters

1.76 x (Square Root of *He* (Height of eye) in meters)

Rules to Calculate Latitude using the Sun- Noon-Sight

1- Latitude and declination *Same name* but latitude is greater than declination:

$$\text{Latitude} = (90^\circ - H_o) + \text{declination}$$

2- Latitude and declination *Same name* but declination greater than latitude:

$$\text{Latitude} = \text{Declination} - (90^\circ - H_o)$$

3- Latitude and declination *Contrary name*:

$$\text{Latitude} = (90^\circ - H_o) - \text{Declination}$$

To get AP longitude (needed for plotting the LOP)

In Western longitudes

Combine the DR Longitude figure with only the minutes (of arc) of the total GHA figure. The Ap λ figure will be used when plotting the LOP on the UPS.

In Eastern longitudes

In Eastern longitudes the Ap λ is determined as follows;

DR longitude + (0°60' *minus* GHA minutes of arc)

Example- E 075° + (0°60' – 0° 02')= 75° 58' Ap longitude



fair winds...clear skies and following seas
TheNauticalAlmanac.com

Explanation of The Nautical Almanac *Daily Pages*

1	Date and Time based on GMT/UT							
2	Mer. pass- meridian passage of Aries at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.							
3	Planet or Moon GHA v value and planet or Moon declination d value. v- "The change in hour angle arising from v of the body at the time of the sight observation is accounted for with the <i>v correction</i> ." <i>Source- Bowditch 2017, Chapter 19- Sight Reduction p. 313.</i> The planet's v is positive unless preceded by a minus sign which is sometimes the case with Venus. The sign of the Moon's v is positive. d- "The change in declination of the body at the time of the sight observation is accounted for with the <i>d correction</i> ." <i>Source- Bowditch 2017, Chapter 19- Sight Reduction p. 313.</i> The sign of the Moon or planet's d correction is determined by the declination trend- positive if successive declination values increase and negative if they decrease. Corrections for both v and d are found in the Increments and Corrections pages of The Nautical Almanac. To find the correction for either v or d enter the Increments and Corrections pages for the minutes in time of the observation and find the value in the v and d corr. columns Find the v , or d , value in the left side of one of the three columns. To the right of that value is the v , or d , correction. Be sure to add or subtract the values depending upon the <i>sign</i> of the value as mentioned above.							
	Example for v & d correction- June 10, 2020 GMT- 21:19:10 Body- Moon							
	<table><tr><td>GHA= 247° 20.6' v = 12.1'</td><td>Dec= S 17° 43.8' d= 8.9'</td></tr><tr><td>GHA increment 4° 34.4'</td><td>d- correction for 8.9' - 0° 02.9'</td></tr><tr><td>v- correction for 12.1' + 0° 03.9'</td><td>dec= S 17° 40.9'</td></tr><tr><td>GHA= 251° 58.9'</td><td></td></tr></table> declination trend is decreasing so the sign of d correction is negative	GHA= 247° 20.6' v = 12.1'	Dec= S 17° 43.8' d = 8.9'	GHA increment 4° 34.4'	d- correction for 8.9' - 0° 02.9'	v- correction for 12.1' + 0° 03.9'	dec= S 17° 40.9'	GHA= 251° 58.9'
GHA= 247° 20.6' v = 12.1'	Dec= S 17° 43.8' d = 8.9'							
GHA increment 4° 34.4'	d- correction for 8.9' - 0° 02.9'							
v- correction for 12.1' + 0° 03.9'	dec= S 17° 40.9'							
GHA= 251° 58.9'								
4	m- is the <i>magnitude</i> or brightness of the planet. A bright planet will have a <i>minus</i> sign beside the figure. A fainter planet will have no sign beside its magnitude figure.							
5	Stars- SHA, Sidereal Hour Angle, and Declination. 59 stars are listed. Typically, only 57 stars are used for navigational purposes in both Northern and Southern Hemispheres. Here you'll also find Polaris and Scheat. In the Northern Hemisphere Polaris is often used for determination of latitude.							
6	Mer. pass- planet meridian passage time at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.							
7	SHA- planet SHA. Planet SHA is calculated by subtracting Aries GHA from planet GHA. If planet GHA figure is less than Aries GHA, add 360° to planet GHA and then subtract Aries GHA.							
8	Horizontal parallax- for Venus and Mars. Horizontal parallax is the angle subtended by half the Earth's diameter as viewed from the planet in minutes of arc.							
9	SD- Semi-diameter of the Sun in minutes of arc. One half of the angular width of the Sun as observed on earth.							
10	d- the daily average change, per hour, in the Sun's declination in minutes of arc.							

11	SD- Semi-diameter of the Moon in minutes of arc. Semi-diameter is one half of the angular width of the Moon, as observed on earth.
12	HP- the angle between two lines, one from the center of the Moon to the center of the Earth, the other from the center of the Moon to the edge of the Earth. This angle is about 56', but it changes slightly from day to day as the distance to the Moon changes along its elliptical path around the Earth. Source- <i>starpeth.com</i>
13	Sun- Eqn. of Time- Basically the Equation of Time (EoT) is the difference between clock time and time seen on a sundial. This is comparing "clock time", as a mechanical measurement of time, and the sundial being time determined by the position of the Sun at any given moment. The figures listed are for 00^h and 12^h. Using the EoT you can get fairly accurate determination of when Meridian Passage (Local Apparent Noon) occurs at your position. Unshaded EoT values are subtracted from 12:00 to get Meridian Passage. Shaded EoT values are added to 12:00 to get Meridian Passage. An Equation of Time chart (as a curve) is provided in each almanac on TheNauticalAlmanac.com Example- Meridian Passage on May 30, 2020 equals 12:00 – EoT of 2 minutes 21 seconds MP= 11:57:39 <i>Local Apparent Noon</i> Example- Meridian Passage on August 25, 2020 equals 12:00 + EoT of 1 minute 59 seconds MP= 12:01:59 <i>Local Apparent Noon</i>
14	Sun- Mer. Pass just to the right of the Eqn. of Time is the approximate GMT/UT when the Sun crosses The Prime Meridian (at Greenwich) for that specific date.
15	Moon- Mer. Pass- is the approximate GMT/UT when the Moon crosses The Prime Meridian (at Greenwich) or the 180° line of longitude. Upper means the GMT/UT when the Moon crosses The Prime Meridian (Greenwich). Lower means the GMT/UT when the Moon crosses the 180° line of longitude.
16	Moon- Age- this is the number of days past a new Moon. Typically, there are 29 days in a lunar month. Moon- %- the amount of the Moon's illumination. 100% would be a full moon. 49% would be about ½ of the Moon is illuminated. A 3 day range percentage is provided but only one graphic for the phase.
17* see notes at bottom	(morning) Twilight- Naut.- the approximate GMT/UT when morning Nautical Twilight begins. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is visible enough to be used for marine sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(morning) Twilight- Civil- the approximate GMT/UT of morning civil twilight starts when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	Sunrise- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.

17* see notes at bottom	Sunset- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(evening) Twilight- Civil- the approximate GMT/UT of evening civil twilight that ends when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(evening) Twilight- Naut.- the approximate GMT/UT of when evening Nautical Twilight ends. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is no longer visible enough to be used for sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
18* see notes at bottom	Moonrise- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day.
18* see notes at bottom	Moonset- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day.

* Note-

☐ means the Sun or Moon remains continuously above the horizon on that day.

—:— can also mean twilight lasts all night

■ means the Sun or Moon remains continuously below the horizon on that day.

—:— means Moon does not rise or set on that day but may have risen or set the previous day or following day.

* **Note-** Time of Sunrise, Sunset, Moonrise, Moonset and twilight is based on GMT/UT of the event at 0° (Greenwich) and can be considered as approximate LMT (Local Mean Time) with a tolerance of +/- 30 minutes depending on where you are within a time zone.

Wednesday, February 24, 2021

Explanation_of_The_Nautical_Almanac_Daily_Pages.odt

1

17

1

2020 January 01 to Jan. 03

Sun				Moon			
Wed	GHA	Dec		GHA	v	Dec	HP
0	179° 13.7	S23° 03.5		110° 56.9	15.3'	S09° 58.5	10.7' 54.3'
1	194° 13.4	03.3		125° 31.3	15.4'	09° 47.8	10.7' 54.3'
2	209° 13.1	03.1		140° 05.7	15.4'	09° 37.1	10.7' 54.3'
3	224° 12.8	03.0		154° 40.1	15.5'	09° 26.3	10.8' 54.3'
4	239° 12.5	02.8		169° 14.6	15.5'	09° 15.5	10.8' 54.3'
5	254° 12.2	02.6		183° 49.1	15.5'	09° 04.7	10.8' 54.2'
6	269° 11.9	S23° 02.4		198° 23.6	15.6'	S08° 53.8	10.9' 54.2'
7	284° 11.6	02.2		212° 58.2	15.6'	08° 42.9	10.9' 54.2'
8	299° 11.3	02.0		227° 32.8	15.6'	08° 32.0	10.9' 54.2'
9	314° 11.0	01.8		242° 07.5	15.7'	08° 21.0	11.0' 54.2'
10	329° 10.7	01.6		256° 42.2	15.7'	08° 10.0	11.0' 54.2'
11	344° 10.4	01.4		271° 16.9	15.7'	07° 59.0	11.0' 54.2'
12	359° 10.1	S23° 01.2		285° 51.7	15.8'	S07° 48.0	11.1' 54.2'
13	14° 09.8	01.0		300° 26.4	15.8'	07° 36.9	11.1' 54.2'
14	29° 09.5	00.8		315° 01.2	15.8'	07° 25.8	11.1' 54.2'
15	44° 09.2	00.6		329° 36.1	15.9'	07° 14.7	11.1' 54.2'
16	59° 08.9	00.4		344° 10.9	15.9'	07° 03.5	11.2' 54.2'
17	74° 08.6	00.2		358° 45.8	15.9'	06° 52.3	11.2' 54.2'
18	89° 08.3	S23° 00.0		13° 20.7	15.9'	S06° 41.1	11.2' 54.2'
19	104° 08.0	22° 59.7		27° 55.7	16.0'	06° 29.9	11.2' 54.2'
20	119° 07.7	59.5		42° 30.7	16.0'	06° 18.7	11.3' 54.2'
21	134° 07.5	59.3		57° 05.6	16.0'	06° 07.4	11.3' 54.2'
22	149° 07.2	59.1		71° 40.6	16.0'	05° 56.1	11.3' 54.2'
23	164° 06.9	58.9		86° 15.7	16.0'	05° 44.8	11.3' 54.2'
SD.=16.3 d=0.2				S.D.=14.8			

Thu				Moon			
Thu	GHA	Dec		GHA	v	Dec	HP
0	179° 06.6	S22° 58.7		100° 50.7	16.1'	S05° 33.4	11.3' 54.2'
1	194° 06.3	58.5		115° 25.8	16.1'	05° 22.1	11.4' 54.2'
2	209° 06.0	58.3		130° 00.9	16.1'	05° 10.7	11.4' 54.2'
3	224° 05.7	58.1		144° 36.0	16.1'	04° 59.3	11.4' 54.2'
4	239° 05.4	57.9		159° 11.1	16.1'	04° 47.9	11.4' 54.2'
5	254° 05.1	57.6		173° 46.3	16.1'	04° 36.5	11.4' 54.2'
6	269° 04.8	S22° 57.4		188° 21.4	16.2'	S04° 25.0	11.5' 54.2'
7	284° 04.5	57.2		202° 56.6	16.2'	04° 13.5	11.5' 54.2'
8	299° 04.2	57.0		217° 31.7	16.2'	04° 02.1	11.5' 54.2'
9	314° 03.9	56.8		232° 06.9	16.2'	03° 50.6	11.5' 54.2'
10	329° 03.6	56.6		246° 42.1	16.2'	03° 39.0	11.5' 54.2'
11	344° 03.3	56.3		261° 17.3	16.2'	03° 27.5	11.5' 54.2'
12	359° 03.0	S22° 56.1		275° 52.6	16.2'	S03° 16.0	11.5' 54.2'
13	14° 02.8	55.9		290° 27.8	16.2'	03° 04.4	11.6' 54.2'
14	29° 02.5	55.7		305° 03.0	16.2'	02° 52.8	11.6' 54.2'
15	44° 02.2	55.5		319° 38.3	16.2'	02° 41.3	11.6' 54.2'
16	59° 01.9	55.2		334° 13.5	16.2'	02° 29.7	11.6' 54.2'
17	74° 01.6	55.0		348° 48.8	16.3'	02° 18.1	11.6' 54.2'
18	89° 01.3	S22° 54.8		3° 24.0	16.3'	S02° 06.5	11.6' 54.2'
19	104° 01.0	54.6		17° 59.3	16.3'	01° 54.8	11.6' 54.2'
20	119° 00.7	54.3		32° 34.5	16.3'	01° 43.2	11.6' 54.2'
21	134° 00.4	54.1		47° 09.8	16.3'	01° 31.6	11.6' 54.2'
22	149° 00.1	53.9		61° 45.0	16.3'	01° 19.9	11.7' 54.2'
23	163° 59.8	53.7		76° 20.3	16.3'	01° 08.2	11.7' 54.3'
SD.=16.3 d=0.2				S.D.=14.8			

Fri				Moon			
Fri	GHA	Dec		GHA	v	Dec	HP
0	178° 59.5	S22° 53.4		90° 55.5	16.2'	S00° 56.6	11.7' 54.3'
1	193° 59.3	53.2		105° 30.8	16.2'	00° 44.9	11.7' 54.3'
2	208° 59.0	53.0		120° 06.0	16.2'	00° 33.2	11.7' 54.3'
3	223° 58.7	52.7		134° 41.3	16.2'	00° 21.5	11.7' 54.3'
4	238° 58.4	52.5		149° 16.5	16.2'	00° 09.9	11.7' 54.3'
5	253° 58.1	52.3		163° 51.7	16.2'	N00° 01.8	11.7' 54.3'
6	268° 57.8	S22° 52.0		178° 26.9	16.2'	N00° 13.5	11.7' 54.3'
7	283° 57.5	51.8		193° 02.1	16.2'	00° 25.2	11.7' 54.3'
8	298° 57.2	51.6		207° 37.3	16.2'	00° 36.9	11.7' 54.3'
9	313° 56.9	51.3		222° 12.5	16.2'	00° 48.6	11.7' 54.3'
10	328° 56.6	51.1		236° 47.7	16.2'	01° 00.3	11.7' 54.3'
11	343° 56.4	50.8		251° 22.8	16.1'	01° 12.0	11.7' 54.4'
12	358° 56.1	S22° 50.6		265° 58.0	16.1'	N01° 23.7	11.7' 54.4'
13	13° 55.8	50.4		280° 33.1	16.1'	01° 35.4	11.7' 54.4'
14	28° 55.5	50.1		295° 08.2	16.1'	01° 47.1	11.7' 54.4'
15	43° 55.2	49.9		309° 43.3	16.1'	01° 58.8	11.7' 54.4'
16	58° 54.9	49.6		324° 18.4	16.1'	02° 10.5	11.7' 54.4'
17	73° 54.6	49.4		338° 53.4	16.0'	02° 22.2	11.7' 54.4'
18	88° 54.3	S22° 49.2		353° 28.4	16.0'	N02° 33.9	11.7' 54.4'
19	103° 54.0	48.9		8° 03.5	16.0'	02° 45.6	11.7' 54.4'
20	118° 53.8	48.7		22° 38.4	16.0'	02° 57.3	11.7' 54.4'
21	133° 53.5	48.4		37° 13.4	16.0'	03° 09.0	11.7' 54.5'
22	148° 53.2	48.2		51° 48.4	15.9'	03° 20.6	11.7' 54.5'
23	163° 52.9	47.9		66° 23.3	15.9'	03° 32.3	11.7' 54.5'
SD.=16.3 d=0.2				S.D.=14.8			

Lat.	Twilight		Sunrise	Sunset	Twilight	
	Naut.	Civil			Civil	Naut.
N 72°	08:23	10:41	■	■	13:27	15:45
N 70°	08:05	09:49	■	■	14:19	16:03
68°	07:50	09:16	■	■	14:52	16:18
66°	07:37	08:53	■	■	15:15	16:31
64°	07:26	08:34	■	■	14:19	15:34
62°	07:17	08:18	■	■	14:45	15:49
60°	07:09	08:05	■	■	15:06	16:02
N 58°	07:02	07:54	■	■	16:14	17:06
56°	06:56	07:44	■	■	15:37	16:24
54°	06:50	07:35	■	■	15:49	16:32
52°	06:44	07:28	■	■	16:00	16:40
50°	06:39	07:20	■	■	16:09	16:47
45°	06:28	07:05	■	■	16:29	17:03
N 40°	06:18	06:52	■	■	16:46	17:16
35°	06:08	06:40	■	■	17:00	17:28
30°	06:00	06:30	■	■	17:12	17:38
20°	05:44	06:11	■	■	17:32	17:56
N 10°	05:28	05:54	■	■	17:50	18:13
0°	05:11	05:38	■	■	18:08	18:30
S 10°	04:53	05:20	■	■	18:25	18:48
20°	04:31	05:00	■	■	18:43	19:08
30°	04:02	04:35	■	■	19:05	19:32
35°	03:44	04:20	■	■	19:17	19:47
40°	03:21	04:03	■	■	19:32	20:05
45°	02:52	03:41	■	■	19:50	20:27
S 50°	02:08	03:12	■	■	20:11	20:55
52°	01:42	02:57	■	■	20:22	21:10
54°	01:02	02:40	■	■	20:34	21:27
56°	□	02:19	■	■	20:47	21:48
58°	□	01:51	■	■	21:04	22:15
S 60°	□	01:08	■	■	21:23	22:58

Lat.	Moonrise			Moonset		
	Wed	Thu	Fri	Wed	Thu	Fri
N 72°	12:37	12:18	12:00	21:58	23:43	--
N 70°	12:26	12:13	12:02	22:06	23:44	--
68°	12:17	12:10	12:03	22:14	23:45	--
66°	12:09	12:07	12:04	22:20	23:46	--
64°	12:02	12:04	12:05	22:25	23:47	--
62°	11:57	12:02	12:06	22:29	23:48	--
60°	11:52	12:00	12:07	22:33	23:49	--
N 58°	11:48	11:58	12:08	22:36	23:49	--
56°	11:44	11:56	12:08	22:39	23:50	--
54°	11:40	11:55	12:09	22:42	23:50	--
52°	11:37	11:54	12:10	22:44	23:51	--
50°	11:34	11:52	12:10	22:46	23:51	--
45°	11:28	11:50	12:11	22:51	23:52	--
N 40°	11:23	11:48	12:12	22:55	23:52	--
35°	11:18	11:46	12:13	22:58	23:53	--
30°	11:14	11:44	12:14	23:01	23:54	--
20°	11:07	11:41	12:15	23:06	23:54	--
N 10°	11:01	11:39	12:16	23:11	23:55	--
0°	10:55	11:36	12:17	23:15	23:56	--
S 10°	10:49	11:34	12:18	23:19	23:57	--
20°	10:43	11:31	12:19	23:24	23:57	--
30°	10:36	11:28	12:20	23:29	23:58	--
35°	10:32	11:26	12:21	23:31	23:59	--
40°	10:27	11:25	12:22	23:35	23:59	--
45°	10:21	11:22	12:23	23:38	--	00:00
S 50°	10:15	11:20	12:24	23:43	--	00:00
52°	10:12	11:18	12:25	23:45	--	00:01
54°	10:08	11:17	12:25	23:47	--	00:01
56°	10:05	11:15	12:26	23:49	--	00:01
58°	10:01	11:14	12:27	23:52	--	00:02
S 60°	09:56	11:12	12:28	23:55	--	00:02

Day	Sun		Mer. Pass	Moon		Age 6-8 34-53%
	Eqn. of Time 00 ^h mm:ss	12 ^h mm:ss		Upper Mer. Pass. hh:mm	Lower Mer. Pass. hh:mm	
01	03:05	03:20	12:03	17:05	04:44	
02	03:34	03:48	12:04	17:46	05:26	
03	04:02	04:16	12:04	18:27	06:06	

9

Information in the data page footers

Information pertaining to the IERS EOP data has been added to the odd data page footers if using MiKTeX or TeX Live (2020 or later). The International Earth Rotation Service (IERS) provides accurate data (updated weekly) on the Earth Orientation Parameters (EOP).

Earth's speed of rotation is not constant, i.e. the day length fluctuates.¹ This is due to *internal torques* caused by relative movements and mass redistribution of Earth's core, mantle, oceans, atmosphere, and cryosphere. This has an immediate impact on the GHA values of all celestial objects.

The IERS monitors and measures several parameters taking the actual speed of Earth's rotation into account. Their measured data begins on 2nd January 1973. Predictive data begins following the last day of (obtained) data and extends about 360 days into the future. (The IERS results are published with a delay of about 18-hours between the date of publication and the last available date with measured EOP.²) These Nautical Almanac daily pages take the (measured or predicted) UT1-UTC values into account providing highly accurate navigational data especially if the predictions are fairly recent.

As long as either measured or predicted data is available the footer will show:

IERS Earth Orientation data as of dd-mmm-yyyy

This indicates that IERS EOP data is in use - older dates are measured; newer dates are predictions.

If the final date of IERS prediction data is on the current data page, the footer shows:

IERS Earth Orientation predictions end dd-mmm-yyyy

Pages with dates beyond the final date of IERS prediction data have the following footer:

No IERS EOP prediction data available

Skyfield then defaults to using the ΔT and leap second files that ship with Skyfield internally.

The footers mentioned are only displayed as long as **'uselERS = True'** is set in *config.py* to enable use of IERS EOP data.

Brief historical overview

The story begins with the XEphem astronomical library, which is declared 'end of life' by its author, Elwood Charles Downey, as no further updates are planned. He generously gave permission for use of XEphem code in Ephem (also known as Pyephem), an astronomical library authored by Brandon Rhodes. Enno Rodergerdts (<https://sv-inua.net/>) created the original Nautical Almanac 'daily pages' in Pyalmanac using Python 2 and LaTeX. After contacting him I obtained permission for its future enhancement and maintenance. Pyalmanac uses Ephem.

Meanwhile Brandon Rhodes was working on a far more sophisticated astronomical library, Skyfield. This was 'state of the art' and clearly surpassed the 'Jean Meeus'-based Pyephem/Ephem. Skyfield uses NASA's NAIF (Navigation and Ancillary Information Facility) SPICE algorithms. The results agree with those from the HORIZONS System (*operated by NASA JPL (Jet Propulsion Laboratory) SSD (Solar System Dynamics) group, not by NAIF*). This in turn implies that celestial positions calculated by Skyfield agree with those generated by the United States Naval Observatory and their *Astronomical Almanac* to within 0.0005 arcseconds (half a milliarcsecond).

Pyephem was then in 'maintenance mode'. Clearly Pyalmanac needed adaptation to use Skyfield, and thus SFalmanac was born. However its performance was poor regarding the calculation of 'events' such as: sunrise, sunset, moonrise, moonset, civil twilight start/end and nautical twilight start/end. An interim (faster) solution was required.

A hybrid application, originally named Skylmanac, was developed using Ephem to calculate 'events' and Skyfield for the rest. This was indeed much faster at the cost of poorer 'event time' data. It took a while to find a better solution: multiprocessing, which was built into SFalmanac. This now could compare to the execution times in Pyalmanac but with improved data.

New functionality was added to SFalmanac, e.g. lunar phase as a graphic; Lunar Distance tables and charts. The original Skylmanac is deprecated and has now been replaced with the latest SFalmanac code, so Skylmanac and SFalmanac are now identical apart from the name. Since April 2019 <http://thenauticalalmanac.com> has been publishing Celestial Navigation related material with software provided here.

¹https://en.wikipedia.org/wiki/Day_length_fluctuations

²<https://hpiers.obspm.fr/eoppc/bul/bul/explanatory.html>

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	100°54.0	130°30.3	S13°35.2	335°46.4	N23°32.7	29°01.0	N21°47.2	114°23.0	S07°55.0										
1	115°56.4	145°30.2	34.1	350°49.7	33.0	44°03.8	47.2	129°25.3	54.9										
2	130°58.9	160°30.2	33.0	5°53.1	33.3	59°06.5	47.2	144°27.6	54.8										
3	146°01.4	175°30.4	•• 31.9	20°56.4	•• 33.5	74°09.3	•• 47.2	159°29.9	•• 54.8										
4	161°03.8	190°30.0	30.8	35°59.7	33.8	89°12.0	47.1	174°32.2	54.7										
5	176°06.3	205°30.0	29.7	51°03.0	34.1	104°14.8	47.1	189°34.4	54.6										
6	191°08.8	220°29.9	S13°28.6	66°06.3	N23°34.4	119°17.5	N21°47.1	204°36.7	S07°54.6										
7	206°11.2	235°29.9	27.5	81°09.6	34.6	134°20.3	47.1	219°39.0	54.5										
8	221°13.7	250°29.8	26.4	96°13.0	34.9	149°23.0	47.0	234°41.3	54.4										
9	236°16.2	265°29.7	•• 25.4	111°16.3	•• 35.2	164°25.8	•• 47.0	249°43.6	•• 54.3										
10	251°18.6	280°29.7	24.3	126°19.6	35.5	179°28.5	47.0	264°45.9	54.2										
11	266°21.1	295°29.6	23.2	141°22.9	35.7	194°31.3	47.0	279°48.2	54.1										
12	281°23.5	310°29.6	S13°22.1	156°26.2	N23°36.0	209°34.0	N21°46.9	294°50.5	S07°54.1										
13	296°26.0	325°29.5	21.0	171°29.6	36.3	224°36.8	46.9	309°52.8	54.0										
14	311°28.5	340°29.5	19.9	186°32.9	36.6	239°39.5	46.9	324°55.0	53.9										
15	326°30.9	355°29.4	•• 18.8	201°36.2	•• 36.8	254°42.3	•• 46.9	339°57.3	•• 53.8										
16	341°33.4	10°29.4	17.7	216°39.5	37.1	269°45.0	46.9	354°59.6	53.7										
17	356°35.9	25°29.3	16.6	231°42.9	37.4	284°47.7	46.8	10°01.9	53.7										
18	11°38.3	40°29.3	S13°15.5	246°46.2	N23°37.7	299°50.5	N21°46.8	25°40.2	S07°53.6										
19	26°40.8	55°29.2	14.4	261°49.5	37.9	314°53.2	46.8	40°06.5	53.5										
20	41°43.3	70°29.2	13.3	276°52.9	38.2	329°56.0	46.8	55°08.8	53.4										
21	56°45.7	85°29.1	•• 12.2	291°56.2	•• 38.5	344°58.7	•• 46.7	70°11.1	•• 53.4										
22	71°48.2	100°29.1	11.1	306°59.5	38.8	0°01.5	46.7	85°13.4	53.3										
23	86°50.7	115°29.1	10.0	322°02.9	39.0	15°04.2	46.7	100°15.6	53.2										
Mer.pass. 17:14				ν -0.1° d 1.1' m -4.45				ν 3.3° d 0.3' m -1.21				ν 2.7° d -0.0' m -2.74				ν 2.3° d 0.1' m 1.05			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	101°53.1	130°29.0	S13°08.9	337°06.2	N23°39.3	30°07.0	N21°46.7	115°17.9	S07°53.1										
1	116°55.6	145°29.0	07.8	352°09.6	39.6	45°09.7	46.6	130°20.2	53.0										
2	131°58.0	160°28.9	06.7	7°12.9	39.9	60°12.4	46.6	145°22.5	53.0										
3	147°00.5	175°28.9	•• 05.6	22°16.2	•• 40.1	75°15.2	•• 46.6	160°24.8	•• 52.9										
4	162°03.0	190°28.9	04.5	37°19.6	40.4	90°17.9	46.6	175°27.1	52.8										
5	177°05.4	205°28.8	03.4	52°22.9	40.7	105°20.7	46.5	190°29.4	52.7										
6	192°07.9	220°28.8	S13°02.3	67°26.3	N23°41.0	120°23.4	N21°46.5	205°31.6	S07°52.6										
7	207°10.4	235°28.7	01.2	82°29.6	41.3	135°26.2	46.5	220°33.9	52.6										
8	222°12.8	250°28.7	13°00.1	97°33.0	41.5	150°28.9	46.5	235°36.2	52.5										
9	237°15.3	265°28.7	12°59.0	112°36.3	•• 41.8	165°31.6	•• 46.4	250°38.5	•• 52.4										
10	252°17.8	280°28.6	57.9	127°39.7	42.1	180°34.4	46.4	265°40.8	52.3										
11	267°20.2	295°28.6	56.8	142°43.0	42.4	195°37.1	46.4	280°43.1	52.2										
12	282°22.7	310°28.6	S12°55.7	157°46.4	N23°42.6	210°39.9	N21°46.4	295°45.4	S07°52.2										
13	297°25.2	325°28.6	54.5	172°49.7	42.9	225°42.6	46.3	310°47.7	52.1										
14	312°27.6	340°28.5	53.4	187°53.1	43.2	240°45.3	46.3	325°49.9	52.0										
15	327°30.1	355°28.5	•• 52.3	202°56.4	•• 43.5	255°48.1	•• 46.3	340°52.2	•• 51.9										
16	342°32.5	10°28.5	51.2	217°59.8	43.7	270°50.8	46.3	355°54.5	51.8										
17	357°35.0	25°28.4	50.1	233°03.1	44.0	285°53.6	46.3	10°56.8	51.8										
18	12°37.5	40°28.4	S12°49.0	248°06.5	N23°44.3	300°56.3	N21°46.2	25°59.1	S07°51.7										
19	27°39.9	55°28.4	47.9	263°09.8	44.6	315°59.0	46.2	41°01.4	51.6										
20	42°42.4	70°28.4	46.8	278°13.2	44.8	331°01.8	46.2	56°03.6	51.5										
21	57°44.9	85°28.3	•• 45.7	293°16.6	•• 45.1	346°04.5	•• 46.2	71°05.9	•• 51.4										
22	72°47.3	100°28.3	44.6	308°19.9	45.4	1°07.2	46.1	86°08.2	51.4										
23	87°49.8	115°28.3	43.5	323°23.3	45.7	16°10.2	46.1	101°10.5	51.3										
Mer.pass. 17:10				ν -0.0° d 1.1' m -4.46				ν 3.3° d 0.3' m -1.24				ν 2.7° d -0.0' m -2.74				ν 2.3° d 0.1' m 1.06			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	102°52.3	130°28.3	S12°42.4	338°26.6	N23°45.9	31°12.7	N21°46.1	116°12.8	S07°51.2										
1	117°54.7	145°28.3	41.4	353°30.0	46.2	46°15.5	46.1	131°15.1	51.1										
2	132°57.2	160°28.3	40.1	8°33.4	46.5	61°18.2	46.0	146°17.4	51.0										
3	147°59.6	175°28.2	•• 39.0	23°36.7	•• 46.8	76°20.9	•• 46.0	161°19.6	•• 50.9										
4	163°02.1	190°28.2	37.9	38°40.1	47.1	91°23.7	46.0	176°21.9	50.9										
5	178°04.6	205°28.2	36.8	53°43.5	47.3	106°26.4	46.0	191°24.2	50.8										
6	193°07.0	220°28.2	S12°35.7	68°46.8	N23°47.6	121°29.1	N21°45.9	206°26.5	S07°50.7										
7	208°09.5	235°28.2	34.6	83°50.2	47.9	136°31.9	45.9	221°28.8	50.6										
8	223°12.0	250°28.2	33.5	98°53.6	48.2	151°34.6	45.9	236°31.1	50.5										
9	238°14.4	265°28.2	•• 32.3	113°57.0	•• 48.4	166°37.3	•• 45.9	251°33.3	•• 50.5										
10	253°16.9	280°28.1	31.2	129°00.3	48.7	181°40.1	45.9	266°35.6	50.4										
11	268°19.4	295°28.1	30.1	144°03.7	49.0	196°42.8	45.8	281°37.9	50.3										
12	283°21.8	310°28.1	S12°29.0	159°07.1	N23°49.3	211°45.5	N21°45.8	296°40.2	S07°50.2										
13	298°24.3	325°28.1	27.9	174°10.5	49.5	226°48.3	45.8	311°42.5	50.1										
14	313°26.8	340°28.1	26.8	189°13.8	49.8	241°51.0	45.8	326°44.8	50.1										
15	328°29.2	355°28.1	•• 25.7	204°17.2	•• 50.1	256°53.7	•• 45.7	341°47.0	•• 50.0										
16	343°31.7	10°28.1	24.5	219°20.6	50.4	271°56.5	45.7	356°49.3	49.9										
17	358°34.1	25°28.1	23.4	234°24.0	50.6	286°59.2	45.7	11°51.6	49.8										
18	13°36.6	40°28.1	S12°22.3	249°27.4	N23°50.9	302°01.9	N21°45.7	26°53.9	S07°49.7										
19	28°39.1	55°28.1	21.2	264°30.8	51.2	317°04.7	45.6	41°56.2	49.6										
20	43°41.5	70°28.1	20.1	279°34.1	51.5	332°07.4	45.6	56°58.4	49.6										
21	58°44.0	85°28.1	•• 19.0	294°37.5	•• 51.7	347°10.1	•• 45.6	72°00.7	•• 49.5										
22	73°46.5	100°28.1	17.8	309°40.9	52.0	2°12.9	45.6	87°03.0	49.4										
23	88°48.9	115°28.1	16.7	324°44.3	52.3	17°15.6	45.6	102°05.3	49.3										
Mer.pass. 17:06				ν -0.0° d 1.1' m -4.47				ν 3.4° d 0.3' m -1.26				ν 2.7° d -0.0' m -2.73				ν 2.3° d 0.1' m 1.06			

Stars		
	SHA	Dec
Alpheratz	357°34.8	29°13.9
Ankaa	353°07.2	-42°10.4
Schedar	349°31.1	56°40.7
Diphda	348°47.3	-17°51.1
Achernar	335°20.0	-57°06.9
Hamal	327°51.1	23°34.9
Polaris	313°44.0	89°22.4
Acamar	315°11.5	-40°12.4
Menkar	314°06.0	4°11.3
Mirafak	308°27.9	49°57.2
Aldebaran	290°39.3	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.4	46°01.4
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.7
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.8	-52°42.5
Sirius	258°25.9	-16°45.0
Adhara	255°05.5	-29°00.3
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.2
Suhail	222°46.0	-43°31.9
Miaplacidus	221°37.5	-69°48.9
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°56.0
Dubhe	193°40.7	61°36.7
Denebola	182°24.9	14°25.8
Gienah	175°43.6	-17°40.8
Acrux	173°00.1	-63°14.0
Gacrux	171°51.7	-57°14.9
Altioth	166°13.0	55°49.9
Spica	158°22.4	-11°17.5
Alkaid	152°52.1	49°11.0
Hadar	148°36.3	-60°29.3
Menkent	147°57.8	-36°29.4
Arcturus	145°48.1	19°03.0
Rigel Kent.	139°40.7	-6°56.1
Kochab	137°20.4	74°02.8
Zuben 'ul	136°56.2	-16°08.7
Alphecca	126°04.0	26°37.7
Antares	112°16.2	-26°29.2
Atria	107°10.9	-69°04.2
Sabik	102°03.1	-15°45.4
Shaula	96°10.8	-37°07.3
Rasalhague	95°58.9	12°32.4
Eltanin	90°42.7	51°29.0
Kaus Aust.	83°32.9	-34°22.4
Vega	80°33.7	38°48.3
Nunki	75°48.2	-26°16.0
Altair	62°00.3	8°56.0
Peacock	53°06.3	-56°39.4
Deneb	49°26.2	45°22.2
Enif	33°39.1	9°59.4
Al Na'ir	27°33.2	-46°50.6
Fomalhaut	15°14.7	-29°29.6
Scheat	13°45.4	-28°13.2
Markab	13°30.1	15°20.4
Jan 01 Wed	SHA	Mer.pers.
Venus	29°36.0	15:18
Mars	234°52.5	01:37
Jupiter	288°07.1	22:00
Saturn	13°29.0	16:20
Jan 02 Thu	SHA	Mer.pers.
Venus	28°35.9	15:18
Mars	235°13.1	01:31
Jupiter	288°13.8	21:56
Saturn	13°24.8	16:16
Jan 03 Fri	SHA	Mer.pers.
Venus	27°36.0	15:18
Mars	235°34.4	01:26
Jupiter	288°20.5	21:51
Saturn	13°20.5	16:13
Horizontal parallax		
Venus:	0.2	
Mars:	0.2	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	103°51.4	130°28.1	S12°15.6	339°47.7	N23°52.6	32°18.3	N21°45.5	117°07.6	S07°49.2										
1	118°53.9	145°28.1	14.5	354°51.1	52.8	47°21.1	45.5	132°09.9	49.2										
2	133°56.3	160°28.1	13.4	9°54.5	53.1	62°23.8	45.5	147°12.1	49.1										
3	148°58.8	175°28.1	11.2	24°57.9	53.4	77°26.5	45.5	162°14.4	49.0										
4	164°01.3	190°28.1	11.1	40°01.2	53.7	92°29.2	45.4	177°16.7	48.9										
5	179°03.7	205°28.1	10.0	55°04.6	53.9	107°32.0	45.4	192°19.0	48.8										
6	194°06.2	220°28.2	S12°08.9	70°08.0	N23°54.2	122°34.7	N21°45.4	207°21.3	S07°48.7										
7	209°08.6	235°28.2	07.8	85°11.4	54.5	137°37.4	45.4	222°23.5	48.6										
8	224°11.1	250°28.2	06.6	100°14.8	54.8	152°40.2	45.3	237°25.8	48.7										
9	239°13.6	265°28.2	05.5	115°18.2	55.1	167°42.9	45.3	252°28.1	48.5										
10	254°16.0	280°28.2	04.4	130°21.6	55.3	182°45.6	45.3	267°30.4	48.4										
11	269°18.5	295°28.2	03.3	145°25.0	55.6	197°48.3	45.3	282°32.7	48.3										
12	284°21.0	310°28.2	S12°02.1	160°28.4	N23°55.9	212°51.1	N21°45.3	297°34.9	S07°48.3										
13	299°23.4	325°28.2	12°01.0	175°31.8	56.2	227°53.8	45.2	312°37.2	48.2										
14	314°25.9	340°28.3	11°59.9	190°35.2	56.4	242°56.5	45.2	327°39.5	48.1										
15	329°28.4	355°28.3	11°58.8	205°38.6	57.0	257°59.2	45.2	342°41.8	48.0										
16	344°30.8	10°28.3	57.6	220°42.0	57.0	273°02.0	45.2	357°44.1	47.9										
17	359°33.3	25°28.3	56.5	235°45.4	57.3	288°04.7	45.1	12°46.3	47.8										
18	14°35.7	40°28.3	S11°55.4	250°48.8	N23°57.5	303°07.4	N21°45.1	27°48.6	S07°47.8										
19	29°38.2	55°28.4	54.3	265°52.2	57.8	318°10.1	45.1	42°50.9	47.7										
20	44°40.7	70°28.4	53.1	280°55.7	58.1	333°12.9	45.1	57°53.2	47.6										
21	59°43.1	85°28.4	52.0	295°59.1	58.4	348°15.6	45.1	72°55.5	47.5										
22	74°45.6	100°28.4	50.9	311°02.5	58.6	37°18.3	45.0	87°56.7	47.4										
23	89°48.1	115°28.5	49.8	326°05.9	58.9	18°21.0	45.0	103°00.0	47.3										
Mer.pass. 17:02				ν 0.0' d 1.1' m -4.48				ν 3.4' d 0.3' m -1.28				ν 2.7' d -0.0' m -2.72				ν 2.3' d 0.1' m 1.06			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	104°50.5	130°28.5	S11°48.6	341°09.3	N23°59.2	33°23.8	N21°45.0	118°02.3	S07°47.3										
1	119°53.0	145°28.5	47.5	356°12.7	59.5	48°26.5	45.0	133°04.6	47.2										
2	134°55.5	160°28.6	46.4	11°16.1	23°59.7	63°29.2	44.9	148°06.8	47.1										
3	149°57.9	175°28.6	45.2	26°19.5	24°00.0	78°31.9	44.9	163°09.1	47.0										
4	165°00.4	190°28.6	44.1	41°22.9	00.3	93°34.7	44.9	178°11.4	46.9										
5	180°02.9	205°28.6	43.0	56°26.4	00.5	108°37.4	44.9	193°13.7	46.8										
6	195°05.3	220°28.7	S11°41.9	71°29.8	N24°00.8	123°40.1	N21°44.9	208°16.0	S07°46.8										
7	210°07.8	235°28.7	40.7	86°33.2	01.1	138°42.8	44.8	223°18.2	46.7										
8	225°10.2	250°28.7	39.6	101°36.6	01.4	153°45.5	44.8	238°20.5	46.6										
9	240°12.7	265°28.8	38.5	116°40.0	01.6	168°48.3	44.8	253°22.8	46.5										
10	255°15.2	280°28.8	37.3	131°43.5	01.9	183°51.0	44.8	268°25.1	46.4										
11	270°17.6	295°28.9	36.2	146°46.9	02.2	198°53.7	44.8	283°27.3	46.3										
12	285°20.1	310°28.9	S11°35.1	161°50.3	N24°02.5	213°56.4	N21°44.7	298°29.6	S07°46.3										
13	300°22.6	325°28.9	33.9	176°53.7	02.7	228°59.1	44.7	313°31.9	46.2										
14	315°25.0	340°29.0	32.8	191°57.1	03.0	244°01.9	44.7	328°34.2	46.1										
15	330°27.5	355°29.0	31.7	207°00.6	33.3	259°04.6	44.7	343°36.4	46.0										
16	345°30.0	10°29.1	30.5	222°04.0	03.6	274°07.3	44.6	358°38.7	45.9										
17	0°32.4	25°29.1	29.4	237°07.4	03.8	289°10.0	44.6	13°41.0	45.8										
18	15°34.9	40°29.2	S11°28.3	252°10.8	N24°04.1	304°12.7	N21°44.6	28°43.3	S07°45.8										
19	30°37.4	55°29.2	27.1	267°14.3	04.4	319°15.5	44.6	43°45.6	45.7										
20	45°39.8	70°29.2	26.0	282°17.7	04.7	334°18.2	44.6	58°47.8	45.6										
21	60°42.3	85°29.3	24.9	297°21.1	04.9	349°20.9	44.5	73°50.1	45.5										
22	75°44.7	100°29.3	23.7	312°24.6	05.2	4°23.6	44.5	88°52.4	45.4										
23	90°47.2	115°29.4	22.6	327°28.0	05.5	19°26.3	44.5	103°54.7	45.3										
Mer.pass. 16:58				ν 0.0' d 1.1' m -4.48				ν 3.4' d 0.3' m -1.30				ν 2.7' d -0.0' m -2.72				ν 2.3' d 0.1' m 1.06			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	105°49.7	130°29.4	S11°21.5	342°31.4	N24°05.8	34°29.0	N21°44.5	118°56.9	S07°45.2		
1	120°52.1	145°29.5	20.3	357°34.9	06.0	49°31.8	44.4	133°59.2	45.2		
2	135°54.6	160°29.5	19.2	12°38.3	06.3	64°34.5	44.4	149°01.5	45.1		
3	150°57.1	175°29.6	.. 18.1	27°41.7	.. 06.6	79°37.2	.. 44.4	164°03.8	.. 45.0		
4	165°59.5	190°29.7	16.9	42°45.2	06.8	94°39.9	44.4	179°06.0	44.9		
5	181°02.0	205°29.7	15.8	57°48.6	07.1	109°42.6	44.4	194°08.3	44.8		
6	196°04.5	220°29.8	S11°14.6	72°52.0	N24°07.4	124°45.3	N21°44.3	209°10.6	S07°44.7		
7	211°06.9	235°29.8	13.5	87°55.5	07.7	139°48.0	44.3	224°12.9	44.7		
8	226°09.4	250°29.9	12.4	102°58.9	07.9	154°50.8	44.3	239°15.1	44.6		
9	241°11.8	265°29.9	.. 11.2	118°02.4	.. 08.2	169°53.5	.. 44.3	254°17.4	.. 44.5		
10	256°14.3	280°30.0	10.1	133°05.8	08.5	184°56.2	44.3	269°19.7	44.4		
11	271°16.8	295°30.1	08.9	148°09.2	08.7	199°58.9	44.2	284°22.0	44.3		
12	286°19.2	310°30.1	S11°07.8	163°12.7	N24°09.0	215°01.6	N21°44.2	299°24.2	S07°44.2		
13	301°21.7	325°30.2	06.7	178°16.1	09.3	230°04.3	44.2	314°26.5	44.1		
14	316°24.2	340°30.3	05.5	193°19.6	09.6	245°07.0	44.2	329°28.8	44.1		
15	331°26.6	355°30.3	.. 04.4	208°23.0	.. 09.8	260°09.7	.. 44.2	344°31.0	.. 44.0		
16	346°29.1	10°30.4	03.2	223°26.5	10.1	275°12.5	44.1	359°33.3	43.9		
17	1°31.6	25°30.5	02.1	238°29.9	10.4	290°15.2	44.1	14°35.6	43.8		
18	16°34.0	40°30.5	S11°01.0	253°33.4	N24°10.6	305°17.9	N21°44.1	29°37.9	S07°43.7		
19	31°36.5	55°30.6	10°59.8	268°36.8	10.9	320°20.6	44.1	44°40.1	43.6		
20	46°39.0	70°30.7	58.7	283°40.2	11.2	335°23.3	44.0	59°42.4	43.6		
21	61°41.4	85°30.7	.. 57.5	298°43.7	.. 11.5	350°26.0	.. 44.0	74°44.7	.. 43.5		
22	76°43.9	100°30.8	56.4	313°47.1	11.7	5°28.7	44.0	89°47.0	43.4		
23	91°46.3	115°30.9	55.3	328°50.6	12.0	20°31.4	44.0	104°49.2	43.3		
Mer.pass. 16:54				ν 0.1' d 1.1' m -4.49		ν 3.4' d 0.3' m -1.32		ν 2.7' d -0.0' m -2.71		ν 2.3' d 0.1' m 1.07	

Stars		
	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.2	-42°10.4
Schedar	349°31.1	56°40.7
Diphda	348°47.3	-17°51.1
Achernar	335°20.0	-57°06.9
Hamal	327°51.1	23°34.9
Polaris	313°45.3	89°22.5
Acamar	315°11.5	-40°12.4
Menkar	314°06.0	4°11.3
Mirfak	308°27.9	49°57.2
Aldebaran	290°39.3	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.4	46°01.5
Bellatrix	278°22.6	6°22.3
Elnath	278°01.5	28°37.7
Alnilam	275°37.4	-1°12.1
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.8	-52°42.5
Sirius	258°25.9	-16°45.0
Adhara	255°05.5	-29°00.3
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.2
Suhail	222°45.9	-43°31.9
Miaplacidus	221°37.5	-69°49.0
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°56.6
Dubhe	193°40.7	61°36.7
Denebola	182°24.9	14°25.8
Gienah	175°43.5	-17°40.8
Acrux	173°00.1	-63°44.0
Gacrux	171°51.6	-57°14.9
Alloth	166°12.9	55°49.1
Spica	158°22.4	-11°17.1
Alkaid	152°52.1	49°11.0
Hadar	148°36.3	-60°29.3
Menkent	147°57.8	-36°29.4
Arcturus	145°48.0	19°03.0
Rigil Kent.	139°40.6	-60°56.1
Kochab	137°20.4	74°02.8
Zuben ul	136°56.2	-16°08.7
Alphecca	126°04.0	26°37.6
Antares	112°16.2	-25°25.2
Atria	107°12.9	-69°04.4
Sabik	102°03.1	-15°44.5
Shaula	96°10.8	-37°07.3
Rasalhague	95°58.9	12°32.4
Eltanin	90°42.7	51°29.0
Kaus Aust.	83°32.9	34°22.4
Vega	80°33.7	38°48.3
Nunki	75°48.1	-26°16.0
Altair	62°00.3	8°56.0
Peacock	53°06.3	-56°39.4
Deneb	49°26.3	45°52.2
Enif	33°39.1	9°59.4
Al Na'ir	27°33.2	-46°50.6
Fomalhaut	15°14.7	-29°29.6
Scheat	13°45.4	28°13.2
Markab	13°30.1	15°20.4
Jan 04 Sat	SHA	Mer.pass
Mars	26°36.7	15.18
Jupiter	235°56.3	01.21
Saturn	288°26.9	21.47
	13°16.2	16.09
Jan 05 Sun	SHA	Mer.pass
Venus	25°38.0	15.18
Mars	236°18.8	01.15
Jupiter	288°33.2	21.42
Saturn	13°11.8	16.05
Jan 06 Mon	SHA	Mer.pass
Venus	24°39.8	15.18
Mars	236°41.8	01.10
Jupiter	288°39.4	21.38
Saturn	13°07.3	16.02
Horizontal parallax		
Venus:	0.2	
Mars:	0.2	

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	106°48.8	130°31.0	S10°54.1	343°54.1	N24°12.3	35°34.1	N21°44.0	119°51.5	S07°43.2										
1	121°51.3	145°31.0	53.0	358°57.5	12.5	50°36.8	43.9	134°53.8	43.1										
2	136°53.7	160°31.1	51.8	14°01.0	12.8	65°39.6	43.9	149°56.0	43.0										
3	151°56.2	175°31.2	•• 49.7	29°04.4	•• 13.1	80°42.3	•• 43.9	164°58.3	•• 43.0										
4	166°58.7	190°31.3	45.0	54°07.9	13.4	95°45.0	43.9	180°06.0	42.9										
5	182°01.1	205°31.3	48.4	59°11.3	13.6	110°47.7	43.9	195°02.9	42.8										
6	197°03.6	220°31.4	S10°47.3	74°14.8	N24°13.9	125°50.4	N21°43.8	210°05.1	S07°42.2										
7	212°06.1	235°31.5	46.1	89°18.2	14.2	140°53.1	43.8	225°07.4	42.6										
8	227°08.5	250°31.6	45.0	104°21.7	14.4	155°55.8	43.8	240°09.7	42.5										
9	242°11.0	265°31.7	•• 43.8	119°25.2	•• 14.7	170°58.5	•• 43.8	255°11.9	•• 42.4										
10	257°13.5	280°31.7	42.7	134°28.6	15.0	186°01.2	43.8	270°14.2	42.4										
11	272°15.9	295°31.8	41.5	149°32.1	15.2	201°03.9	43.7	285°16.5	42.3										
12	287°18.4	310°31.9	S10°40.4	164°35.5	N24°15.5	216°06.6	N21°43.7	300°18.8	S07°42.2										
13	302°20.8	325°32.0	39.2	179°39.0	15.8	231°09.3	43.7	315°21.0	42.1										
14	317°23.3	340°32.1	38.1	194°42.5	16.1	246°12.0	43.7	330°23.3	42.0										
15	332°25.8	355°32.2	•• 36.9	209°45.9	•• 16.3	261°14.7	•• 43.7	345°25.6	•• 41.9										
16	347°28.7	10°32.3	35.8	224°49.4	16.6	276°17.4	43.6	0°27.8											
17	2°30.7	25°32.4	34.6	239°52.8	16.9	291°20.1	43.6	15°30.1	41.8										
18	17°33.2	40°32.5	S10°33.5	254°56.3	N24°17.1	306°22.8	N21°43.6	30°32.4	S07°41.7										
19	32°35.6	55°32.6	32.3	269°59.8	17.4	321°25.5	43.6	45°34.7	41.6										
20	47°38.1	70°32.6	31.2	285°03.2	17.7	336°28.3	43.6	60°36.9	41.5										
21	62°40.6	85°32.7	•• 30.0	300°06.7	•• 17.9	351°31.0	•• 43.5	75°39.2	•• 41.4										
22	77°43.0	100°32.8	28.9	315°10.2	18.2	6°33.7	43.5	90°41.5	41.3										
23	92°45.5	115°32.9	27.7	330°13.6	18.5	21°36.4	43.5	105°43.7	41.2										
Mer.pass. 16:50				ν 0.1' d 1.1' m -4.50				ν 3.5' d 0.3' m -1.34				ν 2.7' d -0.0' m -2.71				ν 2.3' d 0.1' m 1.07			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	107°47.9	130°33.0	S10°26.6	345°17.1	N24°18.7	36°39.1	N21°43.5	120°46.0	S07°41.1										
1	122°50.4	145°33.1	25.4	0°20.6	19.0	51°41.8	43.5	135°48.3	41.1										
2	137°52.9	160°33.2	24.3	15°24.1	19.3	66°44.5	43.4	150°50.5	41.0										
3	152°55.3	175°33.3	•• 23.1	30°27.5	•• 19.5	81°47.2	•• 43.4	165°52.8	•• 40.9										
4	167°57.8	190°33.4	22.0	45°31.0	19.8	96°49.9	43.4	180°55.1	40.8										
5	183°00.3	205°33.5	20.8	60°34.5	20.1	111°52.6	43.4	195°57.4	40.7										
6	198°02.7	220°33.6	S10°19.7	75°37.9	N24°20.3	126°55.3	N21°43.4	210°59.6	S07°40.6										
7	213°05.2	235°33.7	18.5	90°41.4	20.6	141°58.0	43.3	226°01.9	40.5										
8	228°07.7	250°33.9	17.4	105°44.9	20.9	157°00.7	43.3	241°04.2	40.5										
9	243°10.1	265°34.0	•• 16.2	120°48.4	•• 21.1	172°03.4	•• 43.3	256°06.4	•• 40.4										
10	258°12.6	280°34.1	15.1	135°51.8	21.4	187°06.1	43.3	271°08.7	40.3										
11	273°15.1	295°34.2	13.9	150°55.3	21.7	202°08.8	43.3	286°11.0	40.2										
12	288°17.5	310°34.3	S10°12.8	165°58.8	N24°21.9	217°11.5	N21°43.2	301°13.2	S07°40.1										
13	303°20.0	325°34.4	11.6	181°02.3	22.2	232°14.2	43.2	316°15.5	40.0										
14	318°22.4	340°34.5	10.5	196°05.8	22.5	247°16.8	43.2	331°17.8	39.9										
15	333°24.9	355°34.6	•• 09.3	211°09.2	•• 22.7	262°19.5	•• 43.2	346°20.0	•• 39.8										
16	348°27.4	10°34.7	08.2	226°12.7	23.0	277°22.2	43.2	1°22.3	39.8										
17	3°29.8	25°34.9	07.0	241°16.2	23.3	292°24.9	43.1	16°24.6	39.7										
18	18°32.3	40°35.0	S10°05.9	256°19.7	N24°23.5	307°27.6	N21°43.1	31°26.8	S07°39.6										
19	33°34.8	55°35.1	04.7	271°23.2	23.8	322°30.3	43.1	46°29.1	39.5										
20	48°37.2	70°35.2	03.6	286°26.6	24.1	337°33.0	43.1	61°31.4	39.4										
21	63°39.7	85°35.3	•• 02.4	301°30.1	•• 24.3	352°35.7	•• 43.1	76°33.6	•• 39.3										
22	78°42.2	100°35.4	01.2	316°33.6	24.6	7°38.4	43.1	91°35.9	39.2										
23	93°44.6	115°35.6	00.1	331°37.1	24.9	22°41.1	43.0	106°38.2	39.1										
Mer.pass. 16:46				ν 0.1' d 1.1' m -4.51				ν 3.5' d 0.3' m -1.36				ν 2.7' d -0.0' m -2.70				ν 2.3' d 0.1' m 1.07			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	108°47.1	130°35.7	S09°58.9	346°40.6	N24°25.1	37°43.8	N21°43.0	121°40.4	S07°39.1										
1	123°49.6	145°35.8	57.8	1°44.1	25.4	52°46.5	43.0	136°42.7	39.0										
2	138°52.0	160°35.9	56.6	16°47.5	25.6	67°49.2	43.0	151°45.0	38.9										
3	153°54.5	175°36.1	•• 55.5	31°51.0	•• 25.9	82°51.9	•• 43.0	166°47.2	•• 38.8										
4	168°56.9	190°36.2	54.3	46°54.5	26.2	97°54.6	42.9	181°49.5	38.7										
5	183°59.4	205°36.3	53.2	61°58.0	26.4	112°57.3	42.9	196°51.8	38.6										
6	199°01.9	220°36.4	S09°52.0	77°01.5	N24°26.7	128°00.0	N21°42.9	211°54.0	S07°38.5										
7	214°04.3	235°36.6	50.8	92°05.0	27.0	143°02.7	42.9	226°56.3	38.4										
8	229°06.8	250°36.7	49.7	107°08.5	27.2	158°05.3	42.9	241°58.6	38.4										
9	244°09.3	265°36.8	•• 48.5	122°12.0	•• 27.5	173°08.0	•• 42.8	257°00.8	•• 38.3										
10	259°11.7	280°37.0	47.4	137°15.5	27.7	188°10.7	42.8	272°03.1	38.2										
11	274°14.2	295°37.1	46.2	152°18.9	28.0	203°13.4	42.8	287°05.4	38.1										
12	289°16.7	310°37.2	S09°45.0	167°22.4	N24°28.3	218°16.1	N21°42.8	302°07.6	S07°38.0										
13	304°19.1	325°37.4	43.9	182°25.9	28.5	233°18.8	42.8	317°09.9	37.9										
14	319°21.6	340°37.5	42.7	197°29.4	28.8	248°21.5	42.7	332°12.2	37.8										
15	334°24.1	355°37.6	•• 41.6	212°32.9	•• 29.1	263°24.2	•• 42.7	347°14.4	•• 37.7										
16	349°26.5	10°37.8	40.4	227°36.4	29.3	278°26.9	42.7	2°16.7	37.6										
17	4°29.0	25°37.9	39.3	242°39.9	29.6	293°29.6	42.7	17°19.0	37.6										
18	19°31.4	40°38.1	S09°38.1	257°43.4	N24°29.8	308°32.2	N21°42.7	32°21.2	S07°37.5										
19	34°33.9	55°38.2	36.9	272°46.9	30.1	323°34.9	42.7	47°23.5	37.4										
20	49°36.4	70°38.4	35.8	287°50.4	30.4	338°37.6	42.6	62°25.8	37.3										
21	64°38.8	85°38.5	•• 34.6	302°53.9	•• 30.6	353°40.3	•• 42.6	77°28.0	•• 37.2										
22	79°41.3	100°38.6	33.5	317°57.4	30.9	8°43.0	42.6	92°30.3	37.1										
23	94°43.8	115°38.8	32.3	333°00.9	31.1	23°45.7	42.6	107°32.5	37.0										
Mer.pass. 16:42				ν 0.1' d 1.2' m -4.52				ν 3.5' d 0.3' m -1.37				ν 2.7' d -0.0' m -2.69				ν 2.3' d 0.1' m 1.07			

Stars		
	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.2	-42°10.4
Schedar	349°31.1	56°40.7
Diphda	348°47.3	-17°51.1
Achernar	335°20.1	-57°06.9
Hamal	327°51.1	23°34.9
Polaris	313°46.5	89°22.5
Acamar	315°11.5	-40°12.5
Menkar	314°06.0	4°11.3
Mirfak	308°28.0	49°57.2
Aldebaran	299°39.3	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elnath	278°01.5	28°37.7
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.8	-52°42.5
Sirius	258°25.9	-16°45.0
Adhara	255°05.5	-29°00.4
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.5
Suhail	222°45.9	-43°31.9
Miaplacidus	221°37.5	-69°49.0
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°50.6
Dubhe	193°40.6	61°36.7
Denebola	182°24.8	14°25.8
Gienah	175°43.5	-17°40.8
Acrux	173°00.0	-63°44.0
Gacrux	171°51.6	-57°14.9
Alloth	166°12.9	55°49.1
Spica	158°22.3	-11°17.5
Alkaid	152°52.1	49°11.0
Hadar	148°36.2	-60°29.4
Menkent	147°57.7	-36°29.4
Arcturus	145°48.0	19°03.0
Rigel Kent	139°40.6	-60°56.1
Kochab	137°20.3	74°02.8
Zuben 'ul	136°56.2	-16°08.7
Alphecca	126°04.0	26°37.6
Antares	112°16.1	-26°29.2
Atria	107°41.9	-69°04.2
Safla	102°03.1	-15°45.4
Shaula	96°10.8	-37°02.3
Rasalhague	95°58.9	12°32.4
Eltanin	90°42.7	51°29.0
Kaus Aust	83°32.9	-34°22.4
Vega	80°33.7	38°48.3
Nunki	75°48.1	-26°16.0
Altair	62°00.3	8°56.0
Peacock	53°06.3	-56°39.4
Deneb	49°26.3	45°22.2
Enif	33°39.1	9°59.4
Al Na'ir	27°33.2	-46°50.6
Fomalhaut	15°14.7	-29°29.6
Scheat	13°45.4	28°13.2
Markab	13°30.1	15°20.4
Jan 07 Tue	SHA	Mer.pass
Venus	23°42.1	15.18
Mars	237°05.2	01.04
Jupiter	288°45.3	21.34
Saturn	13°02.7	15.58
Jan 08 Wed	SHA	Mer.pass
Venus	22°45.1	15.18
Mars	237°29.2	00.59
Jupiter	288°51.1	21.30
Saturn	12°58.1	15.55
Jan 09 Thu	SHA	Mer.pass
Venus	21°48.6	15.17
Mars	237°53.5	00.53
Jupiter	288°56.7	21.25
Saturn	12°53.4	15.51
Horizontal parallax		
Venus:	0.2	0.7
Mars:	0.2	

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	109°46.2	130°38.9	S09°31.1	348°04.4	N24°31.4	38°48.4	N21°42.6	122°34.8	S07°36.9										
1	124°48.7	145°39.1	30.0	3°07.9	31.7	53°51.1	42.5	137°37.1	36.8										
2	139°51.2	160°39.2	28.8	18°11.4	31.9	68°53.7	42.5	152°39.3	36.8										
3	154°53.6	175°39.4	•• 27.6	33°14.9	•• 32.2	83°56.4	•• 42.5	167°41.6	•• 36.7										
4	169°56.1	190°39.5	26.5	48°18.4	32.4	98°59.1	42.5	182°43.9	36.6										
5	184°58.5	205°39.7	25.3	63°21.9	32.7	114°01.8	42.5	197°46.1	36.5										
6	200°01.0	220°39.8	S09°24.2	78°25.4	N24°33.0	129°04.5	N21°42.5	212°48.4	S07°36.6										
7	215°03.5	235°40.0	23.0	93°28.9	33.2	144°07.2	42.4	227°50.7	36.3										
8	230°05.9	250°40.1	21.8	108°32.4	33.5	159°09.8	42.4	242°52.9	36.2										
9	245°08.4	265°40.3	•• 20.7	123°35.9	•• 33.7	174°12.5	•• 42.4	257°55.2	•• 36.1										
10	260°10.9	280°40.5	19.5	138°39.4	34.0	189°15.2	42.4	272°54.6	36.0										
11	275°13.3	295°40.6	18.3	153°42.9	34.2	204°17.9	42.4	287°59.7	36.0										
12	290°15.8	310°40.8	S09°17.2	168°46.4	N24°34.5	219°20.6	N21°42.3	303°02.0	S07°35.9										
13	305°18.3	325°40.9	16.0	183°49.9	34.8	234°23.3	42.3	318°04.2	35.8										
14	320°20.7	340°41.1	14.9	198°53.4	35.0	249°25.9	42.3	333°06.5	35.7										
15	335°23.2	355°41.3	•• 13.7	213°56.9	•• 35.3	264°28.6	•• 42.3	348°08.8	•• 35.6										
16	350°25.7	10°41.4	12.5	229°00.4	35.5	279°31.3	42.3	3°11.0	35.9										
17	5°28.1	25°41.6	11.4	244°03.9	35.8	294°34.0	42.3	18°13.3	35.4										
18	20°36.0	40°41.8	S09°10.2	259°07.4	N24°36.0	309°36.7	N21°42.2	33°15.5	S07°35.3										
19	35°33.0	55°41.9	09.0	274°11.0	36.3	324°39.3	42.2	48°17.8	35.2										
20	50°35.5	70°42.1	07.9	289°14.5	36.6	339°42.0	42.2	63°20.1	35.2										
21	65°38.0	85°42.3	•• 06.7	304°18.0	•• 36.8	354°44.7	•• 42.2	78°22.3	•• 35.1										
22	80°40.4	100°42.4	05.5	319°21.5	37.1	9°47.4	42.2	93°24.6	35.0										
23	95°42.9	115°42.6	04.4	334°25.0	37.3	24°50.1	42.2	108°26.9	34.9										
Mer.pass. 16:38				ν 0.1' d 1.2' m -4.53				ν 3.5' d 0.3' m -1.39				ν 2.7' d -0.0' m -2.69				ν 2.3' d 0.1' m 1.08			

Sat	GHA		Dec	GHA		Dec	GHA		Dec	GHA		Dec							
0	110°45.4	130°42.8	S09°03.2	349°28.5	N24°37.6	39°52.7	N21°42.1	123°29.1	S07°34.8										
1	125°47.8	145°42.9	02.0	4°32.0	37.8	54°55.4	42.1	138°31.4	34.7										
2	140°50.3	160°43.1	09°00.9	19°35.5	38.1	69°58.1	42.1	153°33.6	34.6										
3	155°52.8	175°43.3	08°59.7	34°39.0	•• 38.3	85°00.8	•• 42.1	168°35.9	•• 34.5										
4	170°55.2	190°43.5	58.5	49°42.5	38.6	100°03.5	42.1	183°38.2	34.4										
5	185°57.7	205°43.6	57.4	64°46.1	38.9	115°06.1	42.1	198°40.4	34.3										
6	201°00.2	220°43.8	S08°56.2	79°49.6	N24°39.1	130°08.8	N21°42.0	213°42.7	S07°34.3										
7	216°02.6	235°44.0	55.0	94°53.1	39.4	145°11.5	42.0	228°44.9	34.2										
8	231°05.1	250°44.2	53.9	109°56.6	39.6	160°14.2	42.0	243°47.2	34.1										
9	246°07.5	265°44.4	•• 52.7	125°00.1	•• 39.9	175°16.8	•• 42.0	258°49.5	•• 34.0										
10	261°10.0	280°44.5	51.5	140°03.6	40.1	190°19.5	42.0	273°51.7	33.9										
11	276°12.5	295°44.7	50.4	155°07.1	40.4	205°22.2	42.0	288°54.0	33.8										
12	291°14.9	310°44.9	S08°49.2	170°10.7	N24°40.6	220°24.9	N21°41.9	303°56.2	S07°33.7										
13	306°17.4	325°45.1	48.0	185°14.2	40.9	235°27.5	41.9	318°58.5	33.6										
14	321°19.9	340°45.3	46.9	200°17.7	41.1	250°30.2	41.9	334°00.8	33.5										
15	336°22.3	355°45.5	•• 45.7	215°21.2	•• 41.4	265°32.9	•• 41.9	349°03.0	•• 33.4										
16	351°24.8	10°45.6	44.5	230°24.7	41.6	280°35.6	41.9	4°05.3	33.3										
17	6°27.3	25°45.8	43.4	245°28.2	41.9	295°38.2	41.9	19°07.5	33.3										
18	21°29.7	40°46.0	S08°42.2	260°31.8	N24°42.1	310°40.9	N21°41.8	34°09.8	S07°33.2										
19	36°32.2	55°46.2	41.0	275°35.3	42.4	325°43.6	41.8	49°12.1	33.1										
20	51°34.7	70°46.4	39.8	290°38.8	42.6	340°46.2	41.8	64°14.3	33.0										
21	66°37.1	85°46.6	•• 38.7	305°42.3	•• 42.9	355°48.9	•• 41.8	79°16.6	•• 32.9										
22	81°39.6	100°46.8	37.5	320°45.8	43.1	10°51.6	41.8	94°18.8	32.8										
23	96°42.0	115°47.0	36.3	335°49.3	43.4	25°54.3	41.8	109°21.1	32.7										
Mer.pass. 16:34				ν 0.2' d 1.2' m -4.54				ν 3.5' d 0.3' m -1.41				ν 2.7' d -0.0' m -2.68				ν 2.3' d 0.1' m 1.08			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	111°44.5	130°47.2	S08°35.2	350°52.9	N24°43.6	40°56.9	N21°41.7	124°23.4	S07°32.6		
1	126°47.0	145°47.4	34.0	5°56.4	43.9	55°59.6	41.7	139°25.6	32.5		
2	141°49.4	160°47.2	32.8	20°59.9	44.1	71°02.3	41.7	154°27.9	32.4		
3	156°51.9	175°47.8	•• 31.7	36°03.4	•• 44.4	86°04.9	•• 41.7	169°30.1	•• 32.3		
4	171°54.4	190°48.0	30.5	51°06.9	44.6	101°07.6	41.7	184°32.4	32.3		
5	186°56.8	205°48.2	29.3	66°10.5	44.9	116°10.3	41.7	199°34.6	32.2		
6	201°59.3	220°48.4	S08°28.1	81°14.0	N24°45.1	131°12.9	N21°41.6	214°36.9	S07°32.1		
7	217°01.8	235°48.6	27.0	96°17.5	45.4	146°15.6	41.6	229°39.2	32.0		
8	232°04.2	250°48.8	25.8	111°21.0	45.6	161°18.3	41.6	244°41.4	31.9		
9	247°06.7	265°49.0	•• 24.6	126°24.6	•• 45.9	176°21.0	•• 41.6	259°43.7	•• 31.8		
10	262°09.2	280°49.2	23.5	141°28.1	46.1	191°23.6	41.6	274°45.9	31.7		
11	277°11.6	295°49.4	22.3	156°31.6	46.4	206°26.2	41.6	289°48.2	31.6		
12	292°14.1	310°49.6	S08°21.1	171°35.1	N24°46.6	221°29.0	N21°41.5	304°50.4	S07°31.5		
13	307°16.5	325°49.8	19.9	186°38.7	46.9	236°31.6	41.5	319°52.7	31.4		
14	322°19.0	340°50.0	18.8	201°42.2	47.1	251°34.3	41.5	334°55.0	31.3		
15	337°21.5	355°50.3	•• 17.6	216°45.7	•• 47.4	266°37.0	•• 41.5	349°57.2	•• 31.3		
16	352°23.9	10°50.5	16.4	231°49.2	47.6	281°39.6	41.5	4°59.5	31.2		
17	7°26.4	25°50.7	15.3	246°52.8	47.8	296°42.7	41.5	20°01.7	31.1		
18	22°28.9	40°50.9	S08°14.1	261°56.3	N24°48.1	311°44.9	N21°41.4	35°04.0	S07°31.0		
19	37°31.3	55°51.1	12.9	276°59.8	48.3	326°47.6	41.4	50°06.2	30.9		
20	52°33.8	70°51.3	11.7	292°03.3	48.6	341°50.3	41.4	65°08.5	30.8		
21	67°36.3	85°51.6	•• 10.6	307°06.9	•• 48.8	356°52.9	•• 41.4	80°10.8	•• 30.7		
22	82°38.7	100°51.8	09.4	322°10.4	49.1	11°55.6	41.4	95°13.0	30.6		
23	97°41.2	115°52.0	08.2	337°13.9	49.3	26°58.3	41.4	110°15.3	30.5		
Mer.pass. 16:30				ν 0.2' d 1.2' m -4.55		ν 3.5' d 0.2' m -1.42		ν 2.7' d -0.0' m -2.67		ν 2.3' d 0.1' m 1.08	

		SHA	Dec
Alpheratz		357°34.9	29°13.8
Ankaa		353°07.2	-42°10.4
Schedar		349°31.1	56°40.7
Diphda		348°47.3	-17°51.1
Achernar		335°20.1	-57°06.9
Hamal		327°51.1	23°34.9
Polaris		313°47.5	89°22.5
Acamar		315°11.6	-40°12.5
Menkar		314°06.0	4°11.3
Mirfak		308°28.0	49°57.2
Aldebaran		290°39.3	16°33.6
Rigel		281°03.6	-8°10.4
Capella		280°21.4	46°01.5
Bellatrix		278°22.6	6°22.3
Elmath		278°01.5	28°37.7
Alnilam		275°37.4	-1°11.2
Betelgeuse		270°51.8	7°24.7
Canopus		263°51.8	-52°42.6
Sirius		258°25.9	-16°45.1
Adhara		255°05.5	-29°00.4
Procyon		244°50.5	5°09.6
Pollux		243°16.9	27°57.9
Avior		234°14.1	-59°35.3
Suhail		222°45.9	-43°31.9
Miaplacidus		221°37.5	-69°49.0
Alphard		217°47.5	-8°46.0
Regulus		207°34.2	11°50.6
Dubhe		193°40.6	61°36.7
Denebola		182°24.8	14°25.8
Gienah		175°43.5	-17°40.8
Acrux		173°00.0	-63°14.0
Gacrux		171°51.5	-57°14.9
Alloth		166°12.9	55°49.1
Spica		158°22.3	-11°17.5
Alkaid		152°52.1	49°11.0
Hadar		148°36.2	-60°29.4
Menkent		147°57.7	-36°29.4
Arcturus		145°48.0	19°02.9
Rigel Kent		139°40.5	-60°56.1
Kochab		137°20.2	74°02.8
Zuben 'ubi		136°56.2	-16°08.7
Alphecca		126°03.9	26°37.6
Antares		112°16.1	-26°29.2
Atria		107°10.8	-69°04.2
Sabik		102°03.1	-15°45.4
Shaula		96°10.7	-37°07.3
Rasalhague		95°58.9	12°32.4
Eltanor		90°42.7	51°28.9
Kaus Aust.		83°32.9	-34°22.4
Vega		80°33.6	38°48.3
Nunki		75°48.1	-26°16.0
Altair		62°00.3	8°56.0
Peacock		53°06.3	-56°39.4
Deneb		49°26.3	45°22.2
Enif		33°39.1	9°59.4
Al Na'ir		27°33.2	-46°50.6
Fomalhaut		15°14.7	-29°26.9
Scheat		13°45.4	-28°13.2
Makrab		13°30.1	15°20.4
Jan 10 Fri		SHA	Mer.pas.
Venus		20°52.7	15.17
Mars		238°18.2	00.48
Jupiter		289°02.1	21.21
Saturn		12°48.6	15.47
Jan 11 Sat		SHA	Mer.pas.
Venus		19°57.4	15.17
Mars		238°43.1	00.42
Jupiter		289°07.4	21.17
Saturn		12°43.7	15.44
Jan 12 Sun		SHA	Mer.pas.
Venus		19°02.7	15.17
Mars		239°08.4	00.36
Jupiter		289°12.4	21.12
Saturn		12°38.8	15.42
Horizontal parallax			
Venus:			0.2
Mars:			0.2

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	112°43.7	130°52.2	S08°07.0	352°17.4	N24°49.6	42°00.9	N21°41.4	125°17.5	S07°30.4					
1	127°46.1	145°52.4	05.9	7°21.0	49.8	57°03.6	41.3	140°19.8	30.3					
2	142°48.6	160°52.7	04.7	22°24.5	50.0	72°06.3	41.3	155°22.0	30.2					
3	157°51.0	175°52.9	•• 03.5	37°28.0	•• 50.3	87°08.9	•• 41.3	170°24.3	•• 30.1					
4	172°53.5	190°53.1	02.3	52°31.6	50.5	102°11.6	41.3	185°26.6	30.1					
5	187°56.0	205°53.3	01.2	67°35.1	50.8	117°14.2	41.3	200°28.8	30.0					
6	202°58.4	220°53.6	S08°00.0	82°38.6	N24°51.0	132°16.9	N21°41.3	215°31.1	S07°29.9					
7	218°00.9	235°53.8	07°58.8	97°42.1	51.3	147°19.6	41.2	230°33.3	29.8					
8	233°03.4	250°54.0	57.7	112°45.7	51.5	162°22.2	41.2	245°35.6	29.7					
9	248°05.8	265°54.3	•• 56.5	127°49.2	•• 51.7	177°24.9	•• 41.2	260°37.8	•• 29.6					
10	263°08.3	280°54.5	55.3	142°52.7	52.0	192°25.1	41.2	275°40.1	29.5					
11	278°10.8	295°54.7	54.1	157°56.3	52.2	207°30.2	41.2	290°42.3	29.4					
12	293°13.2	310°55.0	S07°53.0	172°59.8	N24°52.5	222°32.9	N21°41.2	305°44.6	S07°29.3					
13	308°15.7	325°55.2	51.8	188°03.3	52.7	237°35.5	41.2	320°46.8	29.2					
14	323°18.2	340°55.4	50.6	203°06.8	52.9	252°38.2	41.1	335°49.1	29.1					
15	338°20.6	355°55.7	•• 49.4	218°10.4	•• 53.2	267°40.8	•• 41.1	350°51.4	•• 29.0					
16	353°23.1	1°05.59	48.2	233°13.9	53.4	282°43.5	41.1	5°56.6	28.9					
17	8°25.5	25°56.1	47.1	248°17.4	53.9	297°46.1	41.1	20°55.9	28.9					
18	23°28.0	40°56.4	S07°45.9	263°21.0	N24°53.9	312°48.8	N21°41.1	35°58.1	S07°28.8					
19	38°30.5	55°56.6	44.7	278°24.5	54.1	327°51.5	41.1	51°00.4	28.7					
20	53°32.9	70°56.9	43.5	293°28.0	54.4	342°54.1	41.0	66°02.6	28.6					
21	68°35.4	85°57.1	•• 42.4	308°31.6	•• 54.6	357°56.8	•• 41.0	81°04.9	•• 28.5					
22	83°37.9	100°57.4	41.2	323°35.1	54.9	12°59.4	41.0	96°07.1	28.4					
23	98°40.3	115°57.6	40.0	338°38.6	55.1	28°02.1	41.0	111°09.4	28.3					
Mer.pass. 16:26 ν 0.2' d 1.2' m -4.56 ν 3.5' d 0.2' m -1.43 ν 2.7' d -0.0' m -2.67 ν 2.3' d 0.1' m 1.08														

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	113°42.8	130°57.8	S07°38.8	353°42.2	N24°55.3	43°04.7	N21°41.0	126°11.6	S07°28.2
1	128°45.3	145°58.1	37.7	8°45.7	55.6	58°07.4	41.0	141°13.9	28.1
2	143°47.7	160°58.3	36.5	23°49.2	55.8	73°10.0	41.0	156°16.1	28.0
3	158°50.2	175°58.6	•• 35.3	38°52.8	•• 56.0	88°12.7	•• 40.9	171°18.4	•• 27.9
4	173°52.7	190°58.8	34.1	53°56.3	56.3	103°15.4	40.9	186°20.7	27.8
5	188°55.1	205°59.1	33.0	68°59.8	56.8	118°18.0	40.9	201°22.9	27.7
6	203°57.6	220°59.4	S07°31.8	84°03.4	N24°56.8	133°20.7	N21°40.8	216°25.2	S07°27.6
7	219°00.0	235°59.6	30.6	99°06.9	57.0	148°23.3	40.9	231°27.4	27.6
8	234°02.5	250°59.9	29.4	114°10.4	57.2	163°26.0	40.9	246°29.7	27.5
9	249°05.0	266°00.1	•• 28.2	129°14.0	•• 57.5	178°28.6	•• 40.9	261°31.9	•• 27.4
10	264°07.4	281°00.4	27.1	144°17.5	57.7	193°31.2	40.8	276°34.2	27.3
11	279°09.9	296°00.6	25.9	159°21.0	57.9	208°33.9	40.8	291°36.4	27.2
12	294°12.4	311°00.9	S07°24.8	174°24.6	N24°58.2	223°36.6	N21°40.8	306°38.7	S07°27.1
13	309°14.8	326°01.2	23.5	189°28.1	58.4	238°39.2	40.8	321°40.9	27.0
14	324°17.3	341°01.4	22.4	204°31.6	58.6	253°41.9	40.8	336°43.2	26.9
15	339°19.8	356°01.7	•• 21.2	219°35.2	•• 58.9	268°44.5	•• 40.8	351°45.4	•• 26.8
16	354°22.2	1°11.09	20.0	234°38.7	59.1	283°47.2	40.8	6°47.9	26.7
17	9°24.7	26°02.2	18.8	249°42.3	59.3	298°49.8	40.7	21°49.9	26.6
18	24°27.1	41°02.5	S07°16.5	264°45.8	N24°59.6	313°52.5	N21°40.7	36°52.2	S07°26.5
19	39°29.6	56°02.7	17.6	279°49.3	24°59.8	328°55.1	40.7	51°54.4	26.4
20	54°32.1	71°03.0	15.3	294°52.9	25°00.0	343°57.8	40.7	66°56.7	26.3
21	69°34.5	86°03.3	•• 14.1	309°56.4	•• 00.3	359°00.4	•• 40.7	81°58.9	•• 26.2
22	84°37.0	101°03.5	12.9	324°59.9	00.5	14°03.1	40.7	97°01.2	26.1
23	99°39.5	116°03.8	11.8	340°03.5	00.7	29°05.7	40.7	112°03.4	26.1
Mer.pass. 16:22 ν 0.2' d 1.2' m -4.57 ν 3.5' d 0.2' m -1.44 ν 2.7' d -0.0' m -2.66 ν 2.3' d 0.1' m 1.09									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	114°41.9	131°04.1	S07°10.6	355°07.0	N25°01.0	44°08.3	N21°40.7	127°05.7	S07°26.0
1	129°44.4	146°04.4	09.4	10°10.5	01.2	59°11.0	40.6	142°07.9	25.9
2	144°46.9	161°04.6	08.2	25°14.1	01.4	74°13.6	40.6	157°10.2	25.8
3	159°49.3	176°04.9	•• 07.0	40°17.6	•• 01.6	89°16.3	•• 40.6	172°12.4	•• 25.7
4	174°51.8	191°05.2	05.9	55°21.1	01.9	104°18.9	40.6	187°14.7	25.6
5	189°54.3	206°05.5	04.7	70°24.7	02.1	119°21.6	40.6	202°16.9	25.5
6	204°56.7	221°05.8	S07°03.5	85°28.2	N25°02.3	134°24.2	N21°40.6	217°19.2	S07°25.4
7	219°59.2	236°06.0	02.3	100°31.8	02.6	149°26.9	40.6	232°21.6	25.3
8	235°01.6	251°06.3	01.1	115°35.3	02.8	164°29.5	40.5	247°23.7	25.2
9	250°04.1	266°06.6	07°00.0	130°38.8	•• 03.0	179°32.2	•• 40.5	262°25.9	•• 25.1
10	265°06.6	281°06.9	06°58.8	145°42.4	03.2	194°34.8	40.5	277°28.2	25.0
11	280°09.0	296°07.2	57.6	160°45.9	03.5	209°37.4	40.5	292°30.4	24.9
12	295°11.5	311°07.4	S06°56.6	175°49.4	N25°03.7	224°40.1	N21°40.5	307°32.7	S07°24.8
13	310°14.0	326°07.7	55.2	190°53.0	03.9	239°42.7	40.5	322°34.9	24.7
14	325°16.4	341°08.0	54.1	205°56.5	04.2	254°45.4	40.5	337°37.2	24.6
15	340°18.9	356°08.3	•• 52.9	221°00.1	•• 04.4	269°48.0	•• 40.5	352°39.4	•• 24.5
16	355°21.4	1°11.08	51.7	236°03.6	04.6	284°50.6	40.4	7°41.7	24.5
17	10°23.8	26°08.9	50.5	251°07.1	04.8	299°53.3	40.4	22°43.9	24.4
18	25°26.3	41°09.2	S06°49.3	266°10.7	N25°05.1	314°55.9	N21°40.4	37°46.2	S07°24.3
19	40°28.8	56°09.5	48.2	281°14.2	05.3	329°58.6	40.4	52°48.4	24.2
20	55°31.2	71°09.8	47.0	296°17.7	05.5	345°01.2	40.4	67°50.7	24.1
21	70°33.7	86°10.1	•• 45.8	311°21.3	•• 05.7	0°03.8	•• 40.4	82°52.9	•• 24.0
22	85°36.1	101°10.4	44.6	326°24.8	06.0	15°06.5	40.4	97°55.2	23.9
23	100°38.6	116°10.7	43.4	341°28.4	06.2	30°09.1	40.4	112°57.4	23.8
Mer.pass. 16:19 ν 0.3' d 1.2' m -4.58 ν 3.5' d 0.2' m -1.45 ν 2.6' d -0.0' m -2.65 ν 2.3' d 0.1' m 1.09									

SHA	Dec
Alpheratz	357°34.9 29°13.8
Ankaa	353°07.2 -42°10.4
Schedar	349°31.2 56°40.7
Diphda	348°47.3 -17°51.1
Achernar	335°20.1 -57°06.9
Hamal	327°51.1 23°34.9
Polaris	313°48.5 89°22.5
Acamar	315°11.6 -40°12.5
Menkar	314°06.0 4°11.3
Mirafak	308°28.0 49°57.2
Aldebaran	290°39.3 16°33.6
Rigel	281°03.6 -8°10.4
Capella	280°21.4 46°01.5
Bellatrix	278°22.6 6°22.3
Elnath	278°01.5 28°37.7
Alnilam	275°37.4 -1°11.2
Betelgeuse	270°51.7 7°24.7
Canopus	263°51.8 -52°42.6
Sirius	258°25.9 -16°45.1
Adhara	255°05.5 -29°00.4
Procyon	244°50.5 5°09.6
Pollux	243°16.9 27°57.9
Avior	234°14.1 -59°33.3
Suhail	222°45.9 -43°31.9
Miaplacidus	221°37.4 -69°49.0
Alphard	217°47.4 -8°46.0
Regulus	207°34.2 11°50.6
Dubhe	193°40.5 61°36.7
Denebola	182°24.8 14°25.8
Gienah	175°43.5 -17°40.8
Acrux	172°59.9 -63°44.0
Gacrux	171°51.5 -57°15.0
Alioth	166°12.8 55°49.1
Spica	158°22.3 -11°17.5
Alkaid	152°52.0 49°11.0
Hadar	148°36.1 -60°29.4
Menkent	147°57.7 -36°29.9
Arcturus	145°48.0 19°45.2
Rigil Kent.	139°40.5 -60°56.1
Kochab	137°20.2 74°02.8
Zuben'ubi	136°50.1 -16°08.7
Alphecca	126°03.9 26°37.6
Antares	112°16.1 -26°29.2
Atria	107°10.7 69°04.1
Sabik	102°03.0 -15°45.4
Shaula	96°10.7 -37°07.3
Rasalhague	95°58.8 12°32.4
Eltanin	90°42.7 51°28.9
Kaus Aus.	83°32.9 -34°22.4
Vega	80°33.6 38°48.3
Nunki	75°48.1 -26°16.0
Altair	62°00.3 8°56.0
Peacock	53°06.3 -56°39.4
Deneb	49°26.3 45°22.2
Enif	33°39.1 9°59.4
Al Na'ir	27°33.2 -46°50.6
Fomalhaut	15°14.7 -29°29.6
Scheat	13°45.4 28°13.2
Markab	13°30.1 15°20.4

Dubhe	193°40.5	61°36.7
Denebola	182°24.8	14°25.8
Gienah	175°43.5	-17°40.8
Acrux	172°59.9	-63°14.0
Gacrux	171°51.5	-57°15.0
Alioth	166°12.8	55°49.1
Spica	158°22.3	-11°17.5
Alkaid	152°52.0	-49°11.0
Hadar	148°36.1	-60°29.4
Menkent	147°57.7	-36°29.4
Arcturus	145°48.0	19°02.9
Rigel Kent.	139°40.5	-60°56.1
Kochab	137°20.2	74°02.8
Zuben el	136°56.1	-16°08.7
Alphecca	126°03.9	26°37.6
Antares	112°16.1	-26°29.2
Atria	107°10.7	-69°04.1
Sabik	102°03.0	-15°45.4
Shaula	96°10.7	-37°07.3
Rasalhague	95°58.8	12°32.4
Eltanin	90°42.7	51°28.9
Kaus Aust.	83°32.9	34°22.4
Vega	80°33.6	38°48.3
Nunki	75°48.1	-26°16.0
Altair	62°00.3	8°56.0
Peacock	53°06.3	-56°39.4
Deneb	49°26.3	45°22.2
Fnif	33°39.1	0°59.4

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	115°41.1	131°11.0	S06°42.3	356°31.9	N25°06.4	45°11.8	N21°40.3	127°59.7	S07°23.7					
1	130°43.5	146°11.3		41.1	11°35.4	06.6		60°14.4	40.3	143°01.9	23.6			
2	145°46.0	161°11.6		39.9	26°39.0	06.8		75°10.7	40.3	158°04.2	23.5			
3	160°48.5	176°11.9	••	38.7	41°42.5	••	07.1	90°19.7	••	40.3	173°06.4	••	23.4	
4	175°50.9	191°12.2		37.5	56°46.0	07.7		105°22.3	40.3	188°08.7	23.3			
5	190°53.4	206°12.5		36.3	71°49.6	07.5		120°24.9	40.3	203°010.9	23.2			
6	205°55.9	221°12.8	S06°35.2	86°53.1	N25°07.7	135°27.6	N21°40.3	218°13.2	S07°23.7					
7	220°58.3	236°13.1		34.0	101°56.7	08.0		150°30.2	40.3	233°15.4	23.0			
8	236°00.8	251°13.4		32.8	117°00.2	08.2		165°32.9	40.2	248°17.7	22.9			
9	251°03.3	266°13.7	••	31.6	132°03.7	••	08.4	180°35.5	••	40.2	263°19.9	••	22.8	
10	266°05.7	281°14.0		30.4	147°07.3	08.6		195°38.1	40.2	278°22.2	22.7			
11	281°08.2	296°14.3		29.3	162°10.8	08.8		210°40.8	40.2	293°24.4	22.6			
12	296°10.6	311°14.6	S06°28.1	177°14.3	N25°09.1	225°43.4	N21°40.3	308°26.7	S07°22.5					
13	311°13.1	326°14.9		26.9	192°17.9	09.3		240°46.0	40.2	323°28.9	22.5			
14	326°15.6	341°15.3		25.7	207°21.4	09.5		255°48.7	40.2	338°31.1	22.4			
15	341°18.0	356°15.6	••	24.5	222°25.0	••	09.7	270°51.3	••	40.2	353°33.4	••	22.3	
16	356°20.8	1°11.5		23.5	237°28.5	09.9		285°53.9	40.1	8°35.6	22.2			
17	1°12.3	26°16.2		22.2	252°32.0	10.2		300°56.6	40.1	23°37.9	22.1			
18	26°25.4	41°16.5	S06°21.0	267°35.6	N25°10.4	315°59.2	N21°40.3	38°40.1	S07°22.0					
19	41°27.9	56°16.8		19.8	282°39.1	10.6		331°01.8	40.1	53°42.4	21.9			
20	56°30.4	71°17.2		18.6	297°42.6	10.8		346°04.5	40.1	68°44.6	21.8			
21	71°32.8	86°17.5	••	17.4	312°46.2	••	11.0	1°07.1	••	40.1	83°46.9	••	21.7	
22	86°35.3	101°17.8		16.3	327°49.7	11.2		16°09.7	40.1	98°49.1	21.6			
23	101°37.7	116°18.1		15.1	342°53.3	11.5		31°12.3	40.1	113°51.4	21.5			
Mer.pass. 16:15 ν 0.3' d 1.2' m -4.59 ν 3.5' d 0.2' m -1.45 ν 2.6' d -0.0' m -2.65 ν 2.2' d 0.1' m 1.09														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	116°40.2	131°18.5	S06°13.9	357°56.8	N25°11.7	46°15.0	N21°40.0	128°53.6	S07°21.4					
1	131°42.7	146°18.8		12.7	13°00.3	11.9		61°17.6	40.0	143°55.9	21.3			
2	146°45.1	161°19.1		11.5	28°03.9	12.1		76°20.2	40.0	158°58.1	21.2			
3	161°47.6	176°19.4	••	10.4	43°07.4	••	12.3	91°22.9	••	40.0	174°00.3	••	21.1	
4	176°50.1	191°19.8		09.2	58°10.9	12.5		106°25.9	40.0	189°02.6	21.0			
5	191°55.0	206°20.1		08.0	73°14.5	12.7		121°28.1	40.0	204°04.8	20.9			
6	206°55.0	221°20.4	S06°06.8	88°18.0	N25°13.0	136°30.7	N21°40.0	219°07.1	S07°20.8					
7	221°57.5	236°20.8		05.6	103°21.5	13.2		151°33.4	40.0	234°09.3	20.7			
8	236°59.9	251°21.1		04.4	118°25.1	13.4		166°36.6	40.0	249°11.6	20.6			
9	252°02.4	266°21.4	••	03.3	133°28.6	••	13.6	181°38.6	••	39.9	264°13.8	••	20.5	
10	267°04.9	281°21.8		02.1	148°32.2	13.8		196°41.3	39.9	279°16.1	20.4			
11	282°07.3	296°22.1	06°00.9	163°35.7	14.0	211°43.9	39.9	294°18.3	20.3					
12	297°09.8	311°22.4	S05°59.7	178°39.2	N25°14.2	226°46.5	N21°39.9	309°20.6	S07°20.2					
13	312°12.2	326°22.8		58.5	193°42.8	14.5		241°49.1	39.9	324°22.8	20.2			
14	327°14.7	341°23.1		57.3	208°46.3	14.7		256°51.8	39.9	339°25.0	20.1			
15	342°17.2	356°23.5	••	56.2	223°49.8	••	14.9	271°54.4	••	39.9	354°27.3	••	20.0	
16	357°19.6	1°12.8		55.0	238°53.4	15.1		286°57.0	39.9	9°29.5	19.9			
17	12°22.1	26°24.1		53.8	253°56.9	15.3		301°59.6	39.9	24°31.8	19.8			
18	27°24.6	41°24.5	S05°52.6	269°00.4	N25°15.5	317°02.3	N21°39.8	39°34.0	S07°19.7					
19	42°27.0	56°24.8		51.4	284°04.0	15.7		332°04.9	39.8	54°36.3	19.6			
20	57°29.5	71°25.2		50.3	299°07.5	15.9		347°07.5	39.8	69°38.5	19.5			
21	72°32.0	86°25.5	••	49.1	314°11.0	••	16.1	2°10.1	••	39.8	84°40.7	••	19.4	
22	87°34.4	101°25.9		47.9	329°14.6	16.3		37°12.7	39.8	99°43.0	19.3			
23	102°36.9	116°26.2		46.7	344°18.1	16.5		32°15.4	39.8	114°45.2	19.2			
Mer.pass. 16:11 ν 0.3' d 1.2' m -4.60 ν 3.5' d 0.2' m -1.44 ν 2.6' d -0.0' m -2.64 ν 2.2' d 0.1' m 1.09														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	117°39.4	131°26.6	S05°45.5	359°21.6	N25°16.8	47°18.0	N21°39.8	129°47.5	S07°19.1					
1	132°41.8	146°26.9		44.3	14°25.2	17.0		62°20.6	39.8	144°49.7	19.0			
2	147°44.3	161°27.3		43.2	29°28.7	17.2		77°23.2	39.8	159°52.0	18.9			
3	162°46.7	176°27.6	••	42.0	44°32.2	••	17.4	92°25.9	••	39.7	174°54.2	••	18.8	
4	177°49.2	191°28.0		40.8	59°35.8	17.6		107°28.5	39.7	189°56.5	18.7			
5	192°51.7	206°28.4		39.6	74°39.3	17.8		122°31.1	39.7	204°58.7	18.6			
6	207°54.1	221°28.7	S05°38.4	89°42.8	N25°18.0	137°33.7	N21°39.7	220°00.9	S07°18.5					
7	222°56.6	236°29.1		37.2	104°46.4	18.2		152°36.3	39.7	235°03.2	18.4			
8	237°59.1	251°29.4		36.1	119°49.9	18.4		167°38.9	39.7	250°05.4	18.3			
9	253°01.5	266°29.8	••	34.9	134°53.4	••	18.6	182°41.6	••	39.7	265°07.7	••	18.2	
10	268°04.0	281°30.2		33.7	149°57.0	18.8		197°44.2	39.7	280°09.9	18.1			
11	283°06.5	296°30.5		32.5	165°00.5	19.0		212°46.8	39.7	295°12.2	18.0			
12	298°08.9	311°30.9	S05°31.3	180°04.0	N25°19.2	227°49.4	N21°39.7	310°14.4	S07°17.9					
13	313°11.4	326°31.3		30.1	195°07.6	19.4		242°52.0	39.6	325°16.6	17.8			
14	328°13.8	341°31.6		29.0	210°11.1	19.6		257°54.7	39.6	340°18.9	17.7			
15	343°16.3	356°32.0	••	27.8	225°14.6	••	19.8	272°57.3	••	39.6	355°21.1	••	17.6	
16	358°18.8	1°13.2		26.6	240°18.2	20.0		287°59.9	39.6	10°23.4	17.5			
17	13°21.2	26°32.7		25.4	255°21.7	20.2		303°52.5	39.6	25°25.6	17.4			
18	28°23.7	41°33.1	S05°24.2	270°25.2	N25°20.4	318°05.1	N21°39.6	40°27.8	S07°17.3					
19	43°26.2	56°33.5		23.0	285°28.7	20.6		333°07.7	39.6	55°30.1	17.2			
20	58°28.6	71°33.9		21.9	300°32.3	20.8		348°10.3	39.6	70°32.3	17.1			
21	73°31.1	86°34.2	••	20.7	315°35.8	••	21.0	3°13.0	••	39.6	85°34.6	••	17.0	
22	88°33.6	101°34.6		19.5	330°39.3	21.2		18°15.6	39.6	100°36.8	16.9			
23	103°36.0	116°35.0		18.3	345°42.9	21.4		33°18.2	39.5	115°39.1	16.8			
Mer.pass. 16:07 ν 0.4' d 1.2' m -4.61 ν 3.5' d 0.2' m -1.42 ν 2.6' d -0.0' m -2.63 ν 2.2' d 0.1' m 1.09														

Stars		
	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.2	-42°10.4
Schedar	349°31.2	56°40.7
Diphda	348°47.3	-17°51.1
Achernar	335°20.1	-57°06.9
Hamal	327°51.1	23°34.9
Polaris	313°50.0	89°22.5
Acamar	315°11.6	-40°12.5
Menkar	314°06.0	4°11.3
Mirfak	308°28.0	49°57.2
Aldebaran	290°39.3	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.4	46°01.5
Bellatrix	278°22.6	6°22.3
Elnath	278°01.5	28°37.8
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.7	7°24.7
Canopus	263°51.9	-52°42.6
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°00.4
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.3
Suhail	222°45.9	-43°31.9
Miaplacidus	221°37.4	-69°49.0
Alphard	217°47.4	-8°46.1
Regulus	207°34.1	11°50.6
Dubhe	193°40.5	61°36.7
Denebola	182°24.8	14°25.8
Gienah	175°43.4	-17°40.8
Acrux	172°59.9	-63°14.0
Gacrux	171°51.5	-57°15.0
Alioth	166°12.8	55°49.1
Spica	158°22.3	-11°17.5
Alkaid	152°52.0	49°11.0
Hadar	148°36.1	-69°29.4
Menkent	147°57.6	-36°29.5
Arcturus	145°47.9	19°02.9
Rigel Kent.	139°40.4	-60°56.1
Kochab	137°20.1	74°02.7
Zuben 'ul	136°56.1	-16°08.7
Alphecca	126°03.9	26°37.6
Antares	112°16.1	-26°29.2
Atria	107°10.7	-69°04.1
Sabik	102°03.0	-15°45.4
Shaula	96°10.7	-37°07.3
Rasalhague	95°58.8	12°32.4
Eltanin	90°42.7	51°28.9
Kaus Aus.	83°32.9	-38°22.2
Vega	80°33.6	38°44.8
Nunki	75°48.1	-26°16.0
Altair	62°00.3	8°56.0
Peacock	53°06.3	-56°39.4
Deneb	49°26.3	45°22.2
Enif	33°39.1	9°59.3
Al Nair	27°33.2	-46°50.6
Fomalhaut	15°17.7	-29°29.6
Scheat	13°45.4	28°13.2
Markab	13°30.1	15°20.4
Jan 16 Thu	SHA	Mer.pass
Venus	15°29.9	15:15
Mars	240°50.8	00:14
Jupiter	289°30.7	20:56
Saturn	12°18.6	15:26
Jan 17 Fri	SHA	Mer.pass
Venus	14°38.2	15:14
Mars	241°16.6	00:08
Jupiter	289°34.8	20:51
Saturn	12°13.4	15:22
Jan 18 Sat	SHA	Mer.pass
Venus	13°47.2	15:14
Mars	241°42.3	00:03
Jupiter	289°38.6	20:47
Saturn	12°08.1	15:19
Horizontal parallax		
Venus:		0.2
Mars:		0.2

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	118°38.5	131°35.4	S05°17.1	0°46.4	N25°21.6	48°20.8	N21°39.5	130°41.3	S07°16.7										
1	133°41.0	146°35.7	16.0	15°49.9	21.8	63°23.4	39.5	145°43.5	16.7										
2	148°43.4	161°36.1	14.8	30°53.4	22.0	78°26.0	39.5	160°45.8	16.6										
3	163°45.9	176°36.5	•• 13.6	45°57.0	•• 22.2	93°28.6	•• 39.5	175°48.0	•• 16.5										
4	178°48.3	191°36.9	12.4	61°00.5	22.4	108°31.2	39.5	190°50.3	16.4										
5	193°50.8	206°37.3	11.2	76°04.0	22.6	123°33.9	39.5	205°52.5	16.3										
6	208°53.3	221°37.7	S05°10.0	91°07.6	N25°22.8	138°36.5	N21°39.5	220°54.7	S07°16.2										
7	223°55.7	236°38.0	08.9	106°11.1	23.0	153°39.1	39.5	235°57.0	16.1										
8	238°58.2	251°38.4	07.7	121°14.6	23.2	168°41.7	39.5	250°59.2	16.0										
9	254°00.7	266°38.8	•• 06.5	136°18.1	•• 23.4	183°44.3	•• 39.5	260°01.5	•• 15.9										
10	269°03.1	281°39.2	05.3	151°21.7	23.3	198°46.9	39.5	281°03.7	15.8										
11	284°05.6	296°39.6	04.1	166°25.2	23.8	213°49.5	39.4	296°05.9	15.7										
12	299°08.1	311°40.0	S05°02.9	181°28.7	N25°24.0	228°52.1	N21°39.4	311°08.2	S07°15.6										
13	314°10.5	326°40.4	01.8	196°32.2	24.2	243°54.7	39.4	326°10.4	15.5										
14	329°13.0	341°40.8	05°00.6	211°35.8	24.4	258°57.3	39.4	341°12.7	15.4										
15	344°15.4	356°41.2	04°59.4	226°39.3	•• 24.6	274°00.0	•• 39.4	356°14.9	•• 15.3										
16	359°17.9	371°41.6	58.2	241°42.8	24.8	289°02.6	39.4	371°17.1	15.2										
17	14°20.4	26°42.0	57.0	256°46.3	25.0	304°05.2	39.4	26°19.4	15.1										
18	29°22.8	41°42.4	S04°55.8	271°49.9	N25°25.2	319°07.8	N21°39.4	41°21.6	S07°15.0										
19	44°25.3	56°42.8	54.7	286°53.4	25.4	334°10.4	39.4	56°23.9	14.9										
20	59°27.8	71°43.2	53.5	301°56.9	25.6	349°13.0	39.4	71°26.1	14.8										
21	74°30.2	86°43.6	•• 52.3	317°00.4	•• 25.8	4°15.6	•• 39.3	86°28.3	•• 14.7										
22	89°32.7	101°44.0	51.1	332°03.9	25.9	19°18.2	39.3	101°30.6	14.6										
23	104°35.2	116°44.4	49.9	347°07.5	26.1	34°20.8	39.3	116°32.8	14.5										
Mer.pass. 16:03				ν 0.4' d 1.2' m -4.62				ν 3.5' d 0.2' m -1.41				ν 2.6' d -0.0' m -2.62				ν 2.2' d 0.1' m 1.09			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	119°37.6	131°44.8	S04°48.8	2°11.0	N25°26.3	49°23.4	N21°39.3	131°35.1	S07°14.4
1	134°40.1	146°45.2	47.6	17°14.5	26.5	64°26.0	39.3	146°37.3	14.3
2	149°42.6	161°45.6	46.4	32°18.0	26.7	79°28.6	39.3	161°39.5	14.2
3	164°45.0	176°46.0	•• 45.2	47°21.6	•• 26.9	94°31.2	•• 39.3	176°41.8	•• 14.1
4	179°47.5	191°46.4	44.0	62°25.1	27.1	109°33.8	39.3	191°44.0	14.0
5	194°49.9	206°46.8	42.8	77°28.6	27.3	124°36.4	39.3	206°46.2	13.9
6	209°52.4	221°47.7	S04°41.7	92°32.1	N25°27.7	139°39.0	N21°39.3	221°48.5	S07°13.8
7	224°54.9	236°47.7	40.5	107°35.6	27.5	154°41.6	39.3	236°50.7	13.7
8	239°57.3	251°48.1	39.3	122°39.1	27.8	169°44.2	39.2	251°53.0	13.6
9	254°59.8	266°48.5	•• 38.1	137°42.7	•• 28.0	184°46.8	•• 39.2	266°55.2	•• 13.5
10	270°02.3	281°48.9	36.9	152°46.2	28.2	199°49.4	39.2	281°57.4	13.4
11	285°04.7	296°49.3	35.8	167°49.7	28.4	214°52.0	39.2	296°59.7	13.3
12	300°07.2	311°49.8	S04°34.6	182°53.2	N25°28.6	229°54.6	N21°39.2	312°01.9	S07°13.2
13	315°09.7	326°50.2	34.4	197°56.7	28.8	244°57.2	39.2	327°04.1	13.1
14	330°12.1	341°50.6	32.2	213°00.3	29.0	259°59.8	39.2	342°06.4	13.0
15	345°14.6	356°51.0	•• 31.0	228°03.8	•• 29.1	275°02.4	•• 39.2	357°08.6	•• 12.9
16	0°17.1	11°51.5	29.8	243°07.3	29.3	290°05.0	39.2	12°10.9	12.8
17	15°19.5	26°51.9	28.7	258°10.8	29.5	305°07.6	39.2	27°13.1	12.7
18	30°22.0	41°52.3	S04°27.5	273°14.3	N25°29.7	320°10.2	N21°39.2	42°15.3	S07°12.6
19	45°24.4	56°52.7	26.3	288°17.8	29.9	335°12.8	39.2	57°17.6	12.5
20	60°26.9	71°53.2	25.1	303°21.3	30.1	350°15.4	39.2	72°19.8	12.4
21	75°29.4	86°53.6	•• 23.9	318°24.9	•• 30.3	5°18.0	•• 39.1	87°22.0	•• 12.3
22	90°31.8	101°54.0	22.8	333°28.4	30.4	20°20.6	39.1	102°24.3	12.2
23	105°34.3	116°54.5	21.6	348°31.9	30.6	35°23.2	39.1	117°26.5	12.1
Mer.pass. 15:59 ν 0.4' d 1.2' m -4.63 ν 3.5' d 0.2' m -1.39 ν 2.6' d -0.0' m -2.62 ν 2.2' d 0.1' m 1.10									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	120°36.8	131°54.9	S04°20.4	3°35.4	N25°30.8	50°25.8	N21°39.1	132°28.8	S07°12.0										
1	135°39.2	146°55.3	19.2	18°38.9	31.0	65°28.4	39.1	147°31.0	11.9										
2	150°41.7	161°55.8	18.0	33°42.4	31.2	80°31.0	39.1	162°33.2	11.8										
3	165°44.2	176°56.2	•• 16.9	48°45.9	•• 31.3	95°33.6	•• 39.1	177°35.5	•• 11.7										
4	180°46.6	191°56.6	15.7	63°49.4	31.5	110°36.2	39.1	192°37.7	11.6										
5	195°49.1	206°57.1	14.5	78°52.9	31.7	125°38.8	39.1	207°39.9	11.5										
6	210°51.5	221°57.5	S04°13.3	93°56.5	N25°31.9	140°41.4	N21°39.1	222°42.2	S07°11.4										
7	225°54.0	236°58.0	12.1	109°00.0	32.1	155°44.0	39.1	237°44.4	11.3										
8	240°56.5	251°58.4	10.9	124°03.5	32.2	170°46.6	39.1	252°46.6	11.2										
9	255°58.9	266°58.9	•• 09.8	139°07.0	•• 32.4	185°49.1	•• 39.1	267°48.9	•• 11.1										
10	271°01.4	281°59.3	08.6	154°10.5	32.6	200°51.7	39.0	282°51.1	11.0										
11	286°03.9	296°59.7	07.4	169°14.0	32.8	215°54.3	39.0	297°53.3	10.9										
12	301°06.3	312°00.2	S04°06.2	184°17.5	N25°33.0	230°56.9	N21°39.0	312°55.6	S07°10.8										
13	316°08.8	327°00.6	05.0	199°21.0	33.1	245°59.5	39.0	327°57.8	10.7										
14	331°11.3	342°01.1	03.9	214°24.5	33.3	261°02.1	39.0	343°00.1	10.6										
15	346°13.7	357°01.5	•• 02.7	229°28.0	•• 33.5	276°04.7	•• 39.0	358°02.3	•• 10.5										
16	1°16.2	12°02.0	01.5	244°31.5	33.7	291°07.3	39.0	13°04.5	10.4										
17	16°18.7	27°02.5	04°00.3	259°35.0	33.8	306°09.9	39.0	28°06.8	10.3										
18	31°21.1	42°02.9	S03°59.1	274°38.5	N25°34.0	321°12.5	N21°39.0	43°09.0	S07°10.2										
19	46°23.6	57°03.4	58.0	289°42.0	34.2	336°15.0	39.0	58°11.2	10.1										
20	61°26.0	72°03.8	56.8	304°45.5	34.4	351°17.6	39.0	73°13.5	10.0										
21	76°28.5	87°04.3	•• 55.6	319°49.0	•• 34.5	6°20.2	•• 39.0	88°15.7	•• 09.9										
22	91°31.0	102°04.7	54.4	334°52.5	34.7	21°22.8	39.0	103°17.9	09.8										
23	106°33.4	117°05.2	53.3	349°56.0	34.9	36°25.4	39.0	118°20.2	09.7										
Mer.pass. 15:55				ν 0.4' d 1.2' m -4.64				ν 3.5' d 0.2' m -1.36				ν 2.6' d -0.0' m -2.61				ν 2.2' d 0.1' m 1.10			

Stars	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.2	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.2	-57°06.9
Hamal	327°51.1	23°34.9
Polaris	313°51.5	89°22.5
Acamar	315°11.6	-40°12.5
Menkar	314°06.0	4°11.3
Mirafak	308°28.0	49°57.2
Aldebaran	290°39.3	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.8
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.7	7°24.7
Canopus	263°51.9	-52°42.6
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°00.4
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.3
Suhail	222°45.9	-43°32.0
Miaplacidus	221°37.4	-69°49.1
Alphard	217°47.4	-8°46.1
Regulus	207°34.1	11°50.6
Dubhe	193°40.5	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.4	-17°40.8
Acrux	172°59.8	-63°14.0
Gacrux	171°51.4	-57°15.0
Alloth	166°12.8	55°49.1
Spica	158°22.2	-11°17.5
Alkaid	152°51.9	49°11.0
Hadar	148°36.0	-60°29.4
Menkent	147°57.6	-36°29.5
Arcturus	145°47.9	19°45.9
Rigel Kent.	139°40.4	-60°56.1
Kochab	137°20.1	74°02.7</

	Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	121°35.9	132°05.7	S03°52.1	4°59.5	N25°35.1	51°28.0	N21°39.0	133°22.4	S07°09.6						
1	136°38.4	147°06.1	50.9	20°03.0	35.2	66°30.6	38.9	148°24.6	09.5						
2	151°40.0	162°06.6	49.7	35°06.5	35.4	81°33.2	38.9	163°26.9	09.4						
3	166°43.3	177°07.1	•• 48.5	50°10.0	•• 35.6	96°35.7	•• 38.9	178°29.1	•• 09.3						
4	181°45.8	192°07.5	47.4	65°13.5	35.7	111°38.3	38.9	193°31.3	09.2						
5	196°48.2	207°08.0	46.2	80°17.0	35.9	126°40.9	38.9	208°33.6	09.1						
6	211°50.7	222°08.5	S03°45.0	95°20.5	N25°36.1	141°43.5	N21°38.9	223°35.8	S07°09.0						
7	226°53.2	237°08.9	43.8	110°24.0	36.3	156°46.1	38.9	238°38.0	08.9						
8	241°55.6	252°09.4	42.6	125°27.5	36.4	171°48.7	38.9	253°40.3	08.8						
9	256°58.1	267°09.9	•• 41.5	140°31.0	•• 36.6	186°51.2	•• 38.9	268°42.5	•• 08.7						
10	272°00.5	282°10.4	40.3	155°34.5	36.8	201°53.8	38.9	283°44.7	08.6						
11	287°03.0	297°10.8	39.1	170°38.0	36.9	216°56.4	38.9	298°47.0	08.5						
12	302°05.5	312°11.3	S03°37.9	185°41.5	N25°37.1	231°59.0	N21°38.9	313°49.2	S07°08.4						
13	317°07.9	327°11.8	36.7	200°45.0	37.3	247°01.6	38.9	328°51.4	08.3						
14	332°10.4	342°12.3	35.6	215°48.5	37.4	262°04.2	38.9	343°53.7	08.2						
15	347°12.9	357°12.8	•• 34.4	230°52.0	•• 37.6	277°06.7	•• 38.9	358°55.9	•• 08.1						
16	2°15.3	12°13.2	33.2	245°55.5	37.8	292°09.3	38.9	13°58.1	08.0						
17	17°17.8	27°13.7	32.0	260°59.0	37.9	307°11.9	38.9	29°00.4	07.9						
18	32°20.3	42°14.2	S03°30.9	276°02.5	N25°38.1	322°14.5	N21°38.8	44°02.6	S07°07.8						
19	47°22.7	57°14.7	29.7	291°05.9	38.3	337°17.1	38.8	59°04.8	07.7						
20	62°25.2	72°15.2	28.5	306°09.4	38.4	352°19.6	38.8	74°07.1	07.6						
21	77°27.6	87°15.7	•• 27.3	321°12.9	•• 38.6	7°22.2	•• 38.8	89°09.3	•• 07.5						
22	92°30.1	102°16.2	26.2	336°16.4	38.8	22°28.4	38.8	104°11.5	07.4						
23	107°32.6	117°16.6	25.0	351°19.9	38.9	37°27.4	38.8	119°13.8	07.3						
Mer.pass. 15:51 ν 0.5' d 1.2' m -4.65 ν 3.5' d 0.2' m -1.34 ν 2.6' d -0.0' m -2.60 ν 2.2' d 0.1' m 1.10															

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	122°35.0	132°17.1	S03°23.8	6°23.4	N25°39.1	52°30.0	N21°38.8	134°16.0	S07°07.2						
1	137°37.5	147°17.6	22.6	21°26.9	39.3	67°32.5	38.8	149°18.2	07.1						
2	152°40.0	162°18.1	21.4	36°30.4	39.4	82°35.1	38.8	164°20.5	07.0						
3	167°42.4	177°18.6	•• 20.3	51°33.8	•• 39.6	97°37.7	•• 38.8	179°22.7	•• 06.9						
4	182°44.9	192°19.1	19.1	66°37.3	39.8	112°40.3	38.8	194°24.9	06.8						
5	197°47.4	207°19.6	17.9	81°40.8	39.9	127°42.8	38.8	209°27.1	06.7						
6	212°49.8	222°20.1	S03°16.7	96°44.3	N25°40.1	142°45.4	N21°38.8	224°29.4	S07°06.6						
7	227°52.3	237°20.6	15.6	111°47.8	40.2	157°48.0	38.8	239°31.6	06.5						
8	242°54.8	252°21.1	14.4	126°51.3	40.4	172°50.6	38.8	254°33.8	06.4						
9	257°57.2	267°21.6	•• 13.2	141°54.7	•• 40.6	187°53.1	•• 38.8	269°36.1	•• 06.3						
10	272°59.7	282°22.1	12.0	156°58.2	40.7	202°55.7	38.8	284°38.3	06.2						
11	288°02.1	297°22.6	10.9	172°01.7	40.9	217°58.3	38.8	299°40.5	06.1						
12	303°04.6	312°23.1	S03°09.7	187°05.2	N25°41.0	233°00.9	N21°38.8	314°42.8	S07°06.0						
13	318°07.1	327°23.6	08.5	202°08.7	41.2	248°03.4	38.7	329°45.0	05.9						
14	333°09.5	342°24.2	07.3	217°12.1	41.4	263°06.0	38.7	344°47.2	05.8						
15	348°12.0	357°24.7	•• 06.2	232°15.6	•• 41.5	278°08.6	•• 38.7	359°49.5	•• 05.7						
16	3°14.5	12°25.2	05.0	247°19.1	41.7	293°11.2	38.7	14°51.7	05.5						
17	18°16.9	27°25.7	03.8	262°22.6	41.8	308°13.7	38.7	29°53.9	05.4						
18	33°19.4	42°26.2	S03°02.6	277°26.0	N25°42.0	323°16.3	N21°38.7	44°56.1	S07°05.3						
19	48°21.9	57°26.7	01.5	292°29.5	42.1	338°18.9	38.7	59°58.4	05.2						
20	63°24.3	72°27.2	03°00.3	307°33.0	42.3	353°21.4	38.7	75°00.6	05.1						
21	78°26.8	87°27.8	02°59.1	322°36.5	•• 42.5	8°24.0	•• 38.7	90°02.8	•• 05.0						
22	93°29.3	102°28.3	57.9	337°39.9	42.6	23°26.6	38.7	105°05.1	04.9						
23	108°31.7	117°28.8	56.8	352°43.4	42.8	38°29.2	38.7	120°07.3	04.8						
Mer.pass. 15:47			ν 0.5' d 1.2' m -4.66			ν 3.5' d 0.2' m -1.32			ν 2.6' d -0.0' m -2.59			ν 2.2' d 0.1' m 1.10			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	123°34.2	132°29.3	S02°55.6	7°46.9	N25°42.9	53°31.7	N21°38.7	135°09.5	S07°04.7						
1	138°36.6	147°29.8	54.4	22°50.3	43.1	68°34.3	38.7	150°11.8	04.6						
2	153°39.1	162°30.4	53.2	37°53.8	43.2	83°36.9	38.7	165°14.0	04.5						
3	168°41.6	177°30.9	•• 52.1	52°57.3	•• 43.4	98°39.4	•• 38.7	180°16.2	•• 04.4						
4	183°44.0	192°31.4	50.9	68°00.8	43.5	113°42.0	38.7	195°18.4	04.3						
5	198°46.5	207°31.9	49.7	83°04.2	43.7	128°44.6	38.7	210°20.7	04.2						
6	213°49.0	222°32.5	S02°48.5	98°07.7	N25°43.8	143°47.1	N21°38.7	225°22.9	S07°04.1						
7	228°51.4	237°33.0	47.4	113°11.2	44.0	158°49.7	38.7	240°25.1	04.0						
8	243°53.9	252°33.5	46.2	128°14.6	44.1	173°52.3	38.7	255°27.4	03.9						
9	258°56.4	267°34.1	•• 45.0	143°18.1	•• 44.3	188°54.8	•• 38.7	270°29.6	•• 03.8						
10	273°58.8	282°34.6	43.9	158°21.6	44.4	203°57.4	38.7	285°31.8	03.6						
11	289°01.3	297°35.1	42.7	173°25.0	44.6	219°00.0	38.7	300°34.1	03.7						
12	304°03.8	312°35.7	S02°41.5	188°28.5	N25°44.7	234°02.5	N21°38.6	315°36.3	S07°03.5						
13	319°06.2	327°36.2	40.3	203°31.9	44.9	249°05.1	38.6	330°38.5	03.4						
14	334°08.7	342°36.7	39.2	218°35.4	45.0	264°07.7	38.6	345°40.7	03.3						
15	349°11.1	357°37.3	•• 38.0	233°38.9	•• 45.2	279°10.2	•• 38.6	0°43.0	•• 03.2						
16	4°13.6	12°37.8	36.8	248°42.3	45.3	294°12.8	38.6	15°45.2	03.1						
17	19°16.1	27°38.4	35.7	263°45.8	45.5	309°15.3	38.6	30°47.4	03.0						
18	34°18.5	42°38.9	S02°34.5	278°49.2	N25°45.6	324°17.9	N21°38.6	45°49.6	S07°02.9						
19	49°21.0	57°39.5	33.3	293°52.7	45.8	339°20.5	38.6	60°51.9	02.8						
20	64°23.5	72°40.0	32.1	308°56.2	45.9	354°23.0	38.6	75°54.1	02.7						
21	79°25.9	87°40.6	•• 31.0	323°59.6	•• 46.1	9°25.6	•• 38.6	90°56.3	•• 02.6						
22	94°28.4	102°41.1	29.8	339°03.1	46.2	24°28.2	38.6	105°58.6	02.5						
23	109°30.9	117°47.1	28.6	354°06.5	46.4	39°30.7	38.6	121°00.8	02.4						
Mer.pass. 15:43			ν 0.5' d 1.2' m -4.67			ν 3.5' d 0.2' m -1.29			ν 2.6' d -0.0' m -2.58			ν 2.2' d 0.1' m 1.10			

Stars		SHA	Dec
Alpheratz	357°34.9	29°13.8	
Ankaa	353°07.3	-42°10.4	
Schedar	349°31.2	56°40.7	
Diphda	348°47.4	-17°51.1	
Achernar	335°20.2	-57°06.9	
Hamal	327°51.1	23°34.9	
Polaris	313°52.8	89°22.5	
Acamar	315°11.6	-40°12.5	
Menkar	314°06.0	4°11.3	
Mirafak	308°28.0	49°57.2	
Aldebaran	290°39.4	16°33.6	
Rigel	281°03.6	-8°10.4	
Capella	280°21.5	46°01.5	
Bellatrix	278°22.6	6°22.3	
Elnath	278°01.5	28°37.8	
Alnilam	275°37.4	-1°12.1	
Betelgeuse	270°51.8	7°24.7	
Canopus	263°51.9	-52°42.6	
Sirius	258°25.9	-16°45.1	
Adhara	255°05.5	-29°00.4	
Procyon	244°50.5	5°09.6	
Pollux	243°16.9	27°57.9	
Avior	234°14.1	-59°35.5	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	124°33.3	132°42.2	S02°27.5	9°10.0	N25°46.5	54°33.3	N21°38.6	136°03.0	S07°02.3										
1	139°35.8	147°42.8	26.3	24°13.4	46.6	69°35.8	38.6	151°05.2	02.2										
2	154°38.2	162°43.3	25.1	39°16.9	46.8	84°38.4	38.6	166°07.5	02.1										
3	169°40.7	177°43.9	23.9	54°20.3	46.9	99°41.0	38.6	181°09.7	02.0										
4	184°43.2	192°44.4	22.8	69°23.8	47.2	114°43.5	38.6	196°11.9	01.9										
5	199°45.6	207°45.0	21.6	84°27.2	47.2	129°46.1	38.6	211°14.2	01.7										
6	214°48.1	222°45.5	S02°20.4	99°30.7	N25°47.4	144°48.6	N21°38.6	226°16.4	S07°01.6										
7	229°50.6	237°46.1	19.3	114°34.1	47.5	159°51.2	38.6	241°18.6	01.5										
8	244°53.0	252°46.7	18.1	129°37.6	47.6	174°53.7	38.6	256°20.8	01.4										
9	259°55.5	267°47.2	16.9	144°41.0	47.8	189°56.3	38.6	271°23.1	01.3										
10	274°58.0	282°47.8	15.8	159°44.5	47.9	204°58.9	38.6	286°25.3	01.2										
11	290°00.4	297°48.4	14.6	174°47.9	48.1	220°01.4	38.6	301°27.5	01.1										
12	305°02.9	312°48.9	S02°13.4	189°51.4	N25°48.2	235°04.0	N21°38.6	316°29.7	S07°01.0										
13	320°05.4	327°49.5	12.3	204°54.8	48.4	250°06.5	38.6	331°32.0	00.9										
14	335°07.8	342°50.1	11.1	219°58.2	48.5	265°09.1	38.6	346°34.0	00.8										
15	350°10.3	357°50.6	09.9	235°01.7	48.6	280°11.6	38.6	1°36.4	00.7										
16	5°12.7	12°51.2	08.8	250°05.1	48.8	295°14.2	38.6	16°38.6	00.6										
17	20°15.2	27°51.8	07.6	265°08.6	48.9	310°16.7	38.6	31°40.9	00.5										
18	35°17.7	42°52.4	S02°06.4	280°12.0	N25°49.0	325°19.3	N21°38.6	46°43.1	S07°00.4										
19	50°20.1	57°52.9	05.3	295°15.4	49.2	340°21.8	38.6	61°45.3	00.3										
20	65°22.6	72°53.5	04.1	310°18.9	49.3	355°24.4	38.6	76°47.6	00.2										
21	80°25.1	87°54.1	02.9	325°22.3	49.5	10°27.0	38.6	91°49.8	00.1										
22	95°27.5	102°54.7	01.8	340°25.8	49.6	25°29.5	38.5	106°52.0	07°00.0										
23	110°30.0	117°55.3	00.6	355°29.2	49.7	40°32.1	38.5	121°54.2	06°59.9										
Mer.pass. 15:39				ν 0.6' d 1.2' m -4.68				ν 3.5' d 0.1' m -1.27				ν 2.6' d -0.0' m -2.58				ν 2.2' d 0.1' m 1.10			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	125°32.5	132°55.8	S01°59.4	10°32.6	N25°49.9	55°34.6	N21°38.5	136°56.5	S06°59.8										
1	140°34.9	147°56.4	58.3	25°36.1	50.0	70°37.2	38.5	151°58.7	59.7										
2	155°37.4	162°57.0	57.1	40°39.5	50.1	85°39.7	38.5	167°00.9	59.6										
3	170°39.9	177°57.6	55.9	55°42.9	50.3	100°42.3	38.5	182°03.1	59.5										
4	185°42.3	192°58.2	54.8	70°46.4	50.4	115°44.8	38.5	197°05.4	59.4										
5	200°44.8	207°58.8	53.6	85°49.8	50.5	130°47.4	38.5	212°07.6	59.3										
6	215°47.2	222°59.4	S01°52.4	100°53.2	N25°50.7	145°49.9	N21°38.5	227°09.8	S06°59.2										
7	230°49.7	238°00.0	51.3	115°56.6	50.8	160°52.5	38.5	242°12.0	59.0										
8	245°52.2	253°00.6	50.1	131°00.1	50.9	175°55.0	38.5	257°14.3	58.9										
9	260°54.6	268°01.2	48.9	146°03.5	51.1	190°57.6	38.5	272°16.5	58.8										
10	275°57.1	283°01.7	47.8	161°06.9	51.2	206°00.1	38.5	287°18.7	58.7										
11	290°59.6	298°02.3	46.6	176°10.3	51.3	221°02.6	38.5	302°20.9	58.6										
12	306°02.0	313°02.9	S01°45.4	191°13.8	N25°51.5	236°05.2	N21°38.5	317°23.2	S06°58.5										
13	321°04.5	328°03.5	44.3	206°17.2	51.6	251°07.7	38.5	332°25.4	58.4										
14	336°07.0	343°04.1	43.1	221°20.6	51.7	266°10.3	38.5	347°27.8	58.3										
15	351°09.4	358°04.7	42.0	236°24.0	51.9	281°12.8	38.5	2°29.6	58.2										
16	6°11.9	13°05.4	40.8	251°27.5	52.0	296°15.4	38.5	17°32.0	58.1										
17	21°14.4	28°06.0	39.6	266°30.9	52.1	311°17.9	38.5	32°34.3	58.0										
18	36°16.8	43°06.6	S01°38.5	281°34.3	N25°52.2	326°20.5	N21°38.5	47°36.5	S06°57.9										
19	51°19.3	58°07.2	37.3	296°37.7	52.4	341°23.0	38.5	62°38.7	57.8										
20	66°21.7	73°07.8	36.1	311°41.1	52.5	356°25.6	38.5	77°40.9	57.7										
21	81°24.2	88°08.4	35.1	326°44.5	52.6	11°28.1	38.5	92°43.2	57.6										
22	96°26.7	103°09.0	33.8	341°48.0	52.7	26°30.6	38.5	107°45.4	57.5										
23	111°29.1	118°09.6	32.7	356°51.4	52.9	41°33.2	38.5	122°47.6	57.4										
Mer.pass. 15:35				ν 0.6' d 1.2' m -4.69				ν 3.4' d 0.1' m -1.24				ν 2.6' d -0.0' m -2.57				ν 2.2' d 0.1' m 1.10			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	126°31.6	133°10.2	S01°31.5	11°54.8	N25°53.0	56°35.7	N21°38.5	137°49.8	S06°57.3										
1	141°34.1	148°10.9	30.3	26°58.2	53.1	71°38.3	38.5	152°52.1	57.2										
2	156°36.5	163°11.5	29.2	42°01.6	53.2	86°40.8	38.5	167°54.3	57.1										
3	171°39.0	178°12.1	28.0	57°05.0	53.4	101°43.3	38.5	182°56.5	57.0										
4	186°41.5	193°12.7	26.9	72°08.4	53.5	116°45.9	38.5	197°58.7	56.9										
5	201°43.9	208°13.3	25.7	87°11.8	53.6	131°48.4	38.5	213°01.0	56.7										
6	216°46.4	223°14.0	S01°24.5	102°15.2	N25°53.7	146°51.0	N21°38.5	228°03.2	S06°56.6										
7	231°48.9	238°14.6	23.4	117°18.6	53.9	161°53.5	38.5	243°05.4	56.5										
8	246°51.3	253°15.2	22.2	132°22.1	54.0	176°56.0	38.5	258°07.6	56.4										
9	261°53.8	268°15.8	21.1	147°25.5	54.1	191°58.6	38.5	273°09.8	56.3										
10	276°56.2	283°16.5	19.9	162°28.9	54.2	207°01.1	38.5	288°12.1	56.2										
11	291°58.7	298°17.1	18.7	177°32.3	54.4	222°03.7	38.5	303°14.3	56.1										
12	307°01.2	313°17.7	S01°17.6	192°35.7	N25°54.5	237°06.2	N21°38.5	318°16.5	S06°56.0										
13	322°03.6	328°18.4	16.4	207°39.1	54.6	252°08.7	38.5	333°18.7	55.9										
14	337°06.1	343°19.0	15.3	222°42.5	54.7	267°11.3	38.5	348°21.0	55.8										
15	352°08.6	358°19.6	14.1	237°45.9	54.8	282°13.8	38.5	3°23.2	55.7										
16	7°11.0	13°20.3	13.0	252°49.3	55.0	297°16.3	38.5	18°25.4	55.6										
17	22°13.5	28°20.9	11.8	267°52.7	55.1	312°18.9	38.5	33°27.6	55.5										
18	37°16.0	43°21.5	S01°10.6	282°56.1	N25°55.2	327°21.4	N21°38.5	48°29.8	S06°55.4										
19	52°18.4	58°22.2	09.5	297°59.5	55.3	342°24.0	38.5	63°32.1	55.3										
20	67°20.9	73°22.8	08.3	313°02.8	55.4	357°26.5	38.5	78°34.3	55.2										
21	82°23.4	88°23.5	07.2	328°06.2	55.6	12°29.0	38.5	93°36.5	55.1										
22	97°25.8	103°24.1	06.0	343°09.6	55.7	27°31.6	38.5	108°38.7	55.0										
23	112°28.3	118°24.8	04.9	358°13.0	55.8	42°34.1	38.5	123°41.0	54.9										
Mer.pass. 15:31				ν 0.6' d 1.2' m -4.70				ν 3.4' d 0.1' m -1.21				ν 2.5' d -0.0' m -2.56				ν 2.2' d 0.1' m 1.11			

Stars	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.2	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.2	-57°06.9
Hamal	327°51.2	23°34.9
Polaris	313°54.0	89°22.5
Acamar	315°11.6	-40°12.5
Menkar	314°06.0	4°11.2
Mirafak	308°28.0	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.8
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.9	-52°42.6
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°00.4
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.3
Suhail	222°45.8	-43°32.0
Miaplacidus	221°37.4	-69°49.9
Alphard	217°47.4	-8°46.1
Regulus	207°34.1	11°50.6
Dubhe	193°40.4	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.4	-17°40.9
Acrux	172°59.8	-63°44.1
Gacrux	171°51.4	-57°15.0
Alloth	166°12.7	55°49.1
Spica	158°22.2	-11°17.6
Alkaid	152°51.9	49°10.0
Hadar	148°35.9	-60°29.4
Menkent	147°57.6	-36°29.5
Arcturus	145°47.9	19°02.9
Rigil Kent.	139°40.3	-60°56.1
Kochab	137°19.9	74°02.7
Zuben'ubi	136°56.0	-16°08.8
Alphecca	126°03.8	26°37.6
Antares	112°16.0	-26°29.2
Atria	107°10.6	69°0

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	127°30.7	133°25.4	S01°03.7	13°16.4	N25°55.9	57°36.6	N21°38.5	138°43.2	S06°54.7										
1	142°33.2	148°26.1	02.6	28°19.8	56.0	72°39.2	38.5	153°45.4	54.6										
2	157°35.7	163°26.7	01.4	43°23.2	56.1	87°41.7	38.5	168°47.6	54.5										
3	172°38.1	178°27.4	01°00.2	58°26.6	56.2	102°44.2	38.5	183°49.8	54.4										
4	187°40.6	193°28.0	00°59.1	73°30.0	56.4	117°46.8	38.5	198°52.1	54.3										
5	202°43.1	208°28.7	57.9	88°33.3	56.5	132°49.3	38.5	213°54.3	54.2										
6	217°45.5	223°29.3	S00°56.8	103°36.7	N25°56.6	147°51.8	N21°38.5	228°56.5	S06°54.1										
7	232°48.0	238°30.0	55.6	118°40.1	56.7	162°54.3	38.5	243°58.7	54.0										
8	247°50.5	253°30.6	54.5	133°43.5	56.8	177°56.9	38.5	259°00.9	53.9										
9	262°52.9	268°31.3	53.3	148°46.9	56.9	192°59.4	38.5	274°03.2	53.8										
10	277°55.4	283°32.0	52.2	163°50.3	57.0	208°01.9	38.5	289°05.4	53.7										
11	292°57.9	298°32.6	51.0	178°53.6	57.2	223°04.5	38.5	304°07.6	53.6										
12	308°00.3	313°33.3	S00°49.9	193°57.0	N25°57.3	238°07.0	N21°38.5	319°09.8	S06°53.5										
13	323°02.8	328°33.9	48.7	209°00.4	57.4	253°09.5	38.5	334°12.0	53.4										
14	338°05.2	343°34.6	47.6	224°03.8	57.5	268°12.1	38.5	349°14.3	53.3										
15	353°07.7	358°35.3	46.4	239°07.1	57.6	283°14.6	38.5	4°16.5	53.2										
16	8°10.2	13°36.0	45.3	254°10.5	57.7	298°17.1	38.5	19°18.7	53.1										
17	23°12.6	28°36.6	44.1	269°13.9	57.8	313°19.6	38.5	34°20.9	52.9										
18	38°15.1	43°37.3	S00°43.8	284°17.3	N25°57.9	328°22.2	N21°38.5	49°23.2	S06°52.8										
19	53°17.6	58°38.0	41.8	299°20.6	58.0	343°24.7	38.5	64°25.4	52.7										
20	68°20.0	73°38.7	40.7	314°24.0	58.1	358°27.2	38.5	79°27.6	52.6										
21	83°22.5	88°39.3	39.5	329°27.4	58.3	13°29.7	38.5	94°29.8	52.5										
22	98°25.0	103°40.0	38.4	344°30.7	58.4	28°32.3	38.5	109°32.0	52.4										
23	113°27.4	118°40.7	37.2	359°34.1	58.5	43°34.8	38.5	124°34.2	52.3										
Mer.pass. 15:27				ν 0.6' d 1.2' m -4.71				ν 3.4' d 0.1' m -1.19				ν 2.5' d 0.0' m -2.55				ν 2.2' d 0.1' m 1.11			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	128°29.9	133°41.4	S00°36.1	14°37.5	N25°58.6	58°37.3	N21°38.5	139°36.5	S06°52.2
1	143°32.3	148°42.1	34.9	29°40.8	58.7	73°39.8	38.5	154°38.7	52.1
2	158°34.8	163°42.7	33.8	44°44.2	58.8	88°42.4	38.5	169°40.9	52.0
3	173°37.3	178°43.4	32.6	59°47.6	58.9	103°44.9	38.5	184°43.1	51.9
4	188°39.7	193°44.1	31.5	74°50.9	59.0	118°47.4	38.5	199°45.3	51.8
5	203°42.2	208°44.8	30.3	89°54.3	59.1	133°49.9	38.5	214°47.6	51.7
6	218°44.7	223°45.5	S00°29.2	104°57.6	N25°59.2	148°52.4	N21°38.5	229°49.8	S06°51.6
7	233°47.1	238°46.2	28.0	120°01.0	59.3	163°55.0	38.5	244°52.0	51.5
8	248°49.6	253°46.9	26.9	135°04.3	59.4	178°57.5	38.5	259°54.2	51.3
9	263°52.1	268°47.6	25.7	150°07.7	59.5	194°00.0	38.5	274°56.4	51.2
10	278°54.5	283°48.3	24.6	165°11.1	59.6	209°02.5	38.5	289°58.7	51.1
11	293°57.0	298°49.0	23.4	180°14.4	59.7	224°05.1	38.5	305°00.9	51.0
12	308°59.5	313°49.7	S00°22.3	195°17.8	N25°59.8	239°07.6	N21°38.5	320°03.1	S06°50.9
13	324°01.9	328°50.4	21.2	210°21.1	25°59.9	254°10.1	38.6	335°05.3	50.8
14	339°04.4	343°51.1	20.0	225°24.5	26°00.0	269°12.6	38.6	350°07.5	50.7
15	354°06.8	358°51.8	18.9	240°27.8	26°01.1	284°15.1	38.6	5°09.8	50.6
16	9°09.3	13°52.5	17.7	255°31.2	00.2	299°17.6	38.6	20°12.0	50.5
17	24°11.8	28°53.2	16.6	270°34.5	00.3	314°20.2	38.6	35°14.2	50.4
18	39°14.2	43°53.9	S00°15.4	285°37.9	N26°00.4	329°22.7	N21°38.6	50°16.4	S06°50.3
19	54°16.7	58°54.6	14.3	300°41.2	00.5	344°25.2	38.6	65°18.6	50.2
20	69°19.2	73°55.3	13.1	315°44.5	00.6	359°27.7	38.6	80°20.8	50.1
21	84°21.6	88°56.0	12.0	330°47.9	00.7	14°30.2	38.6	95°23.1	50.0
22	99°24.1	103°56.7	10.9	345°51.2	00.8	29°32.7	38.6	110°25.3	49.9
23	114°26.6	118°57.4	09.7	0°54.6	00.9	44°35.3	38.6	125°27.5	49.7
Mer.pass. 15:23 ν 0.7' d 1.1' m -4.72 ν 3.4' d 0.1' m -1.16 ν 2.5' d 0.0' m -2.54 ν 2.2' d 0.1' m 1.11									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	129°29.0	133°58.2	S00°08.6	15°57.9	N26°01.0	59°37.8	N21°38.6	140°29.7	S06°49.6
1	144°31.5	148°58.9	07.4	31°01.2	01.1	74°40.3	38.6	155°31.9	49.5
2	159°34.0	163°59.6	06.3	46°04.6	01.2	89°42.8	38.6	170°34.1	49.4
3	174°36.4	179°00.3	55.1	61°07.9	01.3	104°45.3	38.6	185°36.4	49.3
4	189°38.9	194°01.0	04.0	76°11.2	01.4	119°47.8	38.6	200°38.6	49.2
5	204°41.3	209°01.8	02.9	91°14.6	01.5	134°50.3	38.6	215°40.8	49.1
6	219°43.8	224°02.5	S00°01.7	106°17.9	N26°01.6	149°52.9	N21°38.6	230°43.0	S06°49.0
7	234°46.3	239°03.2	S00°00.6	121°21.2	01.7	164°55.4	38.6	245°45.2	48.9
8	249°48.7	254°03.9	N00°00.5	136°24.6	01.8	179°57.9	38.6	260°47.5	48.8
9	264°51.2	269°04.7	01.7	151°27.9	01.9	195°00.4	38.6	275°49.7	48.7
10	279°53.7	284°05.4	02.8	166°31.2	02.0	210°02.9	38.6	290°51.9	48.6
11	294°56.1	299°06.1	04.0	181°34.6	02.1	225°05.4	38.6	305°54.1	48.5
12	309°58.6	314°06.9	N00°05.1	196°37.9	N26°02.2	240°07.9	N21°38.6	320°56.3	S06°48.4
13	325°01.1	329°07.6	06.2	211°41.2	02.3	255°10.4	38.6	335°58.5	48.2
14	340°03.5	344°08.3	07.4	226°44.5	02.3	270°12.9	38.6	351°00.8	48.1
15	355°06.0	359°09.1	08.5	241°47.9	02.4	285°15.5	38.6	6°03.0	48.0
16	10°08.5	14°09.8	09.7	256°51.2	02.5	300°18.0	38.6	21°05.2	47.9
17	25°10.9	29°10.6	10.8	271°54.5	02.6	315°20.5	38.6	36°07.4	47.8
18	40°13.4	44°11.3	N00°11.9	286°57.8	N26°02.7	330°23.0	N21°38.6	51°09.6	S06°47.7
19	55°15.8	59°12.0	13.1	302°01.1	02.8	345°25.5	38.6	66°11.8	47.6
20	70°18.3	74°12.8	14.2	317°04.4	02.9	0°28.0	38.6	81°14.0	47.5
21	85°20.8	89°13.5	15.3	332°07.8	03.0	15°30.5	38.6	96°16.3	47.4
22	100°23.2	104°14.3	16.5	347°11.1	03.1	30°33.0	38.6	111°18.5	47.3
23	115°25.7	119°15.0	17.6	2°14.4	03.2	45°35.5	38.7	126°20.7	47.2
Mer.pass. 15:20 ν 0.7' d 1.1' m -4.73 ν 3.3' d 0.1' m -1.13 ν 2.5' d 0.0' m -2.54 ν 2.2' d 0.1' m 1.11									

Stars	SHA	Dec
Alpheratz	357°34.9	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.3	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.2	-57°06.9
Hamal	327°51.2	23°34.9
Polaris	313°55.3	89°22.5
Acamar	315°11.6	-40°12.5
Menkar	314°06.0	4°11.2
Mirafak	308°28.0	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.6	-8°10.4
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.8
Alnilam	275°37.4	-1°12.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.9	-52°42.7
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°00.5
Procyon	244°50.4	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.4
Suhail	222°45.8	-43°32.0
Miaplacidus	221°37.4	-69°49.1
Alphard	217°47.4	-8°46.1
Regulus	207°34.1	11°50.6
Dubhe	193°40.4	61°36.7
Denebola	182°24.7	14°25.8
Geniah	175°43.3	-17°40.9
Acrux	172°59.7	-63°14.1
Gacrux	171°51.3	-57°15.0
Althoth	166°12.7	-55°49.1
Spica	158°22.2	-11°17.6
Alkaid	152°51.8	49°10.9
Hadkar	148°35.9	-60°29.4
Menkent	147°57.5	-36°29.5
Arcturus	145°47.8	19°02.9
Rigel Kent.	139°40.3	-60°56.1
Kochab	137°19.9	74°02.7
Zuben'ubi	136°56.0	-16°08.8
Alphecca	126°03.8	-26°37.6
Antares	112°16.0	-26°29.2
Atria	107°10.5	-69°04

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	130°28.2	134°15.8	N00°18.7	17°17.7	N26°03.2	60°38.0	N21°38.7	141°22.9	S06°47.1										
1	145°30.6	149°16.5	19.9	32°21.0	03.4	75°40.0	38.7	156°25.1	47.0										
2	160°33.1	164°17.3	21.0	47°24.3	03.3	90°43.0	38.7	171°27.3	46.8										
3	175°35.6	179°18.0	22.1	62°27.6	03.5	105°45.5	38.7	186°29.6	46.7										
4	190°38.0	194°18.8	23.3	77°30.9	03.6	120°48.0	38.7	201°31.8	46.6										
5	205°40.5	209°19.6	24.4	92°34.2	03.7	135°50.5	38.7	216°34.0	46.5										
6	220°42.9	224°20.3	N00°25.5	107°37.5	N26°03.3	150°53.0	N21°38.7	231°36.2	S06°46.4										
7	235°45.4	239°21.1	26.7	122°40.8	03.9	165°55.6	38.7	246°38.4	46.3										
8	250°47.9	254°21.9	27.8	137°44.1	03.9	180°58.1	38.7	261°40.6	46.2										
9	265°50.3	269°22.6	28.9	152°47.4	04.0	196°00.6	38.7	276°42.9	46.1										
10	280°52.8	284°23.4	30.1	167°50.7	04.1	211°03.1	38.7	291°45.1	46.0										
11	295°55.3	299°24.2	31.2	182°54.0	04.2	226°05.6	38.7	306°47.3	45.9										
12	310°57.7	314°24.9	N00°32.3	197°57.3	N26°04.3	241°08.1	N21°38.7	321°49.5	S06°45.8										
13	326°00.2	329°25.7	33.4	213°00.6	04.4	256°10.6	38.7	336°51.7	45.7										
14	341°02.7	344°26.5	34.6	228°03.9	04.4	271°13.1	38.7	351°53.9	45.5										
15	356°05.1	359°27.2	35.7	243°07.2	04.5	286°15.6	38.7	36°56.1	45.4										
16	11°07.6	14°28.0	36.8	258°10.5	04.6	301°18.1	38.7	21°58.4	45.3										
17	26°10.1	29°28.8	38.0	273°13.8	04.7	316°20.6	38.7	37°00.8	45.2										
18	41°12.5	44°29.6	N00°39.1	288°17.1	N26°04.8	331°23.1	N21°38.7	52°02.6	S06°45.1										
19	56°15.0	59°30.4	40.2	303°20.4	04.9	346°25.6	38.7	67°05.0	45.0										
20	71°17.4	74°31.1	41.3	318°23.7	04.9	1°28.1	38.7	82°07.2	44.9										
21	86°19.9	89°31.9	42.5	333°27.0	05.0	16°30.6	38.7	97°09.4	44.8										
22	101°22.4	104°32.7	43.6	348°30.2	05.1	31°33.1	38.7	112°11.6	44.7										
23	116°24.8	119°33.5	44.7	3°33.5	05.2	46°35.6	38.8	127°13.9	44.6										
Mer.pass. 15:16				ν 0.8' d 1.1' m -4.74				ν 3.3' d 0.1' m -1.10				ν 2.5' d 0.0' m -2.53				ν 2.2' d 0.1' m 1.11			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	131°27.3	134°34.3	N00°45.8	18°36.8	N26°05.2	61°38.0	N21°38.8	142°16.1	S06°44.5										
1	146°29.8	149°35.1	47.0	33°40.1	05.3	76°40.5	38.8	157°18.3	44.4										
2	161°32.2	164°35.9	48.1	48°43.4	05.4	91°43.0	38.8	172°20.5	44.2										
3	176°34.7	179°36.7	49.2	63°46.6	05.5	106°45.5	38.8	187°22.7	44.1										
4	191°37.2	194°37.5	50.3	78°49.9	05.6	121°48.0	38.8	202°24.9	44.0										
5	206°39.6	209°38.3	51.5	93°53.2	05.6	136°50.5	38.8	217°27.1	43.9										
6	221°42.1	224°39.1	N00°52.6	108°56.5	N26°05.7	151°53.0	N21°38.8	232°29.4	S06°43.8										
7	236°44.5	239°39.9	53.7	123°59.7	05.8	166°55.5	38.8	247°31.6	43.7										
8	251°47.0	254°40.7	54.8	139°03.0	05.9	181°58.0	38.8	262°33.8	43.6										
9	266°49.5	269°41.5	55.9	154°06.3	05.9	197°00.5	38.8	277°36.0	43.5										
10	281°51.9	284°42.3	57.1	169°09.6	06.0	212°03.0	38.8	292°38.2	43.4										
11	296°54.4	299°43.1	58.2	184°12.8	06.1	227°05.5	38.8	307°40.4	43.3										
12	311°56.9	314°43.9	N00°59.3	199°16.1	N26°06.2	242°08.0	N21°38.8	322°42.6	S06°43.2										
13	326°59.3	329°44.7	01°00.4	214°19.4	06.2	257°10.5	38.8	337°44.8	43.1										
14	342°01.8	344°45.5	01.6	229°22.6	06.3	272°13.0	38.8	352°47.1	42.9										
15	357°04.3	359°46.3	02.7	244°25.9	06.4	287°15.5	38.8	7°49.3	42.8										
16	12°06.7	14°47.1	03.8	259°29.1	06.5	302°17.9	38.8	22°51.5	42.7										
17	27°09.2	29°47.9	04.9	274°32.4	06.5	317°20.4	38.8	37°53.7	42.6										
18	42°11.7	44°48.8	N01°06.0	289°35.7	N26°06.6	332°22.9	N21°38.9	52°55.9	S06°42.5										
19	57°14.1	59°49.6	07.1	304°38.9	06.7	347°25.4	38.9	67°58.1	42.4										
20	72°16.6	74°50.4	08.3	319°42.2	06.7	2°27.9	38.9	83°00.3	42.3										
21	87°19.0	89°51.2	09.4	334°45.4	06.8	17°30.4	38.9	98°02.5	42.2										
22	102°21.5	104°52.0	10.5	349°48.7	06.9	32°32.9	38.9	113°04.8	42.1										
23	117°24.0	119°52.9	11.6	4°51.9	07.0	47°35.4	38.9	128°07.0	42.0										
Mer.pass. 15:12				ν 0.8' d 1.1' m -4.75				ν 3.3' d 0.1' m -1.07				ν 2.5' d 0.0' m -2.52				ν 2.2' d 0.1' m 1.11			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	132°26.4	134°53.7	N01°12.7	19°55.2	N26°07.0	62°37.9	N21°38.9	143°09.2	S06°41.9						
1	147°28.9	149°54.5	13.8	34°58.4	07.1	77°40.3	38.9	158°11.4	41.7						
2	162°31.4	164°55.4	15.0	50°01.7	07.2	92°42.8	38.9	173°13.6	41.6						
3	177°33.8	179°56.2	16.1	65°04.9	07.2	107°45.3	38.9	188°15.8	41.5						
4	192°36.3	194°57.0	17.2	80°08.2	07.3	122°47.8	38.9	203°18.0	41.4						
5	207°38.8	209°57.9	18.3	95°11.4	07.4	137°50.3	38.9	218°20.2	41.3						
6	222°41.2	224°58.7	N01°19.4	110°14.7	N26°07.4	152°52.8	N21°38.9	233°22.5	S06°41.2						
7	237°43.7	239°59.5	20.5	125°17.9	07.5	167°55.3	38.9	248°24.7	41.1						
8	252°46.2	255°00.4	21.6	140°21.2	07.6	182°57.7	38.9	263°26.9	41.0						
9	267°48.6	270°01.2	22.8	155°24.4	07.6	198°00.2	38.9	278°29.1	40.9						
10	282°51.1	285°02.1	23.9	170°27.6	07.7	213°02.7	39.0	293°31.3	40.8						
11	297°53.5	300°02.9	25.0	185°30.9	07.8	228°05.2	39.0	308°33.5	40.6						
12	312°56.0	315°03.7	N01°26.1	200°34.1	N26°07.8	243°07.7	N21°39.0	323°35.7	S06°40.5						
13	327°58.5	330°04.6	27.2	215°37.3	07.9	258°10.2	39.0	338°37.9	40.4						
14	343°00.9	345°05.4	28.3	230°40.6	08.0	273°12.6	39.0	353°40.1	40.3						
15	358°03.4	0°06.3	29.4	245°43.8	08.0	288°15.1	39.0	8°42.4	40.2						
16	13°05.9	15°07.2	30.5	260°47.0	08.1	303°17.6	39.0	23°44.6	40.1						
17	28°08.3	30°08.0	31.6	275°50.3	08.2	318°20.1	39.0	38°46.8	40.0						
18	43°10.8	45°08.9	N01°32.7	290°53.5	N26°08.2	333°22.6	N21°39.0	53°49.0	S06°39.9						
19	58°13.3	60°09.7	33.8	305°56.7	08.3	348°25.0	39.0	68°51.2	39.8						
20	73°15.7	75°10.6	35.0	321°00.0	08.3	3°27.5	39.0	83°53.4	39.7						
21	88°18.2	90°11.4	36.1	336°03.2	08.4	18°30.0	39.0	98°55.6	39.6						
22	103°20.6	105°12.3	37.2	351°06.4	08.5	33°32.5	39.0	113°57.8	39.4						
23	118°23.1	120°13.2	38.3	6°09.6	08.5	48°35.0	39.0	129°00.0	39.3						
Mer.pass. 15:08				ν 0.8' d 1.1' m -4.76				ν 2.5' d 0.0' m -2.51				ν 2.2' d 0.1' m 1.11			

SHA	Dec
Alpheratz	357°34.9 29°13.8
Ankaa	353°07.3 -42°10.4
Schedar	349°31.3 56°40.7
Diphda	348°47.4 -17°51.1
Achernar	335°20.3 -57°06.8
Hamal	327°51.2 23°34.9
Polaris	313°57.0 89°22.5
Acamar	315°11.7 -40°12.5
Menkar	314°06.0 4°11.2
Mirfak	308°28.1 49°57.2
Aldebaran	290°39.7 16°33.6
Rigel	281°03.6 -8°10.4
Capella	280°21.5 46°01.5
Bellatrix	278°22.6 6°22.3
Elath	278°05.1 28°37.8
Anilam	275°37.4 -1°11.2
Betelgeuse	270°51.8 7°24.7
Canopus	263°51.9 -52°42.7
Sirius	258°25.9 -16°45.1
Adhara	255°05.5 -29°00.5
Procyon	244°50.5 5°09.6
Pollux	243°16.9 27°57.9
Avior	234°44.1 -59°35.4
Suhail	222°45.8 -43°32.0
Miaplacidus	221°37.4 -69°49.1
Alphard	217°47.4 -8°46.1
Regulus	207°34.1 1°56.6
Dubhe	193°40.3 61°26.8
Deneb	182°24.6 14°35.7
Gienah	175°43.3 -17°40.9
Acrux	172°59.7 -63°14.1
Gacrux	171°51.3 -57°15.0
Alloth	166°12.6 55°49.1
Spica	158°22.1 -11°17.6
Alkaid	152°51.8 49°10.9
Hadar	148°35.8 -60°29.4
Menkent	147°57.5 -36°29.5
Arcturus	145°47.8 19°02.9
Rigel Kent.	139°40.2 -60°56.1
Kochab	137°19.8 74°02.7
Zuben'ubi	136°56.0 -16°08.8
Alphecca	126°03.8 26°37.5
Antares	112°15.9 -26°29.2
Atria	107°10.4 -69°04.1
Sabik	102°02.9 -15°45.4
Shaula	96°10.6 37°07.3
Rasalhague	95°58.7 12°32.3
Eltanin	90°42.6 51°28.8
Kaus Aust.	83°32.8 34°22.3
Vega	80°33.5

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	133°25.6	135°14.0	N01°39.4	21°12.8	N26°08.6	63°37.4	N21°39.1	144°02.3	S06°39.2										
1	148°28.0	150°14.9	40.5	36°16.1	08.7	78°39.9	39.1	159°04.5	39.1										
2	163°30.5	165°15.8	41.6	51°19.3	08.7	93°42.4	39.1	174°06.7	39.0										
3	178°33.0	180°16.6	42.7	66°22.5	08.8	108°44.9	39.1	189°08.9	38.9										
4	193°35.4	195°17.5	43.8	81°25.7	08.8	123°47.4	39.1	204°11.1	38.8										
5	208°37.9	210°18.4	44.9	96°28.9	08.9	138°49.8	39.1	219°13.3	38.7										
6	223°40.4	225°19.3	N01°46.0	111°32.1	N26°09.0	153°52.3	N21°39.1	234°15.5	S06°38.6										
7	238°42.8	240°20.2	47.1	126°35.3	09.0	168°54.8	39.1	249°17.7	38.5										
8	253°45.3	255°21.0	48.2	141°38.6	09.1	183°57.3	39.1	264°19.9	37.8										
9	268°47.8	270°21.9	49.3	156°41.8	09.1	198°59.7	39.1	279°22.1	38.2										
10	283°50.2	285°22.8	50.4	171°45.0	09.2	214°02.2	39.1	294°24.4	38.1										
11	298°52.7	300°23.7	51.5	186°48.2	09.2	229°04.7	39.1	309°26.6	38.0										
12	313°55.1	315°24.6	N01°52.6	201°51.4	N26°09.3	244°07.2	N21°39.1	324°28.8	S06°37.9										
13	328°57.6	330°25.5	53.7	216°54.6	09.4	259°09.6	39.1	339°31.0	37.8										
14	344°00.1	345°26.3	54.8	231°57.8	09.4	274°12.1	39.2	354°33.2	37.7										
15	359°02.5	0°27.2	55.9	247°01.0	09.5	289°14.6	39.2	9°35.4	37.6										
16	14°05.0	15°28.1	57.0	262°04.2	09.5	304°17.0	39.2	24°37.6	37.5										
17	29°07.5	30°29.0	58.1	277°07.4	09.6	319°19.5	39.2	39°39.8	37.4										
18	44°09.9	45°29.9	N01°59.2	292°10.6	N26°09.6	334°22.0	N21°39.2	54°42.2	S06°37.2										
19	59°12.4	60°30.8	02°00.3	307°13.8	09.7	349°24.5	39.2	69°44.2	37.1										
20	74°14.9	75°31.7	01.4	322°17.0	09.7	4°26.9	39.2	84°46.4	37.0										
21	89°17.3	90°32.6	02.5	337°20.2	09.8	19°29.4	39.2	99°48.7	36.9										
22	104°19.8	105°33.5	03.6	352°23.3	09.8	34°31.9	39.2	114°50.9	36.8										
23	119°22.2	120°34.4	04.7	7°26.5	09.9	49°34.3	39.2	129°53.1	36.7										
Mer.pass. 15:04				ν 0.9' d 1.1' m -4.77				ν 3.2' d 0.1' m -1.02				ν 2.5' d 0.0' m -2.50				ν 2.2' d 0.1' m 1.11			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	134°24.7	135°35.3	N02°05.8	22°29.7	N26°09.9	64°36.8	N21°39.2	144°55.3	S06°36.6										
1	149°27.2	150°36.3	06.9	37°32.9	10.0	79°39.3	39.2	159°57.5	36.5										
2	164°29.6	165°37.2	08.0	52°36.1	10.1	94°41.7	39.3	174°59.7	36.4										
3	179°32.1	180°38.1	09.1	67°39.3	10.1	109°44.2	39.3	190°01.9	36.2										
4	194°34.6	195°39.0	10.1	82°42.5	10.2	124°46.7	39.3	205°04.1	36.1										
5	209°37.0	210°39.9	11.2	97°45.6	10.2	139°49.2	39.3	220°06.3	36.0										
6	224°39.5	225°40.8	N02°12.3	112°48.8	N26°10.3	154°51.6	N21°39.3	235°08.5	S06°35.9										
7	239°42.0	240°41.7	13.4	127°52.0	10.3	169°54.1	39.3	250°10.7	35.8										
8	254°44.4	255°42.7	14.5	142°55.2	10.4	184°56.6	39.3	265°13.0	35.7										
9	269°46.9	270°43.6	15.6	157°58.3	10.4	199°59.0	39.3	280°15.2	35.6										
10	284°49.4	285°44.5	16.7	173°01.5	10.4	215°01.5	39.3	295°17.4	35.5										
11	299°51.8	300°45.4	17.8	188°04.7	10.5	230°03.9	39.3	310°19.6	35.4										
12	314°54.3	315°46.4	N02°18.9	203°07.9	N26°10.5	245°06.4	N21°39.3	325°21.8	S06°35.3										
13	329°56.7	330°47.3	20.0	218°11.0	10.6	260°08.9	39.3	340°24.0	35.2										
14	344°59.2	345°48.2	21.0	233°14.2	10.6	275°13.1	39.4	355°26.2	35.0										
15	0°01.7	0°49.2	22.1	248°17.4	10.7	290°13.8	39.4	10°28.4	34.9										
16	15°04.1	15°50.1	23.2	263°20.5	10.7	305°16.3	39.4	25°30.6	34.8										
17	30°06.6	30°51.0	24.3	278°23.7	10.8	320°18.7	39.4	40°32.8	34.7										
18	45°09.1	45°52.0	N02°25.4	293°26.9	N26°10.8	335°21.2	N21°39.4	55°35.0	S06°34.6										
19	60°11.5	60°52.9	26.5	308°30.0	10.9	350°23.7	39.4	70°37.2	34.5										
20	75°14.0	75°53.9	27.6	323°33.2	10.9	5°26.1	39.4	85°39.4	34.4										
21	90°16.5	90°54.8	28.7	338°36.3	11.0	20°28.6	39.4	100°41.7	34.3										
22	105°18.9	105°55.8	29.7	353°39.5	11.0	35°31.0	39.4	115°43.9	34.1										
23	120°21.4	120°56.7	30.8	8°42.7	11.0	50°33.5	39.4	130°46.1	34.0										
Mer.pass. 15:00				ν 0.9' d 1.1' m -4.78				ν 3.2' d 0.1' m -0.99				ν 2.5' d 0.0' m -2.50				ν 2.2' d 0.1' m 1.11			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	135°23.9	135°57.7	N02°31.9	23°45.8	N26°11.1	65°36.0	N21°39.5	145°48.3	S06°33.9		
1	150°26.3	150°58.6	33.0	38°49.0	11.1	80°38.4	39.5	160°50.5	33.8		
2	165°28.8	165°59.6	34.0	53°52.1	11.2	95°40.9	39.5	175°52.7	33.7		
3	180°31.2	181°00.5	35.1	68°55.3	11.2	110°43.3	39.5	190°54.9	33.6		
4	195°33.7	196°01.5	36.2	83°58.4	11.3	125°45.8	39.5	205°57.1	33.5		
5	210°36.2	211°02.4	37.3	99°01.6	11.3	140°48.3	39.5	220°59.3	33.4		
6	225°38.6	226°03.4	N02°38.4	114°04.7	N26°11.3	155°50.7	N21°39.5	236°01.5	S06°33.3		
7	240°41.1	241°04.4	39.4	129°07.9	11.4	170°53.2	39.5	251°03.7	33.1		
8	255°43.6	256°05.3	40.5	144°11.0	11.4	185°55.6	39.5	266°05.9	33.0		
9	270°46.9	271°06.3	41.6	159°14.1	11.5	200°58.1	39.5	281°08.1	32.9		
10	285°48.5	286°07.3	42.7	174°17.3	11.5	216°00.5	39.5	296°10.3	32.8		
11	300°51.0	301°08.2	43.8	189°20.4	11.6	231°03.0	39.6	311°12.6	32.7		
12	315°53.4	316°09.2	N02°44.8	204°23.6	N26°11.6	246°05.5	N21°39.6	326°14.8	S06°32.6		
13	330°55.9	331°10.2	45.9	219°26.7	11.6	261°07.9	39.6	341°17.0	32.5		
14	345°58.4	346°11.1	47.0	234°29.8	11.7	276°10.4	39.6	356°19.2	32.4		
15	1°00.8	1°12.1	48.1	249°33.0	11.7	291°12.8	39.6	1°12.4	32.3		
16	16°03.3	16°13.1	49.1	264°36.1	11.7	306°15.3	39.6	26°23.6	32.1		
17	31°05.7	31°14.1	50.2	279°39.2	11.8	321°17.7	39.6	41°25.8	32.0		
18	46°08.2	46°15.1	N02°51.3	294°42.3	N26°11.8	336°20.2	N21°39.6	56°28.0	S06°31.9		
19	61°10.7	61°16.1	52.3	309°45.5	11.9	351°22.6	39.6	71°30.2	31.8		
20	76°13.1	76°17.0	53.4	324°48.6	11.9	6°25.1	39.7	86°32.4	31.7		
21	91°15.6	91°18.0	54.5	339°51.7	11.9	21°27.5	39.7	101°34.6	31.6		
22	106°18.1	106°19.0	55.6	354°54.8	12.0	36°30.0	39.7	116°36.8	31.5		
23	121°20.5	121°20.0	56.6	9°58.0	12.0	51°32.4	39.7	131°39.0	31.4		
Mer.pass. 14:56				ν 1.0' d 1.1' m -4.79				ν 2.2' d 0.1' m 1.11			

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.3	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.3	-57°06.8
Hamal	327°51.2	23°34.9
Polaris	313°58.5	89°22.5
Acamar	315°11.7	-40°12.5
Menkar	314°06.1	4°11.2
Mirafak	308°28.1	49°57.2
Aldebaran	299°39.4	16°33.6
Rigel	281°03.6	-8°10.5
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.8
Alnilam	275°37.4	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	268°51.9	-52°42.7
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°00.5
Procyon	244°50.4	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.4
Suhail	222°45.8	-43°32.0
Miaplacidus	221°37.4	-69°49.2
Alphard	217°47.4	-8°46.1
Regulus	207°34.0	11°50.6
Dubhe	193°40.3	61°36.7
Denebola	182°24.6	14°25.7
Gienah	175°43.3	-17°40.9
Acrux	172°59.6	-63°14.1
Gacrux	171°51.3	-57°15.1
Alathor	166°12.6	55°49.1
Spica	158°22.1	-11°17.6
Alkaid	152°51.8	49°10.9
Hadar	148°35.8	-60°29.4
Menkent	147°57.5	-36°29.5
Arcturus	145°47.8	19°02.9
Rigel Kent.	139°40.2	-60°56.1
Kochab	137°19.7	74°02.7
Zuben 'ul	136°55.9	-16°08.8
Alphecca	126°03.7	26°37.5
Antares	112°15.9	-26°29.2
Atria	107°10.4	-69°04.1
Sabik	102°02.9	-15°45.4
Shaula	96°10.5	-37°07.3
Rasalhague	95°58.7	12°32.3
Eltanin	90°42.5	51°28.8
Kaus Aust.	83°32.7	-34°22.3
Vega	80°33.5	38°48.2
Nunki	75°48.0	-26°16.0
Altair	62°00.2	8°55.9
Peacock	53°06.2	-56°39.3
Deneb	49°26.2	45°21.2
Enif	33°39.1	9°59.3
Al Na'ir	27°33.3	-46°50.5
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	-28°13.1
Markab	13°30.1	15°20.4
Feb 03 Mon	SHA	Mer-pass.
Venus	1°48.5	14.58
Mars	247°47.3	22.30
Jupiter	290°11.9	19.42
Saturn	10°36.7	14.22
Feb 04 Tue	SHA	Mer-pass.
Venus	1°10.6	14.57
Mars	248°05.0	22.25
Jupiter	290°12.1	19.38
Saturn	10°30.6	14.18
Feb 05 Wed	SHA	Mer-pass.
Venus	0°33.8	14.55
Mars	248°22.0	22.20
Jupiter	290°12.1	19.34
Saturn	10°24.4	14.15
Horizontal parallax		
Venus:		0.3
Mars:		0.2

	Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	136°23.0	136°21.0	N02°57.7	25°01.1	N26°12.0	66°34.9	N21°39.7	146°41.2	S06°31.2						
1	151°25.5	151°22.0	58.8	40°04.2	12.1	81°37.3	39.7	161°43.4	31.1						
2	166°27.9	166°23.0	02°59.8	55°07.3	12.1	96°39.8	39.7	176°45.6	30.9						
3	181°30.4	181°24.0	03°00.9	70°10.4	12.1	111°42.2	39.7	191°47.8	30.8						
4	196°32.8	196°25.0	02.0	85°13.6	12.2	126°44.7	39.7	206°50.1	30.9						
5	211°35.3	211°26.0	03.0	100°16.7	12.2	141°47.1	39.7	221°52.3	30.7						
6	226°37.8	226°27.0	N03°04.1	115°19.8	N26°12.2	156°49.6	N21°39.8	236°54.5	S06°30.6						
7	241°40.2	241°28.0	05.2	130°22.9	12.3	171°52.0	39.8	251°56.7	30.5						
8	256°42.7	256°29.0	06.2	145°26.0	12.3	186°54.5	39.8	266°58.9	30.4						
9	271°45.2	271°30.0	07.3	160°29.1	12.3	201°56.9	39.8	282°01.1	30.2						
10	286°47.6	286°31.0	08.4	175°32.2	12.4	216°59.4	39.8	297°03.3	30.1						
11	301°50.1	301°32.1	09.4	190°35.3	12.4	232°01.8	39.8	312°05.5	30.0						
12	316°52.6	316°33.1	N03°10.5	205°38.4	N26°12.4	247°04.3	N21°39.8	327°07.7	S06°29.9						
13	331°55.0	331°34.1	11.5	220°41.5	12.5	262°06.7	39.8	342°09.9	29.8						
14	346°57.5	346°35.1	12.6	235°44.6	12.5	277°09.2	39.8	357°12.1	29.7						
15	2°00.0	1°36.1	13.7	250°47.7	12.5	292°11.6	39.9	12°14.3	29.6						
16	17°02.4	16°37.2	14.7	265°50.8	12.6	307°14.1	39.9	27°16.5	29.5						
17	32°04.9	31°38.2	15.8	280°53.9	12.6	322°16.5	39.9	42°18.7	29.3						
18	47°07.3	46°39.2	N03°16.8	295°57.0	N26°12.6	337°18.9	N21°39.9	57°20.9	S06°29.2						
19	62°09.8	61°40.2	17.9	311°00.1	12.6	352°21.4	39.9	72°23.1	29.1						
20	77°12.3	76°41.3	19.0	326°03.2	12.7	7°23.8	39.9	87°25.3	29.0						
21	92°14.7	91°42.3	20.0	341°06.3	12.7	22°26.3	39.9	102°27.5	28.9						
22	107°17.2	106°43.3	21.1	356°09.4	12.7	37°28.7	39.9	117°29.7	28.8						
23	122°19.7	121°44.4	22.1	11°12.5	12.8	52°31.2	40.0	132°31.9	28.7						
Mer.pass. 14:52			ν 1.0' d 1.1' m -4.79			ν 3.1' d 0.0' m -0.93			ν 2.5' d 0.0' m -2.48			ν 2.2' d 0.1' m 1.11			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	137°22.1	136°45.4	N03°23.2	26°15.5	N26°12.8	67°33.6	N21°40.0	147°34.2	S06°28.6						
1	152°24.6	151°46.5	24.2	41°18.6	12.8			82°36.0	40.0	162°36.4	28.4				
2	167°27.1	166°47.5	25.3	56°21.7	12.8			97°38.5	40.0	177°38.6	28.3				
3	182°29.5	181°48.6	26.3	71°24.8	12.9			112°40.9	40.0	192°40.0	28.2				
4	197°32.0	196°49.6	27.4	86°27.9	12.9			127°43.4	40.0	207°43.0	28.1				
5	212°34.5	211°50.7	28.5	101°31.0	12.9			142°45.8	40.0	222°45.2	28.0				
6	227°36.9	226°51.7	N03°29.5	116°34.0	N26°12.9	157°48.2	N21°40.0	237°47.4	S06°27.9						
7	242°39.4	241°52.8	30.6	131°37.1	13.0			252°49.6	40.0	252°49.6	27.8				
8	257°41.8	256°53.8	31.6	146°40.2	13.0			187°53.1	40.1	267°51.8	27.7				
9	272°44.3	271°54.9	32.7	161°43.3	13.0			202°55.6	40.1	282°54.0	27.5				
10	287°46.8	286°55.9	33.7	176°46.3	13.0			217°58.0	40.1	297°56.2	27.4				
11	302°49.2	301°57.0	34.8	191°49.4	13.1			233°00.4	40.1	312°58.4	27.3				
12	317°51.7	316°58.1	N03°35.8	206°52.5	N26°13.1	248°02.9	N21°40.1	328°00.6	S06°27.2						
13	332°54.2	331°59.1	36.8	221°55.5	13.1			263°05.3	40.1	343°02.8	27.1				
14	347°56.6	347°00.2	37.9	236°58.6	13.1			278°07.8	40.1	358°05.0	27.0				
15	2°59.1	2°01.3	38.9	252°01.7	13.2			293°10.2	40.1	13°07.2	26.9				
16	18°01.6	17°02.3	40.0	267°04.7	13.2			308°12.6	40.2	28°09.4	26.8				
17	33°04.0	32°03.4	41.0	282°07.4	13.2			323°15.1	40.2	43°11.6	26.6				
18	48°06.5	47°04.5	N03°42.1	297°10.8	N26°13.2	338°15.7	N21°40.2	58°13.8	S06°26.5						
19	63°09.0	62°05.5	43.1	312°13.9	13.2			353°19.9	40.2	73°16.0	26.4				
20	78°11.4	77°06.6	44.2	327°17.0	13.3			8°22.4	40.2	88°18.2	26.3				
21	93°13.9	92°07.7	45.2	342°20.0	13.3			23°24.8	40.2	103°20.4	26.2				
22	108°16.3	107°08.8	46.2	357°23.1	13.3			38°27.2	40.2	118°22.6	26.1				
23	123°18.8	122°09.9	47.3	12°26.1	13.3			53°29.7	40.2	133°24.8	26.0				
Mer.pass. 14:48			ν 1.0' d 1.1' m -4.80			ν 3.1' d 0.0' m -0.90			ν 2.4' d 0.0' m -2.47			ν 2.2' d 0.1' m 1.12			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	138°21.3	137°11.0	N03°48.3	27°29.2	N26°13.3	68°32.1	N21°40.3	148°27.0	S06°25.9						
1	153°23.7	152°12.1	49.4	42°32.2	13.4			83°34.5	40.3	163°29.2	25.7				
2	168°26.2	167°13.1	50.4	57°35.3	13.4			98°37.0	40.3	178°31.4	25.6				
3	183°28.7	182°14.2	51.4	72°38.3	13.4			113°39.4	40.3	193°33.6	25.5				
4	198°31.1	197°15.3	52.5	87°41.3	13.4			128°41.8	40.3	208°35.8	25.4				
5	213°33.6	212°16.4	53.5	102°44.4	13.4			143°44.3	40.3	223°38.0	25.3				
6	228°36.1	227°17.5	N03°54.6	117°47.4	N26°13.5	158°46.7	N21°40.4	238°40.2	S06°25.2						
7	243°38.5	242°18.6	55.6	132°50.5	13.5			253°42.5	40.4	253°42.5	25.1				
8	258°41.0	257°19.7	56.6	147°53.5	13.5			188°51.5	40.4	268°44.7	25.0				
9	273°43.5	272°20.8	57.7	162°56.6	13.5			203°54.0	40.4	283°46.9	24.8				
10	288°45.9	287°21.9	58.7	177°59.6	13.5			218°56.4	40.4	298°49.1	24.7				
11	303°48.4	302°23.1	03°59.7	193°02.6	13.5			233°58.8	40.4	313°51.3	24.6				
12	318°50.8	317°24.2	N04°00.8	208°05.7	N26°13.6	249°01.3	N21°40.4	328°53.5	S06°24.5						
13	333°53.3	332°25.3	01.8	223°08.7	13.6			264°03.7	40.4	343°55.7	24.4				
14	348°55.8	347°26.4	02.8	238°11.7	13.6			279°06.1	40.4	358°57.9	24.3				
15	3°58.2	2°27.5	03.9	253°14.7	13.6			294°08.5	40.5	14°00.1	24.2				
16	19°00.7	17°28.6	04.9	268°17.8	13.6			309°11.0	40.5	29°02.3	24.0				
17	34°03.2	32°29.7	05.9	283°20.8	13.6			324°13.4	40.5	44°04.5	23.9				
18	49°05.6	47°30.9	N04°06.9	298°23.8	N26°13.6	339°15.8	N21°40.5	59°06.5	S06°23.8						
19	64°08.1	62°32.0	08.0	313°26.8	13.7			354°18.3	40.5	74°08.9	23.7				
20	79°10.6	77°33.1	09.0	328°29.9	13.7			9°20.7	40.5	89°11.1	23.6				
21	94°13.0	92°34.3	10.0	343°32.9	13.7			24°23.1	40.5	104°13.3	23.5				
22	109°15.5	107°35.4	11.0	358°35.9	13.7			39°25.5	40.6	119°15.5	23.4				
23	124°17.9	122°36.5	12.1	13°38.9	13.7			54°28.0	40.6	134°17.7	23.3				
Mer.pass. 14:44			ν 1.1' d 1.0' m -4.81			ν 3.0' d 0.0' m -0.87			ν 2.4' d 0.0' m -2.46			ν 2.2' d 0.1' m 1.12			

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.3	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.3	-57°06.8
Hamal	327°51.2	23°34.9
Polaris	313°59.8	89°22.5
Acamar	315°11.7	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.1	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.6	-8°10.5
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.5	28°37.8
Anilam	275°37.4	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°51.9	-52°42.7
Sirius	258°25.9	-16°45.1
Adhara	255°05.5	-29°05.9
Procyon	244°50.4	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.4
Suhail	222°45.8	-43°32.1
Miaplacidus	221°37.4	-69°49.2
Alphard	217°47.4	-8°46.1
Regulus	207°34.0	11°50.6
Dubhe	193°40.3	61°36.7
Denebola	182°24.6	14°25.7
Geniah	175°43.3	-17°40.9
Acrux	172°59.6	-63°14.1
Gacrux	171°51.2	-57°15.1
Alioth	166°12.6	55°49.1
Spica	158°22.1	-11°17.6
Alkaid	152°51.8	49°10.9
Hadar	148°35.8	60°29.4
Menkent	147°57.4	-36°29.5
Arcturus	145°47.8	19°02.9
Rigel Kent.	139°40.1	-60°56.1
Kochab	137°19.7	74°02.7
Zuben ubi	136°55.9	-16°08.8
Alphecca	126°03.7	26°37.5
Antares	112°15.9	-26°29.2
Atria	107°10.3	-69°04.1
Sabik	102°02.9	-15°45.4
Shaula	96°10.5	-12°30.3
Rasalhague	95°58.7	12°37.3
Eltanin	90°42.5	51°28.8
Kaus Aust.	83°32.7	-34°22.3
Vega	80°33.5	38°48.2
Nunki	75°48.0	-26°16.0
Altair	62°00.2	8°55.9
Peacock	53°06.2	-56°39.3
Deneb	49°26.2	45°22.1
Enif	33°39.0	9°59.3
Al Na'ir	27°33.3	-46°50.5
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.4

2025 February 09 to Feb. 11 UT

	Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	142°17.8	139°05.1	N05°25.0	32°15.1	N26°13.8	72°23.9	N21°41.7	151°58.2	S06°14.9						
1	157°20.3	154°06.4	25.9	47°18.0	13.8	87°26.3	41.7	167°00.4	14.8						
2	172°22.8	169°07.7	26.9	62°20.9	13.8	102°28.7	41.8	182°02.6	14.7						
3	187°25.2	184°09.0	•• 27.9	77°23.8	•• 13.8	117°31.1	•• 41.8	197°04.8	•• 14.6						
4	202°27.7	199°10.3	28.8	92°26.7	13.8	132°33.5	41.8	212°07.0	14.5						
5	217°30.2	214°11.6	29.8	107°29.6	13.8	147°35.9	41.8	227°09.2	14.3						
6	232°32.6	229°12.9	N05°30.8	122°32.5	N26°13.8	162°38.3	N21°41.8	242°11.4	S06°14.2						
7	247°35.1	244°14.2	31.7	137°35.4	13.8	177°40.7	41.8	257°13.6	14.1						
8	262°37.5	259°15.5	32.7	152°38.3	13.7	192°43.1	41.9	272°15.8	14.0						
9	277°40.0	274°16.8	•• 33.7	167°41.2	•• 13.7	207°45.5	•• 41.9	287°18.0	•• 13.9						
10	292°42.5	289°18.1	34.6	182°44.1	13.7	222°47.9	41.9	302°20.2	13.8						
11	307°44.9	304°19.5	35.6	197°46.9	13.7	237°50.3	41.9	317°22.4	13.7						
12	322°47.4	319°20.8	N05°36.5	212°49.8	N26°13.7	252°52.7	N21°41.9	332°24.6	S06°13.5						
13	337°49.9	334°22.1	37.5	227°52.7	13.7	267°55.1	41.9	347°26.8	13.4						
14	352°52.3	349°23.4	38.5	242°55.6	13.7	282°57.5	42.0	2°29.0	13.3						
15	7°54.8	4°24.8	•• 39.4	257°58.5	•• 13.7	297°59.9	•• 42.0	17°31.2	•• 13.2						
16	22°57.3	19°26.1	40.4	273°01.4	13.6	313°02.2	42.0	32°33.4	13.1						
17	37°59.7	34°27.4	41.3	288°04.3	13.6	328°04.6	42.0	47°35.6	13.0						
18	53°02.2	49°28.8	N05°42.3	303°07.1	N26°13.6	343°07.0	N21°42.0	62°37.8	S06°12.9						
19	68°04.7	64°30.1	43.2	318°10.0	13.6	358°09.4	42.1	77°40.0	12.7						
20	83°07.1	79°31.4	44.2	333°12.9	13.6	13°11.8	42.1	92°42.2	12.6						
21	98°09.6	94°32.8	•• 45.1	348°15.8	•• 13.6	28°14.2	•• 42.1	107°44.4	•• 12.5						
22	113°12.0	109°34.1	46.1	3°18.6	13.6	43°16.6	42.1	122°46.6	12.4						
23	128°14.5	124°35.5	47.0	18°21.5	13.5	58°19.0	42.1	137°48.8	12.3						
Mer.pass. 14:28 ν 1.3' d 1.0' m -4.84 ν 2.9' d -0.0' m -0.76 ν 2.4' d 0.0' m -2.43 ν 2.2' d 0.1' m 1.12															

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	143°17.0	139°36.8	N05°48.0	33°24.4	N26°13.5	73°21.4	N21°42.1	152°50.9	S06°12.2						
1	158°19.4	154°38.2	48.9	48°27.3	13.5	88°23.7	42.2	167°53.1	12.0						
2	173°21.9	169°39.5	49.9	63°30.1	13.5	103°26.1	42.2	182°55.3	11.9						
3	188°24.4	184°40.9	•• 50.8	78°33.0	•• 13.5	118°28.5	•• 42.2	197°57.5	•• 11.8						
4	203°26.8	199°42.3	51.8	93°35.8	13.5	133°30.9	42.2	212°56.7	11.7						
5	218°29.3	214°43.6	52.7	108°38.7	13.4	148°33.3	42.2	228°01.9	11.6						
6	233°31.8	229°45.0	N05°53.7	123°41.6	N26°13.4	163°35.7	N21°42.3	243°04.1	S06°11.5						
7	248°34.2	244°46.3	54.6	138°44.4	13.4	178°38.1	42.3	258°06.3	11.4						
8	263°36.7	259°47.7	55.6	153°47.3	13.4	193°40.5	42.3	273°08.5	11.2						
9	278°39.1	274°49.1	•• 56.5	168°50.1	•• 13.4	208°42.8	•• 42.3	288°10.7	•• 11.1						
10	293°41.6	289°50.5	57.5	183°53.0	13.4	223°45.2	42.3	303°12.9	11.0						
11	308°44.1	304°51.8	58.4	198°55.9	13.3	238°47.6	42.4	318°15.1	10.9						
12	323°46.5	319°53.2	N05°59.3	213°58.7	N26°13.3	253°50.0	N21°42.4	333°17.3	S06°10.8						
13	338°49.0	334°54.6	06°00.3	229°01.6	13.3	268°52.4	42.4	348°19.5	10.7						
14	353°51.5	349°56.0	01.2	244°04.4	13.3	283°54.8	42.4	3°21.7	10.5						
15	8°53.9	4°57.4	•• 02.2	259°07.3	•• 13.3	298°57.1	•• 42.4	18°23.9	•• 10.4						
16	23°56.4	19°58.8	03.1	274°10.1	13.2	313°59.5	42.4	33°26.1	10.3						
17	38°58.9	35°00.1	04.0	289°12.9	13.2	329°01.9	42.5	48°28.3	10.2						
18	54°01.3	50°01.5	N06°05.0	304°15.8	N26°13.2	344°04.3	N21°42.5	63°30.5	S06°10.1						
19	69°03.8	65°02.9	05.9	319°18.6	13.2	359°06.7	42.5	78°32.7	10.0						
20	84°06.3	80°04.3	06.8	334°21.5	13.2	14°09.1	42.5	93°34.9	09.9						
21	99°08.7	95°05.7	•• 07.8	349°24.3	•• 13.1	29°11.4	•• 42.5	108°37.1	•• 09.7						
22	114°11.2	110°07.1	08.7	4°27.1	13.1	44°13.8	42.6	123°39.2	09.6						
23	129°13.6	125°08.5	09.6	19°30.0	13.1	59°16.2	42.6	138°41.4	09.5						
Mer.pass. 14:25 ν 1.4' d 0.9' m -4.84 ν 2.9' d -0.0' m -0.73 ν 2.4' d 0.0' m -2.42 ν 2.2' d 0.1' m 1.12															

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	144°16.1	140°09.9	N06°10.5	34°32.8	N26°13.1	74°18.6	N21°42.6	153°43.6	S06°09.4						
1	159°18.6	155°11.4	11.5	49°35.7	13.1	89°21.0	42.6	168°45.8	09.3						
2	174°21.0	170°12.8	12.4	64°38.5	13.0	104°23.3	42.6	183°48.0	09.2						
3	189°23.5	185°14.2	•• 13.3	79°41.3	•• 13.0	119°25.7	•• 42.7	198°50.2	•• 09.0						
4	204°26.0	200°15.6	14.3	94°44.1	13.0	134°28.1	42.7	213°52.4	08.9						
5	219°28.4	215°17.0	15.2	109°47.0	13.0	149°30.5	42.7	228°54.6	08.8						
6	234°30.9	230°18.4	N06°16.1	124°49.8	N26°12.9	164°32.8	N21°42.7	243°56.8	S06°08.7						
7	249°33.4	245°19.9	17.0	139°52.6	12.9	179°35.2	42.7	258°59.0	08.6						
8	264°35.8	260°21.3	17.9	154°55.4	12.9	194°37.6	42.8	274°01.2	08.5						
9	279°38.3	275°22.7	•• 18.9	169°58.3	•• 12.9	209°40.0	•• 42.8	289°03.4	•• 08.3						
10	294°40.8	290°24.2	19.8	185°01.1	12.8	224°42.4	42.8	304°05.6	08.2						
11	309°43.2	305°25.6	20.7	200°03.9	12.8	239°44.7	42.8	319°07.8	08.1						
12	324°45.7	320°27.0	N06°21.7	215°06.7	N26°12.8	254°47.1	N21°42.8	334°10.0	S06°08.0						
13	339°48.1	335°28.5	22.5	230°09.5	12.8	269°49.5	42.9	349°12.2	07.9						
14	354°50.6	350°29.9	23.5	245°12.3	12.7	284°51.9	42.9	4°14.4	07.8						
15	9°53.1	5°31.4	•• 24.4	260°15.2	•• 12.7	299°54.2	•• 42.9	19°16.6	•• 07.7						
16	24°55.5	20°32.8	25.3	275°18.0	12.7	314°56.6	42.9	34°18.8	07.5						
17	39°58.0	35°34.3	26.2	290°20.8	12.7	329°59.0	42.9	49°20.9	07.4						
18	55°00.5	50°35.7	N06°27.1	305°23.6	N26°12.6	345°01.4	N21°43.0	64°23.1	S06°07.3						
19	70°02.9	65°37.2	28.0	320°26.4	12.6	0°03.7	43.0	79°25.3	07.2						
20	85°05.4	80°38.6	28.9	335°29.2	12.6	15°06.1	43.0	94°27.5	07.1						
21	100°07.9	95°40.1	•• 29.8	350°32.0	•• 12.6	30°08.5	•• 43.0	109°29.7	•• 07.0						
22	115°10.3	110°41.6	30.8	5°34.8	12.5	45°10.8	43.0	124°31.9	06.8						
23	130°12.8	125°43.0	31.7	20°37.6	12.5	60°13.2	43.1	139°34.1	06.7						
Mer.pass. 14:21 ν 1.4' d 0.9' m -4.85 ν 2.8' d -0.0' m -0.70 ν 2.4' d 0.0' m -2.42 ν 2.2' d 0.1' m 1.12															

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.4	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.3	-57°06.8
Hamal	327°51.2	23°34.9
Polaris	314°02.6	89°22.5
Acamar	315°11.7	-40°12.5
Menkar	314°06.1	4°12.2
Mirfak	308°28.1	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.6	-8°10.5
Capella	280°21.5	46°01.5
Bellatrix	278°22.6	6°22.3
Elnath	278°01.6	28°37.8
Anilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.0	-52°42.7
Sirius	258°25.9	-16°45.2
Adhara	255°05.5	-29°00.5
Procyon	244°50.4	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.5
Suhail	222°45.8	-43°32.1
Miaplacidus	221°37.4	-69°49.2
Alphard	217°47.3	-8°46.1
Regulus	207°34.0	11°50.5
Dubhe	193°40.2	61°36.8
Denebola	182°24.6	14°25.7
Geniah	175°43.2	-17°40.9
Acrux	172°59.5	-63°14.2
Gacrux	171°51.2	-57°15.1
Alioth	166°12.5	55°49.1
Spica	158°22.0	-11°17.6
Alkaid	152°51.7	49°10.9
Hadar	148°35.7	-60°29.4
Menkent	147°57.4	-36°29.5
Arcturus	145°47.7	19°02.9
Rigel Kent.	139°40.0	-60°56.1
Kochab	137°19.5	74°02.7
Zuben 'ul	136°55.9	-16°08.8
Alphecca	126°03.7	26°37.5
Antares	112°15.8	-26°29.2
Atria	107°10.2	-69°04.1
Sabik	102°02.8	-15°45.4
Shaula	96°10.5	-37°07.3
Rasalhague	95°58.6	12°32.3
Eltanin	90°42.5	51°28.8
Kaus Aust.	83°32.7	-34°22.3
Vega	80°33.5	38°48.1
Nunki	75°47.9	-26°16.0
Altair	62°00.2	8°55.9
Peacock	53°06.1	-56°39.2
Deneb	49°26.2	45°52.0
Enif	33°39.0	9°29.3
Al Na'ir	27°33.2	-46°50.5
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.4
Feb 12 Wed	SHA	Mer-pass
Venus	356°47.3	14.42
Mars	249°57.2	21.47
Jupiter	290°06.1	19.07
Saturn	9°40.4	13.50
Feb 13 Thu	SHA	Mer-pass
Venus	356°19.9	14.40
Mars	250°07.4	21.42
Jupiter	290°04.4	19.04
Saturn	9°34.0	13.47
Feb 14 Fri	SHA	Mer-pass
Venus	355°53.8	14.38
Mars	250°16.7	21.38
Jupiter	290°02.5	19.00
Saturn	9°27.5	13.43
Horizontal parallax		
Venus:		0.3
Mars:		0.2

	Aries			Venus		Mars		Jupiter		Saturn	
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	145°15.2	140°44.5	N06°32.6	35°40.4	N26°12.5	75°15.6	N21°43.1	154°36.3	S06°06.6		
1	160°17.7	155°46.0	33.5	50°43.2	12.5	90°18.0	43.1	169°38.5	06.5		
2	175°20.2	170°47.4	34.4	65°46.0	12.4	105°20.3	43.1	184°40.7	06.4		
3	190°22.6	185°48.9	•• 35.3	80°48.8	•• 12.4	120°22.7	•• 43.1	199°42.9	•• 06.3		
4	205°25.1	200°50.4	36.2	95°51.6	12.4	135°25.1	43.2	214°45.1	06.1		
5	220°27.6	215°51.9	37.1	110°54.4	12.3	150°27.4	43.2	229°47.3	06.0		
6	235°30.0	230°53.4	N06°38.0	125°57.1	N26°12.3	165°29.8	N21°43.2	244°49.5	S06°05.9		
7	250°32.5	245°54.8	38.9	140°59.9	12.3	180°32.2	43.2	259°51.7	05.8		
8	265°35.0	260°56.3	39.8	156°02.7	12.2	195°34.5	43.2	274°53.9	05.7		
9	280°37.4	275°57.8	•• 40.7	171°05.5	•• 12.2	210°36.9	•• 43.3	289°56.0	•• 05.6		
10	295°39.9	290°59.3	41.6	186°08.3	12.2	225°39.3	43.3	304°58.2	05.4		
11	310°42.4	306°00.8	42.5	201°11.1	12.2	240°41.6	43.3	320°00.4	05.3		
12	325°44.8	321°02.3	N06°43.4	216°13.8	N26°12.1	255°44.0	N21°43.3	335°02.6	S06°05.2		
13	340°47.3	336°03.8	44.3	231°16.6	12.1	270°46.4	43.4	350°04.8	05.1		
14	355°49.7	351°05.3	45.2	246°19.4	12.1	285°48.7	43.4	5°07.0	05.0		
15	10°52.2	6°06.8	•• 46.1	261°22.2	•• 12.0	300°51.1	•• 43.4	20°09.2	•• 04.9		
16	25°54.7	21°08.3	46.9	276°24.9	12.0	315°53.5	43.4	35°11.4	04.7		
17	40°57.1	36°09.9	47.8	291°27.7	12.0	330°55.8	43.4	50°13.6	04.6		
18	55°59.6	51°11.4	N06°48.7	306°30.5	N26°11.9	345°58.2	N21°43.5	65°15.8	S06°04.5		
19	71°02.1	66°12.9	49.6	321°33.3	11.9	1°00.6	43.5	80°18.0	04.4		
20	86°04.5	81°14.4	50.5	336°36.0	11.9	16°02.9	43.5	95°20.2	04.3		
21	101°07.0	96°15.9	•• 51.4	351°38.8	•• 11.8	31°05.3	•• 43.5	110°22.4	•• 04.2		
22	116°09.5	111°17.5	52.3	6°41.6	11.8	46°07.7	43.5	125°24.6	04.0		
23	131°11.9	126°19.0	53.2	21°44.3	11.8	61°10.0	43.6	140°26.7	03.9		
Mer.pass. 14:17 ν 1.5' d 0.9' m -4.85 ν 2.8' d -0.0' m -0.67 ν 2.4' d 0.0' m -2.41 ν 2.2' d 0.1' m 1.12											

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	146°14.4	141°20.5	N06°54.0	36°47.1	N26°11.7	76°12.4	N21°43.6	155°28.9	S06°03.8						
1	161°16.8	156°22.1	54.9	51°49.8	11.7	91°14.7	43.6	170°31.1	03.7						
2	176°19.3	171°23.6	55.8	66°52.6	11.7	106°17.1	43.6	185°33.3	03.6						
3	191°21.8	186°25.1	•• 56.7	81°55.4	•• 11.6	121°19.5	•• 43.7	200°35.5	•• 03.5						
4	206°24.2	201°26.7	57.6	96°58.1	11.6	136°21.8	43.7	215°37.7	03.3						
5	221°26.7	216°28.2	58.4	112°00.9	11.6	151°24.5	43.7	230°39.9	03.2						
6	236°29.2	231°29.8	N06°59.3	127°03.6	N26°11.5	166°26.5	N21°43.7	245°42.1	S06°03.1						
7	251°31.6	246°31.3	07°00.2	142°06.4	11.5	181°28.9	43.7	260°44.3	03.0						
8	266°34.1	261°32.9	01.1	157°09.1	11.5	196°31.3	43.8	275°46.5	02.9						
9	281°36.6	276°34.4	•• 01.9	172°11.9	•• 11.4	211°33.6	•• 43.8	290°48.7	•• 02.8						
10	296°39.0	291°36.0	02.8	187°14.6	11.4	226°36.0	43.8	305°50.9	02.6						
11	311°41.5	306°37.5	03.7	202°17.4	11.4	241°38.3	43.8	320°53.1	02.5						
12	326°44.0	321°39.1	N07°04.6	217°20.1	N26°11.3	256°40.7	N21°43.8	335°55.2	S06°02.4						
13	341°46.4	336°40.7	05.4	232°22.8	11.3	271°43.1	43.9	350°57.4	02.3						
14	356°48.9	351°42.2	06.3	247°25.6	11.2	286°45.4	43.9	5°59.6	02.2						
15	11°51.3	6°43.8	•• 07.2	262°28.3	•• 11.2	301°47.8	•• 43.9	21°10.8	•• 02.1						
16	26°53.8	21°45.4	08.0	277°31.1	11.2	316°50.1	43.9	36°04.0	01.9						
17	41°56.3	36°47.0	08.9	292°33.8	11.1	331°52.5	44.0	51°06.2	01.8						
18	56°58.7	51°48.5	N07°09.8	307°36.5	N26°11.1	346°54.8	N21°44.0	66°08.4	S06°01.7						
19	72°01.2	66°50.1	10.6	322°39.3	11.1	1°57.2	44.0	81°10.6	01.6						
20	87°03.7	81°51.7	11.5	337°42.0	11.0	16°59.6	44.0	96°12.8	01.5						
21	102°06.1	96°53.3	•• 12.3	352°44.7	•• 11.0	32°01.9	•• 44.0	111°15.0	•• 01.4						
22	117°08.6	111°54.9	13.2	7°47.5	10.9	47°04.3	44.1	126°17.2	01.2						
23	132°11.1	126°56.5	14.1	22°50.2	10.9	62°06.6	44.1	141°19.4	01.1						
Mer.pass. 14:13 ν 1.5' d 0.9' m -4.85 ν 2.8' d -0.0' m -0.64 ν 2.4' d 0.0' m -2.40 ν 2.2' d 0.1' m 1.12															

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	147°13.5	141°58.1	N07°14.9	37°52.9	N26°10.9	77°09.0	N21°44.1	156°21.5	S06°01.0						
1	162°16.0	156°59.7	15.8	52°55.6	10.8	92°11.3	44.1	171°23.7	00.9						
2	177°18.4	172°01.3	16.6	67°58.4	10.8	107°13.7	44.2	186°25.9	00.8						
3	192°20.9	187°02.9	•• 17.5	83°01.1	•• 10.7	122°16.0	•• 44.2	201°28.1	•• 00.7						
4	207°23.4	202°04.5	18.3	98°03.8	10.7	137°18.4	44.2	216°30.3	00.5						
5	222°25.8	217°06.1	19.2	113°06.5	10.7	152°20.7	44.2	231°32.5	00.4						
6	237°28.3	232°07.7	N07°20.0	128°09.2	N26°10.6	167°23.1	N21°44.3	246°34.7	S06°00.3						
7	252°30.8	247°09.3	20.9	143°11.9	10.6	182°25.4	44.3	261°36.9	00.2						
8	267°33.2	262°10.9	21.7	158°14.7	10.5	197°27.8	44.3	276°39.1	00.1						
9	282°35.7	277°12.6	•• 22.6	173°17.4	•• 10.5	212°30.1	•• 44.3	291°41.3	06°00.0						
10	297°38.2	292°14.2	23.4	188°20.1	10.5	227°32.5	44.3	306°43.5	05°59.8						
11	312°40.6	307°15.8	24.3	203°22.8	10.4	242°34.8	44.4	321°45.7	59.7						
12	327°43.1	322°17.4	N07°25.1	218°25.5	N26°10.4	257°37.2	N21°44.4	336°47.8	S05°59.6						
13	342°45.6	337°19.1	26.0	233°28.2	10.3	272°39.5	44.4	351°50.9	59.5						
14	357°48.0	352°20.7	26.8	248°30.9	10.3	287°41.9	44.4	6°52.4	59.4						
15	12°50.5	7°22.3	•• 27.7	263°33.6	•• 10.2	302°44.2	•• 44.5	21°54.4	•• 59.3						
16	27°52.9	22°24.0	28.5	278°36.3	10.2	317°46.6	44.5	36°56.6	59.1						
17	42°55.4	37°25.6	29.3	293°39.0	10.2	332°48.9	44.5	51°58.8	59.0						
18	57°57.9	52°27.3	N07°30.2	308°41.7	N26°10.1	347°51.3	N21°44.5	67°01.0	S05°58.9						
19	73°00.3	67°28.9	31.0	323°44.4	10.1	2°53.6	44.6	82°03.2	58.8						
20	88°02.8	82°30.6	31.8	338°47.1	10.0	17°56.0	44.6	97°05.4	58.7						
21	103°05.3	97°32.2	•• 32.7	353°49.8	•• 10.0	32°58.3	•• 44.6	112°07.6	•• 58.6						
22	118°07.7	112°33.9	33.5	8°52.5	09.9	48°00.7	44.6	127°09.7	58.4						
23	133°10.2	127°35.5	34.3	23°55.2	09.9	63°03.0	44.6	142°11.9	58.3						
Mer.pass. 14:09 ν 1.6' d 0.9' m -4.86 ν 2.7' d -0.0' m -0.61 ν 2.4' d 0.0' m -2.39 ν 2.2' d 0.1' m 1.12															

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.8
Ankaa	353°07.3	-42°10.4
Schedar	349°31.4	56°40.7
Diphda	348°47.4	-17°51.1
Achernar	335°20.4	-57°06.8
Hamal	327°51.2	23°34.9
Polaris	314°04.3	89°22.5
Acamar	315°11.8	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.2	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.6	-8°10.5
Capella	280°21.6	46°10.5
Bellatrix	278°22.6	6°22.3
Elath	278°01.6	28°37.8
Anilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.0	-52°42.7
Sirius	258°25.9	-16°45.2
Adhara	255°05.5	-29°00.5
Procyon	254°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.5
Suhail	222°45.8	-43°32.1
Miaplacidus	221°37.4	-69°49.2
Alphard	217°47.3	-8°46.1
Regulus	207°34.0	11°50.5
Dubhe	193°40.2	61°36.8
Denebola	182°24.6	14°25.7
Geniah	175°43.2	-17°40.9
Acrux	172°59.5	-63°14.2
Gacrux	171°51.1	-57°15.1
Alioth	166°12.5	55°49.1
Spica	158°22.0	-11°17.6
Alkaid	152°51.7	49°10.9
Hadar	148°35.6	-60°29.5
Menkent	147°57.4	-36°29.5
Arcturus	145°47.7	19°02.8
Rigel Kent.	139°40.0	-60°56.2
Kochab	137°19.5	74°02.7
Zuben 'ul	136°55.8	-16°08.8
Alphecca	126°03.6	26°37.5
Antares	112°15.8	-26°29.2
Atria	107°10.1	-69°04.1
Sabik	102°02.8	-15°45.4
Shaula	96°10.4	-37°07.3
Rasalhague	95°58.6	12°32.3
Eltanin	90°42.4	51°28.8
Kaus Aust.	83°32.6	-34°22.3
Vega	80°33.4	38°48.1
Nunki	75°47.9	-26°16.0
Altair	62°00.2	8°55.9
Peacock	53°06.1	-56°39.2
Deneb	49°26.2	45°52.0
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.5
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3
Feb 15 Sat	SHA	Mer.pass
Venus	355°29.2	14:30
Mars	250°25.1	21:33
Jupiter	290°00.3	18:56
Saturn	9°21.1	13:40
Feb 16 Sun	SHA	Mer.pass
Venus	355°06.1	14:33
Mars	250°32.7	21:29
Jupiter	289°58.0	18:52
Saturn	9°14.6	13:36
Feb 17 Mon	SHA	Mer.pass
Venus	354°44.5	14:31
Mars	250°39.4	21:25
Jupiter	289°55.5	18:48
Saturn	9°08.0	13:33
Horizontal parallax		
Venus:	0.4	
Mars:	0.2	

	Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	148°12.7	142°37.2	N07°35.2	38°57.9	N26°09.9	78°05.4	N21°44.7	157°14.1	S05°58.2						
1	163°15.1	157°38.9	36.0	54°00.6	09.8	93°07.7	44.7	172°16.3	58.1						
2	178°17.6	172°40.5	36.8	69°03.2	09.8	108°10.0	44.7	187°18.5	58.0						
3	193°20.1	187°42.2	•• 37.7	84°05.9	•• 09.7	123°12.4	•• 44.7	202°20.7	•• 57.8						
4	208°22.5	202°43.9	38.5	99°08.6	09.7	138°14.7	44.8	217°22.9	57.7						
5	223°25.0	217°45.6	39.3	114°11.3	09.6	153°17.1	44.8	232°25.1	57.6						
6	238°27.4	232°47.2	N07°40.1	129°14.0	N26°09.6	168°19.4	N21°44.8	247°27.3	S05°57.5						
7	253°29.9	247°48.9	41.0	144°16.6	09.5	183°21.8	44.8	262°29.5	57.4						
8	268°32.4	262°50.6	41.8	159°19.3	09.5	198°24.1	44.9	277°31.7	57.3						
9	283°34.8	277°52.3	•• 42.6	174°22.0	•• 09.4	213°26.4	•• 44.9	292°33.8	•• 57.1						
10	298°37.3	292°54.0	43.4	189°24.7	09.4	228°28.8	44.9	307°36.0	57.0						
11	313°39.8	307°55.7	44.3	204°27.3	09.3	243°31.1	44.9	322°38.2	56.9						
12	328°42.2	322°57.4	N07°45.1	219°30.0	N26°09.3	258°33.5	N21°45.0	337°40.4	S05°56.8						
13	343°44.7	337°59.1	45.9	234°32.7	09.2	273°35.8	45.0	352°42.6	56.7						
14	358°47.2	353°00.8	46.7	249°35.4	09.2	288°38.2	45.0	7°44.8	56.6						
15	13°49.6	8°02.5	•• 47.5	264°38.0	•• 09.2	303°40.5	•• 45.0	22°47.0	•• 56.4						
16	28°52.1	23°04.2	48.3	279°40.7	09.1	318°42.8	45.1	37°49.2	56.3						
17	43°54.5	38°05.9	49.1	294°43.4	09.1	333°45.2	45.1	52°51.4	56.2						
18	58°57.0	53°07.6	N07°50.0	309°46.0	N26°09.0	348°47.5	N21°45.1	67°53.6	S05°56.1						
19	73°59.6	68°09.3	50.8	324°48.7	09.0	3°49.8	45.1	82°55.7	56.0						
20	89°01.9	83°11.0	51.6	339°51.3	08.9	18°52.2	45.2	97°57.9	55.9						
21	104°04.8	98°12.8	•• 52.4	354°54.0	•• 08.9	33°54.5	•• 45.2	113°00.1	•• 55.7						
22	119°06.9	113°14.5	53.2	9°56.7	08.8	48°56.9	45.5	128°02.3	55.6						
23	134°09.3	128°16.2	54.0	24°59.3	08.8	63°59.2	45.2	143°04.5	55.5						
Mer.pass. 14:05 ν 1.7' d 0.8' m -4.86 ν 2.7' d -0.0' m -0.58 ν 2.3' d 0.0' m -2.38 ν 2.2' d 0.1' m 1.12															

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	149°11.8	143°18.0	N07°54.8	40°02.0	N26°08.7	79°01.5	N21°45.2	158°06.7	S05°55.4						
1	164°14.3	158°19.7	55.6	55°04.6	08.7	94°03.9	45.3	173°08.9	55.3						
2	179°16.7	173°21.4	56.4	70°07.3	08.6	109°06.2	45.3	188°11.1	55.1						
3	194°19.2	188°23.2	•• 57.2	85°09.9	•• 08.6	124°08.5	•• 45.3	203°13.3	•• 55.0						
4	209°21.7	203°24.9	58.0	100°12.6	08.5	139°10.9	45.3	218°15.4	54.9						
5	224°24.1	218°26.7	58.8	115°15.2	08.5	154°13.2	45.4	233°17.6	54.8						
6	239°26.6	233°28.4	N07°59.6	130°17.8	N26°08.4	169°15.5	N21°45.4	248°19.8	S05°54.7						
7	254°29.0	248°30.2	08°00.4	145°20.5	08.4	184°17.9	45.4	263°22.0	54.6						
8	269°31.5	263°31.9	01.2	160°23.1	08.3	199°20.2	45.4	278°24.2	54.4						
9	284°34.0	278°37.3	•• 02.0	175°25.8	•• 08.3	214°22.5	•• 45.5	293°26.4	•• 54.3						
10	299°36.4	293°35.4	02.8	190°28.4	08.2	229°24.9	45.5	308°28.6	54.2						
11	314°38.9	308°37.2	03.6	205°31.0	08.1	244°27.2	45.5	323°30.8	54.1						
12	329°41.4	323°39.0	N08°04.3	220°33.7	N26°08.1	259°29.5	N21°45.5	338°33.0	S05°54.0						
13	344°43.8	338°40.7	05.1	235°36.3	08.0	274°31.9	45.6	353°35.1	53.8						
14	359°46.3	353°42.5	05.9	250°39.0	08.0	289°34.2	45.6	8°37.3	53.7						
15	14°48.8	8°44.3	•• 06.7	265°41.6	•• 07.9	304°36.5	•• 45.6	23°39.5	•• 53.6						
16	29°51.2	23°46.1	07.5	280°44.2	07.9	319°38.9	45.6	38°41.7	53.5						
17	44°53.7	38°47.8	08.3	295°46.8	07.8	334°41.5	45.7	53°43.9	53.4						
18	59°56.2	53°49.6	N08°09.1	310°49.5	N26°07.8	349°43.5	N21°45.7	68°46.1	S05°53.3						
19	74°58.6	68°51.4	09.8	325°52.1	07.7	4°45.9	45.7	83°48.3	53.1						
20	90°01.1	83°53.2	10.6	340°54.7	07.7	19°48.2	45.7	98°50.5	53.0						
21	105°03.5	98°55.0	•• 11.4	355°57.3	•• 07.6	34°50.5	•• 45.8	113°52.7	•• 52.9						
22	120°06.0	113°56.8	12.2	11°00.0	07.6	49°52.9	45.8	128°54.8	52.8						
23	135°08.5	128°58.6	12.9	26°02.6	07.5	64°55.2	45.8	143°57.0	52.7						
Mer.pass. 14:01 ν 1.7' d 0.8' m -4.86 ν 2.7' d -0.1' m -0.56 ν 2.3' d 0.0' m -2.38 ν 2.2' d 0.1' m 1.12															

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	150°10.9	144°00.4	N08°13.7	41°05.2	N26°07.4	79°57.5	N21°45.9	158°59.2	S05°52.6						
1	165°13.4	159°02.2	14.5	56°07.8	07.4	94°59.8	45.9	174°01.4	52.4						
2	180°15.9	174°04.0	15.3	71°10.4	07.3	110°02.2	45.9	189°03.6	52.3						
3	195°18.3	189°05.8	•• 16.0	86°13.0	•• 07.3	125°04.5	•• 45.9	204°05.8	•• 52.2						
4	210°20.8	204°07.6	16.8	101°15.7	07.2	140°06.8	46.0	219°08.0	52.1						
5	225°23.3	219°09.5	17.6	116°18.3	07.2	155°09.1	46.0	234°10.2	52.0						
6	240°25.7	234°11.3	N08°18.3	131°20.9	N26°07.1	170°11.5	N21°46.0	249°12.4	S05°51.8						
7	255°28.2	249°13.1	19.1	146°23.5	07.1	185°13.8	46.0	264°14.5	51.7						
8	270°30.6	264°14.9	19.9	161°26.1	07.0	200°16.7	46.1	279°16.7	51.6						
9	285°33.1	279°16.8	•• 20.6	176°28.7	•• 06.9	215°18.4	•• 46.1	294°18.9	•• 51.5						
10	300°35.6	294°18.6	21.4	191°31.3	06.9	230°20.8	46.1	309°21.1	51.4						
11	315°38.0	309°20.4	22.2	206°33.9	06.8	245°23.1	46.1	324°23.3	51.3						
12	330°40.3	324°22.3	N08°22.9	221°36.5	N26°06.8	260°25.4	N21°46.2	339°25.5	S05°51.1						
13	345°43.0	339°24.1	23.7	236°39.1	06.7	275°27.7	46.2	354°27.7	51.0						
14	0°45.4	354°26.0	24.4	251°41.7	06.7	290°30.1	46.2	9°29.9	50.9						
15	15°47.9	9°27.8	•• 25.2	266°44.3	•• 06.6	305°32.4	•• 46.2	24°32.0	•• 50.8						
16	30°50.4	24°29.7	25.9	281°46.9	06.5	320°34.7	46.3	39°34.2	50.7						
17	45°52.8	39°31.5	26.7	296°49.5	06.5	335°37.0	46.3	54°36.4	50.5						
18	60°55.3	54°33.4	N08°27.4	311°52.1	N26°06.4	350°39.4	N21°46.3	69°38.6	S05°50.4						
19	75°57.8	69°35.2	28.2	326°54.7	06.4	5°41.7	46.3	84°40.8	50.3						
20	91°00.2	84°37.1	28.9	341°57.2	06.3	20°44.0	46.3	99°43.1	50.2						
21	106°02.7	99°39.0	•• 29.7	356°59.8	•• 06.2	35°46.3	•• 46.4	114°45.2	•• 50.1						
22	121°05.1	114°40.8	30.4	12°02.4	06.2	50°48.6	46.4	129°47.4	50.0						
23	136°07.6	129°42.7	31.2	27°05.0	06.1	65°51.0	46.5	144°49.6	49.8						
Mer.pass. 13:57 ν 1.8' d 0.8' m -4.86 ν 2.6' d -0.1' m -0.53 ν 2.3' d 0.0' m -2.37 ν 2.2' d 0.1' m 1.12															

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.4
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.4	-57°06.8
Hamal	327°51.2	23°34.9
Polaris	314°05.7	89°22.5
Acemkar	315°11.8	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.2	49°57.2
Aldebaran	290°39.4	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.6	46°01.5
Bellatrix	278°22.6	6°22.3
Elmath	278°01.6	28°37.8
Anilam	275°37.5	-11°12.7
Betelgeuse	270°51.8	7°24.7
Sinopus	263°52.0	-52°42.7
Cariac	258°25.9	-16°45.2
Adhara	255°05.5	-29°00.5
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.1	-59°35.5
Suhail	222°45.8	-43°32.1
Miaplacidus	221°37.4	-69°49.3
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.2	61°36.8
Denebola	182°24.6	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	172°59.5	-63°14.2
Gacrux	171°51.1	-57°15.1
Alpica	158°22.0	-11°17.6
Spica	152°51.6	49°10.9
Hadar	148°35.6	-60°29.5
Menkent	147°57.3	-36°29.9
Arcturus	145°47.7	19°02.8
Rigil Kent	139°40.0	-60°56.2
Kochab	137°19.4	74°07.2
Zuben'ubi	136°55.8	-16°08.8
Alphecca	126°03.6	26°37.5
Antares	112°15.8	-26°29.2
Atria	107°10.1	-69°04.1
Sabik	102°02.8	-15°45.4
Shaula	96°10.4	-37°07.3
Rasalhague	95°58.6	12°32.3
Eltanin	90°42.4	51°28.8
Kaus Aus	83°32.6	-34°32.2
Vega	80°33.4	38°48.1
Nunki	75°47.9	-26°16.0
Altair	62°00.1	8°55.9
Peacock	53°06.1	-56°39.2
Deneb	49°26.2	45°22.0
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.5
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3
Feb 18 Tue	SHA	Mer.pass
Venus	354°24.5	14.28
Mars	250°45.2	21.20
Jupiter	289°52.7	18.45
Saturn	9°01.5	13.29
Feb 19 Wed	SHA	Mer.pass
Venus	354°06.2	14.25
Mars	250°50.2	21.16
Jupiter	289°49.7	18.41
Saturn	8°54.9	13.26
Feb 20 Thu	SHA	Mer.pass
Venus	353°49.5	14.22
Mars	250°54.3	21.12
Jupiter	289°46.6	18.37
Saturn	8°48.3	13.22
Horizontal parallax		
Venus:	0.4	
Mars:	0.2	

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	151°10.1	144°44.6	N08°31.9	42°07.6	N26°06.1	80°53.3	N21°46.5	159°51.7	S05°49.7					
1	166°12.5	159°46.5	32.7	57°10.2	06.0	95°55.6	46.5	174°53.9	49.6					
2	181°15.0	174°48.3	33.4	72°12.7	05.9	110°57.9	46.5	189°56.1	49.5					
3	196°17.5	189°50.2	34.2	87°15.3	05.9	126°00.2	46.6	204°58.3	49.4					
4	211°19.9	204°52.1	34.9	102°17.9	05.8	141°02.6	46.6	220°00.5	49.2					
5	226°22.4	219°54.0	35.6	117°20.5	05.8	156°04.9	46.6	235°02.7	49.1					
6	241°24.9	234°55.9	N08°36.6	132°23.1	N26°05.7	171°07.2	N21°46.6	250°04.9	S05°49.0					
7	256°27.3	249°57.8	37.1	147°25.6	05.6	186°09.5	46.7	265°07.1	48.9					
8	271°29.8	264°59.7	37.8	162°28.2	05.6	201°11.8	46.7	280°09.2	48.8					
9	286°32.3	280°01.6	38.6	177°30.8	05.5	216°14.1	46.7	295°11.4	48.6					
10	301°34.7	295°03.5	39.3	192°33.3	05.5	231°16.5	46.7	310°13.6	48.5					
11	316°37.2	310°05.4	40.0	207°35.9	05.4	246°18.8	46.8	325°15.8	48.4					
12	331°39.6	325°07.3	N08°40.8	222°38.5	N26°05.3	261°21.1	N21°46.8	340°18.0	S05°48.3					
13	346°42.1	340°09.3	41.5	237°41.0	05.3	276°23.4	46.8	355°20.2	48.2					
14	1°44.6	355°11.2	42.2	252°43.6	05.2	291°25.7	46.9	10°22.4	48.1					
15	16°47.0	10°13.1	42.9	267°46.2	05.1	306°28.0	46.9	25°24.5	47.9					
16	31°49.5	25°15.0	43.6	282°48.7	05.1	321°30.3	46.9	40°26.7	47.8					
17	46°52.0	40°17.0	44.4	297°51.3	05.0	336°32.7	46.9	55°28.9	47.7					
18	61°54.4	55°18.9	N08°45.1	312°53.8	N26°05.0	351°35.0	N21°47.0	70°31.1	S05°47.6					
19	76°56.9	70°20.8	45.8	327°56.4	04.9	6°37.3	47.0	85°33.3	47.5					
20	91°59.4	85°22.8	46.5	342°58.9	04.8	21°39.6	47.0	100°35.5	47.3					
21	107°01.8	100°24.7	47.2	358°01.5	04.8	36°41.9	47.0	115°37.7	47.2					
22	122°04.3	115°26.7	48.0	13°04.0	04.7	51°44.2	47.1	130°39.9	47.1					
23	137°06.7	130°28.6	48.7	28°06.6	04.6	66°46.5	47.1	145°42.0	47.0					
Mer.pass. 13:53			ν 1.9' d 0.7' m -4.85			ν 2.6' d -0.1' m -0.50			ν 2.3' d 0.0' m -2.36			ν 2.2' d 0.1' m 1.12		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	152°09.2	145°30.6	N08°49.4	43°09.1	N26°04.6	81°48.8	N21°47.1	160°44.2	S05°46.9					
1	167°11.7	160°32.5	50.1	58°11.7	04.5	96°51.2	47.2	175°46.4	46.7					
2	182°14.1	175°34.5	50.8	73°14.2	04.4	111°53.5	47.2	190°48.6	46.6					
3	197°16.6	190°36.4	51.5	88°16.8	04.4	126°55.8	47.2	205°50.8	46.5					
4	212°19.1	205°38.4	52.2	103°19.3	04.3	141°58.1	47.2	220°53.0	46.4					
5	227°21.5	220°40.4	52.9	118°21.8	04.2	157°00.4	47.3	235°55.2	46.3					
6	242°24.0	235°42.3	N08°53.6	133°24.4	N26°04.2	172°02.7	N21°47.3	250°57.4	S05°46.2					
7	257°26.5	250°44.3	54.3	148°26.9	04.1	187°05.0	47.3	265°59.5	46.0					
8	272°28.9	265°46.3	55.0	163°29.5	04.0	202°07.3	47.3	281°01.7	45.9					
9	287°31.4	280°48.3	55.7	178°32.0	04.0	217°09.6	47.4	296°03.9	45.8					
10	302°33.9	295°50.3	56.4	193°34.5	03.9	232°11.9	47.4	311°06.1	45.7					
11	317°36.3	310°52.2	57.1	208°37.1	03.8	247°14.3	47.4	326°08.3	45.6					
12	332°38.8	325°54.2	N08°57.8	223°39.6	N26°03.8	262°16.6	N21°47.5	341°10.5	S05°45.4					
13	347°41.2	340°56.2	58.5	238°42.1	03.7	277°18.9	47.5	356°12.7	45.3					
14	2°43.7	355°58.2	59.2	253°44.6	03.6	292°21.2	47.5	11°14.8	45.2					
15	17°46.2	11°00.2	08°59.9	268°47.2	03.6	307°23.5	47.5	26°17.0	45.1					
16	32°48.6	26°02.2	09°00.6	283°49.7	03.5	322°25.8	47.6	41°19.2	45.0					
17	47°51.1	41°04.2	01.3	298°52.2	03.4	337°28.1	47.6	56°21.4	44.8					
18	62°53.6	56°06.2	N09°01.9	313°54.7	N26°03.4	352°30.4	N21°47.6	71°23.6	S05°44.7					
19	77°56.0	71°08.3	02.6	328°57.3	03.3	7°32.7	47.7	86°25.8	44.6					
20	92°58.5	86°10.3	03.3	343°59.8	03.2	22°35.0	47.7	101°28.0	44.5					
21	108°01.0	101°12.3	04.0	359°02.3	03.2	37°37.3	47.7	116°30.1	44.4					
22	123°03.4	116°14.3	04.7	14°04.8	03.1	52°39.6	47.7	131°32.3	44.3					
23	138°05.9	131°16.3	05.3	29°07.3	03.0	67°41.9	47.8	146°34.5	44.1					
Mer.pass. 13:49			ν 2.0' d 0.7' m -4.85			ν 2.5' d -0.1' m -0.47			ν 2.3' d 0.0' m -2.35			ν 2.2' d 0.1' m 1.12		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	153°08.4	146°18.4	N09°06.0	44°09.8	N26°03.0	82°44.2	N21°47.8	161°36.7	S05°44.0
1	168°10.8	161°20.4	06.7	59°12.3	02.9	97°46.5	47.8	176°38.9	43.9
2	183°13.7	176°22.4	07.4	74°14.9	02.8	112°48.8	47.9	191°41.1	43.8
3	198°15.7	191°24.5	08.0	89°17.4	02.8	127°51.1	47.9	206°43.3	43.7
4	213°18.2	206°26.5	08.7	104°19.9	02.7	142°53.4	47.9	221°45.4	43.5
5	228°20.7	221°28.6	09.4	119°22.4	02.6	157°55.7	47.9	236°47.6	43.4
6	243°23.1	236°30.6	N09°10.1	134°24.9	N26°02.5	172°58.0	N21°48.0	251°49.8	S05°43.3
7	258°25.6	251°32.7	10.7	149°27.4	02.5	188°00.3	48.0	266°52.0	43.2
8	273°28.1	266°34.7	11.4	164°29.9	02.4	203°02.6	48.0	281°54.2	43.1
9	288°30.5	281°36.8	12.1	179°32.4	02.3	218°04.9	48.1	296°56.4	42.9
10	303°33.0	296°38.9	12.7	194°34.9	02.3	233°07.2	48.1	311°58.6	42.8
11	318°35.5	311°40.9	13.4	209°37.4	02.2	248°09.5	48.1	327°00.7	42.7
12	333°37.9	326°43.0	N09°14.0	224°39.9	N26°02.1	263°11.8	N21°48.1	342°02.9	S05°42.6
13	348°40.4	341°45.1	14.7	239°42.4	02.0	278°14.1	48.2	357°05.1	42.5
14	3°42.9	356°47.1	15.3	254°44.9	02.0	293°16.4	48.2	12°07.3	42.3
15	18°45.3	11°49.2	16.0	269°47.4	01.9	308°18.7	48.2	27°09.5	42.2
16	33°47.8	26°51.3	16.7	284°49.8	01.8	323°21.0	48.3	42°11.7	42.1
17	48°50.2	41°53.4	17.3	299°52.3	01.8	338°23.3	48.3	57°13.9	42.0
18	63°52.7	56°55.5	N09°18.0	314°54.8	N26°01.7	353°25.6	N21°48.3	72°16.0	S05°41.9
19	78°55.2	71°57.6	18.6	329°57.3	01.6	8°27.9	48.3	87°18.2	41.8
20	93°57.6	86°59.7	19.3	344°59.8	01.5	23°30.2	48.4	102°20.4	41.6
21	109°00.1	102°01.8	19.9	0°02.3	01.5	38°32.5	48.4	117°22.6	41.5
22	124°02.6	117°03.9	20.5	15°04.8	01.4	53°34.8	48.4	132°24.8	41.4
23	139°05.0	132°06.0	21.2	30°07.1	01.3	68°37.1	48.5	147°27.0	41.3
Mer.pass. 13:45 ν 2.0' d 0.7' m -4.85 ν 2.5' d -0.1' m -0.44 ν 2.3' d 0.0' m -2.34 ν 2.2' d 0.1' m 1.12									

Stars	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.4
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.4	-57°06.8
Hamal	327°51.3	23°34.9
Polaris	314°07.0	89°22.5
Acamar	315°11.8	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.2	49°57.2
Aldebaran	290°39.7	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.6	46°01.5
Bellatrix	278°22.6	6°22.3
Elnath	278°01.6	28°37.8
Anilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.0	-52°42.7
Sirius	258°25.9	-16°45.2
Adhara	255°05.5	-29°00.5
Procyon	244°50.5	5°09.6
Pollux	243°16.9	27°57.9
Avior	234°14.2	-59°35.5
Suhail	222°45.8	-43°32.1
Miaplacidus	221°37.4	-69°49.3
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.2	61°36.8
Denebola	182°24.5	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	172°59.5	-63°14.2
Gacrux	171°51.1	-57°15.2
Alioth	166°12.4	56°40.1
Spica	158°22.0	11°17.6
Alkaid	152°51.6	49°10.9
Hadar	148°35.6	-60°29.5
Menkent	147°37.2	36°29.6
Arcturus	145°47.6	19°02.8
Rigil Kent.	137°19.4	74°02.7
Kochab	136°55.8	-16°08.8
Zuben ubi	136°03.6	26°37.5
Alphecca	126°03.6	26°37.5
Antares	112°15.7	-26°29.3
Atria	107°10.0	-69°04.1
Sabik	102°02.8	-15°45.4
Shaula	96°10.4	37°07.2
Rasalhague	95°58.6	12°32.3
Eltanin	90°42.4	51°28.8
Kaus Aust.	83°32.6	34°22.3
Vega	80°33.4	38°48.1
Nunki	75°47.9	-26°15.9
Altair	62°00.9	8°55.9
Peacock	53°06.1	-56°39.2
Deneb	49°26.2	-45°22.0
Enif	33°39.0	9°59.3
Al Nair	27°33.2	-46°50.4
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3

Regulus	207°34.0	11°36.9
Dubhe	193°40.2	61°36.8
Denebola	182°24.5	14°25.7
Gienah	177°2.2	-14°41.0
Altair	172°59.6	-63°14.4
Gacrux	171°51.1	-57°15.2
Alioth	166°12.4	55°49.1
Spica	158°22.0	-11°17.6
Alkaid	152°51.6	49°10.9
Hadar	148°35.6	-60°29.5
Menkent	147°57.3	-36°29.6
Arcturus	145°47.6	19°02.8
Rigel Kent.	139°39.9	-60°56.2
Kochab	137°19.4	74°02.7
Zuben ubi	136°55.8	-16°08.8
Alphecca	126°03.6	26°37.5
Antares	112°15.7	-26°29.3
Ataria	107°10.0	-69°04.1
Sabik	102°02.8	-15°45.4
Shaula	96°10.4	-37°07.2
Rasalhague	95°58.6	12°32.3
Eltanin	90°42.4	51°28.8
Kaus Aust.	83°32.6	-34°22.3
Vega	80°33.4	38°48.1
Nunki	75°47.9	-26°15.9
Altair	62°00.1	8°55.9
Peacock	53°06.1	-56°39.2
Deneb	49°26.2	45°52.0
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.4
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	154°07.5	147°08.1	N09°21.8	45°09.7	N26°01.2	83°39.4	N21°48.5	162°29.2	S05°41.2					
1	169°10.0	162°10.2	22.5	60°12.2	01.2	98°41.7	48.5	177°31.3	41.0					
2	184°12.4	177°12.3	23.1	75°14.7	01.1	113°44.0	48.6	192°33.5	40.9					
3	199°14.9	192°14.4	•• 23.7	90°17.1	•• 01.0	128°46.3	•• 48.6	207°35.7	•• 40.8					
4	214°17.4	207°16.6	24.4	105°19.6	00.9	143°48.6	48.6	222°37.9	40.7					
5	229°19.8	222°18.7	25.0	120°22.1	00.9	158°50.9	48.6	237°40.1	40.6					
6	244°22.3	237°20.8	N09°25.6	135°24.6	N26°00.8	173°53.1	N21°48.7	252°42.3	S05°40.4					
7	259°24.7	252°23.0	26.3	150°27.0	00.7	188°55.4	48.7	267°44.5	40.3					
8	274°27.2	267°25.1	26.9	165°29.5	00.6	203°57.7	48.7	282°46.6	40.2					
9	289°29.7	282°27.2	•• 27.5	180°32.0	•• 00.6	219°00.0	•• 48.8	297°48.8	•• 40.1					
10	304°32.1	297°29.4	28.2	195°34.4	00.5	234°02.3	48.8	312°51.0	40.0					
11	319°34.6	312°31.5	28.8	210°36.9	00.4	249°04.6	48.8	327°53.2	39.8					
12	334°37.1	327°33.7	N09°29.4	225°39.3	N26°00.3	264°06.9	N21°48.8	342°55.4	S05°39.7					
13	349°39.5	342°35.8	30.0	240°41.8	00.3	279°09.2	48.9	357°57.6	39.6					
14	4°42.0	357°38.0	30.6	255°44.3	00.2	294°11.5	48.9	12°59.7	39.5					
15	19°44.5	12°40.1	•• 31.3	270°46.7	•• 00.1	309°13.8	•• 48.9	28°01.9	•• 39.4					
16	34°46.9	27°42.3	31.9	285°49.2	00.0	324°16.1	49.0	43°04.1	39.2					
17	49°49.4	42°44.5	32.5	300°51.6	26°00.0	339°18.3	49.0	58°06.3	39.1					
18	64°51.8	57°46.7	N09°33.1	315°54.1	N25°59.9	354°20.6	N21°49.0	73°08.5	S05°39.0					
19	79°54.3	72°48.8	33.7	330°56.5	59.8	9°22.9	49.1	88°10.7	38.9					
20	94°56.8	87°51.0	34.3	345°59.0	59.7	24°25.2	49.1	103°12.9	38.8					
21	109°59.2	102°53.2	•• 34.9	1°01.4	•• 59.7	39°27.5	•• 49.1	118°15.0	•• 38.7					
22	125°01.7	117°55.4	35.5	16°03.9	59.6	54°27.8	49.2	133°17.2	38.5					
23	140°04.2	132°57.6	36.1	31°06.3	59.5	69°32.1	49.2	148°19.4	38.4					
Mer.pass. 13:41			ν 2.1' d 0.6' m -4.84			ν 2.5' d -0.1' m -0.42			ν 2.3' d 0.0' m -2.34			ν 2.2' d 0.1' m 1.12		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	155°06.6	147°59.8	N09°36.8	46°08.8	N25°59.4	84°34.4	N21°49.2	163°21.6	S05°38.3					
1	170°09.1	163°01.9	37.4	61°11.2	59.3	99°36.6	49.2	178°23.8	38.2					
2	185°11.6	178°04.1	38.0	76°13.7	59.3	114°38.9	49.3	193°26.0	38.1					
3	200°14.0	193°06.3	•• 38.6	91°16.1	•• 59.2	129°41.2	•• 49.3	208°28.1	•• 37.9					
4	215°16.5	208°08.6	39.1	106°18.5	59.1	144°43.5	49.3	223°30.3	37.8					
5	230°19.0	232°10.8	39.7	121°21.0	59.0	159°45.8	49.4	238°32.5	37.7					
6	245°21.4	238°13.0	N09°40.3	136°23.4	N25°58.9	174°48.1	N21°49.4	253°34.7	S05°37.6					
7	260°23.9	253°15.2	40.9	151°25.8	58.9	189°50.4	49.4	268°36.9	37.5					
8	275°26.3	268°17.4	41.5	166°28.3	58.8	204°52.6	49.5	283°39.1	37.3					
9	290°28.8	283°19.6	•• 42.1	181°30.7	•• 58.7	219°54.9	•• 49.5	298°41.2	•• 37.2					
10	305°31.3	298°21.9	42.7	196°33.1	58.6	234°57.2	49.5	313°43.4	37.1					
11	320°33.7	313°24.1	43.3	211°35.6	58.6	249°59.5	49.5	328°45.6	37.0					
12	335°36.2	328°26.3	N09°43.9	226°38.0	N25°58.5	265°01.8	N21°49.6	343°47.8	S05°36.9					
13	350°38.7	343°28.6	44.4	241°40.4	58.4	280°04.1	49.6	358°50.0	36.7					
14	5°41.1	358°30.0	45.0	256°42.9	58.3	295°06.3	49.6	13°52.2	36.6					
15	20°43.6	13°33.0	•• 45.6	271°45.3	•• 58.2	310°08.6	•• 49.7	28°54.4	•• 36.5					
16	35°46.1	28°35.3	46.2	286°47.7	58.1	325°10.9	49.7	43°56.5	36.4					
17	50°48.5	43°37.5	46.8	301°50.1	58.1	340°13.2	49.7	58°58.7	36.3					
18	65°51.0	58°39.8	N09°47.3	316°52.5	N25°58.0	355°15.5	N21°49.8	74°00.9	S05°36.1					
19	80°53.5	73°42.1	47.9	331°55.0	57.9	10°17.7	49.8	89°03.1	36.0					
20	95°55.9	88°44.3	48.5	346°57.4	57.8	25°20.0	49.8	104°05.3	35.9					
21	110°58.4	103°46.6	•• 49.0	1°59.8	•• 57.7	40°22.3	•• 49.9	119°07.5	•• 35.8					
22	126°00.8	118°48.9	49.6	17°02.2	57.7	55°24.6	49.9	134°09.6	35.7					
23	141°03.3	133°51.1	50.2	32°04.6	57.6	70°26.9	49.9	149°11.8	35.5					
Mer.pass. 13:37			ν 2.2' d 0.6' m -4.83			ν 2.4' d -0.1' m -0.39			ν 2.3' d 0.0' m -2.33			ν 2.2' d 0.1' m 1.11		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	156°05.8	148°53.4	N09°50.7	47°07.0	N25°57.5	85°29.1	N21°50.0	164°14.0	S05°35.4					
1	171°08.2	163°55.7	51.3	62°09.4	57.4	100°31.4	50.0	179°16.2	35.3					
2	186°10.7	178°58.0	51.9	77°11.8	57.3	115°33.7	50.0	194°18.4	35.2					
3	201°13.2	194°00.3	•• 52.4	92°14.2	•• 57.2	130°36.0	•• 50.0	209°20.6	•• 35.1					
4	216°15.6	209°02.5	53.0	107°16.7	57.2	145°38.2	50.1	224°22.7	34.9					
5	231°18.1	224°04.8	53.5	122°19.1	57.1	160°40.5	50.1	239°24.9	34.8					
6	246°20.6	239°07.1	N09°54.1	137°21.5	N25°57.0	175°42.8	N21°50.1	254°27.1	S05°34.7					
7	261°23.0	254°09.4	54.6	152°23.9	56.9	190°45.1	50.2	269°29.3	34.6					
8	276°25.5	269°11.7	55.2	167°26.3	56.8	205°47.3	50.2	284°31.5	34.5					
9	291°28.0	284°14.1	•• 55.7	182°28.7	•• 56.7	220°49.6	•• 50.2	299°33.7	•• 34.3					
10	306°30.4	299°16.4	56.3	197°31.1	56.7	235°51.9	50.3	314°35.8	34.2					
11	321°32.9	314°18.7	56.8	212°33.5	56.6	250°54.2	50.3	329°38.0	34.1					
12	336°35.3	329°21.0	N09°57.4	227°37.8	N25°56.5	265°56.4	N21°50.3	344°40.2	S05°34.0					
13	351°37.8	344°23.3	57.4	242°38.2	56.4	280°58.7	50.4	359°42.4	33.9					
14	6°40.3	359°25.6	58.5	257°40.6	56.3	296°01.0	50.4	14°44.6	33.7					
15	21°42.7	14°28.0	•• 59.0	272°43.0	•• 56.2	311°03.3	•• 50.4	29°46.8	•• 33.6					
16	36°45.2	29°30.3	09°59.5	287°45.4	56.2	326°05.5	50.5	44°48.9	33.5					
17	51°47.7	44°32.6	10°01.0	302°47.8	56.1	341°07.8	50.5	59°51.1	33.4					
18	66°50.1	59°35.0	N10°00.6	317°50.2	N25°56.0	356°10.1	N21°50.5	74°53.3	S05°33.3					
19	81°52.6	74°37.3	01.1	332°52.6	55.9	11°12.4	50.6	89°55.5	33.1					
20	96°55.1	89°39.7	01.7	347°55.0	55.8	26°14.6	50.6	104°57.7	33.0					
21	111°57.5	104°42.0	•• 02.2	2°57.3	•• 55.7	41°16.9	•• 50.6	119°59.9	•• 32.9					
22	127°00.0	119°44.0	02.7	17°59.7	55.6	56°19.2	50.6	135°02.0	32.8					
23	142°02.4	134°46.7	03.2	33°02.1	55.6	71°21.4	50.7	150°04.2	32.7					
Mer.pass. 13:33			ν 2.3' d 0.6' m -4.82			ν 2.4' d -0.1' m -0.36			ν 2.3' d 0.0' m -2.32			ν 2.2' d 0.1' m 1.11		

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.4	-57°06.8
Hamal	327°51.3	23°34.9
Polaris	314°08.3	89°22.5
Acamar	315°11.8	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.2	49°57.2
Aldebaran	290°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.6	46°01.5
Bellatrix	278°22.7	6°22.3
Elmath	278°01.6	28°37.8
Alnilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.1	-52°42.8
Sirius	258°25.9	-16°45.2
Adhara	255°05.5	-29°00.5
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.2	-59°35.5
Suhail	222°45.8	-43°32.2
Miaplacidus	221°37.4	-69°49.3
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.2	61°36.8
Denebola	182°24.5	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	172°59.4	-63°14.2
Gacrux	171°51.1	-57°15.2
Alathor	166°12.4	55°49.1
Spica	158°22.0	-11°17.7
Alkaid	152°51.6	-49°10.6
Hadar	148°35.5	-60°29.5
Menkent	146°57.3	-36°29.6
Arcturus	145°6.6	19°02.8
Rigil Kent	139°39.9	-60°56.2
Kochab	137°19.3	74°02.7
Zubene ubi	136°55.8	-16°08.8
Alphecca	126°03.6	26°37.5
Antares	112°15.7	-26°29.3
Atria	107°10.0	-69°04.1
Sabik	102°02.7	-15°45.4
Shaula	96°10.3	-37°07.3
Rasalhague	95°58.5	12°32.3
Eltanin	90°42.3	51°12.8
Kaus Aust.	83°32.6	-34°22.3
Vega	80°33.4	38°48.1
Nunki	75°47.8	-26°15.9
Altair	62°00.1	8°55.9
Peacock	53°06.0	-56°39.9
Deneb	49°26.2	45°22.0
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.4
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3
Feb 24 Mon		
Venus	353°00.6	14.09
Mars	251°02.2	20.56
Jupiter	289°31.9	18.23
Saturn	8°21.7	13.08
Feb 25 Tue		
Venus	352°53.1	14.06
Mars	251°02.1	20.52
Jupiter	289°27.7	18.19
Saturn	8°15.0	13.05
Feb 26 Wed		
Venus	352°47.6	14.02
Mars	251°01.2	20.48
Jupiter	289°23.4	18.15
Saturn	8°08.2	13.01
Horizontal parallax		
Venus:		0.4
Mars:		0.2

	Aries			Venus			Mars			Jupiter			Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	157°04.9	149°49.1	N10°03.8	48°04.5	N25°55.5	86°23.7	N21°50.7	165°06.4	S05°32.5							
1	172°07.4	164°51.5	04°03	63°06.8	55.4	101°26.0	50.7	180°08.6	32.4							
2	187°09.8	179°53.8	04.8	78°09.2	55.3	116°28.3	50.8	195°10.8	32.3							
3	202°12.3	194°56.2	•• 05.3	93°11.6	•• 55.2	131°30.5	•• 50.8	210°13.0	•• 32.2							
4	217°14.8	209°58.6	05.8	108°14.0	55.1	146°32.8	50.8	225°15.1	32.1							
5	232°17.2	225°01.0	06.3	123°16.3	55.0	161°35.1	50.9	240°17.3	31.9							
6	247°19.7	240°03.3	N10°06.9	138°18.7	N25°55.0	176°37.3	N21°50.9	255°19.5	S05°31.8							
7	262°22.2	255°05.7	07.4	153°21.1	54.9	191°39.6	50.9	270°21.7	31.7							
8	277°24.6	270°08.1	07.9	168°23.4	54.8	206°41.9	51.0	285°23.9	31.6							
9	292°27.1	285°10.5	•• 08.4	183°25.8	•• 54.7	221°44.1	•• 51.0	300°26.1	•• 31.5							
10	307°29.6	300°12.9	08.9	198°28.2	54.6	236°46.4	51.0	315°28.2	31.3							
11	322°32.0	315°15.3	09.4	213°30.5	54.5	251°48.7	51.1	330°30.4	31.2							
12	337°34.5	330°17.7	N10°09.9	228°32.9	N25°54.4	266°50.9	N21°51.1	345°32.6	S05°31.1							
13	352°36.9	345°20.1	10.4	243°35.3	54.3	281°53.2	51.1	0°34.8	31.0							
14	7°39.4	0°22.6	10.9	258°37.6	54.2	296°55.5	51.2	15°37.0	30.9							
15	22°41.9	15°25.0	•• 11.4	273°40.0	•• 54.2	311°57.7	•• 51.2	30°39.2	•• 30.7							
16	37°44.3	30°27.4	11.9	288°42.3	54.1	327°00.0	51.2	45°41.3	30.6							
17	52°46.8	45°29.8	12.4	303°44.7	54.0	342°02.3	51.3	60°43.5	30.5							
18	67°49.3	60°32.2	N10°12.9	318°47.0	N25°53.9	357°04.5	N21°51.3	75°45.7	S05°30.4							
19	82°51.7	75°34.7	13.3	333°49.4	53.8	12°06.8	51.3	90°47.9	30.3							
20	97°54.2	90°37.1	13.8	348°51.7	53.7	27°09.0	51.4	105°50.1	30.1							
21	112°56.7	105°39.5	•• 14.3	3°54.1	•• 53.6	42°11.3	•• 51.4	120°52.2	•• 30.0							
22	127°59.1	120°42.0	14.8	18°56.4	53.5	57°13.6	51.4	135°54.4	29.9							
23	143°01.6	135°44.4	15.3	33°58.8	53.4	72°15.8	51.5	150°56.6	29.8							
Mer.pass. 13:29			ν 2.4' d 0.5' m -4.81			ν 2.4' d -0.1' m -0.33			ν 2.3' d 0.0' m -2.31			ν 2.2' d 0.1' m 1.11				

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	158°04.1	150°46.9	N10°15.8	49°01.1	N25°53.3	87°18.1	N21°51.5	165°58.8	S05°29.7						
1	173°06.5	165°49.3	16.2	64°03.5	53.3	102°20.4	51.5	181°01.0	29.5						
2	188°09.0	180°51.8	16.7	79°05.8	53.2	117°22.6	51.6	196°03.2	29.4						
3	203°11.4	195°54.3	•• 17.2	94°08.2	•• 53.1	132°24.9	•• 51.6	211°05.3	•• 29.3						
4	218°13.9	210°56.7	17.7	109°10.5	53.0	147°27.1	51.6	226°07.5	29.2						
5	233°16.4	225°59.2	18.1	124°12.8	52.9	162°29.4	51.7	241°09.7	29.1						
6	248°18.8	241°01.7	N10°18.6	139°15.2	N25°52.7	177°31.7	N21°51.7	256°11.9	S05°28.9						
7	263°21.3	256°04.1	19.1	154°17.5	52.7	192°33.9	51.7	271°14.1	28.8						
8	278°23.8	271°06.6	19.5	169°19.8	52.6	207°36.2	51.8	286°16.3	28.7						
9	293°26.2	286°09.1	•• 20.0	184°22.2	•• 52.5	222°38.4	•• 51.8	301°18.4	•• 28.6						
10	308°28.7	301°11.6	20.4	199°24.5	52.4	237°40.7	51.8	316°20.6	28.5						
11	323°31.2	316°14.1	20.9	214°26.8	52.3	252°43.0	51.9	331°22.8	28.3						
12	338°33.6	331°16.6	N10°21.4	229°29.2	N25°52.3	267°45.2	N21°51.9	346°25.0	S05°28.2						
13	353°36.1	346°19.1	21.8	244°31.5	52.2	282°47.5	51.9	1°27.2	28.1						
14	8°38.5	1°21.6	22.3	259°33.8	52.1	297°49.7	52.0	16°29.3	27.9						
15	23°41.0	16°24.1	•• 22.7	274°36.1	•• 52.0	312°52.0	•• 52.0	31°31.5	•• 28.0						
16	38°43.5	31°26.6	23.2	289°38.5	51.9	327°54.2	52.0	46°33.7	27.7						
17	53°45.9	46°29.1	23.6	304°40.8	51.8	342°56.5	52.1	61°35.9	27.6						
18	68°48.4	61°31.6	N10°24.1	319°43.1	N25°51.7	357°58.8	N21°52.1	76°38.1	S05°27.5						
19	83°50.9	76°34.1	24.5	334°45.4	51.6	13°01.0	52.1	91°40.3	27.4						
20	98°53.3	91°36.6	24.9	349°47.7	51.5	28°03.3	52.2	106°42.4	27.3						
21	113°55.8	106°39.2	•• 25.4	4°50.1	•• 51.4	43°05.5	•• 52.2	121°44.6	•• 27.1						
22	128°58.3	121°41.7	25.8	19°52.4	51.3	58°07.8	52.2	136°46.8	27.0						
23	144°00.7	136°44.2	26.3	34°54.7	51.2	73°10.0	52.3	151°49.0	26.9						
Mer.pass. 13:26			ν 2.5' d 0.5' m -4.80			ν 2.3' d -0.1' m -0.31			ν 2.3' d 0.0' m -2.31			ν 2.2' d 0.1' m 1.11			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	159°03.2	151°46.8	N10°26.7	49°57.0	N25°51.1	88°12.3	N21°52.3	166°51.2	S05°26.8						
1	174°05.7	166°49.3	27.1	64°59.3	51.0	103°14.5	52.3	181°53.4	26.7						
2	189°08.1	181°51.9	27.5	80°01.6	50.9	118°16.8	52.4	196°55.5	26.5						
3	204°10.6	196°54.4	•• 28.0	95°03.9	•• 50.8	133°19.1	•• 52.4	211°57.7	•• 26.4						
4	219°13.0	211°57.0	28.4	110°06.2	50.8	148°21.3	52.4	226°59.9	26.3						
5	234°15.5	226°59.5	28.8	125°08.5	50.7	163°23.6	52.5	242°02.1	26.2						
6	249°18.0	242°02.1	N10°29.2	140°10.9	N25°50.6	178°25.8	N21°52.5	257°04.3	S05°26.1						
7	264°20.4	257°04.7	29.7	155°13.2	50.5	193°28.1	52.5	272°06.4	25.9						
8	279°22.9	272°07.2	30.1	170°15.5	50.4	208°30.3	52.6	287°08.6	25.8						
9	294°25.4	287°09.8	•• 30.5	185°17.8	•• 50.3	223°32.6	•• 52.6	302°10.8	•• 25.7						
10	309°27.8	302°12.4	30.9	200°20.1	50.2	238°34.8	52.6	317°13.0	25.6						
11	324°30.3	317°14.9	31.3	215°22.4	50.1	253°37.1	52.7	332°15.2	25.5						
12	339°32.8	332°17.5	N10°31.7	230°24.7	N25°50.0	268°39.3	N21°52.7	347°17.4	S05°25.3						
13	354°35.2	347°20.1	32.1	245°26.9	49.9	283°41.6	52.7	2°19.5	25.2						
14	9°37.7	2°22.7	32.5	260°29.2	49.8	298°43.8	52.8	17°21.7	25.1						
15	24°40.1	17°25.3	•• 32.9	275°31.5	•• 49.7	313°46.1	•• 52.8	32°23.9	•• 25.0						
16	39°42.6	32°27.9	33.3	290°33.8	49.6	328°48.3	52.8	47°26.1	24.9						
17	54°45.1	47°30.5	33.7	305°36.1	49.5	343°50.6	52.9	62°28.3	24.7						
18	69°47.5	62°33.1	N10°34.1	320°38.4	N25°49.4	358°52.8	N21°52.9	77°30.4	S05°24.6						
19	84°50.0	77°35.7	34.5	335°40.7	49.3	13°55.1	52.9	92°32.6	24.5						
20	99°52.5	92°38.3	34.9	350°43.0	49.2	28°57.3	53.0	107°34.8	24.4						
21	114°54.9	107°41.0	•• 35.3	5°45.3	•• 49.1	43°59.6	•• 53.0	122°37.0	•• 24.3						
22	129°57.4	122°43.6	35.7	20°47.5	49.0	59°01.8	53.0	137°39.2	24.1						
23	144°59.9	137°46.2	36.1	35°49.8	48.9	74°04.1	53.1	152°41.4	24.0						
Mer.pass. 13:22			ν 2.5' d 0.4' m -4.78			ν 2.3' d -0.1' m -0.28			ν 2.3' d 0.0' m -2.30			ν 2.2' d 0.1' m 1.11			

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.4	-57°06.8
Hamal	327°51.3	23°34.9
Polaris	314°09.8	89°22.5
Acamar	315°11.8	-40°12.5
Menkar	314°06.1	4°11.2
Mirfak	308°28.2	49°57.2
Aldebaran	290°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.6	46°01.5
Bellatrix	278°22.7	6°22.3
Elath	278°01.6	28°37.8
Alnilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.1	-52°42.8
Sirius	258°26.0	-16°45.2
Adhara	255°05.6	-29°06.6
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.2	-59°35.5
Suhail	222°45.8	-43°32.2
Miaplacidus	221°37.5	-69°49.3
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.1	61°36.8
Denebola	182°24.5	14°25.7
Geniah	175°43.2	-17°41.0
Acrux	172°59.4	-63°14.2
Gacrux	171°51.1	-57°15.2
Alloth	166°12.4	55°49.1
Spica	158°21.9	-11°17.7
Alkaid	152°51.6	49°11.0
Hadar	148°35.5	-60°29.5
Menkent	147°57.3	-36°29.6
Arcturus	145°47.6	19°02.8
Rigil Kent.	139°39.8	-60°56.2
Kochab	137°19.2	74°02.7
Zuben 'ul	136°55.7	-16°08.9
Alphecca	126°03.5	26°37.5
Antares	112°15.7	-26°29.3
Atria	107°09.9	-69°04.1
Sabik	102°02.7	-15°45.4
Shaula	96°10.3	-37°07.3
Rasalhague	95°58.5	12°32.3
Eltanin	90°42.3	51°28.7
Kaus Aust.	83°32.5	-34°22.3
Vega	80°33.4	38°48.1
Nunki	75°47.8	-26°15.9
Altair	62°00.1	8°55.9
Peacock	53°06.0	-56°39.2
Deneb	49°26.1	45°22.0
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.4
Fomalhaut	15°14.7	-29°29.5
Scheat	13°45.5	28°13.1
Markab	13°30.1	15°20.3
Feb 27 Thu	SHA	Mer-pass
Venus	352°44.2	13:58
Mars	250°59.6	20:44
Jupiter	289°18.8	18:12
Saturn	8°01.5	12:58
Feb 28 Fri	SHA	Mer-pass
Venus	352°42.8	13:55
Mars	250°57.1	20:41
Jupiter	289°14.0	18:08
Saturn	7°54.7	12:54
Mar 01 Sat	SHA	Mer-pass
Venus	352°43.6	13:51
Mars	250°53.8	20:37
Jupiter	289°09.1	18:04
Saturn	7°48.0	12:51
Horizontal parallax		
Venus:		0.4
Mars:		0.2

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	160°02.3	152°48.8	N10°36.5	50°52.1	N25°48.8	89°06.3	N21°53.1	167°43.5	S05°23.9										
1	175°04.8	167°51.5	36.9	65°54.4	48.7	104°08.5	53.1	182°45.7	23.8										
2	190°07.3	182°54.1	37.3	80°56.7	48.6	119°10.8	53.2	197°47.9	23.7										
3	205°09.7	197°56.7	•• 37.6	95°58.9	•• 48.5	134°13.0	•• 53.2	212°50.1	•• 23.5										
4	220°12.2	212°59.4	38.0	111°01.2	48.4	149°15.3	53.2	227°52.3	23.4										
5	235°14.6	228°02.0	38.4	126°03.5	48.3	164°17.5	53.3	242°54.4	23.3										
6	250°17.1	243°04.7	N10°38.8	141°05.8	N25°48.2	179°19.8	N21°53.3	257°56.6	S05°23.2										
7	265°19.6	258°07.3	39.1	156°08.0	48.1	194°22.0	53.3	272°58.8	23.1										
8	280°22.0	273°10.0	39.5	171°10.3	48.0	209°24.3	53.4	288°01.0	22.9										
9	295°24.5	288°12.7	•• 39.9	186°12.6	•• 47.9	224°26.5	•• 53.4	303°03.2	•• 22.8										
10	310°27.0	303°15.3	40.2	201°14.9	47.8	239°28.7	53.5	318°05.3	22.7										
11	325°29.4	318°18.0	40.6	216°17.1	47.7	254°31.0	53.5	333°07.5	22.6										
12	340°31.9	333°20.7	N10°41.0	231°19.4	N25°47.6	269°33.2	N21°53.5	348°09.7	S05°22.5										
13	355°34.4	348°23.3	41.3	246°21.6	47.5	284°35.5	53.6	3°11.9	22.3										
14	10°36.8	3°26.0	41.7	261°23.9	47.4	299°37.7	53.6	18°14.1	22.2										
15	25°39.3	18°28.7	•• 42.0	276°26.2	•• 47.3	314°40.0	•• 53.6	33°16.3	•• 22.1										
16	40°41.7	33°31.4	42.4	291°28.4	47.2	329°42.2	53.7	48°28.8	22.0										
17	55°44.2	48°34.1	42.7	306°30.7	47.1	344°44.4	53.7	63°20.6	21.9										
18	70°46.7	63°36.8	N10°43.1	321°32.9	N25°47.0	359°46.7	N21°53.7	78°22.8	S05°21.7										
19	85°49.1	78°39.5	43.4	336°35.2	46.9	14°48.9	53.8	93°25.0	21.6										
20	100°51.6	93°42.2	43.8	351°37.5	46.8	29°51.2	53.8	108°27.2	21.5										
21	115°54.1	108°44.9	•• 44.1	6°39.7	•• 46.7	44°53.4	•• 53.8	123°29.3	•• 21.4										
22	130°56.5	123°47.6	44.5	21°42.0	46.6	59°55.6	53.9	138°05.3	21.3										
23	145°59.0	138°50.3	44.8	36°44.2	46.5	74°57.9	53.9	153°33.7	21.1										
Mer.pass. 13:18				ν 2.6' d 0.4' m -4.76				ν 2.3' d -0.1' m -0.25				ν 2.2' d 0.0' m -2.29				ν 2.2' d 0.1' m 1.11			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	161°01.5	153°53.1	N10°45.1	51°46.5	N25°46.4	90°00.1	N21°53.9	168°35.9	S05°21.0										
1	176°03.9	168°55.8	45.6	66°48.7	46.3	105°02.4	54.0	183°38.1	20.9										
2	191°06.4	183°58.5	45.8	81°51.0	46.2	120°04.6	54.0	198°40.2	20.8										
3	206°08.9	199°01.2	•• 46.1	96°53.2	•• 46.1	135°06.8	•• 54.0	213°42.4	•• 20.6										
4	221°11.3	214°04.0	46.4	111°55.5	46.0	150°09.1	54.1	228°44.6	20.5										
5	236°13.8	229°06.7	46.8	126°57.7	45.9	165°11.3	54.1	243°46.8	20.4										
6	251°16.2	244°09.5	N10°47.1	141°59.9	N25°45.8	180°13.5	N21°54.2	258°49.0	S05°20.3										
7	266°18.7	259°12.2	47.4	157°02.2	45.7	195°15.8	54.2	273°51.1	20.2										
8	281°21.2	274°15.0	47.7	172°04.4	45.6	210°18.0	54.2	288°53.3	20.0										
9	296°23.6	289°17.7	•• 48.1	187°06.7	•• 45.5	225°20.2	•• 54.3	303°55.5	•• 19.9										
10	311°26.1	304°20.5	48.4	202°08.9	45.4	240°22.5	54.3	318°57.7	19.8										
11	326°28.6	319°23.2	48.7	217°11.1	45.3	255°24.7	54.3	333°59.9	19.7										
12	341°31.0	334°26.0	N10°49.0	232°13.4	N25°45.2	270°27.0	N21°54.4	349°02.1	S05°19.6										
13	356°33.5	349°28.8	49.3	247°15.6	45.1	285°29.2	54.4	4°04.2	19.4										
14	11°36.0	4°31.5	49.6	262°17.8	45.0	300°31.4	54.4	19°06.4	19.3										
15	26°38.4	19°34.3	•• 49.9	277°20.1	•• 44.9	315°33.7	•• 54.5	34°08.6	•• 19.2										
16	41°40.9	34°37.1	50.2	292°22.3	44.8	330°35.9	54.5	49°10.8	19.1										
17	56°43.4	49°39.9	50.5	307°24.5	44.7	345°38.1	54.5	64°13.0	19.0										
18	71°45.8	64°42.7	N10°50.8	322°26.7	N25°44.6	0°40.4	N21°54.6	79°15.1	S05°18.8										
19	86°48.3	79°45.5	51.1	337°29.0	44.4	15°42.6	54.6	94°17.3	18.7										
20	101°50.7	94°48.3	51.4	352°31.2	44.3	30°44.8	54.7	109°19.5	18.6										
21	116°53.2	109°51.1	•• 51.7	7°33.4	•• 44.2	45°47.0	•• 54.7	124°21.7	•• 18.5										
22	131°55.7	124°53.9	52.0	22°35.6	44.1	60°49.3	54.7	139°23.9	18.4										
23	146°58.1	139°56.7	52.3	37°37.9	44.0	75°51.5	54.8	154°26.0	18.2										
Mer.pass. 13:14				ν 2.7' d 0.3' m -4.74				ν 2.2' d -0.1' m -0.23				ν 2.2' d 0.0' m -2.29				ν 2.2' d 0.1' m 1.11			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	162°00.6	154°59.5	N10°52.5	52°40.1	N25°43.9	90°53.7	N21°54.8	169°28.2	S05°18.1										
1	177°03.1	170°02.3	52.8	67°42.3	43.8	105°56.0	54.8	184°30.4	18.0										
2	192°05.5	185°05.1	53.1	82°44.5	43.7	120°58.2	54.9	199°32.6	17.9										
3	207°08.0	200°07.9	· · 53.4	97°46.7	· · 43.6	136°00.4	· · 54.9	214°34.8	· · 17.8										
4	222°10.5	215°10.8	53.7	112°48.9	43.5	151°02.7	54.9	229°36.9	17.6										
5	237°12.9	230°13.6	53.9	127°51.2	43.4	166°04.9	55.0	244°39.1	17.5										
6	252°15.4	245°16.4	N10°54.2	142°53.4	N25°43.3	181°07.1	N21°55.0	259°41.3	S05°17.4										
7	267°17.8	260°19.3	54.5	157°55.6	43.2	196°09.4	55.1	274°43.5	17.3										
8	282°20.3	275°22.1	54.7	172°57.8	43.1	211°11.6	55.1	289°45.7	17.2										
9	297°22.8	290°25.0	· · 55.0	188°00.0	· · 43.0	226°13.8	· · 55.1	304°47.8	· · 17.0										
10	312°25.2	305°27.8	55.3	203°02.2	42.9	241°16.0	55.2	319°50.0	16.9										
11	327°27.7	320°30.7	55.5	218°04.4	42.7	256°18.3	55.2	334°52.2	16.8										
12	342°30.2	335°33.5	N10°55.8	233°06.6	N25°42.6	271°20.5	N21°55.2	349°54.4	S05°16.7										
13	357°32.6	350°36.4	56.0	248°08.8	42.5	286°22.7	55.3	4°56.6	16.6										
14	12°35.1	5°39.2	56.3	263°11.0	42.4	301°24.9	55.3	19°58.8	16.4										
15	27°37.6	20°42.1	· · 56.5	278°13.2	· · 42.3	316°27.2	· · 55.3	35°00.9	· · 16.3										
16	42°40.0	35°45.0	56.8	293°15.4	42.2	331°29.4	55.4	50°03.1	16.2										
17	57°42.5	50°47.9	57.0	308°17.6	42.1	346°31.6	55.4	65°05.3	16.1										
18	72°45.0	65°50.7	N10°57.3	323°19.8	N25°42.0	1°33.8	N21°55.5	80°07.5	S05°15.9										
19	87°47.4	80°53.6	57.3	338°22.0	41.9	16°36.1	55.5	95°09.7	15.8										
20	102°49.9	95°56.5	57.7	353°24.2	41.8	31°38.3	55.5	110°11.8	15.7										
21	117°52.3	110°59.4	· · 58.0	8°26.4	· · 41.7	46°40.5	· · 55.6	125°14.0	· · 15.6										
22	132°54.8	126°02.3	58.2	23°28.6	41.6	61°42.7	55.6	140°16.2	15.5										
23	147°57.3	141°05.2	58.5	38°30.8	41.4	76°45.0	55.6	155°18.4	15.3										
Mer.pass. 13:10				ν 2.8' d 0.3' m -4.72				ν 2.2' d -0.1' m -0.20				ν 2.2' d 0.0' m -2.28				ν 2.2' d 0.1' m 1.11			

	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.5	-57°06.8
Hamal	327°51.3	23°34.9
Polaris	314°11.3	89°22.5
Acamar	315°11.8	-40°12.5
Menkar	314°06.2	4°11.2
Mirafak	308°28.3	49°57.2
Aldebaran	290°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.6	46°01.5
Bellatrix	278°22.7	6°22.3
Elnath	278°01.6	28°37.8
Alnilam	275°37.5	-1°11.2
Betelgeuse	270°51.8	7°24.7
Canopus	263°52.1	-52°42.8
Sirius	258°26.0	-16°45.2
Adhara	255°05.6	-29°00.6
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.2	-59°35.6
Suhail	222°45.8	-43°32.2
Miaplacidus	221°37.5	-69°49.3
Alphard	217°47.3	-8°46.2

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	162°59.7	156°08.1	N10°58.7	53°33.0	N25°41.3	91°47.2	N21°55.7	170°20.6	S05°15.2										
1	178°02.2	171°11.0	58.9	68°35.2	41.2	106°49.4	55.7	185°22.7	15.1										
2	193°04.7	186°13.9	59.1	83°37.3	41.1	121°51.6	55.7	200°24.9	15.0										
3	208°07.1	201°16.8	•• 59.4	98°39.5	•• 41.0	136°53.9	•• 55.8	215°27.1	•• 14.9										
4	223°09.6	216°19.8	59.6	113°41.7	40.9	151°56.1	55.8	230°29.3	14.7										
5	238°12.1	231°22.7	10°59.8	128°43.9	40.8	166°58.3	55.9	245°31.5	14.6										
6	253°14.5	246°25.6	N11°00.0	143°46.1	N25°40.7	182°00.5	N21°55.9	260°33.6	S05°14.5										
7	268°17.0	261°28.5	00.2	158°48.3	40.6	197°02.7	55.9	275°35.8	14.4										
8	283°19.5	276°31.5	00.4	173°50.4	40.5	212°05.0	56.0	290°38.0	14.3										
9	298°21.9	291°34.4	•• 00.6	188°52.6	•• 40.3	227°07.2	•• 56.0	305°40.2	•• 14.1										
10	313°24.4	306°37.4	00.0	203°54.8	40.2	242°09.4	56.0	320°42.4	14.0										
11	328°26.8	321°40.3	01.1	218°57.0	40.1	257°11.6	56.1	335°44.5	13.9										
12	343°29.3	336°43.2	N11°01.3	233°59.1	N25°40.0	272°13.8	N21°56.1	350°46.7	S05°13.8										
13	358°31.8	351°46.2	01.5	249°01.3	39.9	287°16.1	56.2	5°48.9	13.7										
14	13°34.2	6°49.2	01.7	264°03.5	39.8	302°18.3	56.2	20°51.1	13.5										
15	28°36.7	21°52.1	•• 01.9	279°05.7	•• 39.7	317°20.5	•• 56.2	35°53.3	•• 13.4										
16	43°39.2	36°55.1	02.0	294°07.8	39.6	332°22.7	56.3	50°55.4	13.3										
17	58°41.6	51°58.1	02.2	309°10.0	39.5	347°24.9	56.3	65°57.6	13.2										
18	73°44.1	67°01.0	N11°02.4	324°12.2	N25°39.3	2°27.2	N21°56.3	80°59.8	S05°13.1										
19	88°46.6	82°04.0	02.6	339°14.3	39.2	17°29.4	56.4	96°02.0	12.9										
20	103°49.6	97°07.0	02.8	354°16.5	39.1	32°31.6	56.4	111°04.2	12.8										
21	118°51.5	112°10.0	•• 03.0	9°18.7	•• 39.0	47°33.8	•• 56.4	126°06.3	•• 12.7										
22	133°53.9	127°12.9	03.2	24°20.8	38.9	62°36.0	56.5	141°08.5	12.6										
23	148°56.4	142°15.9	03.3	39°23.0	38.8	77°38.2	56.5	156°10.7	12.4										
Mer.pass. 13:06				ν 2.9' d 0.2' m -4.69				ν 2.2' d -0.1' m -0.17				ν 2.2' d 0.0' m -2.27				ν 2.2' d 0.1' m 1.11			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	163°58.9	157°18.9	N11°03.5	54°25.1	N25°38.7	92°40.5	N21°56.6	171°12.9	S05°12.3										
1	179°01.3	172°21.9	03.7	69°27.3	38.6	107°42.7	56.6	186°15.1	12.2										
2	194°03.8	187°24.9	03.8	84°29.5	38.4	122°44.9	56.6	201°17.2	12.1										
3	209°06.3	202°27.9	•• 04.0	99°31.6	•• 38.3	137°47.1	•• 56.7	216°19.4	•• 12.0										
4	224°08.7	217°31.0	04.2	114°33.8	38.2	152°49.3	56.7	231°21.6	11.8										
5	239°11.2	232°34.0	04.3	129°35.9	38.1	167°51.5	56.7	246°23.8	11.7										
6	254°13.7	247°37.0	N11°04.5	144°38.1	N25°38.0	182°53.7	N21°56.8	261°26.0	S05°11.6										
7	269°16.1	262°40.0	04.7	159°40.2	37.9	197°56.0	56.8	276°28.1	11.5										
8	284°18.6	277°43.0	04.8	174°42.4	37.8	212°58.2	56.9	291°30.3	11.4										
9	299°21.1	292°46.1	•• 05.0	189°44.5	•• 37.6	228°00.4	•• 56.9	306°32.5	•• 11.2										
10	314°23.5	307°49.1	05.1	204°46.7	37.5	243°02.6	56.9	321°34.7	11.1										
11	329°26.0	322°52.1	05.3	219°48.8	37.4	258°04.8	57.0	336°36.9	11.0										
12	344°28.4	337°55.2	N11°05.6	234°51.0	N25°37.3	273°07.0	N21°57.0	351°39.0	S05°10.9										
13	359°30.9	352°58.2	05.4	249°53.1	37.2	288°09.2	57.0	6°41.2	10.8										
14	14°33.4	8°01.3	05.7	264°55.2	37.1	303°11.4	57.1	21°43.4	10.6										
15	29°35.8	23°04.3	•• 05.8	279°57.4	•• 37.0	318°13.6	•• 57.1	36°45.6	•• 10.5										
16	44°38.3	38°07.4	06.0	294°59.5	36.8	333°15.9	57.2	51°47.8	10.4										
17	59°40.8	53°10.4	06.1	310°01.7	36.7	348°18.1	57.2	66°49.9	10.3										
18	74°43.2	68°13.5	N11°06.2	325°03.8	N25°36.6	3°20.3	N21°57.2	81°52.1	S05°10.2										
19	89°45.7	83°16.6	06.4	340°05.9	36.5	18°22.5	57.3	96°54.3	10.0										
20	104°48.2	98°19.6	06.6	355°08.1	36.4	33°24.7	57.3	111°56.5	09.9										
21	119°50.6	113°22.7	•• 06.6	10°10.2	•• 36.3	48°26.9	•• 57.4	126°58.7	•• 09.8										
22	134°53.1	128°25.8	06.7	25°12.4	36.1	63°29.1	57.4	142°00.8	09.7										
23	149°55.6	143°28.9	06.9	40°14.5	36.0	78°31.3	57.4	157°03.0	09.6										
Mer.pass. 13:02				ν 3.0' d 0.2' m -4.66				ν 2.2' d -0.1' m -0.15				ν 2.2' d 0.0' m -2.26				ν 2.2' d 0.1' m 1.11			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	164°58.0	158°31.9	N11°07.0	55°16.6	N25°35.9	93°33.5	N21°57.5	172°05.2	S05°09.4		
1	180°00.5	173°35.0	07.1	70°18.7	35.8	108°35.7	57.5	187°07.4	09.3		
2	195°02.9	188°38.1	07.2	85°20.9	35.7	123°38.0	57.5	202°09.6	09.2		
3	210°05.4	203°41.2	•• 07.3	100°23.0	•• 35.6	138°40.2	•• 57.6	217°11.7	•• 09.1		
4	225°07.9	218°44.3	07.4	115°25.1	35.4	153°42.4	57.6	232°13.9	08.9		
5	240°10.3	233°47.4	07.5	130°27.3	35.3	168°44.6	57.7	247°16.1	08.8		
6	255°12.8	248°50.5	N11°07.6	145°29.4	N25°35.2	183°46.8	N21°57.7	262°18.3	S05°08.7		
7	270°15.3	263°53.6	07.7	160°31.5	35.1	198°49.0	57.7	277°20.5	08.6		
8	285°17.7	278°56.8	07.8	175°33.6	35.0	213°51.2	57.8	292°22.6	08.5		
9	300°20.2	293°59.9	•• 07.9	190°35.7	•• 34.9	228°53.4	•• 57.8	307°24.8	•• 08.3		
10	315°22.7	309°03.0	08.0	205°37.9	34.7	243°55.6	57.8	322°27.0	08.2		
11	330°25.1	324°06.1	08.1	220°40.0	34.6	258°57.8	57.9	337°29.2	08.1		
12	345°27.6	339°09.3	N11°08.2	235°42.1	N25°34.5	274°00.0	N21°57.9	352°31.4	S05°08.0		
13	0°30.1	354°12.4	08.3	250°44.2	34.4	289°02.2	58.0	7°33.5	07.9		
14	15°32.5	9°15.5	08.3	265°46.3	34.3	304°04.4	58.0	22°35.7	07.7		
15	30°35.0	24°18.7	•• 08.4	280°48.4	•• 34.1	319°06.6	•• 58.0	37°37.9	•• 07.6		
16	45°37.4	39°21.8	08.5	295°50.6	34.0	334°08.8	58.1	52°40.1	07.5		
17	60°39.9	54°25.0	08.6	310°52.7	33.9	349°11.0	58.1	67°42.2	07.4		
18	75°42.4	69°28.1	N11°08.7	325°54.8	N25°33.8	4°13.2	N21°58.2	82°44.4	S05°07.3		
19	90°44.8	84°31.3	08.7	340°56.9	33.7	19°15.4	58.2	97°46.6	07.1		
20	105°47.3	99°34.4	08.8	355°59.0	33.5	34°17.6	58.2	112°48.0	07.0		
21	120°49.8	114°37.6	•• 08.9	11°01.1	•• 33.4	49°19.8	•• 58.3	127°51.0	•• 06.9		
22	135°52.2	129°40.8	08.9	26°03.2	33.3	64°22.0	58.3	142°53.1	06.8		
23	150°54.7	144°43.9	09.0	41°05.3	33.2	79°24.2	58.3	157°55.3	06.7		
Mer.pass. 12:58				ν 3.1' d 0.1' m -4.63		ν 2.1' d -0.1' m -0.12		ν 2.2' d 0.0' m -2.26		ν 2.2' d 0.1' m 1.11	

SHA	Dec
Alpheratz	357°35.0 29°13.7
Ankaa	353°07.4 42°10.3
Schedar	349°31.4 56°40.6
Diphda	348°47.4 -17°51.1
Achernar	335°20.5 -57°06.7
Hamal	327°51.3 23°34.9
Polaris	314°12.4 89°22.5
Acamar	315°11.9 -40°12.5
Menkar	314°06.2 4°11.2
Mirafak	308°28.3 49°57.2
Aldebaran	290°35.9 16°33.6
Rigel	281°03.7 -8°10.5
Capella	280°21.7 46°01.5
Bellatrix	278°22.7 6°22.3
Elath	278°01.7 28°37.8
Alnilam	275°37.5 -1°11.2
Betelgeuse	270°51.9 7°24.6
Canopus	263°52.1 -52°42.8
Sirius	258°26.0 -16°45.2
Adhara	255°05.6 -29°00.6
Procyon	244°50.5 5°09.5
Pollux	243°16.9 27°57.9
Avior	234°14.2 -59°35.6
Suhail	222°45.9 -43°32.2
Miaplacidus	221°37.5 -69°49.3
Alphard	217°47.3 -8°46.2
Regulus	207°34.0 -11°50.5
Dubhe	193°40.1 61°36.8
Denebola	182°24.5 14°25.7
Gienah	175°43.2 -17°41.0
Acruz	172°59.4 -63°14.3
Gacrux	171°51.0 57°15.2
Alloth	166°12.3 55°49.2
Spica	158°21.9 -11°17.7
Alkaid	152°51.5 49°11.0
Hadar	148°35.4 -60°29.5
Menkar	147°57.2 -36°29.6
Arcturus	145°47.6 19°02.8
Rigel Kent.	139°39.8 -60°56.2
Kochab	137°19.1 74°02.7
Zuben'ubi	136°55.7 -16°08.9
Alphecca	126°03.5 26°37.5
Antares	112°15.6 -26°29.3
Atria	107°09.8 69°04.1
Sabik	102°02.7 -15°45.4
Shaula	96°10.3 -37°07.3
Rasalhague	95°58.5 12°32.3
Eltanin	90°42.3 51°28.7
Kaus Aus.	83°32.5 -34°22.3
Vega	80°33.3 38°48.1
Nunki	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	165°57.2	159°47.1	N11°09.0	56°07.4	N25°33.1	94°26.4	N21°58.4	172°57.5	S05°06.5										
1	180°59.6	174°50.3	09.1	71°09.5	32.9	109°28.6	58.4	187°59.7	06.4										
2	196°02.1	189°53.5	09.1	86°11.6	32.8	124°30.8	58.5	203°01.9	06.3										
3	211°04.6	204°56.6	•• 09.2	101°13.7	•• 32.7	139°33.0	•• 58.5	218°04.0	•• 06.2										
4	226°07.0	219°59.8	09.2	116°15.8	32.6	154°35.2	58.5	233°06.2	06.1										
5	241°09.5	235°03.0	09.3	131°17.9	32.5	169°37.4	58.6	248°08.4	05.9										
6	256°11.9	250°06.2	N11°09.3	146°20.0	N25°32.3	184°39.6	N21°58.9	263°10.6	S05°05.8										
7	271°14.4	265°09.4	09.4	161°22.1	32.2	199°41.8	58.7	278°12.8	05.7										
8	286°16.9	280°12.6	09.4	176°24.2	32.1	214°44.0	58.7	293°14.9	05.6										
9	301°19.3	295°15.8	•• 09.4	191°26.3	•• 32.0	229°46.2	•• 58.7	308°17.1	•• 05.4										
10	316°21.6	310°19.0	09.5	206°28.4	31.9	244°48.4	58.8	323°19.3	05.3										
11	331°24.3	325°22.3	09.5	221°30.5	31.7	259°50.6	58.8	338°21.5	05.2										
12	346°26.7	340°25.5	N11°09.5	236°32.6	N25°31.6	274°52.8	N21°58.9	353°23.7	S05°05.1										
13	1°29.2	355°28.7	09.6	251°34.6	31.5	289°55.0	58.9	8°25.8	05.0										
14	16°31.7	10°31.9	09.6	266°36.7	31.4	304°57.2	58.9	23°28.0	04.8										
15	31°34.1	25°35.1	•• 09.6	281°38.8	•• 31.3	319°59.4	•• 59.0	38°30.2	•• 04.7										
16	46°36.6	40°38.4	09.6	296°40.9	31.1	335°01.6	59.0	53°32.4	04.6										
17	61°39.0	55°41.6	09.6	311°43.0	31.0	350°03.8	59.1	68°36.6	04.5										
18	76°41.5	70°44.8	N11°09.6	326°45.1	N25°30.9	5°06.0	N21°59.1	83°36.7	S05°04.4										
19	91°44.0	85°48.1	09.6	341°47.1	30.8	20°08.2	59.1	98°38.9	04.2										
20	106°46.4	100°51.3	09.7	356°49.2	30.6	35°10.4	59.2	113°41.1	04.1										
21	121°48.9	115°54.6	•• 09.7	1°15.1	•• 30.5	50°12.6	•• 59.2	128°43.3	•• 04.0										
22	136°51.4	130°57.8	09.7	26°53.4	30.4	65°14.8	59.2	143°45.5	03.9										
23	151°53.8	146°01.1	09.7	41°55.5	30.3	80°17.0	59.3	158°47.6	03.8										
Mer.pass. 12:54				ν 3.2' d 0.1' m -4.59				ν 2.1' d -0.1' m -0.10				ν 2.2' d 0.0' m -2.25				ν 2.2' d 0.1' m 1.10			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	166°56.3	161°04.4	N11°09.7	56°57.5	N25°30.1	95°19.2	N21°59.3	173°49.8	S05°03.6
1	181°58.8	176°07.6	09.7	71°59.6	30.0	110°21.4	59.4	188°50.2	03.5
2	197°01.2	191°10.9	09.6	87°01.7	29.9	125°23.6	59.4	203°54.2	03.4
3	212°03.7	206°14.2	•• 09.6	102°03.8	•• 29.8	140°25.7	•• 59.4	218°56.4	•• 03.3
4	227°06.2	221°17.4	09.6	117°05.8	29.7	155°27.9	59.5	233°58.5	03.2
5	242°08.6	236°20.7	09.6	132°07.9	29.5	170°30.1	59.5	249°00.7	03.0
6	257°11.1	251°24.0	N11°09.6	147°10.0	N25°29.4	185°32.3	N21°59.6	264°02.9	S05°02.9
7	272°13.5	266°27.3	09.6	162°12.0	29.3	200°34.5	59.6	279°05.1	02.8
8	287°16.0	281°30.6	09.5	177°14.1	29.2	215°36.7	59.6	294°07.2	02.7
9	302°18.5	296°33.9	•• 09.5	192°16.2	•• 29.0	230°38.9	•• 59.7	309°09.4	•• 02.6
10	317°20.9	311°37.2	09.5	207°18.2	28.9	245°41.1	59.7	324°11.6	02.4
11	332°23.4	326°40.4	09.5	222°20.3	28.8	260°43.3	59.8	339°13.8	02.3
12	347°25.9	341°43.8	N11°09.4	237°22.4	N25°28.7	275°45.5	N21°59.8	354°16.0	S05°02.2
13	2°28.3	356°47.1	09.4	252°24.4	28.5	290°47.7	59.8	9°18.1	02.1
14	17°30.8	11°50.4	09.3	267°26.5	28.4	305°49.8	59.9	24°20.3	01.9
15	32°33.3	26°53.7	•• 09.3	282°28.5	•• 28.3	320°52.0	21°59.9	39°22.5	•• 01.8
16	47°35.7	41°57.0	09.3	297°30.6	28.2	335°54.2	22°00.0	54°24.7	01.7
17	62°38.2	57°00.3	09.2	312°32.7	28.0	350°56.4	00.0	69°26.9	01.6
18	77°40.7	72°03.6	N11°09.2	327°34.7	N25°27.9	5°58.6	N22°00.0	84°29.0	S05°01.5
19	92°43.1	87°07.0	09.1	342°36.8	27.8	21°00.8	00.1	99°31.2	01.3
20	107°45.6	102°10.3	09.1	357°38.8	27.6	36°03.0	00.1	114°33.4	01.2
21	122°48.0	117°13.6	•• 09.0	1°12.0	•• 27.5	51°05.2	•• 00.2	129°35.6	•• 01.1
22	137°50.5	132°17.0	08.9	27°42.9	27.4	66°07.4	00.2	144°37.8	01.0
23	152°53.0	147°20.3	08.9	42°45.0	27.3	81°09.5	00.2	159°39.9	00.9
Mer.pass. 12:50 ν 3.3' d -0.0' m -4.55 ν 2.1' d -0.1' m -0.07 ν 2.2' d 0.0' m -2.24 ν 2.2' d 0.1' m 1.10									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	167°55.4	162°23.6	N11°08.8	57°47.0	N25°27.1	96°11.7	N22°00.3	174°42.1	S05°00.7
1	182°57.9	177°27.0	08.7	72°49.1	27.0	111°13.9	00.3	189°44.3	00.6
2	198°00.4	192°30.3	08.7	87°51.1	26.9	126°16.1	00.4	204°46.5	00.5
3	213°02.8	207°33.7	•• 08.6	102°53.2	•• 26.8	141°18.3	•• 00.4	219°48.7	•• 00.4
4	228°05.3	222°37.1	08.5	117°55.2	26.6	156°20.5	00.4	234°50.8	00.3
5	243°07.8	237°40.4	08.4	132°57.2	26.5	171°22.7	00.5	249°53.0	00.1
6	258°10.2	252°43.8	N11°08.4	147°59.3	N25°26.4	186°24.8	N22°00.5	264°55.2	S05°00.0
7	273°12.7	267°47.1	08.3	163°01.3	26.2	201°27.0	00.6	279°57.4	04°59.9
8	288°15.2	282°50.5	08.2	178°03.4	26.1	216°29.2	00.6	294°59.5	59.8
9	303°17.6	297°53.9	•• 08.1	193°05.4	•• 26.0	231°31.4	•• 00.6	310°01.7	•• 59.7
10	318°20.1	312°57.3	08.0	208°07.4	25.9	246°33.6	00.7	325°03.9	59.5
11	333°22.5	328°00.6	07.9	223°09.5	25.7	261°35.8	00.7	340°06.1	59.4
12	348°25.0	343°04.0	N11°07.8	238°11.5	N25°25.6	276°37.9	N22°00.8	355°08.3	S04°59.3
13	3°27.5	358°07.4	07.7	253°13.6	25.5	291°40.1	00.8	10°10.4	59.2
14	18°29.9	13°10.8	07.6	268°15.6	25.3	306°42.3	00.8	25°12.6	59.1
15	33°32.4	28°14.2	•• 07.5	283°17.6	•• 25.2	321°44.5	•• 00.9	40°14.8	•• 58.9
16	48°34.9	43°17.6	07.4	298°19.6	25.1	336°46.7	00.9	55°17.0	58.8
17	63°37.3	58°21.0	07.3	313°21.7	25.0	351°48.9	01.0	70°19.2	58.7
18	78°39.8	73°24.4	N11°07.2	328°23.7	N25°24.8	6°51.0	N22°01.0	85°21.3	S04°58.6
19	93°42.3	88°27.8	07.1	343°25.7	24.7	21°53.2	01.0	100°25.3	58.4
20	108°44.7	103°31.2	07.0	358°27.8	24.6	36°55.4	01.1	115°25.7	58.3
21	123°47.2	118°34.6	•• 06.8	1°32.9	•• 24.4	51°57.6	•• 01.1	130°27.9	•• 58.2
22	138°49.6	133°38.1	06.7	28°31.8	24.3	66°59.8	01.2	145°30.1	58.1
23	153°52.1	148°41.5	06.6	43°33.8	24.2	82°01.9	01.2	160°32.2	58.0
Mer.pass. 12:46 ν 3.3' d -0.1' m -4.50 ν 2.0' d -0.1' m -0.05 ν 2.2' d 0.0' m -2.24 ν 2.2' d 0.1' m 1.10									

	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.4	56°40.6
Diphda	348°47.4	-17°51.1
Achernar	335°20.5	-57°06.7
Hamal	327°51.3	23°34.9
Polaris	314°13.5	89°22.5
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirfak	308°28.3	49°57.2
Aldebaran	290°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.7	46°01.5
Bellatrix	278°22.7	6°22.3
Elath	278°01.7	28°37.8
Alnilam	275°37.5	-1°11.2
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.2	-52°42.8
Sirius	258°26.0	-16°45.2
Adhara	255°05.6	-29°00.6
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.2	-59°35.6
Suhail	222°45.9	-43°32.2
Miaplacidus	221°37.5	-69°49.4
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.1	61°36.8
Denebola	182°24.5	14°25.7
Geniah	175°43.1	-17°41.0
Acrux	172°59.3	-63°14.3
Gacrux	171°51.0	-57°15.2
Alloth	166°12.3	55°49.2
Spica	158°21.9	-11°17.7
Alkaid	152°51.5	49°11.0
Hadar	148°35.4	-60°29.6
Menkent	147°57.2	-36°29.6
Arcturus	145°47.5	19°02.8
Rigel Kent.	139°39.7	-60°56.2
Kochab	137°19.1	74°02.7
Zuben'ubi	136°55.7	-16°08.9
Alphecca	126°03.5	26°37.3
Antares	112°15.6	-26°29.3
Atria	107°09.7	-69°04.1
Sabik	100°02.6	-15°45.4
Shaula	96°10.2	-37°07.3
Rasalhague	95°58.5	12°32.3
Eltanin	90°42.2	51°28.7
Kaus Aust.	83°32.4	-34°22.3
Vega	80°33.3	38°48.1
Nunki	75°47.7	-26°15.9
Altair	62°00.0	8°55.9
Peacock	53°05.9	-56°39.1
Deneb	49°26.1	45°21.9
Enif	33°39.0	9°59.3
Al Na'ir	27°33.2	-46°50.4
Fomalhaut	15°14.7	-29°29.4
Scheat	13°45.4	28°13.0
Markab	13°30.1	15°20.3

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	168°54.6	163°44.9	N11°06.5	58°35.9	N25°24.1	97°04.1	N22°01.2	175°34.4	S04°57.8					
1	183°57.0	178°48.3	06.3	73°37.9	23.9	112°06.3	01.3	190°36.6	57.7					
2	198°59.5	193°51.7	06.2	88°39.9	23.8	127°08.5	01.3	205°38.8	57.6					
3	214°02.0	208°55.2	05.1	103°41.9	23.7	142°10.6	01.4	220°41.0	57.5					
4	229°04.4	223°58.6	05.0	118°43.9	23.5	157°12.8	01.4	235°43.1	57.4					
5	244°06.9	239°02.1	05.8	133°46.0	23.4	172°15.0	01.4	250°45.3	57.2					
6	259°09.4	254°05.5	N11°05.8	148°48.0	N25°23.3	187°17.2	N22°01.7	265°47.5	S04°57.1					
7	274°11.8	269°08.9	05.5	163°50.0	23.1	202°19.4	01.5	280°49.7	57.0					
8	289°14.3	284°12.4	05.4	178°52.0	23.0	217°21.5	01.6	295°51.8	56.9					
9	304°16.8	299°15.8	05.2	193°54.0	22.9	232°23.7	01.6	310°54.0	56.8					
10	319°19.2	314°19.3	05.0	208°56.0	22.7	247°25.9	01.7	325°56.2	56.6					
11	334°21.7	329°22.8	04.9	223°58.0	22.6	262°28.1	01.7	340°58.4	56.5					
12	349°24.1	344°26.2	N11°04.7	239°00.0	N25°22.5	277°30.2	N22°01.7	356°00.6	S04°56.4					
13	4°26.6	359°29.7	04.6	254°02.1	22.3	292°32.4	01.8	11°02.7	56.3					
14	19°29.1	14°33.2	04.4	269°04.1	22.2	307°34.6	01.8	26°04.9	56.2					
15	34°31.5	29°36.6	04.2	284°06.1	22.1	322°36.8	01.9	41°07.1	56.0					
16	49°34.0	44°40.1	04.1	299°08.1	21.9	337°38.9	01.9	56°09.3	55.9					
17	64°36.5	59°43.6	03.9	314°10.1	21.8	352°41.1	01.9	71°11.5	55.8					
18	79°38.9	74°47.1	N11°03.7	329°12.1	N25°21.7	7°43.3	N22°02.0	86°13.6	S04°55.7					
19	94°41.4	89°50.5	03.5	344°14.1	21.5	22°45.5	02.0	101°15.8	55.6					
20	109°43.9	104°54.0	03.4	359°16.1	21.4	37°47.6	02.1	116°18.0	55.4					
21	124°46.3	119°57.5	03.2	14°18.1	21.3	52°49.8	02.1	131°20.2	55.3					
22	139°48.8	135°01.0	03.0	29°20.1	21.1	67°52.0	02.1	146°22.4	55.2					
23	154°51.3	150°04.5	02.8	44°22.1	21.0	82°54.2	02.2	161°24.5	55.1					
Mer.pass. 12:42			ν 3.4' d -0.1' m -4.45			ν 2.0' d -0.1' m -0.02			ν 2.2' d 0.0' m -2.23			ν 2.2' d 0.1' m 1.10		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	169°53.7	165°08.0	N11°02.6	59°24.1	N25°20.9	97°56.3	N22°02.2	176°26.7	S04°55.0					
1	184°56.2	180°11.5	02.4	74°26.1	20.7	112°58.5	02.3	191°28.9	54.8					
2	199°58.6	195°15.0	02.2	89°28.1	20.6	128°00.7	02.3	206°31.1	54.7					
3	215°01.1	210°18.5	02.0	104°30.1	20.5	143°02.8	02.4	221°33.3	54.6					
4	230°03.6	225°22.0	01.8	119°32.1	20.3	158°05.0	02.4	236°35.4	54.5					
5	245°06.0	240°25.5	01.6	134°34.1	20.2	173°07.2	02.4	251°37.6	54.4					
6	260°08.5	255°29.0	N11°01.4	149°36.0	N25°20.1	188°09.4	N22°02.5	266°39.8	S04°54.2					
7	275°11.0	270°32.6	01.2	164°38.0	19.9	203°11.5	02.5	281°42.0	54.1					
8	290°13.4	285°36.1	01.0	179°40.0	19.8	218°13.7	02.6	296°44.1	54.0					
9	305°15.9	300°39.6	00.8	194°42.0	19.7	233°15.9	02.6	311°46.3	53.9					
10	320°18.4	315°43.1	00.6	209°44.0	19.5	248°18.0	02.6	326°48.5	53.7					
11	335°20.8	330°46.7	00.3	224°46.0	19.4	263°20.2	02.7	341°50.7	53.6					
12	350°23.3	345°50.0	N11°00.1	239°48.0	N25°19.3	278°22.4	N22°02.7	356°52.9	S04°53.5					
13	5°25.7	0°53.7	10°59.9	254°50.0	19.1	293°24.5	02.8	11°55.0	53.4					
14	20°28.2	15°57.3	59.7	269°51.9	19.0	308°26.7	02.8	26°57.2	53.3					
15	35°30.7	31°00.8	59.4	284°53.9	18.9	323°28.9	02.8	41°59.4	53.1					
16	50°33.1	46°04.4	59.2	299°55.9	18.7	338°31.0	02.9	57°01.6	53.0					
17	65°35.6	61°07.9	59.0	314°57.9	18.6	353°33.2	02.9	72°03.8	52.9					
18	80°38.1	76°11.5	N10°58.7	329°59.9	N25°18.4	8°35.4	N22°03.0	87°05.9	S04°52.8					
19	95°40.5	91°15.0	58.5	345°01.8	18.3	23°37.5	03.0	102°08.1	52.7					
20	110°43.0	106°18.6	58.0	3°03.8	18.2	38°39.7	03.0	117°10.3	52.5					
21	125°45.5	121°22.1	58.3	15°05.8	18.0	53°41.9	03.1	132°12.5	52.4					
22	140°47.9	136°25.7	57.8	30°07.8	17.9	68°44.0	03.1	147°14.7	52.3					
23	155°50.4	151°29.3	57.5	45°09.7	17.8	83°46.2	03.2	162°16.8	52.2					
Mer.pass. 12:38			ν 3.5' d -0.2' m -4.40			ν 2.0' d -0.1' m 0.00			ν 2.2' d 0.0' m -2.22			ν 2.2' d 0.1' m 1.10		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	170°52.9	166°32.8	N10°57.3	60°11.7	N25°17.6	98°48.4	N22°03.2	177°19.0	S04°52.1					
1	185°55.3	181°36.4	57.0	75°13.7	17.5	113°50.5	03.3	192°21.2	51.9					
2	200°57.8	196°40.0	56.7	90°15.6	17.4	128°52.7	03.3	207°23.4	51.8					
3	216°00.2	211°43.5	56.5	105°17.6	17.2	143°54.9	03.3	222°25.6	51.7					
4	231°02.7	226°47.1	56.2	120°19.6	16.9	158°57.0	03.4	237°27.7	51.6					
5	246°05.2	241°50.7	55.9	135°21.6	16.7	173°59.2	03.4	252°29.9	51.5					
6	261°07.6	256°54.3	N10°55.7	150°23.5	N25°16.8	189°01.4	N22°03.5	267°32.1	S04°51.3					
7	276°10.1	271°57.9	55.4	165°25.3	16.7	204°03.5	03.5	282°34.3	51.2					
8	291°12.6	287°01.5	55.1	180°27.4	16.5	219°05.7	03.5	297°36.4	51.1					
9	306°15.0	302°05.1	54.9	195°29.4	16.4	234°07.9	03.6	312°38.6	51.0					
10	321°17.5	317°08.7	54.6	210°31.4	16.2	249°10.0	03.6	327°40.8	50.9					
11	336°20.0	332°12.3	54.3	225°33.3	16.1	264°12.2	03.7	342°43.0	50.7					
12	351°22.4	347°15.9	N10°54.0	240°35.3	N25°16.0	279°14.3	N22°03.7	357°45.2	S04°50.6					
13	6°24.9	2°19.5	53.7	255°37.3	15.8	294°16.5	03.8	12°45.3	50.5					
14	21°27.3	17°23.1	53.4	270°39.2	15.7	309°18.7	03.8	27°49.5	50.4					
15	36°29.8	32°26.7	53.1	285°41.2	15.6	324°20.8	03.8	42°51.7	50.3					
16	51°32.3	47°30.3	52.8	300°43.1	15.4	339°23.0	03.9	57°53.9	50.1					
17	66°34.7	62°33.9	52.5	315°45.1	15.3	354°25.1	03.9	72°56.1	50.0					
18	81°37.2	77°37.5	N10°52.2	330°47.0	N25°15.1	9°27.3	N22°04.0	87°58.2	S04°49.9					
19	96°39.7	92°41.1	51.9	345°49.0	15.0	24°29.5	04.0	103°00.4	49.8					
20	111°42.1	107°44.7	51.6	0°50.9	14.9	39°31.6	04.1	118°02.6	49.7					
21	126°44.6	122°48.4	51.3	15°52.9	14.7	54°33.8	04.1	133°04.8	49.5					
22	141°47.1	137°52.0	51.0	30°54.8	14.6	69°35.9	04.1	148°07.0	49.4					
23	156°49.5	152°55.6	50.7	45°56.8	14.4	84°38.1	04.2	163°09.1	49.3					
Mer.pass. 12:34			ν 3.6' d -0.3' m -4.34			ν 2.0' d -0.1' m 0.03			ν 2.2' d 0.0' m -2.22			ν 2.2' d 0.1' m 1.11		

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.5	56°40.6
Diphda	348°47.4	-17°51.0
Achernar	335°20.5	-57°06.7
Hamal	327°51.3	23°34.9
Polaris	314°14.8	89°22.5
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirfak	308°28.3	49°57.2
Aldebaran	299°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.7	46°01.5
Bellatrix	278°22.7	6°22.3
Elath	278°01.7	28°37.8
Alnilam	275°37.6	-1°11.2
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.2	-52°48.2
Sirius	258°26.0	-16°45.2
Adhara	255°05.6	-29°00.6
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.3	-59°35.6
Suhail	222°45.9	-43°32.2
Miaplacidus	221°37.6	-69°49.4
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°56.5
Dubhe	193°40.1	61°36.9
Deneb	182°24.5	14°25.7
Gienah	175°43.1	-17°41.0
Acrux	172°59.3	-63°14.3
Gacrux	171°51.0	-57°15.3
Alioth	166°12.3	55°49.2
Spica	158°21.9	-11°17.7
Alkaid	152°51.5	49°11.0
Hadar	148°35.4	-60°29.6
Menkent	147°57.2	-36°29.6
Arcturus	145°47.5	19°02.8
Rigel Kent.	139°39.7	-60°56.2
Kochab	137°19.0	74°02.8
Zuben 'ul	136°55.7	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.6	-26°29.3
Atria	107°09.6	-69°04.1
Sabik	102°02.6	-15°45.4
Shaula	96°10.2	-37°07.3
Rasalhague	95°58.4	12°32.2
Eltanin	90°42.2	51°28.7
Kaus Aust.	83°32.4	-34°22.3
Vega	80°33.3	38°48.1
Nunki	75°47.7	-26°15.9
Altair	62°00.0	8°55.9
Peacock	53°05.9	-56°39.1
Deneb	49°26.1	45°52.9
Enif	33°38.9	9°59.3
Al Na'ir	27°33.1	-46°50.4
Fomalhaut	15°14.7	-29°29.4
Scheat	13°45.4	28°13.0
Markab	13°30.1	15°20.2

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	171°52.0	167°59.3	N10°50.4	60°58.7	N25°14.3	99°40.3	N22°04.2	178°11.3	S04°49.2					
1	186°54.5	183°02.9	50.1	76°00.7	14.2	114°42.4	04.3	193°13.5	49.1					
2	201°56.9	189°06.5	49.7	91°02.6	14.0	129°44.6	04.3	208°15.6	48.9					
3	216°59.4	213°10.2	.. 49.4	106°04.6	.. 13.9	144°46.7	.. 04.8	223°17.9	.. 48.8					
4	232°01.8	228°13.8	49.1	121°06.5	13.7	159°48.9	04.4	238°20.0	48.7					
5	247°04.3	243°17.5	48.8	136°08.5	13.6	174°51.0	04.4	253°22.2	48.6					
6	262°06.8	258°21.1	N10°48.4	151°10.4	N25°13.5	189°53.2	N22°04.5	268°24.4	S04°48.4					
7	277°09.2	273°24.7	48.1	166°12.3	13.3	204°55.4	04.5	283°26.6	48.3					
8	292°11.7	288°28.4	47.8	181°14.3	13.2	219°57.5	04.6	298°28.7	48.2					
9	307°14.2	303°32.1	.. 47.4	196°16.2	.. 13.0	234°59.7	.. 04.6	313°30.9	.. 48.1					
10	322°16.6	318°35.7	47.1	211°18.1	12.9	250°01.8	04.6	338°33.1	48.0					
11	337°19.1	333°39.4	46.7	226°20.1	12.7	265°04.0	04.7	343°35.3	47.8					
12	352°21.6	348°43.0	N10°46.4	241°22.0	N25°12.6	280°06.1	N22°04.7	358°37.5	S04°47.7					
13	7°24.0	3°46.7	46.0	256°24.0	12.5	295°08.3	04.8	13°39.6	47.6					
14	22°26.5	18°50.4	45.7	271°25.9	12.3	310°10.5	04.8	28°41.8	47.5					
15	37°28.9	33°54.0	.. 45.3	286°27.8	.. 12.2	325°12.6	.. 04.9	43°44.0	.. 47.4					
16	52°31.4	48°57.7	45.0	301°29.8	12.0	340°14.8	04.9	58°46.2	47.2					
17	67°33.9	64°01.4	44.6	316°31.7	11.9	355°16.9	04.9	73°48.4	47.1					
18	82°36.3	79°05.0	N10°44.2	331°33.6	N25°11.7	10°19.1	N22°05.0	88°50.5	S04°47.0					
19	97°38.8	94°08.7	43.9	346°35.6	11.6	25°21.2	05.0	103°52.7	46.9					
20	112°41.3	109°12.4	43.5	1°37.5	11.5	40°23.4	05.1	118°54.9	46.8					
21	127°43.7	124°16.1	.. 43.1	16°39.4	.. 11.3	55°25.5	.. 05.1	133°57.1	.. 46.6					
22	142°46.2	139°19.8	42.8	31°41.3	11.2	70°27.7	05.2	148°59.3	46.5					
23	157°48.7	154°23.4	42.4	46°43.3	11.0	85°29.8	05.2	164°01.4	46.4					
Mer.pass. 12:30 ν 3.6' d -0.3' m -4.28 ν 1.9' d -0.1' m 0.05 ν 2.2' d 0.0' m -2.21 ν 2.2' d 0.1' m 1.11														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	172°51.1	169°27.1	N10°42.0	61°45.2	N25°10.9	100°32.0	N22°05.2	179°03.6	S04°46.3
1	187°53.6	184°30.8	41.6	76°47.1	10.7	115°34.1	05.3	194°05.8	46.2
2	202°56.1	199°34.5	41.2	91°49.0	10.6	130°36.3	05.3	209°08.0	46.0
3	217°58.5	214°38.2	.. 40.9	106°51.0	.. 10.4	145°38.4	.. 05.4	224°10.2	.. 45.9
4	233°01.0	229°41.9	40.5	121°52.9	10.3	160°40.6	05.4	239°12.3	45.8
5	248°03.4	244°45.6	40.1	136°54.8	10.2	175°42.7	05.4	254°14.5	45.7
6	263°05.9	259°49.3	N10°39.7	151°56.7	N25°10.0	190°49.4	N22°05.5	269°16.7	S04°45.6
7	278°08.4	274°53.0	39.3	166°58.6	09.9	205°47.0	05.5	284°18.9	45.4
8	293°10.8	289°56.7	38.9	182°00.5	09.7	220°49.2	05.6	299°21.1	45.3
9	308°13.3	305°00.4	.. 38.5	197°02.5	.. 09.6	235°51.3	.. 05.6	314°23.2	.. 45.2
10	323°15.8	320°04.1	38.1	212°04.4	09.4	250°53.5	05.7	329°25.4	45.1
11	338°18.2	335°07.8	37.7	227°06.3	09.3	265°55.6	05.7	344°27.6	45.0
12	353°20.7	350°11.6	N10°37.3	242°08.2	N25°09.1	280°57.8	N22°05.7	359°29.8	S04°44.8
13	8°23.2	5°15.3	36.9	257°10.1	09.0	295°59.9	05.8	14°31.9	44.7
14	23°25.6	20°19.0	36.4	272°12.0	08.9	311°02.1	05.8	29°34.1	.. 44.6
15	38°28.1	35°22.7	.. 36.0	287°13.9	.. 08.7	326°04.2	.. 05.9	44°36.3	.. 44.5
16	53°30.5	50°26.4	35.6	302°15.8	08.6	341°06.4	05.9	59°38.5	44.4
17	68°33.0	65°30.2	35.2	317°17.8	08.4	356°08.5	06.0	74°40.7	44.2
18	83°35.5	80°33.9	N10°34.8	332°19.7	N25°08.3	11°10.7	N22°06.0	89°42.8	S04°44.1
19	98°37.9	95°37.6	34.3	347°21.6	08.1	26°12.8	06.0	104°45.0	44.0
20	113°40.4	110°41.3	.. 33.9	2°23.5	08.0	41°15.0	06.1	119°47.2	43.9
21	128°42.9	125°45.1	.. 33.5	17°25.4	.. 07.8	56°17.1	.. 06.1	134°49.4	.. 43.8
22	143°45.3	140°48.8	33.0	32°27.3	07.7	71°19.2	06.2	149°51.6	43.6
23	158°47.8	155°52.5	32.6	47°29.2	07.5	86°21.4	06.2	164°53.7	43.5
Mer.pass. 12:27 ν 3.7' d -0.4' m -4.22 ν 1.9' d -0.1' m 0.07 ν 2.2' d 0.0' m -2.20 ν 2.2' d 0.1' m 1.11									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	173°50.3	170°56.3	N10°32.2	62°31.1	N25°07.4	101°23.5	N22°06.3	179°55.9	S04°43.4
1	188°52.7	186°00.0	31.7	77°33.0	07.2	116°25.7	06.3	194°58.1	43.3
2	203°55.2	201°03.8	31.3	92°34.9	07.1	131°27.8	06.3	210°00.3	43.2
3	218°57.7	216°07.5	.. 30.8	107°36.8	.. 06.9	146°30.0	.. 06.4	225°02.5	.. 43.0
4	234°00.1	231°11.3	30.4	122°38.7	06.8	161°32.1	06.4	240°04.6	42.9
5	249°02.6	246°15.0	29.9	137°40.6	06.6	176°34.3	06.5	255°06.8	42.8
6	264°05.0	261°18.7	N10°29.5	152°42.5	N25°06.5	191°36.4	N22°06.5	270°09.0	S04°42.7
7	279°07.5	276°22.5	29.0	167°44.6	06.4	206°38.5	06.6	285°11.2	42.6
8	294°10.0	291°26.3	28.6	182°46.3	06.2	221°40.7	06.6	300°13.4	42.4
9	309°12.4	306°30.0	.. 28.1	197°48.1	.. 06.1	236°42.8	.. 06.6	315°15.5	.. 42.3
10	324°14.9	321°33.8	27.6	212°50.0	05.9	251°45.0	06.7	330°17.7	42.2
11	339°17.4	336°37.5	27.2	227°51.9	05.8	266°47.1	06.7	345°19.9	42.1
12	354°19.8	351°41.3	N10°26.7	242°53.8	N25°05.6	281°49.3	N22°06.8	0°22.1	S04°42.0
13	9°22.3	6°45.0	26.2	257°55.7	05.5	296°51.4	06.8	15°24.3	41.8
14	24°24.2	21°48.8	25.8	272°57.6	05.3	311°53.5	06.9	30°26.4	41.7
15	39°27.2	36°52.6	.. 25.3	287°59.5	.. 05.2	326°55.7	.. 06.9	45°28.6	.. 41.6
16	54°29.7	51°56.3	24.8	303°01.4	05.0	341°57.8	07.0	60°30.8	41.5
17	69°32.2	67°00.1	24.3	318°03.3	04.9	357°00.0	07.0	75°33.0	41.4
18	84°34.6	82°03.9	N10°23.8	333°05.1	N25°04.7	12°02.1	N22°07.0	90°35.1	S04°41.2
19	99°37.1	97°07.6	23.4	348°07.0	04.6	27°04.2	07.1	105°37.3	41.1
20	114°39.5	112°11.4	22.9	3°08.9	04.3	42°06.4	07.1	120°39.5	41.0
21	129°42.0	127°15.2	.. 22.4	18°10.8	.. 04.3	57°08.5	.. 07.2	135°41.7	.. 40.9
22	144°44.5	142°19.0	21.9	33°12.7	04.1	72°10.7	07.2	150°43.9	40.8
23	159°46.9	157°22.7	21.4	48°14.5	04.0	87°12.8	07.3	165°46.0	40.6
Mer.pass. 12:23 ν 3.7' d -0.4' m -4.16 ν 1.9' d -0.1' m 0.10 ν 2.1' d 0.0' m -2.20 ν 2.2' d 0.1' m 1.12									

Stars	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.3
Schedar	349°31.5	56°40.5
Diphda	348°47.5	-17°51.0
Achernar	335°20.5	-57°06.7
Hamal	327°51.3	23°34.9
Polaris	341°16.1	89°22.5
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirfak	308°28.3	49°57.2
Aldebaran	290°39.5	16°33.6
Rigel	281°03.7	-8°10.5
Capella	280°21.7	46°01.5
Bellatrix	278°22.7	6°22.3
Elath	278°01.7	28°37.8
Anilam	275°37.6	-1°11.2
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.2	-52°42.8
Sirius	258°26.0	-16°45.2
Adhara	255°05.6	-29°00.6
Procyon	244°50.5	5°09.5
Pollux	243°16.9	27°57.9
Avior	234°14.3	-59°35.6
Suhail	222°45.9	-43°32.2
Miaplacidus	221°37.6	-69°49.4
Alphard	217°47.3	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.1	61°36.9
Deneb	182°24.5	14°25.7
Gienah	175°43.1	-17°41.0
Acrux	172°59.3	-63°14.3
Gacrux	171°51.0	-57°15.3
Alloth	166°12.3	55°49.2
Spica	158°21.9	-11°17.7
Alkaid	152°51.5	49°11.0
Hadar	148°35.3	-60°29.6
Menkent	147°57.2	-66°59.3
Arcturus	145°47.5	19°02.8
Rigel Kent.	139°39.7	-60°56.3
Kochab	137°19.0	74°02.8
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.6	-26°29.3
Atria	107°09.6	-69°04.1
Sabik	102°02.6	-15°45.4
Shaula	96°10.2	-37°07.3
Rasalhague	95°58.4	-12°32.2
Eltanin	90°42.2	51°28.7
Kaus	83°32.4	-34°22.3
Vega	80°33.2	38°48.1
Nunki	75°47.7	-26°15.9
Altair	66°00.0	8°55.9
Peacock	53°05.9	-56°39.1
Deneb	49°26.1	45°21.9
Enif	37°38.9	9°59.3
Al Na'ir	27°33.1	-46°50.4
Fomalhaut	15°14.7	-29°29.4
Scheat	13°45.4	28°13.0
Markab	13°30.1	15°20.3

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	174°49.4	172°26.5	N10°20.9	63°16.4	N25°03.8	102°14.9	N22°07.3	180°48.2	S04°40.5				
1	189°51.9	187°30.3	20.4	78°18.3	03.7	117°17.1	07.3	195°50.4	40.4				
2	204°54.3	202°34.1	19.9	93°20.2	03.5	132°19.2	07.4	210°52.6	40.3				
3	219°56.8	217°37.9	•• 19.4	108°22.1	•• 03.4	147°21.4	•• 07.4	225°54.8	•• 40.2				
4	234°59.3	232°41.7	18.9	123°23.9	03.2	162°23.5	07.5	240°56.9	40.0				
5	250°01.7	247°45.4	18.4	138°25.8	03.1	177°25.6	07.5	255°59.1	39.9				
6	265°04.2	262°49.2	N10°17.9	153°27.7	N25°02.9	192°27.8	N22°07.6	271°01.3	S04°39.8				
7	280°06.6	277°53.0	17.3	168°29.5	02.8	207°29.9	07.6	286°03.5	39.7				
8	295°09.1	292°56.8	16.8	183°31.4	02.6	222°32.0	07.6	301°05.7	39.6				
9	310°11.6	308°00.6	•• 16.3	198°33.3	•• 02.4	237°34.2	•• 07.7	316°07.8	•• 39.4				
10	325°14.0	323°04.4	15.8	213°35.2	02.3	252°36.3	07.7	331°10.0	39.3				
11	340°16.5	338°08.2	15.3	228°37.0	02.1	267°38.4	07.8	346°12.2	39.2				
12	355°19.0	353°12.0	N10°14.7	243°38.9	N25°02.0	282°40.6	N22°07.8	1°14.4	S04°39.1				
13	10°21.4	8°15.8	14.2	258°40.8	01.8	297°42.7	07.9	16°16.6	39.0				
14	25°23.9	23°19.6	13.7	273°42.6	01.7	312°44.8	07.9	31°18.7	38.8				
15	40°26.4	38°23.4	•• 13.1	288°44.5	•• 01.5	327°47.0	•• 07.9	46°20.9	•• 38.7				
16	55°28.8	53°27.2	12.6	303°46.4	01.4	342°49.1	08.0	61°23.1	38.6				
17	70°31.3	68°31.0	12.1	318°48.2	01.2	357°51.3	08.0	76°25.3	38.5				
18	85°33.8	83°34.8	N10°11.5	333°50.1	N25°01.1	12°53.4	N22°08.1	91°27.5	S04°38.4				
19	100°36.2	98°38.6	11.0	348°51.9	00.9	27°55.5	08.1	106°29.6	38.2				
20	115°38.7	113°42.4	10.4	3°53.8	00.8	42°57.7	08.2	121°31.8	38.1				
21	130°41.1	128°46.2	•• 09.9	18°55.7	•• 00.6	57°59.8	•• 08.2	136°34.0	•• 38.0				
22	145°43.6	143°50.0	09.3	33°57.5	00.5	73°01.9	08.3	151°36.2	37.9				
23	160°46.1	158°53.8	08.8	48°59.4	00.3	88°04.0	08.3	166°38.4	37.8				
Mer.pass. 12:19			ν 3.8° d -0.5' m -4.09			ν 1.9° d -0.2' m 0.12			ν 2.1° d 0.0' m -2.19			ν 2.2° d 0.1' m 1.12	

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	175°48.5	173°57.6	N10°08.2	64°01.2	N25°00.2	103°06.2	N22°08.3	181°40.5	S04°37.6					
1	190°51.0	189°01.5	07.7	79°03.1	25°00.0	118°08.3	08.4	196°42.7	37.5					
2	205°53.5	204°05.3	07.1	94°04.9	24°59.8	133°10.4	08.4	211°44.9	37.4					
3	220°55.9	219°09.1	•• 06.6	109°06.8	•• 59.7	148°12.6	•• 08.5	226°47.1	•• 37.3					
4	235°58.4	234°12.9	06.0	124°08.6	59.5	163°14.7	08.5	241°49.3	37.2					
5	251°00.9	249°16.7	05.4	139°10.5	59.4	178°16.8	08.6	256°51.4	37.0					
6	266°03.3	264°20.5	N10°04.9	154°12.3	N24°59.2	193°19.0	N22°08.6	271°53.6	S04°36.9					
7	281°05.8	279°24.4	04.3	169°14.2	59.1	208°21.1	08.6	286°55.8	36.8					
8	296°08.2	294°28.2	03.7	184°16.0	58.9	223°23.2	08.7	301°58.0	36.7					
9	311°10.7	309°32.0	•• 03.1	199°17.9	•• 58.8	238°25.4	•• 08.7	317°00.2	•• 36.6					
10	326°13.2	324°35.8	02.6	214°19.7	58.6	253°27.5	08.8	332°02.3	36.4					
11	341°15.6	339°39.7	02.0	229°21.6	58.4	268°29.6	08.8	347°04.5	36.3					
12	356°18.1	354°43.5	N10°01.4	244°23.4	N24°58.3	283°31.7	N22°08.9	2°06.7	S04°36.2					
13	11°20.6	9°47.3	00.8	259°25.3	58.1	298°33.9	08.9	17°08.9	36.1					
14	26°23.0	24°51.1	10°00.2	274°27.1	58.0	313°36.0	09.0	32°11.1	36.0					
15	41°25.5	39°55.0	09°59.7	289°29.0	•• 57.8	328°38.1	•• 09.0	47°13.2	•• 35.8					
16	56°28.0	54°58.8	59.1	304°30.8	57.7	343°40.3	09.0	62°15.4	35.7					
17	71°30.4	70°02.6	58.5	319°32.6	57.5	358°42.4	09.1	77°17.6	35.6					
18	86°32.9	85°06.5	N09°57.9	334°34.5	N24°57.4	13°44.5	N22°09.1	92°19.8	S04°35.5					
19	101°35.4	100°10.3	57.3	349°36.3	57.2	28°46.6	09.2	107°21.9	35.4					
20	116°37.8	115°14.1	56.7	4°38.2	57.0	43°48.8	09.2	122°24.1	35.2					
21	131°40.3	130°17.9	•• 56.1	19°40.0	•• 56.9	58°50.9	•• 09.3	137°26.3	•• 35.1					
22	146°42.7	145°21.8	55.5	34°41.8	56.7	73°53.0	09.3	152°28.5	35.0					
23	161°45.2	160°25.6	54.9	49°43.7	56.6	88°55.1	09.4	167°30.7	34.9					
Mer.pass. 12:15			ν 3.8° d -0.6' m -4.04			ν 1.9° d -0.2' m 0.14			ν 2.1° d 0.0' m -2.19			ν 2.2° d 0.1' m 1.12		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	176°47.7	175°29.5	N09°54.3	64°45.5	N24°56.4	103°57.3	N22°09.4	182°32.8	S04°34.8	
1	191°50.1	190°33.3	53.7	79°47.3	56.3	118°59.4	09.4	197°35.0	34.6	
2	206°52.6	205°37.1	53.0	94°49.2	56.1	134°01.5	09.5	212°37.2	34.5	
3	221°55.1	220°41.0	.. 52.4	109°51.0	.. 55.9	149°03.6	.. 09.5	227°39.4	.. 34.4	
4	236°57.5	235°44.8	51.8	124°52.8	55.8	164°05.8	09.6	242°41.6	34.3	
5	252°00.0	250°48.6	51.2	139°54.7	55.6	179°07.9	09.6	257°43.7	34.2	
6	267°02.5	265°52.5	N09°50.6	154°56.5	N24°55.5	194°10.0	N22°09.7	272°45.9	S04°34.0	
7	282°04.9	280°56.3	50.0	169°58.3	55.3	209°12.1	09.7	287°48.1	33.9	
8	297°07.4	296°00.2	49.3	185°00.2	55.1	224°14.3	09.8	302°50.3	33.8	
9	312°09.9	311°04.0	.. 48.7	200°02.0	.. 55.0	239°16.4	.. 09.8	317°52.5	.. 33.7	
10	327°12.3	326°07.9	48.1	215°03.8	54.8	254°18.5	09.8	332°54.6	33.6	
11	342°14.8	341°11.7	47.4	230°05.6	54.7	269°20.6	09.9	347°56.8	33.4	
12	357°17.2	356°15.5	N09°46.8	245°07.5	N24°54.4	284°22.8	N22°09.9	2°59.0	S04°33.3	
13	12°19.7	11°19.4	46.2	260°09.3	54.4	299°24.9	10.0	18°01.2	33.2	
14	27°22.2	26°23.2	45.5	275°11.1	54.2	314°27.0	10.0	33°03.4	33.1	
15	42°24.6	41°27.1	.. 44.9	290°12.9	.. 54.0	329°29.1	.. 10.1	48°05.5	.. 33.0	
16	57°27.1	56°30.9	44.3	305°14.7	53.9	344°31.2	10.1	63°07.7	32.9	
17	72°29.6	71°34.8	43.6	320°16.6	53.7	359°33.4	10.2	78°09.9	32.7	
18	87°32.0	86°38.6	N09°43.0	335°18.4	N24°53.6	14°35.5	N22°10.2	93°12.1	S04°32.5	
19	102°34.5	101°42.5	42.3	350°20.2	53.4	29°37.6	10.2	108°14.3	32.5	
20	117°37.0	116°46.3	41.7	5°22.0	53.2	44°39.7	10.3	123°16.4	32.4	
21	132°39.4	131°50.2	.. 41.0	20°23.8	.. 53.1	59°41.8	.. 10.3	138°18.6	.. 32.3	
22	147°41.9	146°54.0	40.4	35°25.7	52.9	74°44.0	10.4	153°20.8	32.1	
23	162°44.3	161°57.9	39.7	50°27.5	52.8	89°46.1	10.4	168°23.0	32.0	
Mer.pass. 12:11			ν 3.8° d -0.6' m -4.13		ν 1.8° d -0.2' m 0.17		ν 2.1° d 0.0' m -2.18		ν 2.2° d 0.1' m 1.13	

SHA	Dec
Alpheratz	357°35.0 29°13.7
Ankaa	353°07.4 -42°10.3
Schedar	349°31.5 56°40.5
Diphda	348°47.5 -17°51.0
Achernar	335°20.5 -57°06.7
Hamal	327°51.3 23°34.9
Polaris	314°17.2 89°22.5
Acamar	315°11.9 -40°12.4
Menkar	314°06.2 4°11.2
Mirafak	308°28.3 49°57.2
Aldebaran	290°39.5 16°33.6
Rigel	281°03.8 -8°10.5
Capella	280°21.7 46°01.5
Bellatrix	278°22.7 6°22.3
Elath	278°01.7 28°37.8
Alnilam	275°37.6 -1°11.2
Betelgeuse	270°51.9 7°24.6
Canopus	263°52.3 -52°42.8
Sirius	258°26.0 -16°45.2
Adhara	255°05.6 -29°00.6
Procyon	244°50.5 5°09.5
Pollux	243°16.9 27°57.9
Avior	234°14.3 -59°35.6
Suhail	222°45.9 -43°32.2
Miaplacidus	221°37.6 -69°49.4
Regulus	217°47.4 -8°46.2
Alphard	207°34.0 11°50.5
Dubhe	193°40.1 61°36.9
Denelbora	182°24.5 14°25.7
Geniah	175°43.1 -17°41.0
Acrux	172°59.3 -63°14.3
Gacrux	171°51.0 -57°15.3
Alloth	166°12.3 55°49.2
Spica	158°21.9 -11°17.7
Alkaid	152°51.4 49°11.0
Hadar	148°35.3 -60°29.6
Menkent	147°57.1 -36°29.7
Arcturus	145°47.5 19°02.8
Rigel Kent.	139°39.7 -60°56.3
Kochab	137°18.9 74°02.8
Zuben'ubi	136°55.6 -16°08.9
Alphecca	126°03.4 26°37.5
Antares	112°15.5 -26°29.3
Atria	107°09.5 69°04.1
Sabik	102°02.6 -15°45.4
Shaula	96°10.1 -37°07.3
Rasalhague	95°58.4 12°32.2
Eltanin	90°42.1 51°28.7
Kaus Aust.	83°32.4 -34°22.3
Vega	80°33.2 38°48.1
Nunki	75°47.7 -26°15.9
Altair	62°00.0 8°55.9
Peacock	53°05.8 -56°39.1
Deneb	49°26.0 45°21.9
Enif	33°38.9 9°59.3
Al Na'ir	27°33.1 -46°50.3
Fomalhaut	15°14.7 -29°29.4
Scheat	13°45.4 28°13.0
Markab	13°30.1 15°20.3

Dubhe	193°40.1	61°36.9
Denebola	182°24.5	14°25.7
Gienah	175°43.1	-17°40.1
Acrux	172°59.3	-63°14.3
Gacrux	171°51.0	-57°15.3
Alioth	166°12.3	55°49.2
Spica	158°21.9	-11°17.7
Alkaid	152°51.4	49°11.0
Hadar	148°35.3	-60°29.6
Menkent	147°57.1	-36°29.7
Arcturus	145°47.5	19°02.8
Rigil Kent.	139°39.7	-60°56.3
Kochab	137°18.9	74°02.8
Zuben 'ul	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.5	-26°23.9
Atria	107°09.5	-69°04.1
Sabik	102°02.6	-15°45.4
Shaula	96°10.1	-37°07.3
Rasalhague	95°58.4	12°32.2
Eltanin	90°42.1	51°28.7
Kaus Aust.	83°32.4	-34°22.3
Vega	80°33.2	38°48.1
Nunki	75°47.7	-26°15.9
Altair	62°00.0	8°55.9
Peacock	53°05.8	-56°39.1
Deneb	49°26.0	45°21.9
Enif	33°38.9	9°59.3
Al Na'ir	27°33.1	-46°50.3
Fomalhaut	15°14.7	-29°29.4
Scheat	13°45.4	28°13.0
Makab	13°30.1	15°20.3

	Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	177°46.8	177°01.7	N09°39.1	65°29.3	N24°52.6	104°48.2	N22°10.5	183°25.2	S04°31.9						
1	192°49.3	192°05.6	38.4	80°31.1	52.4	119°50.3	10.5	198°27.3	31.8						
2	207°51.7	207°09.4	37.7	95°32.9	52.3	134°52.4	10.6	213°29.5	31.8						
3	222°54.2	222°13.3	.. 37.1	110°34.7	.. 52.1	149°54.6	.. 10.6	228°31.7	.. 31.5						
4	237°56.7	237°17.1	36.4	125°36.5	51.9	164°56.7	10.6	243°33.9	31.4						
5	252°59.1	252°21.0	35.7	140°38.3	51.8	179°58.8	10.7	258°36.1	31.3						
6	268°01.6	267°24.8	N09°35.1	155°40.1	N24°51.6	195°00.9	N22°10.7	273°38.2	S04°31.2						
7	283°04.1	282°28.7	34.4	170°42.0	51.5	210°03.0	10.8	288°40.4	31.1						
8	298°06.5	297°32.5	33.7	185°43.8	51.3	225°05.1	10.8	303°42.6	30.9						
9	313°09.0	312°36.4	.. 33.0	200°45.6	.. 51.1	240°07.3	.. 10.9	318°44.8	.. 30.8						
10	328°11.5	327°40.2	32.4	215°47.4	51.0	255°09.4	10.9	333°47.0	30.7						
11	343°13.9	342°44.1	31.7	230°49.2	50.8	270°11.5	11.0	348°49.2	30.6						
12	358°16.4	357°48.0	N09°31.0	245°51.0	N24°50.7	285°13.6	N22°11.0	3°51.3	S04°30.5						
13	13°18.8	12°51.8	30.3	260°52.8	50.5	300°15.7	11.0	18°53.5	30.3						
14	28°21.3	27°55.7	29.6	275°54.6	50.3	315°17.8	11.1	33°55.7	30.2						
15	43°23.8	42°59.5	.. 29.0	290°56.4	.. 50.2	330°20.0	.. 11.1	48°57.9	.. 30.1						
16	58°26.2	58°03.4	28.3	305°58.2	50.0	345°22.1	11.2	64°00.1	30.0						
17	73°28.7	73°07.2	27.6	321°00.0	49.8	0°24.2	11.2	79°02.2	29.9						
18	88°31.2	88°11.1	N09°26.9	336°01.8	N24°49.7	15°26.3	N22°11.3	94°04.4	S04°29.7						
19	103°33.6	103°14.9	26.2	351°03.6	49.5	30°28.4	11.3	109°06.6	29.6						
20	118°36.1	118°18.8	25.5	6°05.4	49.3	45°30.5	11.4	124°08.8	29.5						
21	133°38.6	133°22.7	.. 24.8	21°07.2	.. 49.2	60°32.6	.. 11.4	139°10.1	.. 29.4						
22	148°41.0	148°26.5	24.1	36°09.0	49.0	75°34.8	11.4	154°13.1	29.3						
23	163°43.5	163°30.4	23.4	51°10.8	48.9	90°36.9	11.5	169°15.3	29.1						
Mer.pass. 12:07			ν 3.9' d -0.7' m -4.18			ν 1.8' d -0.2' m 0.19			ν 2.1' d 0.0' m -2.17			ν 2.2' d 0.1' m 1.13			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	178°46.0	178°34.2	N09°22.7	66°12.6	N24°48.7	105°39.0	N22°11.5	184°17.5	S04°29.0					
1	193°48.4	193°38.1	22.0	81°14.3	48.5	120°41.1	11.6	199°19.7	28.9					
2	208°50.9	208°41.9	21.3	96°16.1	48.4	135°43.2	11.6	214°21.9	28.8					
3	223°53.3	223°45.8	.. 20.6	111°17.9	.. 48.2	150°45.3	.. 11.7	229°24.0	.. 28.7					
4	238°55.8	238°49.6	19.9	126°19.7	48.0	165°47.4	11.7	244°26.2	28.6					
5	253°58.3	253°53.5	19.1	141°21.5	47.9	180°49.5	11.8	259°28.4	28.4					
6	269°00.7	268°57.4	N09°18.4	156°23.3	N24°47.7	195°51.6	N22°11.8	274°30.6	S04°28.3					
7	284°03.2	284°01.2	17.7	171°25.1	47.5	210°53.8	11.8	289°32.8	28.2					
8	299°05.7	299°05.1	17.0	186°26.9	47.4	225°55.9	11.9	304°34.9	28.1					
9	314°08.1	314°08.9	.. 16.3	201°28.7	.. 47.2	240°58.0	.. 11.9	319°37.1	.. 28.0					
10	329°10.6	329°12.8	15.5	216°30.4	47.0	256°00.1	12.0	334°39.3	27.8					
11	344°13.1	344°16.6	14.8	231°32.2	46.9	271°02.2	12.0	349°41.5	27.7					
12	359°15.5	359°20.5	N09°14.1	246°34.0	N24°46.7	286°04.3	N22°12.1	4°43.7	S04°27.6					
13	14°18.0	14°24.3	13.4	261°35.8	46.5	301°06.4	12.1	19°45.8	27.5					
14	29°20.5	29°28.2	12.6	276°37.6	46.4	316°08.5	12.2	34°48.0	27.4					
15	44°22.9	44°32.1	.. 11.9	291°39.3	.. 46.2	331°10.6	.. 12.2	49°50.2	.. 27.2					
16	59°25.4	59°35.9	11.2	306°41.1	46.0	346°12.7	12.3	64°52.4	27.1					
17	74°27.8	74°39.8	10.4	321°42.9	45.9	1°14.9	12.3	79°54.6	27.0					
18	89°30.3	89°43.6	N09°09.7	336°44.7	N24°45.7	16°17.0	N22°12.3	94°56.7	S04°26.9					
19	104°32.8	104°47.5	09.0	351°46.5	45.5	31°19.1	12.4	109°58.9	26.8					
20	119°35.2	119°51.3	08.2	6°48.2	45.4	46°21.2	12.4	125°01.1	26.6					
21	134°37.7	134°55.2	.. 07.5	21°50.0	.. 45.2	61°23.3	.. 12.5	140°03.3	.. 26.5					
22	149°40.2	149°59.0	06.8	36°51.8	45.0	76°25.4	12.5	155°05.5	26.4					
23	164°42.6	165°02.9	06.0	51°53.6	44.9	91°27.5	12.6	170°07.7	26.3					
Mer.pass. 12:03			ν 3.9' d -0.7' m -4.20			ν 1.8' d -0.2' m 0.21			ν 2.1' d 0.0' m -2.17			ν 2.2' d 0.1' m 1.13		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	179°45.1	180°06.7	N09°05.3	66°55.3	N24°44.7	106°29.6	N22°12.6	185°09.8	S04°26.2
1	194°47.6	195°10.6	04.5	81°57.1	44.5	121°31.7	12.7	200°12.0	26.1
2	209°50.0	210°14.4	03.8	96°58.9	44.4	136°33.8	12.7	215°14.2	25.9
3	224°52.5	225°18.3	.. 03.0	112°00.7	.. 44.2	151°35.9	.. 12.7	230°16.4	.. 25.8
4	239°54.9	240°22.1	02.3	127°02.4	44.0	166°38.0	12.8	245°18.6	25.7
5	254°57.4	255°26.0	01.5	142°04.2	43.9	181°40.1	12.8	260°20.7	25.6
6	269°59.9	270°29.8	N09°00.8	157°06.0	N24°43.7	196°42.2	N22°12.9	275°22.9	S04°25.5
7	285°02.3	285°33.7	09°00.0	172°07.7	43.5	211°44.3	12.9	290°25.1	25.3
8	300°04.8	300°37.5	08°59.2	187°09.5	43.4	226°46.4	13.0	305°27.3	25.2
9	315°07.3	315°41.4	.. 58.5	202°11.3	.. 43.2	241°48.6	.. 13.0	320°29.5	.. 25.1
10	330°09.2	330°45.2	57.7	217°13.0	43.0	256°50.7	13.1	335°31.6	25.0
11	345°12.2	345°49.1	57.0	232°14.8	42.8	271°52.8	13.1	350°33.8	24.9
12	0°14.7	0°52.9	N08°56.2	247°16.5	N24°42.7	286°54.9	N22°13.2	5°36.0	S04°24.7
13	15°17.1	15°56.8	55.4	262°18.3	42.5	301°57.0	13.2	20°38.2	24.6
14	30°19.6	31°00.6	54.7	277°20.1	42.3	316°59.1	13.2	35°40.4	24.5
15	45°22.1	46°04.4	.. 53.9	292°21.8	.. 42.2	332°01.2	.. 13.3	50°42.5	.. 24.4
16	60°24.5	61°08.3	53.1	307°23.6	42.0	347°03.3	13.3	65°44.7	24.3
17	75°27.0	76°12.1	52.3	322°25.4	41.8	2°05.4	13.4	80°46.9	24.1
18	90°29.4	91°16.0	N08°51.6	337°27.1	N24°41.7	17°07.5	N22°13.4	95°49.1	S04°24.0
19	105°31.9	106°19.8	50.8	352°28.9	41.5	32°09.6	13.5	110°51.3	23.9
20	120°34.4	121°23.7	50.0	7°30.6	41.3	47°11.7	13.5	125°53.5	23.8
21	135°36.8	136°27.5	.. 49.2	22°32.4	.. 41.1	62°13.8	.. 13.6	140°55.6	.. 23.7
22	150°39.3	151°31.3	48.5	37°34.1	41.0	77°15.9	13.6	155°57.8	23.6
23	165°41.8	166°35.2	47.7	52°35.9	40.8	92°18.0	13.7	171°00.0	23.4
Mer.pass. 11:59 ν 3.9' d -0.7' m -4.20 ν 1.8' d -0.2' m 0.23 ν 2.1' d 0.0' m -2.16 ν 2.2' d 0.1' m 1.14									

Stars		
SHA	Dec	
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.2
Schedar	349°31.5	56°40.5
Diphda	348°47.5	-17°51.0
Achernar	335°20.6	-57°06.7
Hamal	327°51.3	23°34.9
Polaris	314°18.1	89°22.5
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirafak	308°28.4	49°57.2
Aldebaran	290°39.6	16°33.6
Rigel	281°03.8	-8°10.5
Capella	280°21.7	46°01.5
Bellatrix	278°22.8	6°22.3
Elath	278°01.7	28°37.8
Alnilam	275°37.6	-1°11.3
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.3	-52°42.8
Sirius	258°26.0	-16°45.2
Adhara	255°05.7	-29°00.6
Procyon	244°50.5	5°09.5
Pollux	243°17.0	27°57.9
Avior	234°14.4	-59°35.6
Suhail	222°45.9	-43°32.3
Miaplacidus	221°37.6	-69°49.4
Alphard	217°47.4	-8°46.2
Regulus	207°34.0	11°50.5
Dubhe	193°40.1	61°36.9
Denebola	182°24.5	14°25.7
Gienah	175°43.1	-17°41.0
Acrux	172°59.3	-63°44.4
Gacrux	171°51.0	-57°15.3
Alioth	166°12.2	55°49.2
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.0
Hadar	148°35.3	-60°29.6
Menkent	147°57.1	-36°29.7
Arcturus	145°47.5	19°02.8
Rigel Kent.	139°39.6	-60°56.3
Kochab	137°18.9	74°02.8
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.5	-26°29.3
Atria	107°09.5	-69°04.1
Sabik	102°02.5	-15°45.4
Shaula	96°10.1	-37°07.3
Rasalhague	95°58.4	12°32.3
Eltanin	90°42.1	51°28.7
Kaus Aust.	83°32.3	-34°22.3
Vega	80°33.2	38°48.1
Nunki	75°47.6	-26°15.9
Altair	62°00.0	8°55.9
Peacock	53°05.8	-56°39.1
Deneb	49°26.0	-45°21.9
Enif	33°38.9	9°59.3
Al Na'ir	27°33.1	-46°50.3
Fomalhaut	15°14.7	-29°29.4
Scheat	13°45.4	28°13.0
Markab	13°30.1	15°20.3

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	180°44.2	181°39.0	N08°46.9	67°37.6	N24°40.6	107°20.1	N22°13.7	186°02.2	S04°23.3		
1	195°46.7	196°42.9	46.1	82°39.4	40.5	122°22.2	13.7	201°04.4	23.2		
2	210°49.2	211°46.7	45.3	97°41.1	40.3	137°24.3	13.8	216°06.5	23.1		
3	225°51.6	226°50.5	· · 44.5	112°42.9	· · 40.1	152°26.4	· · 13.8	231°08.7	· · 23.0		
4	240°54.1	241°54.4	43.7	127°44.6	39.9	167°28.5	13.9	246°10.9	22.8		
5	255°56.6	256°58.2	43.0	142°46.4	39.8	182°30.6	13.9	261°13.1	22.7		
6	270°59.0	272°02.0	N08°42.2	157°48.1	N24°39.6	197°32.7	N22°14.0	276°15.3	S04°22.6		
7	286°01.5	287°05.9	41.4	172°49.9	39.4	212°34.8	14.0	291°17.4	22.5		
8	301°03.9	302°09.7	40.6	187°51.6	39.3	227°36.9	14.1	306°19.6	22.4		
9	316°06.4	317°13.5	· · 39.8	202°53.4	· · 39.1	242°39.0	· · 14.1	321°21.8	· · 22.2		
10	331°08.9	332°17.3	39.0	217°55.1	38.9	257°41.1	14.2	336°24.0	22.1		
11	346°11.3	347°21.2	38.2	232°56.9	38.7	272°43.2	14.2	351°26.2	22.0		
12	1°13.8	2°25.0	N08°37.4	247°58.6	N24°38.6	287°45.3	N22°14.2	6°28.4	S04°21.9		
13	16°16.3	17°28.8	36.6	263°00.4	38.4	302°47.4	14.3	21°30.5	21.8		
14	31°18.7	32°32.7	35.8	278°02.1	38.2	317°49.5	14.3	36°32.7	21.7		
15	46°21.2	47°36.5	· · 35.0	293°03.8	· · 38.0	332°51.6	· · 14.4	51°34.9	· · 21.5		
16	61°23.7	62°40.3	34.2	308°05.6	37.9	347°53.7	14.4	66°37.1	21.4		
17	76°26.1	77°44.1	33.4	323°07.3	37.7	2°55.8	14.5	81°39.3	21.3		
18	91°28.6	92°47.9	N08°32.6	338°09.1	N24°37.5	17°57.8	N22°14.5	96°41.4	S04°21.2		
19	106°31.1	107°51.8	31.7	353°10.8	37.3	32°59.9	14.6	111°43.6	21.1		
20	121°33.5	122°55.6	30.9	8°12.5	37.2	48°02.0	14.6	126°45.8	20.9		
21	136°36.0	137°59.4	· · 30.1	23°14.3	· · 37.0	63°04.1	· · 14.7	141°48.0	· · 20.8		
22	151°38.4	153°03.2	29.3	38°16.0	36.8	78°06.2	14.7	156°50.2	20.7		
23	166°40.9	168°07.0	28.5	53°17.8	36.7	93°08.3	14.7	171°52.3	20.6		
Mer.pass. 11:55 ν 3.8' d -0.8' m -4.20 ν 1.8' d -0.2' m 0.25 ν 2.1' d 0.0' m -2.16 ν 2.2' d 0.1' m 1.14											

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	181°43.4	183°10.9	N08°27.7	68°19.5	N24°36.5	108°10.4	N22°14.8	186°54.5	S04°20.5						
1	196°45.8	198°14.7	26.9	83°21.2	36.3	123°12.5	14.8	201°56.7	20.3						
2	211°48.3	213°18.5	26.0	98°23.0	36.1	138°14.6	14.9	216°58.9	20.2						
3	226°50.8	228°22.3	· · 25.2	113°24.7	· · 36.0	153°16.7	· · 14.9	232°01.1	· · 20.1						
4	241°53.2	243°26.1	24.4	128°26.4	35.8	168°18.8	15.0	247°03.3	20.0						
5	256°55.7	258°29.9	23.6	143°28.1	35.6	183°20.9	15.0	262°05.4	19.9						
6	271°58.2	273°33.7	N08°22.8	158°29.9	N24°35.2	198°23.0	N22°15.1	277°07.6	S04°19.8						
7	287°00.6	288°37.5	21.9	173°31.6	35.2	213°25.1	15.1	292°09.8	19.6						
8	302°03.1	303°41.3	21.1	188°33.3	35.1	228°27.2	15.2	307°12.0	19.5						
9	317°05.5	318°45.1	· · 20.3	203°35.1	· · 34.9	243°29.3	· · 15.2	322°14.2	· · 19.4						
10	332°08.0	333°48.9	19.5	218°36.8	34.7	258°31.3	15.3	337°16.3	19.3						
11	347°10.5	348°52.7	18.6	233°38.5	34.5	273°33.4	15.3	352°18.3	19.2						
12	2°12.9	3°56.5	N08°17.8	248°40.2	N24°34.4	288°35.5	N22°15.3	7°20.7	S04°19.0						
13	17°15.4	19°00.3	17.0	263°42.0	34.2	303°37.6	15.4	22°22.9	18.9						
14	32°17.9	34°04.1	16.1	278°43.7	34.0	318°39.7	15.4	37°25.1	18.8						
15	47°20.3	49°07.9	· · 15.3	293°45.4	· · 34.8	333°41.8	· · 15.5	52°27.3	· · 18.7						
16	62°22.8	64°11.7	14.5	308°47.1	33.7	348°43.9	15.5	67°29.4	18.6						
17	77°25.3	79°15.5	13.6	323°48.9	33.5	3°46.0	15.6	82°31.6	18.5						
18	92°27.7	94°19.3	N08°12.8	338°50.6	N24°33.3	18°48.1	N22°15.6	97°33.8	S04°18.3						
19	107°30.2	109°23.1	12.0	353°52.3	33.1	33°50.2	15.7	112°36.0	18.2						
20	122°32.7	124°26.9	11.1	8°54.0	32.9	48°52.2	15.7	127°38.2	18.1						
21	137°35.1	139°30.7	· · 10.3	23°55.7	· · 32.8	63°54.3	· · 15.8	142°40.3	· · 18.0						
22	152°37.6	154°34.5	09.4	38°57.4	32.6	78°56.4	15.8	157°42.5	17.9						
23	167°40.0	169°38.2	08.6	53°59.2	32.4	93°58.5	15.8	172°44.7	17.7						
Mer.pass. 11:51			ν 3.8' d -0.8' m -4.20			ν 1.7' d -0.2' m 0.28			ν 2.1' d 0.0' m -2.15			ν 2.2' d 0.1' m 1.15			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	182°42.5	184°42.0	N08°07.8	69°00.9	N24°32.2	109°00.6	N22°15.9	187°46.9	S04°17.6						
1	197°45.0	199°45.8	06.9	84°02.6	32.1	124°02.7	15.9	202°49.1	17.5						
2	212°47.4	214°49.6	06.1	99°04.3	31.9	139°04.8	16.0	217°51.3	17.4						
3	227°49.9	229°53.4	· · 05.2	114°06.0	· · 31.7	154°06.9	· · 16.0	232°53.4	· · 17.3						
4	242°52.4	244°57.1	04.4	129°07.7	31.5	169°09.0	16.1	247°55.6	17.2						
5	257°54.8	260°00.9	03.5	144°09.4	31.3	184°11.0	16.1	262°57.8	17.0						
6	272°57.3	275°04.7	N08°02.7	159°11.2	N24°31.2	199°13.1	N22°16.2	278°00.0	S04°16.9						
7	287°59.8	290°08.5	01.8	174°12.9	31.0	214°15.2	16.2	293°02.2	16.8						
8	303°02.2	305°12.2	01.0	189°14.6	30.8	229°17.3	16.3	308°04.4	16.7						
9	318°04.7	320°16.0	08°00.1	204°16.3	· · 30.6	244°19.4	· · 16.3	323°06.5	· · 16.6						
10	333°07.2	335°19.8	07°59.3	219°18.0	30.4	259°21.5	16.4	338°08.7	16.4						
11	348°09.6	350°23.5	58.4	234°19.7	30.3	274°23.6	16.4	353°10.9	16.3						
12	3°12.1	5°27.3	N07°56.7	249°21.4	N24°30.1	289°25.6	N22°16.4	8°13.1	S04°16.2						
13	18°14.5	20°31.1	56.6	264°23.1	29.9	304°27.7	16.5	23°15.2	16.1						
14	33°17.0	35°34.8	55.9	279°24.8	29.7	319°29.8	16.5	38°17.4	16.0						
15	48°19.5	50°38.6	· · 55.0	294°26.5	· · 29.5	334°31.9	· · 16.6	53°19.6	· · 15.9						
16	63°21.9	65°42.3	54.2	309°28.2	29.4	349°34.0	16.6	68°21.8	15.7						
17	78°24.4	80°46.1	53.3	324°29.9	29.2	4°36.1	16.7	83°24.0	15.6						
18	93°26.9	95°49.8	N07°52.4	339°31.6	N24°29.0	19°38.2	N22°16.7	98°26.2	S04°15.5						
19	108°29.3	110°53.6	51.6	354°33.3	28.8	34°40.2	16.8	113°28.4	15.4						
20	123°31.8	125°57.3	50.7	9°35.0	28.6	49°42.3	16.8	128°30.5	15.3						
21	138°34.3	141°01.1	· · 49.9	24°36.7	· · 28.5	64°44.4	· · 16.9	143°32.7	· · 15.1						
22	153°36.7	156°04.8	49.0	39°38.4	28.3	79°46.5	16.9	158°34.9	15.0						
23	168°39.2	171°08.6	48.1	54°40.1	28.1	94°48.6	17.0	173°37.1	14.9						
Mer.pass. 11:47			ν 3.8' d -0.8' m -4.20			ν 1.7' d -0.2' m 0.30			ν 2.1' d 0.0' m -2.14			ν 2.2' d 0.1' m 1.15			

	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.2
Schedar	349°31.5	56°40.5
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.7
Hamal	327°51.3	23°34.9
Polaris	314°19.0	89°22.4
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirafak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.8	-8°10.5
Capella	280°21.8	46°01.5
Bellatrix	278°22.8	6°22.3
Elmath	278°01.7	28°37.8
Alnilam	275°37.6	-1°11.2
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.3	-52°42.8
Sirius	258°26.1	-16°45.2
Adhara	255°05.7	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	234°17.0	27°57.9
Avior	234°14.4	-59°35.6
Suhail	222°45.9	-43°32.3
Miaplacidus	221°37.7	-69°49.4
Alphard	217°47.4	-8°46.2

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	183°41.7	186°12.3	N07°47.3	69°41.8	N24°27.9	109°50.6	N22°17.0	188°39.3	S04°14.8					
1	198°44.1	201°16.1	46.4	84°43.5	27.7	124°52.7	17.0	203°41.5	14.7					
2	213°46.6	216°19.8	45.5	99°45.2	27.5	139°54.8	17.1	218°43.6	14.6					
3	228°49.0	231°23.5	· · 44.7	114°46.9	· · 27.4	154°56.9	· · 17.1	233°45.8	· · 14.4					
4	243°51.5	246°27.3	43.8	129°48.6	27.2	169°59.0	17.2	248°48.0	14.3					
5	258°54.0	261°31.0	42.9	144°50.3	27.0	185°01.1	17.2	263°50.2	14.2					
6	273°56.4	276°34.7	N07°42.1	159°52.0	N24°26.8	200°03.1	N22°17.3	278°52.4	S04°14.1					
7	288°58.9	291°38.5	41.2	174°53.7	26.6	215°05.2	17.3	293°54.5	14.0					
8	304°01.4	306°42.2	40.3	189°55.4	26.4	230°07.3	17.4	308°56.7	13.9					
9	319°03.8	321°45.9	· · 39.4	204°57.1	· · 26.3	245°09.4	· · 17.4	323°58.9	· · 13.7					
10	334°06.3	336°49.6	38.6	219°58.8	26.1	260°11.5	17.5	339°01.1	13.6					
11	349°08.8	351°53.3	37.7	235°00.4	25.9	275°13.5	17.5	354°03.3	13.5					
12	4°11.2	6°57.1	N07°36.8	250°02.1	N24°25.7	290°15.6	N22°17.6	9°05.5	S04°13.4					
13	19°13.7	22°00.8	36.0	265°03.8	25.5	305°17.7	17.6	24°07.6	13.3					
14	34°16.1	37°04.5	35.1	280°05.5	25.3	320°19.8	17.6	39°09.8	13.1					
15	49°18.6	52°08.2	· · 34.2	295°07.2	· · 25.2	335°21.9	· · 17.7	54°12.0	· · 13.0					
16	64°21.1	67°11.9	33.3	310°08.9	25.0	350°23.9	17.7	69°14.2	12.9					
17	79°23.5	82°15.6	32.5	325°10.6	24.8	5°26.0	17.8	84°16.4	12.8					
18	94°26.0	97°19.3	N07°31.6	340°12.2	N24°24.6	20°28.1	N22°17.8	99°18.6	S04°12.7					
19	109°28.5	112°23.0	30.7	355°13.9	24.4	35°30.2	17.9	114°20.7	12.6					
20	124°30.9	127°26.7	29.8	10°15.6	24.2	50°32.2	17.9	129°22.9	12.4					
21	139°33.4	142°30.4	· · 28.9	25°17.3	· · 24.1	65°34.3	· · 18.0	144°25.1	· · 12.3					
22	154°35.9	157°34.1	28.1	40°19.0	23.9	80°36.4	18.0	159°27.3	12.2					
23	169°38.3	172°37.8	27.2	55°20.7	23.7	95°38.5	18.1	174°29.5	12.1					
Mer.pass. 11:43			ν 3.7' d -0.9' m -4.18			ν 1.7' d -0.2' m 0.32			ν 2.1' d 0.0' m -2.14			ν 2.2' d 0.1' m 1.15		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	184°40.8	187°41.5	N07°26.3	70°22.3	N24°23.5	110°40.6	N22°18.1	189°31.7	S04°12.0						
1	199°43.3	202°45.2	25.4	85°24.0	23.3	125°42.6	18.2	204°33.8	11.9						
2	214°45.7	217°48.9	24.5	100°25.7	23.1	140°44.7	18.2	219°36.0	11.7						
3	229°48.2	232°52.6	· · 23.7	115°27.4	· · 22.9	155°46.8	· · 18.2	234°38.2	· · 11.6						
4	244°50.6	247°56.3	22.8	130°29.0	22.8	170°48.9	18.3	249°40.4	11.5						
5	259°53.1	263°00.0	21.9	145°30.7	22.6	185°50.9	18.3	264°42.6	11.4						
6	274°55.6	278°03.6	N07°21.0	160°32.4	N24°22.4	200°53.0	N22°18.4	279°44.8	S04°11.3						
7	289°58.0	293°07.3	20.1	175°34.1	22.2	215°55.1	18.4	294°46.9	11.1						
8	305°00.5	308°11.0	19.2	190°35.7	22.0	230°57.2	18.5	309°49.1	11.0						
9	320°03.0	323°14.7	· · 18.3	205°37.4	· · 21.8	245°59.2	· · 18.5	324°51.3	· · 10.9						
10	335°05.4	338°18.3	17.5	220°39.1	21.6	261°01.3	18.6	339°53.5	10.8						
11	350°07.9	353°22.0	16.6	235°40.8	21.4	276°03.4	18.6	354°55.7	10.7						
12	5°10.4	8°25.7	N07°15.7	250°42.4	N24°21.3	291°05.4	N22°18.7	9°57.9	S04°10.6						
13	20°12.8	23°29.3	14.8	265°44.1	21.1	306°07.5	18.7	25°00.0	10.4						
14	35°15.3	38°33.0	13.9	280°45.8	20.9	321°09.6	18.7	40°02.2	10.3						
15	50°17.7	53°36.6	· · 13.0	295°47.4	· · 20.7	336°11.7	· · 18.8	55°04.4	· · 10.2						
16	65°20.2	68°40.3	12.1	310°49.1	20.5	351°13.7	18.9	70°06.6	10.1						
17	80°22.7	83°44.0	11.2	325°50.8	20.3	6°15.8	18.9	85°08.8	10.0						
18	95°25.1	98°47.6	N07°10.4	340°52.4	N24°20.1	21°17.9	N22°18.9	100°11.0	S04°09.9						
19	110°27.6	113°51.3	09.5	355°54.1	19.9	36°20.0	19.0	115°13.1	09.7						
20	125°30.1	128°54.9	08.6	10°55.8	19.8	51°22.0	19.0	130°15.3	09.6						
21	140°32.5	143°58.6	· · 07.7	25°57.4	· · 19.6	66°24.1	· · 19.1	145°17.5	· · 09.5						
22	155°35.0	159°02.2	06.8	40°59.1	19.4	81°26.2	19.1	160°19.7	09.4						
23	170°37.5	174°05.8	05.9	56°00.8	19.2	96°28.2	19.2	175°21.9	09.3						
Mer.pass. 11:39			ν 3.7' d -0.9' m -4.13			ν 1.7' d -0.2' m 0.34			ν 2.1' d 0.0' m -2.13			ν 2.2' d 0.1' m 1.15			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	185°39.9	189°09.5	N07°05.0	71°02.4	N24°19.0	111°30.3	N22°19.2	190°24.1	S04°09.2						
1	200°42.4	204°13.1	04.1	86°04.1	18.8	126°32.4	19.3	205°26.2	09.0						
2	215°44.9	219°16.7	03.2	101°05.7	18.6	141°34.5	19.3	220°28.4	08.9						
3	230°47.3	234°20.4	· · 02.3	116°07.4	· · 18.4	156°36.5	· · 19.4	235°30.6	· · 08.8						
4	245°49.8	249°24.0	01.4	131°09.1	18.2	171°38.6	19.4	250°32.8	08.7						
5	260°52.2	264°27.6	07°00.5	146°10.7	18.0	186°40.7	19.5	265°35.0	08.6						
6	275°54.7	279°31.2	N06°59.7	161°12.4	N24°17.9	201°42.7	N22°19.5	280°37.2	S04°08.5						
7	290°57.2	294°34.9	58.8	176°14.0	17.7	216°44.8	19.5	295°39.3	08.3						
8	305°59.6	309°38.5	57.9	191°15.7	17.5	231°46.9	19.6	310°41.5	08.2						
9	321°02.1	324°42.1	· · 57.0	206°17.3	· · 17.3	246°48.9	· · 19.6	325°43.7	· · 08.1						
10	336°04.6	339°45.7	56.1	221°19.0	17.1	261°51.0	19.7	340°45.9	08.0						
11	351°07.0	354°49.3	55.2	236°20.7	16.9	276°53.1	19.7	355°48.1	07.9						
12	6°09.5	9°52.9	N06°54.3	251°22.3	N24°16.7	291°55.1	N22°19.8	10°50.3	S04°07.7						
13	21°12.0	24°56.5	53.4	266°24.0	16.5	306°57.2	19.8	25°52.5	07.6						
14	36°14.4	40°00.1	52.5	281°25.6	16.3	321°59.3	19.9	40°54.6	07.5						
15	51°16.9	55°03.7	· · 51.6	296°27.3	· · 16.1	337°01.3	· · 19.9	55°56.8	· · 07.4						
16	66°19.3	70°07.3	50.7	311°28.9	15.9	352°03.4	20.0	70°59.0	07.3						
17	81°21.8	85°10.9	49.8	326°30.6	15.8	7°05.5	20.0	86°01.2	07.2						
18	96°24.3	100°14.5	N06°48.9	341°32.2	N24°15.6	22°07.5	N22°20.1	101°03.4	S04°07.0						
19	111°26.7	115°18.1	48.0	356°33.9	15.4	37°09.6	20.1	116°05.6	06.9						
20	126°29.2	130°17.7	47.1	11°35.5	15.2	52°11.7	20.2	131°07.7	06.8						
21	141°31.7	145°25.2	· · 46.2	26°37.2	· · 15.0	67°13.7	· · 20.2	146°09.9	· · 06.7						
22	156°34.1	160°28.8	45.3	41°38.8	14.8	82°15.8	20.2	161°12.1	06.6						
23	171°36.6	175°32.4	44.4	56°40.4	14.6	97°17.9	20.3	176°14.3	06.5						
Mer.pass. 11:35			ν 3.6' d -0.9' m -4.05			ν 1.7' d -0.2' m 0.36			ν 2.1' d 0.0' m -2.13			ν 2.2' d 0.1' m 1.16			

Stars		
SHA	Dec	
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.2
Schedar	349°31.5	56°40.5
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.6
Hamal	327°51.3	23°34.9
Polaris	314°20.0	89°22.4
Acamar	315°11.9	-40°12.4
Menkar	314°06.2	4°11.2
Mirafak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.8	-8°10.5
Capella	280°21.8	46°01.5
Bellatrix	278°22.8	6°22.3
Elinath	278°01.7	28°37.8
Alnilam	275°37.6	-1°11.2
Betelgeuse	270°51.9	7°24.6
Canopus	263°52.3	-52°42.8
Sirius	258°26.1	-16°45.2
Adhara	255°05.7	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	243°17.0	27°58.0
Avior	234°14.4	-59°35.7
Suhail	222°45.9	-43°32.3
Miaplacidus	221°37.7	-69°49.4

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	186°39.1	190°36.0	N06°43.5	71°42.1	N24°14.4	112°19.9	N22°20.3	191°16.5	S04°06.3										
1	201°41.5	205°39.5	42.6	86°43.7	14.2	127°22.0	20.4	206°18.7	06.2										
2	216°44.0	220°43.1	41.7	101°45.4	14.0	142°24.1	20.4	220°20.9	06.1										
3	231°46.5	235°46.7	•• 40.8	116°47.0	•• 13.8	157°26.1	•• 20.5	236°23.0	•• 06.0										
4	246°48.9	250°50.2	39.9	131°48.7	13.6	172°28.2	20.5	251°25.2	05.9										
5	261°51.4	265°53.8	39.0	146°50.3	13.4	187°30.3	20.6	266°27.4	05.8										
6	276°53.8	280°57.4	N06°38.1	161°51.9	N24°13.2	202°32.3	N22°20.6	281°29.6	S04°05.6										
7	291°56.3	296°00.9	37.2	176°53.6	13.0	217°34.4	20.7	296°31.8	05.5										
8	306°58.8	311°04.5	36.3	191°55.2	12.9	232°36.4	20.7	311°34.0	05.4										
9	322°01.2	326°08.0	•• 35.4	206°56.9	•• 12.7	247°38.5	•• 20.8	326°36.1	•• 05.3										
10	337°03.7	341°11.6	34.5	221°58.5	12.5	262°40.6	20.8	341°31.3	05.2										
11	352°06.2	356°15.1	33.6	237°00.1	12.3	277°42.6	20.9	356°40.5	05.1										
12	7°08.6	11°18.6	N06°32.8	252°01.8	N24°12.1	292°44.7	N22°20.9	11°42.7	S04°04.9										
13	22°11.1	26°22.2	31.9	267°03.4	11.9	307°46.8	20.9	26°44.9	04.8										
14	37°13.6	41°25.7	31.0	282°05.1	11.7	322°48.8	21.0	41°47.1	04.7										
15	52°16.0	56°29.2	•• 30.1	297°06.7	•• 11.5	337°50.9	•• 21.0	56°49.3	•• 04.6										
16	67°18.5	71°32.8	29.2	312°08.3	11.3	352°52.9	21.1	71°51.4	04.5										
17	82°21.0	86°36.3	28.3	327°10.0	11.1	7°55.0	21.1	86°53.6	04.4										
18	97°23.4	101°39.8	N06°27.4	342°11.6	N24°10.9	22°57.1	N22°21.2	101°55.8	S04°04.2										
19	112°25.9	116°43.3	26.5	357°13.2	10.7	37°59.1	21.2	116°58.0	04.1										
20	127°28.3	131°46.9	25.6	12°14.8	10.5	53°01.2	21.3	132°00.2	04.0										
21	142°30.8	146°50.4	•• 24.7	27°16.5	•• 10.3	68°03.2	•• 21.3	147°02.4	•• 03.9										
22	157°33.3	161°53.9	23.8	42°18.1	10.1	83°05.3	21.4	162°04.5	03.8										
23	172°35.7	176°57.4	22.9	57°19.7	09.9	98°07.4	21.4	177°06.7	03.7										
Mer.pass. 11:32				ν 3.6' d -0.9' m -4.06				ν 1.6' d -0.2' m 0.38				ν 2.1' d 0.0' m -2.12				ν 2.2' d 0.1' m 1.16			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	187°38.2	192°00.9	N06°22.0	72°21.4	N24°09.7	113°09.4	N22°21.5	192°08.9	S04°03.5										
1	202°40.7	207°04.4	21.1	87°23.0	09.5	128°11.5	21.5	207°11.1	03.4										
2	217°43.1	222°07.9	20.2	102°24.6	09.3	143°13.5	21.6	222°13.3	03.3										
3	232°45.6	237°11.4	•• 19.3	117°26.2	•• 09.1	158°15.6	•• 21.6	237°15.5	•• 03.2										
4	247°48.1	252°14.9	18.4	132°27.9	08.9	173°17.7	21.6	252°17.7	03.1										
5	262°50.5	267°18.4	17.5	147°29.5	08.7	188°19.7	21.7	267°19.8	03.0										
6	277°53.0	282°21.9	N06°16.6	162°31.1	N24°08.5	203°21.8	N22°21.7	282°22.0	S04°02.9										
7	292°55.4	297°25.3	15.7	177°32.7	08.3	218°23.8	21.8	297°24.2	02.7										
8	307°57.9	312°28.8	14.8	192°34.4	08.1	233°25.9	21.8	312°26.4	02.6										
9	323°00.4	327°32.3	•• 13.9	207°36.0	•• 07.9	248°28.0	•• 21.9	327°28.6	•• 02.5										
10	338°02.8	342°35.8	13.0	222°37.6	07.7	263°30.0	21.9	342°30.8	02.4										
11	353°05.3	357°39.2	12.1	237°39.2	07.5	278°32.1	22.0	357°33.0	02.3										
12	8°07.8	12°42.7	N06°11.2	252°40.9	N24°07.3	293°34.1	N22°22.0	12°35.1	S04°02.2										
13	23°10.2	27°46.2	10.3	267°42.5	07.1	308°36.2	22.1	27°37.3	02.0										
14	38°12.7	42°49.6	09.4	282°44.1	06.9	323°38.2	22.1	42°39.5	01.9										
15	53°15.2	57°53.1	•• 08.5	297°45.7	•• 06.7	338°40.3	•• 22.2	57°41.7	•• 01.8										
16	68°17.6	72°56.6	07.6	312°47.3	06.5	353°42.3	22.2	72°43.9	01.7										
17	83°20.1	88°00.0	06.7	327°48.9	06.3	8°44.4	22.3	87°46.1	01.6										
18	98°22.6	103°03.5	N06°05.8	342°50.6	N24°06.1	23°46.5	N22°22.3	102°48.3	S04°01.5										
19	113°25.0	118°06.9	04.9	357°52.2	05.9	38°48.5	22.3	117°50.4	01.3										
20	128°27.5	133°10.3	04.0	12°53.8	05.7	53°50.6	22.4	132°52.6	01.2										
21	143°29.9	148°13.8	•• 03.1	27°55.4	•• 05.5	68°52.6	•• 22.4	147°54.8	•• 01.1										
22	158°32.4	163°17.2	02.3	42°57.0	05.3	83°54.7	22.5	162°57.0	01.0										
23	173°34.9	178°20.6	01.4	57°58.6	05.1	98°56.7	22.5	177°59.2	00.9										
Mer.pass. 11:28				ν 3.5' d -0.9' m -4.12				ν 1.6' d -0.2' m 0.40				ν 2.1' d 0.0' m -2.12				ν 2.2' d 0.1' m 1.16			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	188°37.3	193°24.1	N06°00.5	73°00.2	N24°04.9	113°58.8	N22°22.6	193°01.4	S04°00.8										
1	203°39.8	208°27.5	05°59.6	88°01.9	04.7	129°00.8	22.6	208°03.6	00.6										
2	218°42.3	223°30.9	58.7	103°03.5	04.5	144°02.9	22.7	223°05.7	00.5										
3	233°44.7	238°34.3	•• 57.8	118°05.1	•• 04.3	159°04.9	•• 22.7	238°07.9	•• 00.4										
4	248°47.2	253°37.8	56.9	133°06.7	04.1	174°07.0	22.8	253°10.1	00.3										
5	263°49.7	268°41.2	56.0	148°08.3	03.9	189°09.0	22.8	268°12.3	00.2										
6	278°52.1	283°44.6	N05°55.1	163°09.9	N24°03.7	204°11.1	N22°22.9	283°14.5	S04°00.1										
7	293°54.6	298°48.0	54.2	178°11.5	03.5	219°13.2	22.9	298°16.7	03°59.9										
8	308°57.0	313°51.4	53.3	193°13.1	03.3	234°15.2	23.0	313°18.9	59.8										
9	323°59.5	328°54.8	•• 52.4	208°14.7	•• 03.1	249°17.3	•• 23.0	328°21.0	•• 59.7										
10	339°02.0	343°58.2	51.5	223°16.3	02.9	264°19.3	23.0	343°23.2	59.6										
11	354°04.4	359°01.6	50.7	238°17.9	02.7	279°21.4	23.1	358°25.4	59.5										
12	9°06.9	14°05.0	N05°49.8	253°19.5	N24°02.5	294°23.4	N22°23.1	13°27.6	S03°59.4										
13	24°09.4	29°08.4	48.5	268°21.1	02.3	309°25.5	23.2	28°19.8	59.3										
14	39°11.8	44°11.8	48.0	283°22.7	02.1	324°27.5	23.2	43°32.0	59.1										
15	54°14.3	59°15.1	•• 47.1	298°24.3	•• 01.9	339°29.6	•• 23.3	58°34.2	•• 59.0										
16	69°16.8	74°18.5	46.2	313°25.9	01.7	354°31.6	23.3	73°36.3	58.9										
17	84°19.2	89°21.9	45.3	328°27.6	01.5	9°33.7	23.4	88°38.5	58.8										
18	99°21.7	104°25.3	N05°44.4	343°29.2	N24°01.3	24°35.7	N22°23.4	103°40.7	S03°58.7										
19	114°24.2	119°28.6	43.5	358°30.8	01.1	39°37.8	23.5	118°42.9	58.6										
20	129°26.6	134°32.0	42.7	13°32.4	00.9	54°39.8	23.5	133°45.1	58.4										
21	144°29.1	149°35.3	•• 41.8	28°33.9	•• 00.7	69°41.9	•• 23.6	148°47.3	•• 58.3										
22	159°31.5	164°38.7	40.9	43°35.5	00.5	84°43.9	23.6	163°49.5	58.2										
23	174°34.0	179°42.1	40.0	58°37.1	00.3	99°46.0	23.7	178°51.7	58.1										
Mer.pass. 11:24				ν 3.4' d -0.9' m -4.18				ν 1.6' d -0.2' m 0.42				ν 2.1' d 0.0' m -2.11				ν 2.2' d 0.1' m 1.16			

SHA	Dec
Alpheratz	357°35.0 29°13.7
Ankaa	353°07.4 -42°10.2
Schedar	349°31.5 -56°40.5
Diphda	348°47.4 -17°51.0
Achernar	335°20.6 -57°06.6
Hamal	327°51.3 23°34.9
Polaris	314°21.1 89°22.4
Acamar	315°12.0 -40°12.4
Menkar	314°06.2 4°11.2
Mirafak	308°28.4 49°57.1
Aldebaran	290°39.6 16°33.6
Rigel	281°03.8 -8°10.5
Capella	280°21.8 46°01.5
Bellatrix	278°22.8 6°22.3
Elinath	278°01.8 28°37.8
Alnilam	275°37.6 -1°11.2
Betelgeuse	270°52.0 7°24.6
Canopus	263°52.4 -52°42.8
Sirius	258°26.1 -16°45.2
Adhara	255°05.7 -29°00.6
Procyon	244°50.6 5°09.5
Pollux	243°17.0 27°58.0
Avior	234°14.4 -59°35.7
Suhail	222°46.0 -43°32.3
Miaplacidus	221°37.8 -69°49.5
Alghard	217°47.4 -8°46.2
Regulus	207°34.0 11°50.6
Dubhe	193°40.1 61°36.9
Denebola	182°24.5 14°35.7
Gienah	175°43.1 -17°41.1
Acrux	172°59.3 -63°14.4
Gacrux	171°50.9 -57°15.4
Alloth	168°12.2 55°49.3
Spica	158°21.8 -11°17.7
Alkaid	152°51.4 49°11.0
Hadar	148°35.2 -60°29.7
Menkent	147°57.1 -36°29.7
Arcturus	145°47.4 19°02.9
Rigel Kent.	139°39.5 -60°56.3
Kochab	137°18.8 74°02.8
Zuben'ubi	136°55.6 -16°08.9
Alphecca	126°03.3 26°37.5
Antares	112°15.4 -26°29.3
Atria	107°09.3 69°04.0
Sabik	102°02.5 -15°45.4
Shaula	96°10.0 -37°07.3
Rasalhague	95°58.3 12°32.3
Eltanin	90°42.0 51°28.6
Kaus Aus.	83°32.3 -34°22.3
Vega	80°33.1 38°48.0

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	189°36.5	194°45.4	N05°39.1	73°38.7	N24°00.1	114°48.0	N22°23.7	193°53.8	S03°58.0										
1	204°38.9	209°48.8		38.2	88°40.3	23°59.9		208°56.0	57.9										
2	219°41.4	224°52.1		37.4	103°41.9		59.7	223°58.2	57.8										
3	234°43.9	239°55.4	••	36.5	118°43.5	••	59.5	159°54.1	••	23.8									
4	249°46.3	254°58.8		35.6	133°45.1	59.3	174°56.2	23.9	254°02.6										
5	264°48.8	270°02.1		34.7	148°46.7	59.1	189°58.2	23.9	269°04.8	57.4									
6	279°51.3	285°05.4	N05°33.8	33.8	163°48.3	N23°58.8	205°00.3	N22°24.3	S03°57.0										
7	294°53.7	300°08.8		32.9	178°49.9		58.6	220°02.3	24.0	299°09.1	57.2								
8	309°56.2	315°12.1		32.1	193°51.5	58.4	235°04.4	24.1	314°11.3	57.1									
9	324°58.7	330°15.4	••	31.2	208°53.1	••	58.2	250°06.4	••	24.1									
10	340°01.1	345°18.7		30.3	223°54.7	58.0	265°08.5	24.2	344°15.7	56.8									
11	355°03.6	••02.0		29.4	238°56.3	57.8	280°10.5	24.2	359°17.9	56.7									
12	10°06.0	15°25.3	N05°28.5	25.3	253°57.8	N23°57.6	295°12.6	N22°24.3	S03°56.6										
13	25°08.5	30°28.6		27.7	268°59.4	57.4	310°14.6	24.3	29°22.3	56.5									
14	40°11.0	45°32.0		26.8	284°01.0	57.2	325°16.7	24.4	44°24.5	56.4									
15	55°13.4	60°35.2	••	25.9	299°02.6	••	57.0	340°18.7	••	24.4									
16	70°15.9	75°38.5		25.0	314°04.2	56.8	358°20.7	24.4	74°28.8	56.1									
17	85°18.4	90°41.8		24.2	329°05.8	56.6	10°22.8	24.5	89°31.0	56.0									
18	100°20.8	105°45.1	N05°23.3	23.4	344°07.4	N23°56.4	25°24.8	N22°24.5	S03°55.9										
19	115°23.3	120°48.4		22.4	359°09.0	56.2	40°26.9	24.6	119°35.4	55.8									
20	130°25.8	135°51.7		21.5	14°10.5	55.9	55°28.9	24.6	134°37.6	55.7									
21	145°28.2	150°55.0	••	20.7	29°12.1	••	55.7	70°31.0	••	24.7									
22	160°30.7	165°58.2		19.8	44°13.7	55.5	85°33.0	24.7	164°42.0	55.4									
23	175°33.1	181°01.5		18.9	59°15.3	55.3	100°35.1	24.8	179°44.1	55.3									
Mer.pass. 11:20				ν 3.3° d -0.9' m -4.24				ν 1.6° d -0.2' m 0.44				ν 2.0° d 0.0' m -2.11				ν 2.2° d 0.1' m 1.16			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec								
0	190°35.6	196°04.8	N05°18.1	74°16.9	N23°55.1	115°37.1	N22°24.8	194°46.3	S03°55.2								
1	205°38.1	211°08.0		17.2	89°18.4	54.9		209°48.5	55.1								
2	220°40.5	226°11.3		16.3	104°20.0	54.7	145°41.2	24.9	224°50.7	55.0							
3	235°43.0	241°14.6	••	15.5	119°21.6	••	54.5	160°43.2	••	54.9							
4	250°45.5	256°17.8		14.6	134°23.2	54.3	175°45.3	25.0	254°55.1	54.8							
5	265°47.9	271°21.1		13.7	149°24.8	54.1	190°47.3	25.1	269°57.3	54.6							
6	280°50.4	286°24.3	N05°12.8	12.8	164°26.3	N23°53.9	205°49.4	N22°25.1	304°59.5	S03°54.5							
7	295°52.9	301°27.5		12.0	179°27.9	53.9	220°51.4	25.1	300°01.6	54.4							
8	310°55.3	316°30.8		11.1	194°29.5	53.4	235°53.4	25.2	315°03.8	54.3							
9	325°57.8	331°34.0	••	10.3	209°31.1	••	53.2	250°55.5	••	54.2							
10	341°00.3	346°37.2		09.4	224°32.6	53.0	265°57.5	25.3	345°08.2	54.1							
11	356°02.7	1°40.5		08.5	239°34.2	52.8	280°59.6	25.3	•0°10.4	53.9							
12	11°05.2	16°43.7	N05°07.7	7.7	254°35.8	N23°52.6	296°01.6	N22°25.4	15°12.6	S03°53.8							
13	26°07.2	31°46.9		06.8	269°37.4	52.4	311°03.6	25.4	30°14.8	53.4							
14	41°10.1	46°50.1		05.9	284°38.9	52.2	326°05.7	25.5	45°17.0	53.6							
15	56°12.6	61°53.3	••	05.1	299°40.5	••	52.0	341°07.7	••	53.5							
16	71°15.0	76°56.6		04.2	314°42.1	51.8	356°09.8	25.6	75°21.3	53.4							
17	86°17.5	91°59.8		03.4	329°43.7	51.5	11°11.8	25.6	90°23.3	53.3							
18	101°20.0	107°03.0	N05°02.5	02.5	344°45.2	N23°51.3	26°13.8	N22°25.7	105°25.7	S03°53.1							
19	116°22.4	122°06.2		01.7	359°46.8	51.1	41°15.9	25.7	120°27.9	53.0							
20	131°24.9	137°09.4		05°00.8	14°48.4	50.9	56°17.9	25.8	135°30.1	52.9							
21	146°27.4	152°12.5	04°59.9	29.9	29°49.9	••	50.7	71°19.9	••	52.8							
22	161°29.8	167°15.7		59.1	44°51.5	50.5	86°22.0	25.8	165°34.5	52.7							
23	176°32.3	182°18.9		58.2	59°53.1	50.3	101°24.0	25.9	180°36.7	52.6							
Mer.pass. 11:16										ν 3.3° d -0.9' m -4.30		ν 1.6° d -0.2' m 0.46		ν 2.0° d 0.0' m -2.10		ν 2.2° d 0.1' m 1.16	

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	191°34.8	197°22.1	N04°57.4	74°54.6	N23°50.1	116°26.1	N22°25.9	195°38.8	S03°52.5
1	206°37.2	212°25.3	56.5	89°56.2	49.8	131°28.1	26.0	210°41.0	52.3
2	221°39.7	227°28.4	55.7	104°57.8	49.6	146°30.1	26.1	225°43.2	52.2
3	236°42.1	242°31.6	· · 54.8	119°59.3	· · 49.4	161°32.2	· · 26.1	240°45.4	· · 52.2
4	251°44.6	257°34.8	54.0	135°00.9	49.2	176°34.2	26.1	255°47.6	52.0
5	266°47.1	272°37.9	53.1	150°02.5	49.0	191°36.2	26.2	270°49.8	51.9
6	281°49.5	287°41.1	N04°52.3	165°04.0	N23°48.8	206°38.3	N22°26.2	285°52.0	S03°51.8
7	296°52.0	302°44.2	51.4	180°05.6	48.6	221°40.3	26.3	300°54.2	51.7
8	311°54.5	317°47.4	50.6	195°07.1	48.4	236°42.4	26.3	315°56.4	51.5
9	326°56.9	332°50.5	· · 49.7	210°08.7	· · 48.1	251°44.4	· · 26.4	330°58.5	· · 51.4
10	341°59.4	347°53.7	48.9	225°10.3	47.9	266°46.4	26.4	346°00.7	51.3
11	357°01.9	· · 25.6	48.1	240°11.8	47.7	281°48.5	26.5	1°02.9	51.2
12	12°04.3	18°00.0	N04°47.2	255°13.4	N23°47.5	296°50.5	N22°26.5	16°05.1	S03°51.1
13	27°06.8	33°03.1	46.4	270°14.9	47.3	311°52.5	26.6	31°07.3	51.0
14	42°09.3	48°06.2	45.5	285°16.5	47.1	326°54.6	26.6	46°09.5	50.9
15	57°11.7	63°09.3	· · 44.7	300°18.1	· · 46.9	341°56.6	· · 26.6	61°11.7	· · 50.7
16	72°14.2	78°12.5	43.9	315°19.6	46.6	356°58.6	26.7	76°13.9	50.6
17	87°16.6	93°15.6	43.0	330°21.2	46.4	12°00.7	26.7	91°16.1	50.5
18	102°19.1	108°18.7	N04°42.2	345°22.7	N23°46.2	27°02.7	N22°26.8	106°18.2	S03°50.4
19	117°21.6	123°21.8	41.3	0°24.3	46.0	42°04.7	26.8	121°20.4	50.3
20	132°24.0	138°24.9	40.5	15°25.8	45.8	57°06.8	26.9	136°22.6	50.2
21	147°26.5	153°28.0	· · 39.7	30°27.4	· · 45.6	72°08.8	· · 26.9	151°24.8	· · 50.1
22	162°29.0	168°31.1	38.8	45°28.9	45.3	87°10.8	27.0	166°27.0	49.9
23	177°31.4	183°34.2	38.0	60°30.5	45.1	102°12.9	27.0	181°29.2	49.8
Mer.pass. 11:12 ν 3.2° d -0.9' m -4.35 ν 1.6° d -0.2' m 0.48 ν 2.0° d 0.0' m -2.10 ν 2.2° d 0.1' m 1.16									

Stars		
	SHA	Dec
Alpheratz	357°35.0	29°13.7
Ankaa	353°07.4	-42°10.2
Schedar	349°31.5	56°40.5
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.6
Hamal	327°51.3	23°34.8
Polaris	314°21.6	89°22.4
Acamar	315°12.0	-40°12.1
Menkar	314°06.2	4°11.2
Mirfak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.8	-8°10.5
Capella	280°21.8	46°01.5
Bellatrix	278°22.8	6°22.3
Elmath	278°01.8	28°37.8
Alnilam	275°37.7	-1°11.2
Betelgeuse	270°52.0	7°24.6
Canopus	263°52.4	-52°42.8
Sirius	258°26.1	-16°45.2
Adhara	255°05.7	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	243°17.0	27°58.0
Avior	234°14.5	-59°35.7
Suhail	222°46.0	-43°32.3
Miaplacidus	221°37.8	-69°49.5
Alphard	217°47.4	-8°46.2
Regulus	207°34.0	11°56.0
Dubhe	193°40.2	61°37.0
Denebola	182°24.5	14°25.7
Geniah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.4
Gacrux	171°50.9	-57°15.4
Althio	166°12.2	55°49.3
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.1
Hadar	148°35.2	-60°29.7
Menkent	147°57.1	-36°29.7
Arcturus	145°47.4	19°02.9
Rigel Kent.	139°39.5	-60°56.3
Kochab	137°18.7	74°02.8
Zuben'ubi	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.5
Antares	112°15.4	-26°29.3
Atria	107°09.3	-69°04.2
Sabik	102°02.4	-15°45.4
Shaula	96°10.0	-37°07.3
Rasalhague	95°58.3	12°32.7
Eltanin	90°42.0	51°28.7
Kaus Aust.	83°32.2	-34°28.3
Vega	80°33.1	38°48.1
Nunki	75°47.5	-26°15.9
Altair	61°59.9	8°55.9
Peacock	53°05.7	-56°39.1
Deneb	49°25.9	45°21.9
Enif	33°38.8	9°59.3
Al Na'ir	27°33.0	-46°50.3
Fomalhaut	15°14.6	-29°29.4
Scheat	13°45.4	28°13.0
Markab	13°30.0	15°20.3
Apr 01 Tue	SHA	Mer.pass
Venus	5°08.9	10.59
Mars	244°02.3	19.03
Jupiter	285°11.5	16.19
Saturn	4°17.4	11.03
Apr 02 Wed	SHA	Mer.pass
Venus	5°29.2	10.53
Mars	243°41.3	19.01
Jupiter	285°01.5	16.15
Saturn	4°10.7	10.59
Apr 03 Thu	SHA	Mer.pass
Venus	5°47.3	10.48
Mars	243°19.9	18.58
Jupiter	284°51.3	16.12
Saturn	4°04.1	10.56
Horizontal parallax		
Venus:		0.5
Mars:		0.1

	Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	192°33.9	198°37.3	N04°37.2	75°32.0	N23°44.9	117°14.9	N22°27.1	196°31.4	S03°49.7						
1	207°36.4	213°40.4	36.3	90°33.6	44.7	132°16.9	27.1	211°33.6	49.6						
2	222°38.8	228°43.5	35.5	105°35.1	44.5	147°19.0	27.2	226°35.8	49.5						
3	237°41.3	243°46.5	34.7	120°36.7	44.0	162°21.0	27.2	241°37.9	49.4						
4	252°43.8	258°49.6	33.9	135°38.2	44.0	177°23.0	27.3	256°40.1	49.3						
5	267°46.2	273°52.7	33.0	150°39.8	43.8	192°25.1	27.3	271°42.3	49.1						
6	282°48.7	288°55.7	N04°32.2	165°41.3	N23°43.6	207°27.1	N22°27.1	286°44.5	S03°49.9						
7	297°51.1	303°58.8	31.4	180°42.9	43.4	222°29.1	27.4	301°46.7	48.9						
8	312°53.6	319°01.9	30.6	195°44.4	43.2	237°31.2	27.4	316°48.9	48.8						
9	327°56.1	334°04.9	29.7	210°46.0	43.0	252°33.2	27.5	331°51.1	48.7						
10	342°58.5	349°08.0	28.9	225°47.5	42.7	267°35.2	27.5	346°53.3	48.6						
11	358°01.0	4°11.0	28.1	240°49.1	42.5	282°37.2	27.6	1°55.5	48.5						
12	13°03.5	19°14.1	N04°27.3	255°50.6	N23°42.3	297°39.3	N22°27.6	16°57.7	S03°48.3						
13	28°05.9	34°17.1	26.5	270°52.2	42.1	312°41.3	27.7	31°59.8	48.2						
14	43°08.4	49°20.1	25.6	285°53.7	41.9	327°43.3	27.7	47°02.0	48.1						
15	58°10.9	64°23.2	24.8	300°55.3	41.6	342°45.4	27.8	62°04.2	48.0						
16	73°13.3	79°26.2	24.0	315°56.8	41.4	357°47.4	27.8	77°06.4	47.9						
17	88°15.8	94°29.2	23.2	330°58.3	41.2	12°49.4	27.9	92°08.6	47.8						
18	103°18.3	109°32.2	N04°22.4	345°59.9	N23°41.0	27°51.5	N22°27.9	107°10.8	S03°47.7						
19	118°20.7	124°35.3	21.6	1°01.4	40.8	42°53.5	28.0	122°13.0	47.5						
20	133°23.2	139°38.3	20.8	16°03.0	40.6	57°55.5	28.0	137°15.2	47.4						
21	148°25.6	154°41.3	20.0	31°04.5	40.3	72°57.5	28.0	152°17.4	47.3						
22	163°28.1	169°44.3	19.2	46°06.0	40.1	87°59.6	28.1	167°19.6	47.2						
23	178°30.6	184°47.3	18.3	61°07.6	39.9	103°01.6	28.1	182°21.7	47.1						
Mer.pass. 11:08 ν 3.1' d -0.8' m -4.40 ν 1.6' d -0.2' m 0.50 ν 2.0' d 0.0' m -2.09 ν 2.2' d 0.1' m 1.16															

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	193°33.0	199°50.3	N04°17.5	76°09.1	N23°39.7	118°03.6	N22°28.2	197°23.9	S03°47.0
1	208°35.5	214°53.3	16.7	91°10.7	39.5	133°05.6	28.2	212°26.1	46.9
2	223°38.0	229°56.3	15.9	106°12.2	39.2	148°07.7	28.3	227°28.3	46.7
3	238°40.4	244°59.3	15.1	121°13.7	39.0	163°09.7	28.3	242°30.5	46.6
4	253°42.9	260°02.2	14.3	136°15.3	38.8	178°11.7	28.4	257°32.7	46.5
5	268°45.4	275°05.2	13.5	151°16.8	38.6	193°13.8	28.4	272°34.9	46.4
6	283°47.8	290°08.2	N04°12.7	166°18.3	N23°38.8	208°15.8	N22°28.5	287°37.1	S03°46.3
7	298°50.3	305°11.2	11.9	181°19.9	38.1	223°17.8	28.5	302°39.3	46.2
8	313°52.7	320°14.1	11.1	196°21.4	37.9	238°19.8	28.6	317°41.5	46.1
9	328°55.2	335°17.1	10.3	211°22.9	37.7	253°21.9	28.6	332°43.6	46.0
10	343°57.7	350°20.1	9.9	226°24.5	37.5	268°23.9	28.7	347°45.8	45.8
11	359°00.1	5°23.0	08.8	241°26.0	37.2	283°25.9	28.7	2°48.0	45.7
12	14°02.6	20°26.0	N04°08.0	256°27.5	N23°37.0	298°27.9	N22°28.7	17°50.2	S03°45.6
13	29°05.1	35°28.9	07.2	271°29.1	36.8	313°30.0	28.8	32°52.4	45.5
14	44°07.5	50°31.8	06.4	286°30.6	36.6	328°32.0	28.8	47°54.4	45.4
15	59°10.0	65°34.8	05.6	301°32.1	36.3	343°34.0	28.9	62°56.8	45.3
16	74°12.5	80°37.7	04.8	316°33.7	36.1	358°36.0	28.9	77°59.0	45.2
17	89°14.9	95°40.7	04.0	331°35.2	35.9	13°38.1	29.0	93°01.2	45.0
18	104°17.4	110°43.6	N04°03.2	346°36.7	N23°35.7	28°40.1	N22°29.0	108°03.4	S03°44.9
19	119°19.9	125°46.5	02.5	1°38.2	35.5	43°42.1	29.1	123°05.6	44.8
20	134°22.3	140°49.4	01.7	16°39.8	35.2	58°44.1	29.1	138°07.7	44.7
21	149°24.8	155°52.3	00.9	31°41.3	35.0	73°46.2	29.2	153°09.9	44.6
22	164°27.2	170°55.3	04°00.1	46°42.8	34.8	88°48.2	29.2	168°12.1	44.5
23	179°29.7	185°58.2	03°59.3	61°44.3	34.6	103°50.2	29.3	183°14.3	44.4
Mer.pass. 11:04 ν 3.0' d -0.8' m -4.45 ν 1.5' d -0.2' m 0.52 ν 2.0' d 0.0' m -2.09 ν 2.2' d 0.1' m 1.16									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	194°32.2	201°01.1	N03°58.6	76°45.9	N23°34.3	118°52.2	N22°29.3	198°16.5	S03°44.3
1	209°34.6	216°04.0	57.0	91°47.4	34.1	133°54.2	29.4	213°18.7	44.1
2	224°37.1	231°06.9	57.0	106°48.9	33.9	148°56.3	29.4	228°20.9	44.0
3	239°39.6	246°09.8	56.2	121°50.4	33.7	163°58.3	29.4	243°23.1	43.9
4	254°42.0	261°12.6	55.5	136°52.0	33.4	179°00.3	29.5	258°25.3	43.8
5	269°44.5	276°15.5	54.7	151°53.5	33.2	194°02.3	29.5	273°27.5	43.7
6	284°47.0	291°18.4	N03°53.9	166°55.0	N23°33.0	209°04.3	N22°29.6	288°29.7	S03°43.6
7	299°49.4	306°21.3	53.1	181°56.5	32.8	224°06.4	29.6	303°31.9	43.5
8	314°51.9	321°24.2	52.4	196°58.0	32.5	239°08.4	29.7	318°34.0	43.4
9	329°54.4	336°27.0	51.6	211°59.6	32.3	254°10.4	29.7	333°36.2	43.2
10	344°56.8	351°29.9	50.8	227°01.1	32.1	269°12.4	29.8	348°38.4	43.1
11	359°59.3	6°32.8	50.1	242°02.6	31.9	284°14.5	29.8	3°40.6	43.0
12	15°01.7	21°35.6	N03°49.3	257°04.1	N23°31.6	299°16.5	N22°29.9	18°42.8	S03°42.9
13	30°04.2	36°38.5	48.6	272°05.6	31.4	314°18.5	29.9	33°45.0	42.8
14	45°06.7	51°41.3	47.8	287°07.2	31.2	329°20.5	30.0	48°47.2	42.7
15	60°09.1	66°44.2	47.0	302°08.7	31.0	344°22.5	30.0	63°49.4	42.6
16	75°11.6	81°47.0	46.3	317°10.2	30.7	359°24.6	30.1	78°51.6	42.4
17	90°14.1	96°49.8	45.5	332°11.7	30.5	14°26.6	30.1	93°53.8	42.3
18	105°16.5	111°52.7	N03°44.8	347°13.2	N23°30.3	29°28.6	N22°30.1	108°56.0	S03°42.2
19	120°19.0	126°55.3	44.0	2°14.7	30.0	44°30.6	30.2	123°58.2	42.1
20	135°21.5	141°58.3	43.3	17°16.2	29.8	59°32.6	30.2	139°00.3	42.0
21	150°23.9	157°01.1	42.5	32°17.8	29.6	74°34.6	30.3	154°02.5	41.9
22	165°26.4	172°04.0	41.8	47°19.3	29.4	89°36.7	30.3	169°04.7	41.8
23	180°28.9	187°06.8	41.0	62°20.8	29.1	104°38.7	30.4	184°06.9	41.7
Mer.pass. 11:00 ν 2.9' d -0.8' m -4.49 ν 1.5' d -0.2' m 0.54 ν 2.0' d 0.0' m -2.08 ν 2.2' d 0.1' m 1.17									

SHA	Dec
Alpheratz	357°34.9 29°13.6
Ankaa	353°07.4 -42°10.2
Schedar	349°31.4 56°40.5
Diphda	348°47.4 -17°51.0
Achernar	335°20.6 -57°06.6
Hamal	327°51.3 23°34.8
Polaris	314°22.1 89°22.4
Acamar	315°12.0 -40°12.4
Menkar	314°06.2 4°11.2
Mirfak	308°28.4 49°57.1
Aldebaran	290°39.6 16°33.6
Rigel	281°03.8 -8°10.5
Capella	280°21.8 46°01.5
Bellatrix	278°22.8 6°22.3
Elath	278°01.8 28°37.8
Anilam	275°37.7 -1°12.4
Betelgeuse	270°52.0 7°24.6
Canopus	263°52.4 -52°42.8
Sirius	258°26.1 -16°45.2
Adhara	255°05.7 -29°00.6
Procyon	244°50.6 5°09.5
Pollux	243°17.0 27°58.0
Avior	234°15.4 -59°35.7
Suhail	222°46.0 -43°32.3
Miaplacidus	221°37.8 -69°49.5
Alphard	217°47.4 -8°46.2
Regulus	207°34.0 11°50.6
Dubhe	193°40.2 61°37.3
Denebola	182°24.4 14°25.7
Gienah	175°43.1 -17°41.1
Acrux	172°59.3 -63°14.5
Gacrux	171°50.9 -57°15.4
Alloth	166°12.2 55°49.3
Spica	158°21.8 -11°17.7
Alkaid	152°51.4 49°11.1
Hadar	148°35.2 -60°29.7
Menkent	147°57.0 -19°29.7
Arcturus	145°47.4 19°02.9
Rigel Kent.	139°39.5 60°56.4
Kochab	137°18.7 74°02.8
Zuben'ubi	136°55.5 -16°08.9
Alphecca	126°03.3 26°37.5
Antares	112°15.4 -26°29.3
Atria	107°09.2 69°04.2
Sabik	102°02.4 -15°45.4
Shaula	96°10.0 37°07.3
Rasalhague	95°58.3 12°32.3
Eltanin	90°41.9 51°28.7
Kaus Aust.	83°32.2 34°22.3
Vega	80°33.0 38°48.1
Nunki	75°47.5 -26°15.9
Altair	61°59.8 8°55.9
Peacock	53°05.6 -56°39.1
Deneb	49°25.9 45°21.9
Enif	33°38.8 9°59.3
Al Na'ir	27°33.0 -46°50.3
Fomalhaut	15°14.6 -29°29.3
Scheat	13°45.3 28°13.0
Markab	13°30.0 15°20.3

SHA	Mer.pass.
Venus	6°03.4 10:43
Mars	242°58.1 18:56
Jupiter	284°41.0 16:09

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	195°31.3	202°09.6	N03°40.3	77°22.3	N23°28.9	119°40.7	N22°30.4	199°09.1	S03°41.5										
1	210°33.8	217°12.4		39.5	92°23.8	28.7		134°42.7	30.5	214°11.3	41.4								
2	225°36.2	232°15.2		38.8	107°25.3	28.4		149°44.7	30.5	229°13.5	41.4								
3	240°38.2	247°18.0	••	38.1	122°26.8	••	28.2	164°46.7	••	30.6	244°15.7	••	41.2						
4	255°41.7	262°20.8		37.3	137°28.3	28.0		179°48.8	30.6	259°17.9	41.1								
5	270°43.6	277°23.6		36.6	152°29.8	27.8		194°50.8	30.7	274°20.1	41.0								
6	285°46.1	292°26.4	N03°35.8	167°31.4	N23°27.5	209°52.8	N22°30.7	289°22.3	S03°40.9										
7	300°48.6	307°29.1		35.1	182°32.9	27.3		232°54.8	30.8	304°24.5	40.8								
8	315°51.0	322°31.9		34.4	197°34.4	27.1		239°56.8	30.8	319°26.7	40.6								
9	330°53.5	337°34.7	••	33.6	212°35.9	••	26.8	254°58.8	••	30.8	334°28.8	••	40.5						
10	345°56.0	352°37.5		32.9	227°37.4	26.6		270°00.9	30.9	349°31.0	40.4								
11	0°58.4	7°40.2		32.2	242°38.9	26.4		285°02.9	30.9	4°33.2	40.3								
12	16°00.9	22°43.0	N03°31.4	257°40.4	N23°26.2	300°04.9	N22°31.0	19°35.4	S03°40.2										
13	31°03.3	37°45.7		30.7	272°41.9	25.9		315°06.9	31.0	34°37.6	40.1								
14	46°05.8	52°48.5		30.0	287°43.4	25.7		330°08.9	31.1	49°39.8	40.0								
15	61°08.3	67°51.2	••	29.3	302°44.9	••	25.5	345°10.9	••	31.1	64°42.0	••	39.9						
16	76°10.7	82°54.0		28.5	317°46.4	25.2	0°	13.0	31.2	79°44.2	39.8								
17	91°13.2	97°56.7		27.8	332°47.9	25.0		15°15.0	31.2	94°46.4	39.6								
18	106°15.7	112°59.5	N03°27.1	347°49.4	N23°24.8	30°17.0	N22°31.3	109°48.6	S03°39.5										
19	121°18.1	128°02.2		26.4	2°50.9	24.5		45°19.0	31.3	124°50.8	39.4								
20	136°20.6	143°04.9		25.7	17°52.4	24.3		60°21.0	31.4	139°53.0	39.3								
21	151°23.1	158°07.7	••	24.9	32°53.9	••	24.1	75°23.0	••	31.4	154°55.2	••	39.2						
22	166°25.5	173°10.4		24.2	47°55.4	23.8	90°	25.0	31.4	169°57.4	39.1								
23	181°28.0	188°13.1		23.5	62°56.9	23.6		105°27.0	31.5	184°59.6	39.0								
Mer.pass. 10:56				ν 2.8° d -0.7° m -4.53				ν 1.5° d -0.2° m 0.55				ν 2.0° d 0.0° m -2.08				ν 2.2° d 0.1° m 1.17			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	196°30.5	203°15.8	N03°22.8	77°58.4	N23°23.4	120°29.1	N22°31.5	200°01.7	S03°38.9										
1	211°32.9	218°18.5		22.1	92°59.9	23.1	135°31.1	31.6	215°03.9										
2	226°35.4	233°21.2		21.4	108°01.4	22.9	150°33.1	31.6	230°06.1										
3	241°37.8	248°23.9	· ·	20.7	123°02.9	· ·	22.7	165°35.1	· ·										
4	256°40.3	263°26.6		20.0	138°04.4	22.4	180°37.1	31.7	260°10.5										
5	271°42.8	278°29.3		19.3	153°05.9	22.2	195°39.1	31.8	275°12.7										
6	286°45.2	293°32.0	N03°18.6	168°07.4	N23°22.0	210°41.1	N22°31.8	290°14.9	S03°38.2										
7	301°47.7	308°34.7		17.9	183°08.9	21.7	225°43.1	31.9	305°17.1										
8	316°50.2	323°37.4		17.2	198°10.4	21.5	240°45.2	31.9	320°19.3										
9	331°52.6	338°40.1	· ·	16.5	213°11.9	· ·	21.3	255°47.2	· ·										
10	346°55.1	353°42.7		15.8	228°13.4	21.0	270°49.2	32.0	335°21.5										
11	1°57.6	8°45.4		15.1	243°14.9	20.8	285°51.2	32.0	5°25.9										
12	17°00.0	23°48.1	N03°14.4	258°16.4	N23°20.6	300°53.2	N22°32.1	20°28.1	S03°37.5										
13	32°02.5	38°50.7		13.7	273°17.9	20.3	315°55.2	32.1	35°30.3										
14	47°04.9	53°53.4		13.0	288°19.3	20.1	330°57.2	32.2	50°32.5										
15	62°07.4	68°56.1	· ·	12.3	303°20.8	· ·	19.9	345°59.2	· ·										
16	77°09.9	83°58.7		11.6	318°22.3	19.6	1°01.2	32.3	80°36.8										
17	92°12.3	99°01.4		10.9	333°23.8	19.4	16°03.2	32.3	95°39.0										
18	107°14.8	114°04.0	N03°10.2	348°25.3	N23°19.2	31°05.3	N22°32.4	110°41.2	S03°36.8										
19	122°17.3	129°06.6		09.6	3°26.8	18.9	46°07.3	32.4	125°43.4										
20	137°19.7	144°09.3		08.9	18°28.3	18.7	61°09.3	32.5	140°45.6										
21	152°22.2	159°11.9	· ·	08.2	33°29.8	· ·	18.5	76°11.3	· ·										
22	167°24.7	174°14.5		07.5	48°31.3	18.2	91°13.3	32.6	170°50.0										
23	182°27.1	189°17.1		06.8	63°32.7	18.0	106°15.3	32.6	185°52.2										
Mer.pass. 10:52				ν 2.7° d -0.7° m -4.56				ν 1.5° d -0.2° m 0.57				ν 2.0° d 0.0° m -2.07				ν 2.2° d 0.1° m 1.17			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	197°29.6	204°19.8	N03°06.2	78°34.2	N23°17.7	121°17.3	N22°32.7	200°54.4	S03°36.2		
1	212°32.1	219°22.4	05.5	93°35.7	17.5	136°19.3	32.7	215°56.6	36.1		
2	227°34.5	234°25.0	04.8	108°37.2	17.3	151°21.3	32.7	230°58.8	36.0		
3	242°37.0	249°27.6	•• 04.1	123°38.7	•• 17.0	166°23.3	•• 32.8	246°01.0	•• 35.8		
4	257°39.4	264°30.2	03.5	138°40.2	16.8	181°25.3	32.8	261°03.2	35.7		
5	272°41.9	279°32.8	02.8	153°41.7	16.6	196°27.3	32.9	276°05.4	35.6		
6	287°44.4	294°35.4	N03°02.1	168°43.1	N23°16.3	211°29.4	N22°32.9	291°07.6	S03°35.5		
7	302°46.8	309°38.0	01.5	183°44.6	16.1	226°31.4	33.0	306°09.8	35.4		
8	317°49.3	324°40.6	00.8	198°46.1	15.9	241°33.4	33.0	321°12.0	35.3		
9	332°51.8	339°43.2	03°00.1	213°47.6	•• 15.6	256°35.4	•• 33.1	336°14.2	•• 35.2		
10	347°54.2	354°45.7	02°59.5	228°49.1	15.4	271°37.4	33.1	351°16.3	35.1		
11	2°56.7	9°48.3	58.8	243°50.6	15.1	286°39.4	33.2	6°18.5	35.0		
12	17°59.2	24°50.9	N02°58.2	258°52.0	N23°14.9	301°41.4	N22°33.2	21°20.7	S03°34.8		
13	33°01.6	39°53.5	57.5	273°53.5	14.7	316°43.4	33.3	36°22.9	34.7		
14	48°04.1	54°56.0	56.9	288°55.0	14.4	331°45.4	33.3	51°25.1	34.6		
15	63°06.6	69°58.6	•• 56.2	303°56.5	•• 14.2	346°47.4	•• 33.3	66°27.3	•• 34.5		
16	78°09.0	85°01.1	55.5	318°58.0	13.9	1°49.4	33.4	81°29.5	34.4		
17	93°11.5	100°03.7	54.9	333°59.4	13.7	16°51.4	33.4	96°31.7	34.3		
18	108°13.9	115°06.2	N02°54.3	349°00.9	N23°13.5	31°53.4	N22°33.5	111°33.9	S03°34.2		
19	123°16.4	130°08.8	53.6	4°02.4	13.2	46°55.4	33.5	126°39.1	34.1		
20	138°18.9	145°11.3	53.0	19°03.9	13.0	61°57.4	33.6	141°38.3	•• 34.0		
21	153°21.3	160°13.9	•• 52.3	34°05.3	•• 12.7	76°59.4	•• 33.6	156°40.5	•• 33.8		
22	168°23.8	175°16.4	51.7	49°06.8	12.5	92°01.4	33.7	171°42.7	33.7		
23	183°26.8	190°18.9	51.0	64°08.3	12.3	107°03.4	33.7	186°44.9	33.6		
Mer.pass. 10:48				ν 2.6° d -0.7° m -4.59		ν 1.5° d -0.2° m 0.59		ν 2.0° d 0.0° m -2.07		ν 2.2° d 0.1° m 1.17	

Stars	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.2
Schedar	349°31.4	56°40.5
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.6
Hamal	327°51.3	23°34.8
Polaris	314°22.8	89°22.4
Acamar	315°12.0	-40°12.3
Menkar	310°06.2	4°11.2
Mirafak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.8	-8°10.5
Capella	280°21.8	46°01.5
Bellatrix	278°22.8	6°22.3
Elnath	278°01.8	28°37.8
Alnilam	275°37.7	-1°12.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.4	-52°42.8
Sirius	258°26.1	-16°45.2
Adhara	255°05.7	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	243°17.0	27°58.0
Avior	234°14.5	-59°35.7
Suhail	222°46.0	-43°32.3
Miaplacidus	221°37.9	-69°49.5
Alphard	217°47.4	-8°46.2
Regulus	207°34.0	11°50.6
Dubhe	193°40.2	61°37.0
Denebola	182°24.4	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.5
Gacrux	171°50.9	-57°15.4
Althoth	166°12.2	55°49.3
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.1
Hadar	148°35.2	-60°29.7
Menkent	147°57.0	-36°29.7
Arcturus	145°47.4	19°02.9
Rigel Kent.	139°39.5	-60°56.4
Kochab	137°18.7	74°02.9
Zuben el	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.5
Antares	112°15.4	-26°29.3
Atria	107°09.1	-69°04.2
Sabik	102°02.4	-15°45.4
Shaula	96°09.9	-37°07.3
Rasalhague	95°58.2	12°32.3
Eltanin	90°41.9	51°28.7
Kaus Aust.	83°32.2	-34°22.3
Vega	80°33.0	38°48.1
Nunki	75°47.5	-26°15.9
Altair	61°59.8	8°55.9
Peacock	53°05.6	-56°39.0
Deneb	49°25.9	45°21.9
Enif	33°38.8	9°59.3
Al Na'ir	27°33.0	-46°50.2
Fomalhaut	15°14.6	-29°29.3
Scheat	13°45.3	28°13.0
Markab	13°30.0	15°20.3

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	198°28.7	205°21.4	N02°50.4	79°09.8	N23°12.0	122°05.4	N22°33.8	201°47.1	S03°33.5										
1	213°31.2	220°24.0	49.8	94°11.2	11.8	137°07.4	33.8	216°49.3	33.4										
2	228°33.7	235°26.5	49.1	109°12.7	11.5	152°09.4	33.9	231°51.5	33.4										
3	243°36.1	250°29.0	•• 48.5	124°14.2	•• 11.3	167°11.5	•• 33.9	246°53.7	•• 33.2										
4	258°38.6	265°31.5	47.9	139°15.7	11.1	182°13.5	33.9	261°55.9	33.9										
5	273°41.0	280°34.0	47.2	154°17.1	10.8	197°15.5	34.0	276°58.1	33.0										
6	288°43.5	295°36.5	N02°46.6	169°18.6	N23°10.6	212°17.5	N22°34.3	292°00.3	S03°32.8										
7	303°46.0	310°39.0	46.0	184°20.1	10.3	227°19.5	34.1	307°02.5	32.7										
8	318°48.4	325°41.5	45.3	199°21.5	10.1	242°21.5	34.1	322°04.7	32.6										
9	333°50.9	340°44.0	•• 44.7	214°23.0	•• 09.9	257°23.5	•• 34.2	337°06.8	•• 32.5										
10	348°53.4	355°46.5	44.1	229°24.5	09.6	272°25.5	34.2	352°09.0	32.4										
11	3°55.8	10°49.0	43.5	244°26.0	09.4	287°27.5	34.3	7°11.2	32.3										
12	18°58.3	25°51.4	N02°42.9	259°27.4	N23°09.1	302°29.5	N22°34.3	22°13.4	S03°32.2										
13	34°00.8	40°53.9	42.2	274°28.9	08.9	317°31.5	34.4	37°15.6	32.1										
14	49°03.2	55°56.4	41.6	289°30.4	08.6	332°33.5	34.4	52°17.8	32.0										
15	64°05.7	70°58.8	•• 41.0	304°31.8	•• 08.4	347°35.5	•• 34.4	67°20.0	•• 31.9										
16	79°08.2	86°01.3	40.4	319°33.3	08.2	2°37.5	34.5	82°22.2	31.7										
17	94°10.6	101°03.8	39.8	334°34.8	07.9	17°39.5	34.5	97°24.4	31.6										
18	109°13.1	116°06.2	N02°39.2	349°36.2	N23°07.7	32°41.5	N22°34.6	112°26.6	S03°31.5										
19	124°15.5	131°08.7	38.6	4°37.7	07.4	47°43.5	34.6	127°28.8	31.4										
20	139°18.0	146°11.1	38.0	19°39.2	07.2	62°45.5	34.7	142°31.0	31.3										
21	154°20.5	161°13.6	•• 37.4	34°40.6	•• 06.9	77°47.5	•• 34.7	157°33.2	•• 31.2										
22	169°22.9	176°16.0	36.8	49°42.1	06.7	92°49.5	34.8	172°35.4	31.1										
23	184°25.4	191°18.4	36.2	64°43.6	06.5	107°51.5	34.8	187°37.6	31.0										
Mer.pass. 10:44				ν 2.5' d -0.6' m -4.62				ν 1.5' d -0.2' m 0.61				ν 2.0' d 0.0' m -2.06				ν 2.2' d 0.1' m 1.17			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	199°27.9	206°20.9	N02°35.6	79°45.0	N23°06.2	122°53.5	N22°34.9	202°39.8	S03°30.9
1	214°30.3	221°23.3	35.0	94°46.5	06.0	137°55.5	34.9	217°42.0	30.7
2	229°32.8	236°25.7	34.4	109°47.9	05.7	152°57.5	35.0	232°44.2	30.6
3	244°35.3	251°28.1	•• 33.8	124°49.4	•• 05.5	167°59.5	•• 35.0	247°46.4	•• 30.5
4	259°37.7	266°30.5	33.2	139°50.9	05.2	183°01.5	35.0	262°48.6	30.4
5	274°40.2	281°33.0	32.6	154°52.3	05.0	198°05.5	35.1	277°50.8	30.3
6	289°42.6	296°35.4	N02°32.0	169°53.8	N23°04.7	213°03.5	N22°35.1	292°53.0	S03°30.2
7	304°45.1	311°37.8	31.4	184°55.2	04.5	228°07.5	35.2	307°55.2	30.1
8	319°47.6	326°40.2	30.8	199°56.7	04.2	243°09.4	35.2	322°57.4	30.0
9	334°50.0	341°42.6	•• 30.2	214°58.2	•• 04.0	258°11.4	•• 35.3	337°59.6	•• 29.9
10	349°52.5	356°45.0	29.7	229°59.6	03.8	273°13.4	35.3	353°01.2	29.8
11	4°55.0	11°47.3	29.1	245°01.1	03.5	288°15.4	35.4	8°04.0	29.6
12	19°57.4	26°49.7	N02°28.5	260°02.5	N23°03.3	303°17.4	N22°35.4	23°06.2	S03°29.5
13	34°59.9	41°52.1	27.9	275°04.0	03.0	318°19.4	35.5	38°08.4	29.4
14	50°02.4	56°54.5	27.4	290°05.5	02.8	333°21.4	35.5	53°10.6	29.3
15	65°04.8	71°56.9	•• 26.8	305°06.9	•• 02.5	348°23.4	•• 35.5	68°12.8	•• 29.2
16	80°07.3	86°59.2	26.2	320°08.4	02.3	3°25.4	35.6	83°15.0	29.1
17	95°09.8	102°01.6	25.6	335°09.8	02.0	18°27.4	35.6	98°17.2	29.0
18	110°12.2	117°04.0	N02°25.1	350°11.3	N23°01.8	33°29.4	N22°35.7	113°19.3	S03°28.9
19	125°14.7	132°06.3	24.5	5°12.7	01.5	48°31.4	35.7	128°21.5	28.8
20	140°17.1	147°08.7	23.9	20°14.2	01.3	63°33.4	35.8	143°23.7	28.7
21	155°19.6	162°11.0	•• 23.4	35°15.6	•• 01.0	78°35.4	•• 35.8	158°25.9	•• 28.6
22	170°22.1	177°13.4	22.8	50°17.1	00.8	93°37.4	35.9	173°28.1	28.4
23	185°24.5	192°15.7	22.2	65°18.5	00.5	108°39.4	35.9	188°30.3	28.3
Mer.pass. 10:40 ν 2.4' d -0.6' m -4.65 ν 1.5' d -0.2' m 0.63 ν 2.0' d 0.0' m -2.06 ν 2.2' d 0.1' m 1.17									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	200°27.0	207°18.0	N02°21.7	80°20.0	N23°00.3	123°41.4	N22°36.0	203°32.5	S03°28.2										
1	215°29.5	222°20.4	21.1	95°21.4	23°00.0	138°43.4	36.0	218°34.7	28.1										
2	230°31.9	237°22.7	20.6	110°22.9	22°59.8	153°45.4	36.1	233°36.9	28.0										
3	245°34.4	252°25.0	•• 20.0	125°24.4	•• 59.5	168°47.4	•• 36.1	248°39.1	•• 27.9										
4	260°36.9	267°27.4	19.5	140°25.8	59.3	183°49.4	36.1	263°41.3	27.8										
5	275°39.3	282°29.7	18.9	155°27.3	59.0	198°51.3	36.2	278°43.5	27.7										
6	290°41.8	297°32.0	N02°18.4	170°28.7	N22°58.8	213°53.3	N22°36.2	293°45.7	S03°27.6										
7	305°44.2	312°34.3	17.8	185°30.1	58.5	228°55.3	36.3	308°47.9	27.5										
8	320°46.7	327°36.6	17.3	200°31.6	58.3	243°57.3	36.3	323°50.1	27.3										
9	335°49.2	342°38.9	•• 16.7	215°33.0	•• 58.0	258°59.3	•• 36.4	338°52.3	•• 27.2										
10	350°51.6	357°41.2	16.2	230°34.5	57.8	274°01.3	36.4	353°54.5	27.1										
11	5°54.1	12°43.5	15.7	245°35.9	57.5	289°03.3	36.5	8°56.7	27.0										
12	20°56.6	27°45.8	N02°15.1	260°37.4	N22°57.3	304°05.3	N22°36.5	23°58.9	S03°26.9										
13	35°59.0	42°48.1	14.6	275°38.8	57.0	319°07.3	36.6	39°01.1	26.8										
14	51°01.5	57°50.4	14.0	290°40.3	56.8	334°09.3	36.6	54°03.3	26.7										
15	66°04.0	72°52.7	•• 13.5	305°41.7	•• 56.5	349°11.3	•• 36.6	69°05.5	•• 26.6										
16	81°06.4	87°54.9	13.0	320°43.2	56.3	4°13.3	36.7	84°07.7	26.5										
17	96°08.9	102°57.2	12.5	335°44.6	56.0	19°15.3	36.7	99°09.9	26.4										
18	111°11.4	117°59.5	N02°11.9	350°46.1	N22°55.8	34°17.2	N22°36.8	114°12.1	S03°26.3										
19	126°13.8	133°01.8	11.4	5°47.5	55.5	49°19.2	36.8	129°14.3	26.1										
20	141°16.3	148°04.0	10.9	20°48.9	55.3	64°21.2	36.9	144°16.5	26.0										
21	156°18.7	163°06.3	•• 10.4	35°50.4	•• 55.0	79°23.2	•• 36.9	159°18.7	•• 25.9										
22	171°21.2	178°08.5	09.8	50°51.8	54.8	94°25.2	37.0	174°20.9	25.8										
23	186°23.7	193°10.8	09.3	65°53.3	54.5	109°27.2	37.0	189°23.1	25.7										
Mer.pass. 10:36				ν 2.3' d -0.6' m -4.67				ν 1.5' d -0.2' m 0.64				ν 2.0' d 0.0' m -2.05				ν 2.2' d 0.1' m 1.17			

Stars	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.1
Schedar	349°31.4	56°40.4
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.6
Hamal	327°51.3	23°34.8
Polaris	314°23.5	89°22.4
Acamar	315°12.0	-40°12.3
Menkar	310°06.2	4°11.2
Mirfak	308°28.4	49°57.1
Aldebaran	299°36.6	16°33.6
Rigel	281°03.9	-8°10.5
Capella	280°21.9	46°01.5
Bellatrix	278°22.8	6°22.3
Elath	278°01.8	28°37.8
Anilam	275°37.7	-11°11.2
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.5	-52°42.8
Sirius	258°26.1	-16°45.2
Adhara	255°05.8	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	243°17.0	27°58.0
Avior	234°14.6	-59°55.7
Suhail	222°46.0	-43°32.3
Miaplacidus	221°37.9	-69°49.5
Alphard	217°47.4	-8°46.2
Regulus	207°34.0	11°50.6
Dubhe	193°40.2	61°37.0
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.5
Gacrux	171°50.9	-57°15.4
Alloth	166°12.2	55°49.3
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.1
Hadar	148°35.1	-60°29.7
Menkent	147°57.0	-36°29.7
Arcturus	145°47.4	19°02.9
Rigil Kent.	139°39.4	-60°56.4
Kochab	137°18.6	74°02.9
Zuben 'ul	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.5
Antares	112°15.4	-26°29.3
Atria	107°09.1	-69°04.2
Sabik	102°02.4	-15°45.4
Shaula	96°09.9	-37°07.3
Rasalhague	95°58.2	12°32.3
Eltanin	90°41.9	51°28.7
Kaus Aust.	83°32.1	-34°22.3
Vega	80°33.0	38°48.1
Nunki	75°47.5	-26°15.9
Altair	61°59.8	8°55.9
Peacock	53°05.5	-56°39.0
Deneb	49°25.8	45°21.9
Enif	33°38.8	9°59.3
Al Na'ir	27°32.9	-46°50.2
Fomalhaut	15°14.6	-29°02.3
Scheat	13°45.3	28°13.0
Mikab	13°30.0	15°20.3

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	201°26.1	208°13.0	N02°08.8	80°54.7	N22°54.3	124°29.2	N22°37.1	204°25.3	S03°25.6										
1	216°28.6	223°15.3	08.3	95°56.2	54.0	139°31.2	37.1	219°27.5	25.5										
2	231°31.1	238°17.5	07.8	110°57.6	53.8	154°33.2	37.1	234°29.7	25.4										
3	246°33.5	253°19.7	•• 07.3	125°59.0	•• 53.5	169°35.2	•• 37.2	249°31.9	•• 25.3										
4	261°36.0	268°22.0	06.7	141°00.5	53.3	184°37.1	37.2	264°34.1	25.2										
5	276°38.5	283°24.2	06.2	156°01.9	53.0	199°39.1	37.3	279°36.3	25.1										
6	291°40.9	298°26.4	N02°05.7	171°03.4	N22°52.7	214°41.1	N22°37.3	294°38.5	S03°25.6										
7	306°43.4	313°28.7	05.2	186°04.8	52.5	229°43.1	37.4	309°40.7	24.8										
8	321°45.9	328°30.9	04.7	201°06.2	52.2	244°45.1	37.4	324°42.9	24.7										
9	336°48.3	343°33.1	•• 04.2	216°07.7	•• 52.0	259°47.1	•• 37.5	339°45.1	•• 24.6										
10	351°50.8	358°35.3	03.7	231°09.1	51.7	274°49.1	37.5	354°47.3	24.5										
11	6°53.2	13°37.5	03.2	246°10.5	51.5	289°51.1	37.5	9°49.5	24.4										
12	21°55.7	28°39.7	N02°02.7	261°12.0	N22°51.2	304°53.1	N22°37.6	24°51.7	S03°24.3										
13	36°58.2	43°41.9	02.2	276°13.4	51.0	319°55.0	37.6	39°53.9	24.2										
14	52°00.6	58°44.1	01.7	291°14.8	50.7	334°57.0	37.7	54°56.1	24.1										
15	67°03.1	73°46.3	•• 01.2	306°16.3	•• 50.5	349°59.0	•• 37.7	69°58.3	•• 24.0										
16	82°05.6	88°48.5	00.8	321°17.7	50.2	5°01.0	37.8	85°00.5	23.9										
17	97°08.0	103°50.7	02°00.3	336°19.1	49.9	20°03.0	37.8	100°02.7	23.8										
18	112°10.5	118°52.8	N01°59.8	351°20.6	N22°49.7	35°05.0	N22°37.9	115°04.9	S03°23.6										
19	127°13.0	133°55.0	59.3	6°22.0	49.4	50°07.0	37.9	130°07.1	23.5										
20	142°15.4	148°57.2	58.8	21°23.4	49.2	65°08.9	38.0	145°09.3	23.4										
21	157°17.9	163°59.4	•• 58.3	36°24.9	•• 48.9	80°10.9	•• 38.0	160°11.5	•• 23.3										
22	172°20.8	179°01.5	57.9	51°26.3	48.7	95°12.9	38.0	175°13.7	23.2										
23	187°22.8	194°03.7	57.4	66°27.7	48.4	110°14.9	38.1	190°15.9	23.1										
Mer.pass. 10:33				ν 2.2' d -0.5' m -4.69				ν 1.4' d -0.3' m 0.66				ν 2.0' d 0.0' m -2.05				ν 2.2' d 0.1' m 1.17			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	202°25.3	209°05.9	N01°56.9	81°29.2	N22°48.2	125°16.9	N22°38.1	205°18.1	S03°23.0
1	217°27.7	224°08.0	56.4	96°30.6	47.9	140°18.9	38.2	220°20.3	22.9
2	232°30.2	239°10.2	56.0	111°32.0	47.6	155°20.9	38.2	235°22.5	22.8
3	247°32.7	254°12.3	.. 55.5	126°33.5	.. 47.4	170°22.8	.. 38.3	250°24.7	.. 22.7
4	262°35.1	269°14.4	55.0	141°34.9	47.1	185°24.8	38.3	265°26.9	22.6
5	277°37.6	284°16.6	54.6	156°36.3	46.9	200°26.8	38.4	280°29.1	22.5
6	292°40.1	299°18.7	N01°54.1	171°37.7	N22°46.6	215°28.8	N22°38.4	295°31.3	S03°22.3
7	307°42.5	314°20.9	53.6	186°39.2	46.3	230°30.8	38.5	310°33.5	22.2
8	322°45.0	329°23.0	53.2	201°40.6	46.1	245°32.8	38.5	325°35.7	22.1
9	337°47.5	344°25.1	.. 52.7	216°42.0	.. 45.8	260°34.8	.. 38.5	340°37.9	.. 22.0
10	352°49.9	359°27.2	52.2	231°43.5	45.6	275°36.7	38.6	355°40.1	21.9
11	7°52.4	14°29.4	51.8	246°44.9	45.3	290°38.7	38.6	10°42.3	21.8
12	22°54.8	29°31.5	N01°51.3	261°46.3	N22°45.1	305°40.7	N22°38.7	25°44.5	S03°21.7
13	37°57.3	44°33.6	50.9	276°47.7	44.8	320°42.7	38.7	40°46.7	21.6
14	52°59.8	59°35.7	50.4	291°49.2	44.5	335°44.7	38.8	55°48.9	21.5
15	68°02.2	74°37.8	.. 50.0	306°50.6	.. 44.3	350°46.6	.. 38.8	70°51.1	.. 21.4
16	83°04.7	89°39.9	49.5	321°52.0	44.0	5°48.6	38.9	85°53.3	21.3
17	98°07.2	104°42.0	49.1	336°53.4	43.8	20°50.6	38.9	100°55.5	21.2
18	113°09.6	119°44.1	N01°48.6	351°54.8	N22°43.5	35°52.6	N22°38.9	115°57.7	S03°21.1
19	128°12.1	134°46.2	48.2	6°56.3	43.2	50°54.6	39.0	130°59.9	20.9
20	143°14.6	149°48.3	47.8	21°57.7	43.0	65°56.6	39.0	146°02.1	20.8
21	158°17.0	164°50.3	.. 47.3	36°59.1	.. 42.7	80°58.5	.. 39.1	161°04.3	.. 20.7
22	173°19.5	179°52.4	46.9	52°00.5	42.5	96°00.5	39.1	176°06.5	20.6
23	188°21.9	194°54.5	46.5	67°02.0	42.2	111°02.5	39.2	191°08.7	20.5
Mer.pass. 10:29 ν 2.2' d -0.5' m -4.70 ν 1.4' d -0.3' m 0.68 ν 2.0' d 0.0' m -2.05 ν 2.2' d 0.1' m 1.17									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	203°24.4	209°56.6	N01°46.0	82°03.4	N22°41.9	126°04.5	N22°39.2	206°10.9	S03°20.4
1	218°26.9	224°58.6	45.6	97°04.8	41.7	141°06.5	39.3	221°13.1	20.3
2	233°29.3	240°00.7	45.2	112°06.2	41.4	156°08.4	39.3	236°15.3	20.2
3	248°31.8	255°02.8	•• 44.7	127°07.6	•• 41.1	171°10.4	•• 39.3	251°17.5	•• 20.1
4	263°34.3	270°04.8	44.3	142°09.1	40.9	186°12.4	39.4	266°19.7	20.0
5	278°36.7	285°06.9	43.9	157°10.5	40.6	201°14.4	39.4	281°21.9	19.9
6	293°39.2	300°08.9	N01°43.5	172°11.9	N22°40.4	216°16.4	N22°39.5	296°24.2	S03°19.8
7	308°41.7	315°11.0	43.0	187°13.3	40.1	231°18.3	39.5	311°26.4	19.7
8	323°44.1	330°13.0	42.6	202°14.7	39.8	246°20.3	39.6	326°28.6	19.5
9	338°46.6	345°15.0	•• 42.2	217°16.1	•• 39.6	261°22.3	•• 39.6	341°30.8	•• 19.4
10	353°49.1	0°17.1	41.8	232°17.6	39.3	276°24.3	39.7	356°33.0	19.3
11	8°51.5	15°19.1	41.4	247°19.0	39.0	291°26.3	39.7	11°35.2	19.2
12	23°54.0	30°21.1	N01°41.0	262°20.4	N22°38.8	306°28.2	N22°39.8	26°37.4	S03°19.1
13	38°56.4	45°23.2	40.6	277°21.8	38.5	321°30.2	39.8	41°39.6	19.0
14	53°58.9	60°25.2	40.1	292°23.2	38.3	336°32.2	39.8	56°41.8	18.9
15	69°01.4	75°27.2	•• 39.7	307°24.6	•• 38.0	351°34.2	•• 39.9	71°44.0	•• 18.8
16	84°03.8	90°29.2	39.3	322°26.0	37.7	6°36.2	39.9	86°46.2	18.7
17	99°06.3	105°31.2	38.9	337°27.5	37.5	21°38.1	40.0	101°48.4	18.6
18	114°08.8	120°33.2	N01°38.5	352°28.9	N22°37.2	36°40.1	N22°40.0	116°50.6	S03°18.5
19	129°11.2	135°35.2	38.1	7°30.3	36.9	51°42.1	40.1	131°52.8	18.4
20	144°13.7	150°37.2	37.7	22°31.7	36.7	66°44.1	40.1	146°55.0	18.3
21	159°16.2	165°39.2	•• 37.3	37°33.1	•• 36.4	81°46.1	•• 40.2	161°57.2	•• 18.2
22	174°18.6	180°41.2	36.9	52°34.5	36.1	96°48.0	40.2	176°59.4	18.1
23	189°21.1	195°43.2	36.5	67°35.9	35.9	111°50.0	40.2	192°01.6	17.9
Mer.pass. 10:25 ν 2.1' d -0.4' m -4.72 ν 1.4' d -0.3' m 0.70 ν 2.0' d 0.0' m -2.04 ν 2.2' d 0.1' m 1.17									

Stars		
	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.1
Schedar	349°31.4	56°40.4
Diphda	348°47.4	-17°51.0
Achernar	335°20.6	-57°06.5
Hamal	327°51.3	23°34.8
Polaris	314°24.0	89°22.3
Acamar	315°12.0	-40°12.3
Menkar	314°06.2	4°11.2
Miraf	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.5
Capella	280°21.9	46°01.5
Bellatrix	278°22.8	6°22.3
Elnath	278°01.8	28°37.8
Alnilam	275°37.7	-1°11.2
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.5	-52°42.8
Sirius	258°26.2	-16°45.2
Adhara	255°05.8	-29°00.6
Procyon	244°50.6	5°09.5
Pollux	243°17.1	27°58.0
Avior	234°14.6	-59°35.7
Suhail	222°46.0	-43°32.3
Miaplacidus	221°38.0	-69°49.5
Alphard	217°47.4	-8°46.2
Regulus	207°34.0	11°50.6
Dubhe	193°40.2	61°37.0
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.5
Gacrux	171°50.9	-57°15.4
Althioth	166°12.2	55°49.3
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.1
Hadar	148°35.1	-60°29.7
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°02.9
Rigel Kent.	139°39.4	-60°56.4
Kochab	137°18.6	74°02.9
Zuben el	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.5
Antares	112°15.3	-26°29.3
Atria	107°09.1	-69°04.2
Sabik	102°02.4	-15°45.4
Shaula	96°09.9	-37°07.3
Rasalhague	95°58.2	12°32.3
Eltanin	90°41.9	51°28.8
Kaus Aust.	83°32.1	-34°32.2
Vega	80°33.0	38°48.1
Nunki	75°47.4	-26°15.9
Altair	61°59.8	8°55.9
Peacock	53°05.5	-56°39.9
Deneb	49°25.8	45°21.9
Enif	33°38.8	9°59.3
Al Na'ir	27°32.9	-46°50.2
Fomalhaut	15°14.6	-29°29.3
Scheat	13°45.3	28°13.0
Markab	13°30.0	15°20.3
Apr 13 Sun	SHA	Mer.pass
Venus	6°46.9	10.06
Mars	239°28.1	18.35
Jupiter	283°03.0	15.40
Saturn	2°59.2	10.21
Apr 14 Mon	SHA	Mer.pass
Venus	6°40.6	10.02
Mars	239°03.9	18.32
Jupiter	282°51.6	15.37
Saturn	2°52.8	10.17
Apr 15 Tue	SHA	Mer.pass
Venus	6°32.1	09.59
Mars	238°39.0	18.30
Jupiter	282°40.1	15.34
Saturn	2°46.5	10.14
Horizontal parallax		
Venus:	0.4	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	204°23.6	210°45.2	N01°36.2	82°37.3	N22°35.6	126°52.0	N22°40.3	207°03.8	S03°17.8										
1	219°26.0	225°47.2	35.8	97°38.8	35.3	141°54.0	40.3	222°06.0	17.7										
2	234°28.5	240°49.2	35.4	112°40.2	35.1	156°55.9	40.4	237°08.2	17.6										
3	249°30.9	255°51.1	•• 35.0	127°41.6	•• 34.8	171°57.9	•• 40.4	252°10.4	•• 17.5										
4	264°33.4	270°53.1	34.6	142°43.0	34.5	186°59.9	40.5	267°12.6	17.4										
5	279°35.9	285°55.1	34.2	157°44.4	34.3	202°01.9	40.5	282°14.8	17.3										
6	294°38.3	300°57.0	N01°33.9	172°45.8	N22°34.0	217°03.8	N22°40.3	297°17.0	S03°17.2										
7	309°40.8	315°59.0	33.5	187°47.2	33.8	232°05.8	40.6	312°19.2	17.1										
8	324°43.3	331°01.0	33.1	202°48.6	33.5	247°07.8	40.6	327°21.4	17.0										
9	339°45.7	346°02.9	•• 32.7	217°50.0	•• 33.2	262°09.8	•• 40.7	342°23.6	•• 16.9										
10	354°48.2	1°04.9	32.3	232°51.4	33.0	277°11.7	40.7	357°25.8	16.8										
11	9°50.7	16°06.8	32.0	247°52.8	32.7	292°13.7	40.8	12°28.0	16.7										
12	24°53.1	31°08.8	N01°31.6	262°54.2	N22°32.4	307°15.7	N22°40.8	27°30.2	S03°16.6										
13	39°55.6	46°10.7	31.2	277°55.6	32.1	322°17.7	40.9	42°32.5	16.4										
14	54°58.1	61°12.6	30.9	292°57.0	31.9	337°19.6	40.9	57°34.7	16.3										
15	70°00.5	76°14.6	•• 30.5	307°58.5	•• 31.6	352°21.6	•• 41.0	72°36.9	•• 16.2										
16	85°03.0	91°16.5	30.1	322°59.9	31.3	7°23.6	41.0	87°39.1	16.1										
17	100°05.4	106°18.4	29.8	338°01.3	31.1	22°25.6	41.0	102°41.3	16.0										
18	115°07.9	121°20.4	N01°29.4	353°02.7	N22°30.8	37°27.5	N22°41.1	117°43.5	S03°15.9										
19	130°10.4	136°22.3	29.1	8°04.1	30.5	52°29.5	41.1	132°45.7	15.8										
20	145°12.8	151°24.2	28.7	23°05.5	30.3	67°31.5	41.2	147°47.9	15.7										
21	160°15.3	166°26.1	•• 28.4	38°06.9	•• 30.0	82°33.5	•• 41.2	162°50.1	•• 15.6										
22	175°17.8	181°28.0	28.0	53°08.3	29.7	97°35.4	41.3	177°52.3	15.5										
23	190°20.2	196°29.9	27.7	68°09.7	29.5	112°37.4	41.3	192°54.5	15.4										
Mer.pass. 10:21				ν 2.0' d -0.4' m -4.73				ν 1.4' d -0.3' m 0.71				ν 2.0' d 0.0' m -2.04				ν 2.2' d 0.1' m 1.17			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	205°22.7	211°31.8	N01°27.3	83°11.1	N22°29.2	127°39.4	N22°41.4	207°56.7	S03°15.3										
1	220°25.2	226°33.7	27.0	98°12.5	28.9	142°41.3	41.4	222°58.9	15.2										
2	235°27.6	241°35.6	26.6	113°13.9	28.7	157°43.3	41.4	238°01.1	15.1										
3	250°30.1	256°37.5	•• 26.3	128°15.3	•• 28.4	172°45.3	•• 41.5	253°03.3	•• 15.0										
4	265°32.5	271°39.4	25.9	143°16.7	28.1	187°47.3	41.5	268°05.5	14.9										
5	280°35.0	286°41.3	25.6	158°18.1	27.8	202°49.2	41.6	283°07.7	14.7										
6	295°37.5	301°43.2	N01°25.3	173°19.5	N22°27.6	217°51.2	N22°41.6	298°09.9	S03°14.6										
7	310°39.9	316°45.1	24.9	188°20.9	27.3	232°53.2	41.7	313°12.1	14.5										
8	325°42.4	331°46.9	24.6	203°22.3	27.0	247°55.2	41.7	328°14.3	14.4										
9	340°44.9	346°48.8	•• 24.3	218°23.7	•• 26.8	262°57.1	•• 41.7	343°16.5	•• 14.3										
10	355°47.3	1°50.7	23.9	233°25.1	26.5	277°59.1	41.8	358°18.8	14.2										
11	10°49.8	16°52.6	23.6	248°26.5	26.2	293°01.1	41.8	13°21.0	14.1										
12	25°52.3	31°54.4	N01°23.3	263°27.9	N22°25.9	308°03.0	N22°41.9	28°23.2	S03°14.0										
13	40°54.7	46°56.3	23.0	278°29.2	25.7	323°05.0	41.9	43°25.4	13.9										
14	55°57.2	61°58.1	22.6	293°30.6	25.4	338°07.0	42.0	58°27.6	13.8										
15	70°59.7	77°00.0	•• 22.3	308°32.0	•• 25.1	353°08.9	•• 42.0	73°29.8	•• 13.7										
16	86°02.1	92°01.8	22.0	323°33.4	24.9	8°10.9	42.1	88°32.0	13.6										
17	101°04.6	107°03.7	21.7	338°34.8	24.6	23°12.9	42.1	103°34.2	13.5										
18	116°07.0	122°05.5	N01°21.4	353°36.2	N22°24.3	38°14.9	N22°42.1	118°36.4	S03°13.4										
19	131°09.5	137°07.4	21.0	8°37.6	24.0	53°16.8	42.2	133°38.6	13.3										
20	146°12.0	152°09.2	20.7	23°39.0	23.8	68°18.8	42.2	148°40.8	13.2										
21	161°14.4	167°11.0	•• 20.4	38°40.4	•• 23.5	83°20.8	•• 42.3	163°43.0	•• 13.1										
22	176°16.9	182°12.9	20.1	53°41.8	23.2	98°22.7	42.3	178°45.2	13.0										
23	191°19.4	197°14.7	19.8	68°43.2	22.9	113°24.7	42.4	193°47.4	12.8										
Mer.pass. 10:17				ν 1.9' d -0.3' m -4.74				ν 1.4' d -0.3' m 0.73				ν 2.0' d 0.0' m -2.03				ν 2.2' d 0.1' m 1.17			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	206°21.8	212°16.5	N01°19.5	83°44.6	N22°22.7	128°26.7	N22°42.4	208°49.6	S03°12.7										
1	221°24.3	227°18.3	19.2	98°46.0	22.4	143°28.6	42.5	223°51.8	12.6										
2	236°26.8	242°20.2	18.9	113°47.4	22.1	158°30.6	42.5	238°54.0	12.5										
3	251°29.2	257°22.0	•• 18.6	128°48.7	•• 21.8	173°32.6	•• 42.5	253°56.3	•• 12.4										
4	266°31.7	272°23.8	18.3	143°50.1	21.6	188°34.5	42.6	268°58.5	12.3										
5	281°34.2	287°25.6	18.0	158°51.5	21.3	203°36.5	42.6	284°00.7	12.2										
6	296°36.6	302°27.4	N01°17.7	173°52.9	N22°21.0	218°38.5	N22°42.7	299°02.9	S03°12.1										
7	311°39.1	317°29.2	17.4	188°54.3	20.7	233°40.4	42.7	314°05.1	12.0										
8	326°41.5	332°31.0	17.1	203°55.7	20.5	248°42.4	42.8	329°07.3	11.9										
9	341°44.0	347°32.8	•• 16.8	218°57.1	•• 20.2	263°44.4	•• 42.8	344°09.5	•• 11.8										
10	356°46.5	2°34.6	16.5	233°58.5	19.9	278°46.3	42.8	359°11.7	11.7										
11	11°48.9	17°36.4	16.2	248°59.9	19.6	293°48.3	42.9	14°13.9	11.6										
12	26°51.4	32°38.2	N01°16.0	264°01.2	N22°19.4	308°50.3	N22°42.9	29°16.1	S03°11.5										
13	41°53.9	47°39.9	15.7	279°02.6	19.1	323°52.2	43.0	44°18.3	11.4										
14	56°56.3	62°41.7	15.4	294°04.0	18.8	338°54.2	43.0	59°20.5	11.3										
15	71°58.8	77°43.5	•• 15.1	309°05.4	•• 18.5	353°56.2	•• 43.1	74°22.7	•• 11.2										
16	87°01.3	92°45.3	14.8	324°06.8	18.3	8°58.1	43.1	89°24.9	11.1										
17	102°03.7	107°47.0	14.6	339°08.2	18.0	24°00.1	43.2	104°27.1	11.0										
18	117°06.2	122°48.8	N01°14.3	354°09.6	N22°17.7	39°02.1	N22°43.2	119°29.4	S03°10.8										
19	132°08.7	137°50.6	14.0	9°10.9	17.4	54°04.0	43.2	134°31.6	10.7										
20	147°11.1	152°52.3	13.7	24°12.3	17.2	69°06.0	43.3	149°33.8	10.6										
21	162°13.6	167°54.1	•• 13.5	39°13.7	•• 16.9	84°08.0	•• 43.3	164°36.0	•• 10.5										
22	177°16.0	182°55.8	13.2	54°15.1	16.6	99°09.9	43.4	179°38.2	10.4										
23	192°18.5	197°57.6	12.9	69°16.5	16.3	114°11.9	43.4	194°40.4	10.3										
Mer.pass. 10:13				ν 1.8' d -0.3' m -4.74				ν 1.4' d -0.3' m 0.74				ν 2.0' d 0.0' m -2.03				ν 2.2' d 0.1' m 1.17			

Stars			
SHA	Dec		
Alpheratz	357°34.9	29°13.6	
Ankaa	353°07.3	-42°10.1	
Schedar	349°31.4	56°40.4	
Diphda	348°47.4	-17°50.9	
Achernar	335°20.6	-57°06.5	
Hamal	327°51.3	23°34.8	
Polaris	314°24.2	89°22.2	
Acamar	315°12.0	-40°12.2	
Menkar	314°06.2	4°11.3	
Mirafak	308°28.4	49°57.1	
Aldebaran	290°39.6	16°33.6	
Rigel	281°03.9	-8°10.5	
Capella	280°21.9	46°01.5	
Bellatrix	278°22.9	6°22.3	
Elmath	278°01.8	28°37.8	
Alnilam	275°37.7	-1°12.1	
Betelgeuse	270°52.0	7°24.7	
Canopus	263°52.5	-52°42.8	
Sirius	258°26.2	-16°45.2	
Adhara	255°05.8	-29°00.6	
Procyon	244°50.7	5°09.5	
Pollux	243°17.1	27°58.0	
Avior	234°14.6	-59°35.7	
Suhail	222°46.0	-43°32.3	
Miaplacidus	221°38.0	-69°49.5	
Alphard	217°47.4	-8°46.2	
Regulus	207°34.0	11°50.6	
Dubhe	193°40.2	61°37.0	
Denelbora	182°24.5	14°25.8	
Gienah	175°43.1	-17°41.1	
Acrux	172°59.3	-63°14.5	
Gacrux	171°50.9	-57°15.5	
Alloth	166°12.2	55°49.3	
Spica	158°21.8	-11°17.7	
Alkaid	152°51.3	49°11.1	
Hadar	148°35.1	-60°29.7	
Menkent	147°57.0	-36°29.9	
Arcturus	145°47.4	19°02.8	
Rigel Kent.	139°39.4	-60°56.4	</

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	207°21.0	212°59.3	N01°12.7	84°17.9	N22°16.0	129°13.9	N22°43.5	209°42.6	S03°10.2										
1	222°23.4	228°01.1	12.4	99°19.2	15.8	144°15.8	43.5	224°44.8	10.1										
2	237°25.9	243°02.8	12.2	114°20.6	15.5	159°17.8	43.5	239°47.0	10.0										
3	252°28.4	258°04.5	•• 11.9	129°22.0	•• 15.2	174°19.8	•• 43.6	254°49.2	•• 09.9										
4	267°30.8	273°06.3	11.6	144°23.4	14.9	189°21.7	43.6	269°51.4	09.8										
5	282°33.3	288°08.0	11.4	159°24.8	14.7	204°23.7	43.7	284°53.6	09.7										
6	297°35.8	303°09.7	N01°11.1	174°26.1	N22°14.4	219°25.7	N22°43.7	299°55.9	S03°09.6										
7	312°38.2	318°11.5	10.9	189°27.5	14.1	234°27.6	43.8	314°58.1	09.5										
8	327°40.7	333°13.2	10.6	204°28.9	13.8	249°29.6	43.8	330°00.3	09.4										
9	342°43.1	348°14.9	•• 10.4	219°30.3	•• 13.5	264°31.5	•• 43.8	345°02.5	•• 09.3										
10	357°45.6	3°16.6	10.1	234°31.7	13.3	279°33.5	43.9	0°04.7	09.2										
11	12°48.1	18°18.3	09.9	249°33.0	13.0	294°35.5	43.9	15°06.9	09.1										
12	27°50.5	33°20.0	N01°09.6	264°34.4	N22°12.7	309°37.4	N22°44.0	30°09.1	S03°09.0										
13	42°53.0	48°21.7	09.4	279°35.8	12.4	324°39.4	44.0	45°11.3	08.9										
14	57°55.5	63°23.4	09.2	294°37.2	12.1	339°41.4	44.1	60°13.5	08.8										
15	72°57.9	78°25.1	•• 08.9	309°38.5	•• 11.9	354°43.3	•• 44.1	75°15.7	•• 08.7										
16	88°00.4	93°26.8	08.7	324°39.9	11.6	374°45.3	44.2	90°17.9	08.5										
17	103°02.9	108°28.5	08.5	339°41.3	11.3	374°47.2	44.2	105°20.1	08.4										
18	118°05.3	123°30.2	N01°08.2	354°42.7	N22°11.0	39°49.2	N22°44.2	120°22.4	S03°08.3										
19	133°07.8	138°31.9	08.0	9°44.0	10.7	54°51.2	44.3	135°24.6	08.2										
20	148°10.3	153°33.6	07.8	24°45.4	10.4	69°53.1	44.3	150°26.8	08.1										
21	163°12.7	168°35.3	•• 07.5	39°46.8	•• 10.2	84°55.1	•• 44.4	165°29.0	•• 08.0										
22	178°15.2	183°36.9	07.3	54°48.2	09.9	99°57.0	44.4	180°31.2	07.9										
23	193°17.6	198°38.6	07.1	69°49.5	09.6	114°59.0	44.5	195°33.4	07.8										
Mer.pass. 10:09				ν 1.7' d -0.3' m -4.75				ν 1.4' d -0.3' m 0.76				ν 2.0' d 0.0' m -2.03				ν 2.2' d 0.1' m 1.17			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	208°20.1	213°40.3	N01°06.9	84°50.9	N22°09.3	130°01.0	N22°44.5	210°35.6	S03°07.7										
1	223°22.6	228°42.0	06.6	99°52.3	09.0	145°02.9	44.5	225°37.8	07.6										
2	238°25.0	243°43.6	06.4	114°53.7	08.8	160°04.9	44.6	240°40.0	07.5										
3	253°27.5	258°45.3	•• 06.2	129°55.0	•• 08.5	175°06.9	•• 44.6	255°42.2	•• 07.4										
4	268°30.0	273°46.9	06.0	144°56.4	08.2	190°08.8	44.7	270°44.4	07.3										
5	283°32.4	288°48.6	05.8	159°57.8	07.9	205°10.8	44.7	285°46.7	07.2										
6	298°34.9	303°50.3	N01°05.6	174°59.1	N22°07.6	220°12.7	N22°44.8	300°48.9	S03°07.1										
7	313°37.4	318°51.9	05.4	190°00.5	07.3	235°14.7	44.8	315°51.1	07.0										
8	328°39.8	333°53.6	05.1	205°01.9	07.1	250°16.7	44.8	330°53.3	06.9										
9	343°42.8	348°55.2	•• 04.9	220°03.3	•• 06.8	265°18.6	•• 44.9	345°55.5	•• 06.8										
10	358°44.8	3°56.8	04.7	235°04.6	06.5	280°20.6	44.9	0°57.7	06.7										
11	13°47.2	18°58.5	04.5	250°06.0	06.2	295°22.5	45.0	15°59.9	06.6										
12	28°49.7	34°00.1	N01°04.3	265°07.4	N22°05.9	310°24.5	N22°45.0	31°02.1	S03°06.5										
13	43°52.1	49°01.7	04.1	280°08.7	05.6	325°26.4	45.1	46°04.3	06.4										
14	58°54.6	64°03.4	03.9	295°10.1	05.3	340°28.4	45.1	61°06.5	06.3										
15	73°57.1	79°05.0	•• 03.7	310°11.5	•• 05.1	355°30.4	•• 45.1	76°08.8	•• 06.2										
16	88°59.5	94°06.6	03.5	325°12.8	04.8	10°32.3	45.2	91°11.0	06.1										
17	104°02.0	109°08.2	03.3	340°14.2	04.5	25°34.3	45.2	106°13.2	06.0										
18	119°04.5	124°09.9	N01°03.2	355°15.6	N22°04.2	40°36.2	N22°45.3	121°15.4	S03°05.8										
19	134°06.9	139°11.5	03.0	10°16.9	03.9	55°38.2	45.3	136°17.6	05.7										
20	149°09.4	154°13.1	02.8	25°18.3	03.6	70°40.2	45.4	151°19.8	05.6										
21	164°11.9	169°14.7	•• 02.6	40°19.7	•• 03.3	85°42.1	•• 45.4	166°22.0	•• 05.5										
22	179°14.3	184°16.3	02.4	55°21.0	03.1	100°44.1	45.4	181°24.2	05.4										
23	194°16.8	199°17.9	02.2	70°22.4	02.8	115°46.0	45.5	196°26.4	05.3										
Mer.pass. 10:05				ν 1.7' d -0.2' m -4.75				ν 1.4' d -0.3' m 0.78				ν 2.0' d 0.0' m -2.02				ν 2.2' d 0.1' m 1.17			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	209°19.3	214°19.5	N01°02.0	85°23.8	N22°02.5	130°48.0	N22°45.5	211°28.6	S03°05.2										
1	224°21.7	229°21.1	01.9	100°25.1	02.2	145°49.9	45.6	226°30.9	05.1										
2	239°24.2	244°22.7	01.7	115°26.5	01.9	160°51.9	45.6	241°33.1	05.0										
3	254°26.6	259°24.3	•• 01.5	130°27.9	•• 01.6	175°53.8	•• 45.5	256°35.3	•• 04.9										
4	269°29.1	274°25.9	01.3	145°29.2	01.3	190°55.8	45.7	271°37.5	04.8										
5	284°31.6	289°27.4	01.2	160°30.6	01.1	205°57.8	45.7	286°39.7	04.7										
6	299°34.0	304°29.0	N01°01.0	175°31.9	N22°00.8	220°59.7	N22°45.8	301°41.9	S03°04.6										
7	314°36.5	319°30.6	00.8	190°33.3	00.5	236°01.7	45.8	316°44.1	04.5										
8	329°39.0	334°32.2	00.7	205°34.7	22°00.2	251°03.6	45.9	331°46.3	04.4										
9	344°41.4	349°33.8	•• 00.5	220°36.0	21°59.9	266°05.6	•• 45.9	346°48.5	•• 04.3										
10	359°43.9	4°35.3	00.3	235°37.4	59.6	281°07.5	46.0	1°50.8	04.2										
11	14°46.4	19°36.9	00.2	250°38.8	59.3	296°09.5	46.0	16°53.0	04.1										
12	29°48.8	34°38.5	N01°00.0	265°40.1	N21°59.0	311°11.4	N22°46.0	31°55.2	S03°04.0										
13	44°51.3	49°40.0	00°59.8	280°41.5	58.7	326°13.4	46.1	46°57.4	03.9										
14	59°53.7	64°41.6	59.7	295°42.8	58.5	341°15.4	46.1	61°59.6	03.8										
15	74°56.2	79°43.1	•• 59.5	310°44.2	•• 58.2	356°17.3	•• 46.2	77°01.8	•• 03.7										
16	89°58.7	94°44.7	59.4	325°45.5	57.9	11°19.3	46.2	92°04.0	03.6										
17	105°01.1	109°46.2	59.2	340°46.9	57.6	26°21.2	46.3	107°06.2	03.5										
18	120°03.6	124°47.8	N00°59.1	355°48.3	N21°57.3	41°23.2	N22°46.3	122°08.5	S03°03.4										
19	135°06.1	139°49.3	58.9	10°49.6	57.0	56°25.1	46.3	137°10.7	03.3										
20	150°08.5	154°50.9	58.8	25°51.0	56.7	71°27.1	46.4	152°12.9	03.2										
21	165°11.0	169°52.4	•• 58.6	40°52.3	•• 56.4	86°29.0	•• 46.4	167°15.1	•• 03.1										
22	180°13.5	184°53.9	58.5	55°53.7	56.1	101°31.0	46.5	182°17.3	03.0										
23	195°15.9	199°55.5	58.3	70°55.1	55.8	116°32.9	46.5	197°19.5	02.9										
Mer.pass. 10:01				ν 1.6' d -0.2' m -4.76				ν 1.4' d -0.3' m 0.79				ν 2.0' d 0.0' m -2.02				ν 2.2' d 0.1' m 1.17			

	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.1
Schedar	349°31.4	56°40.4
Diphda	348°47.4	-17°50.9
Achernar	335°20.6	-57°06.5
Hamal	327°51.3	23°34.8
Polaris	314°24.4	89°22.3
Acamar	315°12.0	-40°12.3
Menkar	314°06.2	4°11.2
Mirfak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.5
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elmath	278°01.8	28°37.8
Alnilam	275°37.7	-1°12.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.5	-52°42.8
Sirius	268°26.2	-16°45.2
Adhara	255°05.8	-29°00.6
Procyon	244°50.7	5°09.5
Pollux	243°17.1	27°58.0
Avior	234°14.6	-59°35.7
Suhail	222°46.1	-43°32.3
Miaplacidus	221°38.0	-69°49.5
Alphard	217°47.4	-8°46.2

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	210°18.4	214°57.0	N00°58.2	85°56.4	N21°55.6	131°34.9	N22°46.6	212°21.7	S03°02.8					
1	225°20.9	229°58.5	58.1	100°57.8	55.3	146°36.8	46.6	227°23.9	02.7					
2	240°23.3	245°00.0	57.9	115°59.1	55.0	161°38.8	46.6	242°26.1	02.6					
3	255°25.8	260°01.6	•• 57.8	131°00.5	•• 54.7	176°40.8	•• 46.7	257°28.4	•• 02.5					
4	270°28.2	275°03.1	57.6	146°01.8	54.4	191°42.7	46.7	272°30.6	02.4					
5	285°30.7	290°04.6	57.5	161°03.2	54.1	206°44.7	46.8	287°32.8	02.3					
6	300°33.2	305°06.1	N00°57.4	176°04.5	N21°53.8	221°46.6	N22°46.8	302°35.0	S03°02.2					
7	315°35.6	320°07.6	57.3	191°05.9	53.5	236°48.6	46.8	317°37.2	02.0					
8	330°38.1	335°09.1	57.1	206°07.2	53.2	251°50.5	46.9	332°39.4	01.9					
9	345°40.6	350°10.6	•• 57.0	221°08.6	•• 52.9	266°52.5	•• 46.9	347°41.6	•• 01.8					
10	0°43.0	5°12.1	56.9	236°10.0	52.6	281°54.4	47.0	2°43.9	01.7					
11	15°45.5	20°13.6	56.7	251°11.3	52.3	296°56.4	47.0	17°46.1	01.6					
12	30°48.0	35°15.1	N00°56.6	266°12.7	N21°52.0	311°58.3	N22°47.1	32°48.3	S03°01.5					
13	45°50.4	50°16.6	56.5	281°14.0	51.8	327°00.3	47.1	47°50.5	01.4					
14	60°52.9	65°18.1	56.4	296°15.4	51.5	342°02.2	47.1	62°52.7	01.3					
15	75°55.4	80°19.6	•• 56.3	311°16.7	•• 51.2	357°04.2	•• 47.2	77°54.9	•• 01.2					
16	90°57.8	95°21.1	56.6	326°18.1	50.9	12°06.1	47.2	92°52.1	01.1					
17	106°00.3	110°22.6	56.0	341°19.4	50.6	27°08.1	47.3	107°59.3	01.0					
18	121°02.7	125°24.0	N00°55.9	356°20.8	N21°50.3	42°10.0	N22°47.3	123°01.6	S03°00.9					
19	136°05.2	140°25.5	55.8	11°22.1	50.0	57°12.0	47.4	138°03.8	00.8					
20	151°07.7	155°27.0	55.7	26°23.5	49.7	72°13.9	47.4	153°06.0	00.7					
21	166°10.1	170°28.5	•• 55.6	41°24.8	•• 49.4	87°15.9	•• 47.4	168°08.2	•• 00.6					
22	181°12.6	185°29.9	55.5	56°26.2	49.1	102°17.8	47.5	183°10.4	00.5					
23	196°15.1	200°31.4	55.4	71°27.5	48.8	117°19.8	47.5	198°12.6	00.4					
Mer.pass. 09:57			ν 1.5' d -0.1' m -4.76			ν 1.4' d -0.3' m 0.81			ν 2.0' d 0.0' m -2.01			ν 2.2' d 0.1' m 1.17		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	211°17.5	215°32.9	N00°55.3	86°28.9	N21°48.5	132°21.7	N22°47.6	213°14.8	S03°00.3					
1	226°20.0	230°34.3	55.2	101°30.2	48.2	147°23.7	47.6	228°17.1	00.2					
2	241°22.5	245°35.8	55.1	116°31.5	47.9	162°25.6	47.6	243°19.3	00.1					
3	256°24.9	260°37.2	.. 55.0	131°32.9	.. 47.6	177°27.6	.. 47.7	258°21.5	03°00.0					
4	271°27.4	275°38.7	54.9	146°34.2	47.3	192°29.5	47.7	273°23.7	02°59.9					
5	286°29.9	290°40.1	54.8	161°35.6	47.0	207°31.5	47.8	288°25.9	59.8					
6	301°32.3	305°41.6	N00°54.7	176°36.9	N21°46.7	222°33.4	N22°47.8	303°28.1	S02°59.7					
7	316°34.8	320°43.0	54.6	191°38.3	46.4	237°35.4	47.9	318°30.3	59.6					
8	331°37.2	335°44.5	54.5	206°39.6	46.1	252°37.3	47.9	333°32.6	59.5					
9	346°39.7	350°45.9	.. 54.5	221°41.0	.. 45.8	267°39.3	.. 47.9	348°34.8	.. 59.4					
10	1°42.2	5°47.3	54.4	236°42.3	45.6	282°41.2	48.0	3°37.0	59.3					
11	16°44.6	20°48.8	54.3	251°43.7	45.3	297°43.1	48.0	18°39.2	59.2					
12	31°47.1	35°50.2	N00°54.2	266°45.0	N21°45.0	312°45.1	N22°48.1	33°41.4	S02°59.1					
13	46°49.6	50°51.6	54.1	281°46.3	44.7	327°47.0	48.1	48°43.6	59.0					
14	61°52.0	65°53.0	54.0	296°47.7	44.4	342°49.0	48.1	63°45.8	58.9					
15	76°54.5	80°54.5	.. 54.0	311°49.0	.. 44.1	357°50.9	.. 48.2	78°48.1	.. 58.8					
16	91°57.0	95°55.9	53.9	326°50.4	43.8	12°52.9	48.2	93°50.3	58.7					
17	106°59.4	110°57.3	53.8	341°51.7	43.5	27°54.8	48.3	108°52.5	58.6					
18	122°01.9	125°58.7	N00°53.7	356°53.1	N21°43.2	42°56.8	N22°48.3	123°54.7	S02°58.5					
19	137°04.3	141°00.1	53.7	11°54.4	42.9	57°58.7	48.4	138°56.9	58.4					
20	152°06.8	156°01.5	53.6	26°55.7	42.6	73°00.7	48.4	153°59.1	58.3					
21	167°09.3	171°02.9	.. 53.5	41°57.1	.. 42.3	88°02.6	.. 48.4	169°01.4	.. 58.2					
22	182°11.7	186°04.3	53.5	56°58.4	42.0	103°04.6	48.5	184°03.6	58.1					
23	197°14.2	201°05.7	53.4	71°59.8	41.7	118°06.5	48.5	199°05.8	58.0					
Mer.pass. 09:53			ν 1.5' d -0.1' m -4.76			ν 1.3' d -0.3' m 0.82			ν 1.9' d 0.0' m -2.01			ν 2.2' d 0.1' m 1.17		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	212°16.7	216°07.1	N00°53.3	87°01.1	N21°41.4	133°08.5	N22°48.6	214°08.0	S02°57.9					
1	227°19.1	231°08.5	53.3	102°02.4	41.1	148°10.4	48.6	229°10.2	57.8					
2	242°21.6	246°09.9	53.2	117°03.8	40.8	163°12.3	48.6	244°12.4	57.7					
3	257°24.1	261°11.3	•• 53.2	132°05.1	•• 40.5	178°14.3	•• 48.7	259°14.6	•• 57.6					
4	272°26.5	276°12.7	53.1	147°06.5	40.2	193°16.2	48.7	274°16.9	57.5					
5	287°29.0	291°14.1	53.1	162°07.8	39.9	208°18.2	48.8	289°19.1	57.4					
6	302°31.5	306°15.5	N00°53.0	177°09.1	N21°39.6	223°20.1	N22°48.8	304°21.3	S02°57.3					
7	317°33.9	321°16.9	52.9	192°10.5	39.3	238°22.1	48.9	319°23.5	57.2					
8	332°36.4	336°18.2	52.9	207°11.8	39.0	253°24.0	48.9	334°25.7	57.1					
9	347°38.8	351°19.6	•• 52.8	222°13.1	•• 38.7	268°26.0	•• 48.9	349°27.9	•• 57.0					
10	2°41.3	6°21.0	52.8	237°14.5	38.4	283°27.9	49.0	4°30.2	56.9					
11	17°43.8	21°22.3	52.8	252°15.8	38.1	298°29.8	49.0	19°32.4	56.8					
12	32°46.2	36°23.7	N00°52.7	267°17.2	N21°37.8	313°31.8	N22°49.1	34°34.6	S02°56.7					
13	47°48.7	51°25.1	52.7	282°18.5	37.5	328°33.7	49.1	49°36.8	56.6					
14	62°51.2	66°26.4	52.6	297°19.8	37.2	343°35.7	49.1	64°39.0	56.5					
15	77°53.6	81°27.8	•• 52.6	312°21.2	•• 36.9	358°37.6	•• 49.2	79°41.2	•• 56.4					
16	92°56.1	96°29.2	52.6	327°22.5	36.5	373°39.6	49.2	94°43.5	56.3					
17	107°58.6	111°30.5	52.5	342°23.8	36.2	28°41.5	49.3	109°45.7	56.2					
18	123°01.0	126°31.9	N00°52.5	357°25.2	N21°35.9	43°43.4	N22°49.3	124°47.9	S02°56.1					
19	138°03.5	141°33.2	52.4	12°26.5	35.6	58°45.4	49.3	139°50.1	56.0					
20	153°05.9	156°34.6	52.4	27°27.8	35.3	73°47.3	49.4	154°52.3	55.9					
21	168°08.4	171°35.9	•• 52.4	42°29.2	•• 35.0	88°49.3	•• 49.4	169°54.5	•• 55.8					
22	183°10.9	186°37.2	52.4	57°30.5	34.7	103°51.2	49.5	184°56.8	55.7					
23	198°13.3	201°38.6	52.3	72°31.8	34.4	118°53.2	49.5	199°59.0	55.6					
Mer.pass. 09:49			ν 1.4' d -0.1' m -4.75			ν 1.3' d -0.3' m 0.84			ν 1.9' d 0.0' m -2.01			ν 2.2' d 0.1' m 1.17		

	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.1
Schedar	349°31.4	56°40.4
Diphda	348°47.4	-17°50.9
Achernar	335°20.6	-57°06.5
Hamal	327°51.3	23°34.8
Polaris	314°24.7	89°22.2
Acamar	315°12.0	-40°12.3
Menkar	314°06.2	4°11.3
Mirfak	308°28.4	49°57.1
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elnath	278°01.8	28°37.8
Alnilam	275°37.7	-1°12.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.6	-52°42.8
Sirius	258°26.2	-16°45.2
Adhara	255°05.8	-29°00.6
Procyon	244°50.7	5°09.5
Pollux	243°17.1	27°58.0
Avior	234°14.7	-59°35.7
Suhail	222°46.1	-43°32.3
Miaplacidus	221°38.1	-69°49.5
Alphard	217°47.5	-8°46.2

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	213°15.8	216°39.9	N00°52.3	87°33.2	N21°34.1	133°55.1	N22°49.6	215°01.2	S02°55.5					
1	228°18.3	231°41.3	52.3	102°34.5	33.8	148°57.0	49.6	230°03.4	55.4					
2	243°20.7	246°42.6	52.3	117°35.8	33.5	163°59.0	49.6	240°05.6	55.3					
3	258°23.2	261°43.9	•• 52.2	132°37.2	•• 33.2	179°00.9	•• 49.7	260°07.9	•• 55.2					
4	273°25.7	276°45.2	52.2	147°38.5	32.9	194°02.9	49.7	275°10.1	55.1					
5	288°28.1	291°46.6	52.2	162°39.8	32.6	209°04.8	49.8	290°12.3	55.0					
6	303°30.6	306°47.9	N00°52.1	177°41.1	N21°32.3	224°06.7	N22°49.8	305°14.5	S02°54.9					
7	318°33.1	321°49.2	52.2	192°42.5	32.0	239°08.7	49.8	320°16.7	54.8					
8	333°35.5	336°50.5	52.2	207°43.8	31.7	254°10.6	49.9	335°18.9	54.7					
9	348°38.0	351°51.8	•• 52.1	222°45.1	•• 31.4	269°12.6	•• 49.9	350°21.2	•• 54.6					
10	3°40.4	6°53.4	52.1	237°46.5	31.1	284°14.5	50.0	5°23.4	54.5					
11	18°42.9	21°54.5	52.1	252°47.8	30.8	299°16.5	50.0	20°25.6	54.4					
12	33°45.4	36°55.8	N00°52.1	267°49.1	N21°30.5	314°18.4	N22°50.0	35°27.8	S02°54.3					
13	48°47.8	51°57.1	52.1	282°50.4	30.1	329°20.3	50.1	50°30.0	54.2					
14	63°50.3	66°58.4	52.1	297°51.8	29.8	344°22.3	50.1	65°32.0	54.1					
15	78°52.8	81°59.7	•• 52.1	312°53.1	•• 29.5	359°24.2	•• 50.2	80°34.5	•• 54.0					
16	93°55.2	97°01.0	52.1	327°54.4	29.2	14°26.1	50.2	95°36.7	53.9					
17	108°57.7	112°02.3	52.1	342°55.8	28.9	29°28.1	50.2	110°38.9	53.8					
18	124°00.2	127°03.5	N00°52.1	357°57.1	N21°28.6	44°30.0	N22°50.3	125°41.1	S02°53.7					
19	139°02.6	142°04.8	52.1	12°58.4	28.3	59°32.0	50.3	140°43.3	53.6					
20	154°05.1	157°06.1	52.1	27°59.7	28.0	74°33.9	50.4	155°45.6	53.5					
21	169°07.5	172°07.4	•• 52.1	43°01.1	•• 27.7	89°37.8	•• 50.4	170°47.8	•• 53.4					
22	184°10.0	187°08.7	52.1	58°02.4	27.4	104°35.8	50.4	185°50.0	53.3					
23	199°12.5	202°10.0	52.2	73°03.7	27.1	119°39.7	50.5	200°52.2	53.2					
Mer.pass. 09:45 ν 1.3' d -0.0' m -4.75 ν 1.3' d -0.3' m 0.85 ν 1.9' d 0.0' m -2.00 ν 2.2' d 0.1' m 1.17														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	214°14.9	217°11.2	N00°52.2	88°05.0	N21°26.8	134°41.7	N22°50.5	215°54.4	S02°53.1
1	229°17.4	232°12.5	52.2	103°06.4	26.5	149°43.6	50.6	230°56.7	53.0
2	244°19.9	247°13.8	52.2	118°07.7	26.1	164°45.5	50.6	245°58.9	52.9
3	259°22.3	262°15.1	•• 52.2	133°09.0	•• 25.8	179°47.5	•• 50.6	261°01.1	•• 52.8
4	274°24.8	277°16.3	52.2	148°10.3	25.5	194°49.0	50.7	276°03.3	52.7
5	289°27.3	292°17.6	52.2	163°11.7	25.2	209°51.3	50.7	291°05.5	52.6
6	304°29.7	307°18.9	N00°52.3	178°13.0	N21°24.9	224°53.3	N22°50.8	306°07.8	S02°52.5
7	319°32.2	322°20.1	52.3	193°14.3	24.6	239°55.2	50.8	321°10.0	52.4
8	334°34.7	337°21.4	52.3	208°15.6	24.3	254°57.2	50.9	336°12.2	52.3
9	349°37.1	352°22.6	•• 52.3	223°16.9	•• 24.0	269°59.1	•• 50.9	351°14.4	•• 52.2
10	4°39.6	7°23.9	52.4	238°18.3	23.7	285°01.0	50.9	6°16.6	52.1
11	19°42.0	22°25.1	52.4	253°19.6	23.4	300°03.0	51.0	21°18.9	52.0
12	34°44.5	37°26.4	N00°52.4	268°20.9	N21°23.0	315°04.9	N22°51.0	36°21.1	S02°51.9
13	49°47.0	52°27.6	52.5	283°22.2	22.7	330°06.8	51.1	51°23.3	51.8
14	64°49.4	67°28.9	52.5	298°23.5	22.4	345°08.8	51.1	66°25.5	51.7
15	79°51.9	82°30.1	•• 52.5	313°24.9	•• 22.1	0°10.7	•• 51.1	81°27.7	•• 51.6
16	94°54.4	97°31.4	52.6	328°26.2	21.8	15°12.7	51.2	96°30.0	51.5
17	109°56.8	112°32.6	52.6	343°27.5	21.5	30°14.6	51.2	111°32.2	51.4
18	124°59.3	127°33.8	N00°52.6	358°28.8	N21°21.2	45°16.5	N22°51.3	126°34.4	S02°51.3
19	140°01.8	142°35.1	52.7	13°30.1	20.9	60°18.5	51.3	141°36.6	51.2
20	155°04.2	157°36.3	52.7	28°31.5	20.5	75°20.4	51.3	156°38.8	51.1
21	170°06.7	172°37.5	•• 52.8	43°32.8	•• 20.2	90°22.3	•• 51.4	171°41.1	•• 51.0
22	185°09.2	187°38.7	52.8	58°34.1	19.9	105°24.3	51.4	186°43.3	50.9
23	200°11.6	202°40.0	52.8	73°35.4	19.6	120°26.2	51.5	201°45.5	50.8
Mer.pass. 09:41 ν 1.3' d 0.0' m -4.75 ν 1.3' d -0.3' m 0.87 ν 1.9' d 0.0' m -2.00 ν 2.2' d 0.1' m 1.17									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	215°14.1	217°41.2	N00°52.9	88°36.7	N21°19.3	135°28.1	N22°51.5	216°47.7	S02°50.7
1	230°16.5	232°42.4	52.9	103°38.0	19.0	150°30.1	51.5	231°49.9	50.6
2	245°19.0	247°43.6	53.0	118°39.4	18.7	165°32.0	51.6	246°52.2	50.4
3	260°21.5	262°44.8	•• 53.0	133°40.7	•• 18.4	180°33.9	•• 51.6	261°54.4	•• 50.4
4	275°23.9	277°46.0	53.1	148°42.0	18.0	195°35.9	51.7	276°56.6	50.3
5	290°26.4	292°47.3	53.2	163°43.3	17.7	210°37.8	51.7	291°58.8	50.2
6	305°28.9	307°48.5	N00°53.2	178°44.6	N21°17.4	225°39.7	N22°51.7	307°01.1	S02°50.2
7	320°31.3	322°49.7	53.3	193°45.9	17.1	240°41.7	51.8	322°03.3	50.1
8	335°33.8	337°50.9	53.3	208°47.3	16.8	255°43.6	51.8	337°05.5	50.0
9	350°36.3	352°52.1	•• 53.4	223°48.6	•• 16.5	270°45.5	•• 51.9	352°07.7	•• 49.9
10	5°38.7	7°53.3	53.4	238°49.9	16.2	285°47.5	51.9	7°09.9	49.8
11	20°41.2	22°54.5	53.5	253°51.2	15.8	300°49.5	51.9	22°12.2	49.7
12	35°43.6	37°55.7	N00°53.6	268°52.5	N21°15.5	315°51.3	N22°52.0	37°14.4	S02°49.6
13	50°46.1	52°56.8	53.6	283°53.8	15.2	330°53.3	52.0	52°16.6	49.5
14	65°48.6	67°58.0	53.7	298°55.1	14.9	345°55.2	52.0	67°18.8	49.4
15	80°51.0	82°59.2	•• 53.8	313°56.4	•• 14.6	0°57.1	•• 52.1	82°21.0	•• 49.3
16	95°53.5	98°00.4	53.9	328°57.8	14.3	15°59.1	52.1	97°23.3	49.2
17	110°56.0	113°01.6	53.9	343°59.1	13.9	31°01.0	52.2	112°25.5	49.1
18	125°58.4	128°02.8	N00°54.0	359°00.4	N21°13.6	46°02.9	N22°52.2	127°27.7	S02°49.0
19	141°00.9	143°03.9	54.1	14°01.7	13.3	61°04.9	52.2	142°29.9	48.9
20	156°03.4	158°05.1	54.2	29°03.0	13.0	76°06.8	52.2	157°32.2	48.8
21	171°05.8	173°06.3	•• 54.2	44°04.3	•• 12.7	91°08.7	•• 52.3	172°34.4	•• 48.7
22	186°08.3	188°07.5	54.3	59°05.6	12.4	106°10.7	52.4	187°36.6	48.6
23	201°10.8	203°08.6	54.4	74°06.9	12.0	121°12.6	52.4	202°38.8	48.5
Mer.pass. 09:37 ν 1.2' d 0.0' m -4.74 ν 1.3' d -0.3' m 0.88 ν 1.9' d 0.0' m -2.00 ν 2.2' d 0.1' m 1.17									

Stars		
	SHA	Dec
Alpheratz	357°34.9	29°13.6
Ankaa	353°07.3	-42°10.1
Schedar	349°31.3	56°40.4
Diphda	348°47.4	-17°50.9
Achernar	335°20.6	-57°06.5
Hamal	327°51.3	23°34.8
Polaris	314°25.0	89°22.3
Acamar	315°12.0	-40°12.3
Menkar	311°06.2	4°11.3
Mirafak	308°28.4	49°57.1
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elnath	278°01.9	28°37.7
Alnilam	275°37.7	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.6	-52°42.8
Sirius	258°26.2	-16°45.2
Adhara	255°05.8	-29°00.6
Procyon	244°50.7	5°09.6
Pollux	243°17.1	27°58.0
Avior	234°14.7	-59°35.7
Suhail	222°46.1	-43°32.3
Miaplacidus	221°38.1	-69°49.5
Alphard	217°47.5	-8°46.2
Regulus	207°34.1	11°50.6
Dubhe	193°40.3	61°37.9
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.6
Gacrux	171°50.9	-57°15.5
Alloth	166°12.2	55°49.4
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.2
Hadar	148°35.1	-60°29.8
Menkent	147°57.0	-36°29.8
Arcturus	145°47.4	19°02.9
Rigel Kent.	139°39.4	60°56.5
Kochab	137°18.6	74°03.0
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.2	26°37.6
Antares	112°15.3	-26°29.3
Atria	107°08.9	-69°04.2
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	37°07.3
Rasalhague	95°58.1	12°32.3
Eltanin	90°41.8	51°28.8
Kaus Aust.	83°32.0	34°22.3
Vega	80°32.9	38°48.1
Nunki	75°47.3	-26°15.9
Altair	61°59.7	8°55.9
Peacock	53°05.3	-56°39.0
Deneb	49°25.7	45°21.9
Enif	33°38.7	9°59.3
Al Na'ir	27°32.8	-46°50.2
Fomalhaut	15°14.5	-29°29.3
Scheat	13°45.2	28°13.0
Markab	13°29.9	15°20.3
Apr 25 Fri	SHA	Mer-pass
Venus	3°24.1	09:32
Mars	234°17.4	18:08
Jupiter	280°39.3	15:02
Saturn	1°45.4	09:38
Apr 26 Sat	SHA	Mer-pass
Venus	2°56.3	09:30
Mars	233°50.1	18:06
Jupiter	280°26.7	14:59
Saturn	1°39.5	09:35
Apr 27 Sun	SHA	Mer-pass
Venus	2°27.1	09:28
Mars	233°22.6	18:04
Jupiter	280°14.1	14:56
Saturn	1°33.6	09:31
Horizontal parallax		
Venus:		0.3
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	216°13.2	218°09.8	N00°54.5	89°08.2	N21°11.7	136°14.5	N22°52.4	217°41.1	S02°48.4										
1	231°15.7	233°11.0		54.6	104°09.6	11.4	151°16.5	52.5	232°43.3	48.3									
2	246°18.1	248°12.1		54.6	119°10.9	11.1	166°18.4	52.5	247°45.5	48.2									
3	261°20.6	263°13.3	..	54.7	134°12.2	..	10.8	181°20.3	..	52.6	262°47.7	..	48.1						
4	276°23.1	278°14.4		54.8	149°13.5	10.5	196°22.3	52.6	277°49.9	48.0									
5	291°25.5	293°15.6		54.9	164°14.8	10.1	211°24.2	52.6	292°52.2	47.9									
6	306°28.0	308°16.7	N00°55.6	179°16.1	N21°09.8	226°56.7	N22°52.7	307°54.4	S02°47.8										
7	321°30.5	323°17.9		55.1	194°17.4	09.5	241°28.0	52.7	322°56.6	47.7									
8	336°32.9	338°19.0		55.2	209°18.7	09.2	256°30.0	52.8	337°58.6	47.6									
9	351°35.4	353°20.2	..	55.3	224°20.0	..	08.9	271°31.9	..	52.8	353°01.1	..	47.5						
10	6°37.9	8°21.3		55.4	239°21.3	08.5	286°33.8	52.8	8°03.3	47.4									
11	21°40.3	23°22.5		55.5	254°22.6	08.2	301°35.8	52.9	23°05.5	47.3									
12	36°42.8	38°23.6	N00°55.6	269°23.9	N21°07.9	316°37.7	N22°52.9	38°07.7	S02°47.2										
13	51°45.3	53°24.8		55.7	284°25.2	07.6	331°39.6	53.0	53°10.0	47.1									
14	66°47.7	68°25.9		55.8	299°26.6	07.3	346°41.6	53.0	68°12.2	47.0									
15	81°50.2	83°27.0	..	55.9	314°27.9	..	06.9	1°43.5	..	53.0	83°14.4	..	46.9						
16	96°52.6	98°28.2		56.0	329°29.2	06.6	16°45.4	53.1	98°16.6	46.8									
17	111°55.1	113°29.3		56.1	344°30.5	06.3	31°47.3	53.1	113°18.9	46.7									
18	126°57.6	128°30.4	N00°56.2	359°31.8	N21°06.0	46°49.3	N22°53.1	128°21.1	S02°46.7										
19	142°00.0	143°31.5		56.3	14°33.1	05.7	61°51.2	53.2	143°23.3	46.6									
20	157°02.5	158°32.7		56.4	29°34.4	05.3	76°53.1	53.2	158°25.5	46.5									
21	172°05.0	173°33.8	..	56.5	44°35.7	..	05.0	91°55.1	..	53.3	173°27.8	..	46.4						
22	187°07.4	188°34.9		56.6	59°37.0	04.7	106°57.0	53.3	188°30.0	46.3									
23	202°09.9	203°36.0		56.8	74°38.3	04.4	121°58.9	53.3	203°32.2	46.2									
Mer.pass. 09:34				ν 1.2' d 0.1' m -4.74				ν 1.3' d -0.3' m 0.90				ν 1.9' d 0.0' m -1.99				ν 2.2' d 0.1' m 1.17			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	217°12.4	218°37.1	N00°56.9	89°39.6	N21°04.0	137°00.8	N22°53.4	218°34.4	S02°46.1										
1	232°14.8	233°38.2		57.0	104°40.9	03.7	152°02.8	53.4	233°36.7										
2	247°17.3	248°39.3		57.1	119°42.2	03.4	167°04.7	53.5	248°38.9										
3	262°19.7	263°40.5	..	57.2	134°43.5	..	03.1	182°06.6	..										
4	277°22.2	278°41.6		57.4	149°44.8	02.8	197°08.5	53.5	278°43.3										
5	292°24.7	293°42.7		57.5	164°46.1	02.4	212°10.5	53.6	293°45.6										
6	307°27.1	308°43.8	N00°57.6	179°47.4	N21°02.1	227°12.4	N22°53.6	308°47.8	S02°45.5										
7	322°29.6	323°44.9		57.7	194°48.7	01.8	242°14.3	53.7	323°50.0										
8	337°32.1	338°46.0		57.9	209°50.0	01.5	257°16.3	53.7	338°52.2										
9	352°34.5	353°47.1	..	58.0	224°51.3	..	01.1	272°18.2	..										
10	7°37.0	8°48.2		58.1	239°52.6	00.8	287°20.1	53.8	8°56.7										
11	22°39.5	23°49.2		58.2	254°53.9	00.5	302°22.0	53.8	23°58.9										
12	37°41.9	38°50.3	N00°58.4	269°55.2	N21°00.8	317°24.0	N22°53.8	39°01.1	S02°44.9										
13	52°44.9	53°51.4		58.5	284°56.5	20°59.8	332°25.9	53.9	54°03.4										
14	67°46.9	68°52.5		58.7	299°57.8		347°27.8	53.9	69°05.6										
15	82°49.3	83°53.6	..	58.8	314°59.1	..	59.2	2°29.7	..										
16	97°51.8	98°54.7		58.9	330°00.4	58.9	17°31.7	54.0	99°10.0										
17	112°54.2	113°55.7		59.1	345°01.7	58.5	32°33.6	54.0	114°12.3										
18	127°56.7	128°56.8	N00°59.2	0°03.0	N20°58.2	47°35.5	N22°54.1	129°14.5	S02°44.3										
19	142°59.2	143°57.9		59.4	15°04.3	57.9	62°37.4	54.1	144°16.7										
20	158°01.6	158°59.0		59.5	30°05.6	57.6	77°39.4	54.2	159°18.9										
21	173°04.1	174°00.0	..	59.6	45°06.9	..	57.2	92°41.3	..										
22	188°06.6	189°01.1		59.8	60°08.2	56.9	107°43.2	54.2	189°23.4										
23	203°09.0	204°02.2		59.9	75°09.5	56.6	122°45.1	54.3	204°25.6										
Mer.pass. 09:30				ν 1.1' d 0.1' m -4.73				ν 1.3' d -0.3' m 0.91				ν 1.9' d 0.0' m -1.99				ν 2.2' d 0.1' m 1.17			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	218°11.5	219°03.2	N01°00.1	90°10.8	N20°56.3	137°47.1	N22°54.3	219°27.8	S02°43.8										
1	233°14.0	234°04.3	00.2	105°12.1	55.9	152°49.0	54.3	234°30.1	43.7										
2	248°16.4	249°05.4	00.4	120°13.4	55.6	167°50.9	54.4	249°32.3	43.6										
3	263°18.9	264°06.4	00.5	135°14.7	55.3	182°52.8	54.4	264°34.5	43.5										
4	278°21.4	279°07.5	00.7	150°16.0	54.9	197°54.8	54.5	279°36.8	43.4										
5	293°23.8	294°08.5	00.9	165°17.3	54.6	212°56.7	54.5	294°39.0	43.3										
6	308°26.3	309°09.6	N01°01.0	180°18.5	N20°54.3	227°58.6	N22°54.5	309°41.2	S02°43.2										
7	323°28.7	324°10.6	01.2	195°19.8	54.0	243°00.5	54.6	324°43.4	43.1										
8	338°31.2	339°11.7	01.3	210°21.1	53.6	258°02.5	54.6	339°45.7	43.0										
9	353°33.7	354°12.7	01.5	225°22.4	53.3	273°04.4	54.6	354°47.9	42.9										
10	8°36.1	9°13.8	01.7	240°23.7	53.0	288°06.3	54.7	9°50.1	42.8										
11	23°38.6	24°14.8	01.8	255°25.0	52.6	303°08.2	54.7	24°52.3	42.7										
12	38°41.1	39°15.9	N01°02.0	270°26.3	N20°52.3	318°10.2	N22°54.8	39°54.6	S02°42.6										
13	53°43.5	54°16.9	02.1	285°27.6	52.0	333°12.1	54.8	54°56.8	42.5										
14	68°46.0	69°17.9	02.3	300°28.9	51.7	348°14.0	54.8	69°59.0	42.4										
15	83°48.5	84°19.0	02.5	315°30.2	51.3	3°15.9	54.9	85°01.3	42.4										
16	98°50.9	99°20.0	02.7	330°31.5	51.0	18°17.8	54.9	100°03.5	42.3										
17	113°53.4	114°21.0	02.8	345°32.8	50.7	33°19.8	55.0	115°05.7	42.2										
18	128°55.9	129°22.1	N01°03.0	0°34.1	N20°50.3	48°21.7	N22°55.0	130°07.9	S02°42.1										
19	143°58.4	144°23.1	03.2	15°35.3	50.0	63°23.6	55.0	145°10.2	42.0										
20	159°00.8	159°24.1	03.4	30°36.6	49.7	78°25.5	55.1	160°12.4	41.9										
21	174°03.2	174°25.1	03.5	45°37.9	49.3	93°27.5	55.1	175°14.6	41.8										
22	189°05.7	189°26.2	03.7	60°39.2	49.0	108°29.4	55.1	190°16.9	41.7										
23	204°08.2	204°27.2	03.9	75°40.5	48.7	123°31.3	55.2	205°19.1	41.6										
Mer.pass. 09:26				ν 1.1' d 0.2' m -4.72				ν 1.3' d -0.3' m 0.92				ν 1.9' d 0.0' m -1.99				ν 2.2' d 0.1' m 1.17			

Stars	SHA	Dec
Alpheratz	357°34.8	29°13.6
Ankaa	353°07.3	-42°10.0
Schedar	349°31.3	56°40.4
Diphda	348°47.4	-17°50.9
Achernar	335°20.6	-57°06.4
Hamal	327°51.3	23°34.8
Polaris	314°24.9	89°22.8
Acamar	315°12.0	-40°12.2
Menkar	314°06.2	4°11.3
Mirafak	308°28.4	49°57.0
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elmath	278°01.9	28°37.7
Alnilam	275°37.7	-1°12.1
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.6	-52°42.7
Sirius	268°26.2	-16°45.2
Adhara	255°05.9	-29°00.6
Procyon	244°50.7	5°09.6
Pollux	234°17.1	27°58.0
Avior	234°14.7	-59°35.7
Suhail	222°46.1	-43°32.3
Miaplacidus	221°38.2	-69°49.5
Alphard	217°47.5	-8°46.2
Regulus	207°34.1	11°50

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	219°10.6	219°28.2	N01°04.1	90°41.8	N20°48.4	138°33.2	N22°55.2	220°21.3	S02°41.5										
1	234°13.1	234°29.2	04.3	105°43.1	48.0	153°35.1	55.3	235°23.5	41.4										
2	249°15.6	249°30.2	04.4	120°44.4	47.7	168°37.1	55.3	250°25.8	40.8										
3	264°18.0	264°31.2	04.6	135°45.7	47.4	183°39.0	55.3	265°28.0	41.2										
4	279°20.5	279°32.2	04.8	150°47.0	47.0	198°40.9	55.4	280°30.2	41.1										
5	294°23.0	294°33.2	05.0	165°48.2	46.7	213°42.8	55.4	295°32.5	41.0										
6	309°25.4	309°34.3	N01°05.4	180°49.5	N20°46.4	228°44.8	N22°55.4	310°34.7	S02°40.9										
7	324°27.9	324°35.3	05.4	195°50.8	46.0	243°46.7	55.5	325°36.9	40.8										
8	339°30.4	339°36.3	05.6	210°52.1	45.7	258°48.6	55.5	340°39.1	40.7										
9	354°32.8	354°37.3	05.8	225°53.4	45.4	273°50.5	55.6	355°41.4	40.7										
10	9°35.3	9°38.3	06.0	240°54.7	45.0	288°52.4	55.6	10°43.6	40.6										
11	24°37.7	24°39.2	06.2	255°56.0	44.7	303°54.4	55.6	25°45.8	40.5										
12	39°40.2	39°40.2	N01°06.3	270°57.3	N20°44.4	318°56.3	N22°55.7	40°48.1	S02°40.4										
13	54°42.7	54°41.2	06.5	285°58.5	44.0	333°58.2	55.7	55°50.3	40.3										
14	69°45.1	69°42.2	06.7	300°59.8	43.7	349°00.1	55.7	70°52.5	40.2										
15	84°47.6	84°43.2	06.9	316°01.1	43.4	4°02.0	55.8	85°54.8	40.1										
16	99°50.1	99°44.2	07.1	331°02.4	43.0	19°04.0	55.8	100°57.0	40.0										
17	114°52.5	114°45.2	07.4	346°03.7	42.7	34°05.9	55.9	115°59.2	39.9										
18	129°55.0	129°46.2	N01°07.6	1°05.0	N20°42.4	49°07.8	N22°55.9	131°01.4	S02°39.8										
19	144°57.5	144°47.1	07.8	16°06.3	42.0	64°09.7	55.9	146°03.7	39.7										
20	159°59.9	159°48.1	08.0	31°07.5	41.7	79°11.6	56.0	161°05.9	39.6										
21	175°02.4	174°49.1	08.2	46°08.8	41.4	94°13.5	56.0	176°08.1	39.5										
22	190°04.9	189°50.1	08.4	61°10.1	41.0	109°15.5	56.0	191°10.4	39.4										
23	205°07.3	204°51.0	08.6	76°11.4	40.7	124°17.4	56.1	206°12.6	39.3										
Mer.pass. 09:22				ν 1.0' d 0.2' m -4.72				ν 1.3' d -0.3' m 0.94				ν 1.9' d 0.0' m -1.98				ν 2.2' d 0.1' m 1.17			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	220°09.8	219°52.0	N01°08.8	91°12.7	N20°40.4	139°19.3	N22°56.1	221°14.8	S02°39.2										
1	235°12.2	234°53.0	09.0	106°14.0	40.0	154°21.2	56.1	236°17.1	39.2										
2	250°14.7	249°54.0	09.2	121°15.2	39.7	169°23.1	56.2	251°19.3	39.1										
3	265°17.2	264°54.9	09.5	136°16.5	39.3	184°25.1	56.2	266°21.5	39.0										
4	280°19.6	279°55.9	09.7	151°17.8	39.0	199°27.0	56.3	281°23.8	38.9										
5	295°22.1	294°56.8	09.9	166°19.1	38.7	214°28.9	56.3	296°26.0	38.8										
6	310°24.6	309°57.8	N01°10.1	181°20.4	N20°38.3	229°30.8	N22°56.3	311°28.2	S02°38.7										
7	325°27.0	324°58.8	10.3	196°21.6	38.0	244°32.7	56.4	326°30.4	38.6										
8	340°29.5	339°59.7	10.6	211°22.9	37.7	259°34.6	56.4	341°32.7	38.5										
9	355°32.0	355°00.7	10.8	226°24.2	37.3	274°36.6	56.4	356°34.9	38.4										
10	10°34.4	10°01.6	11.0	241°25.5	37.0	289°38.5	56.5	11°37.1	38.3										
11	25°36.9	25°02.6	11.2	256°26.8	36.6	304°40.4	56.5	26°39.4	38.2										
12	40°39.4	40°03.5	N01°11.5	271°28.0	N20°36.3	319°42.3	N22°56.6	41°41.6	S02°38.1										
13	55°41.8	55°04.5	11.7	286°29.3	36.0	334°44.2	56.6	56°43.8	38.0										
14	70°44.3	70°05.4	11.9	301°30.6	35.6	349°46.2	56.6	71°46.1	37.9										
15	85°46.7	85°06.4	12.2	316°31.9	35.3	4°48.1	56.7	86°43.8	37.9										
16	100°49.2	100°07.3	12.4	331°33.2	35.0	19°50.0	56.7	101°50.5	37.8										
17	115°51.7	115°08.2	12.6	346°34.4	34.6	34°51.9	56.7	116°52.8	37.7										
18	130°54.1	130°09.2	N01°12.9	1°35.7	N20°34.3	49°53.8	N22°56.8	131°55.0	S02°37.6										
19	145°56.6	145°10.1	13.1	16°37.0	33.9	64°55.7	56.8	146°57.2	37.5										
20	160°59.1	160°11.1	13.3	31°38.3	33.6	79°57.6	56.8	161°59.5	37.4										
21	175°01.5	175°12.0	13.6	46°39.6	33.3	94°59.6	56.9	177°01.7	37.3										
22	191°04.0	190°12.9	13.8	61°40.8	32.9	110°01.5	56.9	192°03.9	37.2										
23	206°06.5	205°13.8	14.0	76°42.1	32.6	125°03.4	57.0	207°06.2	37.1										
Mer.pass. 09:18				ν 1.0' d 0.2' m -4.71				ν 1.3' d -0.3' m 0.95				ν 1.9' d 0.0' m -1.98				ν 2.2' d 0.1' m 1.17			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	221°08.9	220°14.8	N01°14.3	91°43.4	N20°32.2	140°05.3	N22°57.0	222°08.4	S02°37.0										
1	236°11.4	235°15.7	14.5	106°44.7	31.9	155°07.2	57.0	237°10.6	36.9										
2	251°13.8	250°16.6	14.8	121°45.9	31.6	170°09.1	57.1	252°12.9	36.8										
3	266°16.3	265°17.5	15.0	136°47.2	31.2	185°11.1	57.1	267°15.1	36.7										
4	281°18.8	280°18.5	15.3	151°48.5	30.9	200°13.0	57.1	282°17.3	36.7										
5	296°21.2	295°19.4	15.5	166°49.8	30.5	215°14.9	57.2	297°19.6	36.6										
6	311°23.7	310°20.3	N01°15.8	181°51.1	N20°30.2	230°16.8	N22°57.2	312°21.8	S02°36.5										
7	326°26.2	325°21.2	16.0	196°52.3	29.9	245°18.7	57.2	327°24.0	36.4										
8	341°28.6	340°22.1	16.3	211°53.6	29.5	260°20.6	57.3	342°26.3	36.3										
9	356°31.1	355°23.0	16.5	226°54.9	29.2	275°22.5	57.3	357°28.5	36.2										
10	11°33.6	10°24.0	16.8	241°56.2	28.8	290°24.5	57.4	12°30.7	36.1										
11	26°36.0	25°24.9	17.0	256°57.4	28.5	305°26.4	57.4	27°33.0	36.0										
12	41°38.5	40°25.8	N01°17.3	271°58.7	N20°28.1	320°28.3	N22°57.4	42°35.2	S02°35.9										
13	56°41.0	55°26.7	17.6	287°00.0	27.8	335°30.2	57.5	57°37.4	35.8										
14	71°43.4	70°27.6	17.8	302°01.2	27.5	350°32.1	57.5	72°39.7	35.7										
15	86°45.9	85°28.5	18.1	317°02.5	27.1	5°34.0	57.5	87°41.9	35.6										
16	101°48.3	100°29.4	18.3	332°03.8	26.8	20°35.9	57.6	102°44.1	35.6										
17	116°50.8	115°30.3	18.6	347°05.1	26.4	35°37.9	57.6	117°46.4	35.5										
18	131°53.3	130°31.2	N01°18.9	2°06.3	N20°26.1	50°39.8	N22°57.6	132°48.6	S02°35.4										
19	146°55.7	145°32.1	19.1	17°07.6	25.7	65°41.7	57.7	147°50.8	35.3										
20	161°58.2	160°33.0	19.4	32°08.9	25.4	80°43.6	57.7	162°53.1	35.2										
21	177°00.7	175°33.8	19.7	47°10.2	25.1	95°45.5	57.8	177°55.3	35.1										
22	192°03.1	190°34.7	19.9	62°11.4	24.7	110°47.4	57.8	192°57.5	35.0										
23	207°05.6	205°35.6	20.2	77°12.7	24.4	125°49.3	57.8	207°59.8	34.9										
Mer.pass. 09:14				ν 0.9' d 0.2' m -4.70				ν 1.3' d -0.3' m 0.94				ν 1.9' d 0.0' m -1.98				ν 2.2' d 0.1' m 1.17			

SHA	Dec
Alpheratz	357°34.8 29°13.6
Ankaa	353°07.2 -42°10.0
Schedar	349°31.3 56°40.4
Diphda	348°47.3 -17°50.9
Achernar	335°20.5 -57°06.4
Hamal	327°51.3 23°34.8
Polaris	314°24.6 89°22.3
Acamar	315°12.0 -40°12.2
Menkar	314°06.2 4°11.3
Mirfak	308°28.4 49°57.0
Aldebaran	299°39.7 16°33.6
Rigel	281°03.9 -8°10.4
Capella	280°21.9 46°01.5
Bellatrix	278°22.9 6°22.3
Elath	278°01.9 28°37.7
Alnilam	275°37.7 -1°11.2
Betelgeuse	270°52.1 7°24.7
Canopus	263°52.6 -52°42.7
Sirius	258°26.2 -16°45.2
Adhara	255°05.9 -29°00.6
Procyon	244°50.7 5°09.6
Pollux	243°17.1 27°58.0
Avior	234°14.8 -59°45.7
Suhail	222°46.1 -43°32.3
Miaplacidus	221°38.2 -69°49.5
Alphard	217°47.5 -8°46.2
Regulus	207°34.1 11°50.6
Dubhe	193°40.3 61°37.1
Denebola	182°24.5 14°25.8
Gienah	175°43.1 -17°41.1
Acrux	172°59.3 -63°14.6
Gacrux	171°50.9 -57°15.5
Alioth	166°12.2 35°49.4
Spica	158°21.7 -11°19.7
Alkaid	152°51.3 49°11.2
Hamal	148°35.1 -60°29.8
Nektar	147°57.0 -36°29.8
Nenkent	145°47.4 19°02.9
Arcturus	139°39.3 -60°56.5
Rigil Kent.	137°18.6 74°03.0
Kochab	136°55.4 -16°08.9
Zuben'ubi	126°03.2 26°37.6
Alphecca	112°15.2 -26°29.3
Antares	107°08.8 69°04.3
Atria	102°02.2 -15°45.4
Sabik	96°09.7 -37°07.3
Shaula	95°58.1 12°32.3
Rasalhague	90°41.7 51°28.8
Eltanin	89°32.0 -34°22.3
Kaus Aus.	80°3

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	222°08.1	220°36.5	N01°20.5	92°14.0	N20°24.0	140°51.2	N22°57.9	223°02.0	S02°34.8					
1	237°10.5	235°37.4	20.7	107°15.2	23.7	155°53.2	57.9	238°04.2	34.7					
2	252°13.0	250°38.3	21.0	122°16.5	23.3	170°55.1	57.9	253°06.5	34.6					
3	267°15.5	265°39.1	•• 21.3	137°17.8	•• 23.0	185°57.0	•• 58.0	268°08.7	•• 34.5					
4	282°17.9	280°40.0	21.6	152°19.1	22.6	200°58.9	58.0	283°11.0	34.5					
5	297°20.4	295°40.9	21.9	167°20.3	22.3	216°00.8	58.0	298°13.2	34.4					
6	312°22.8	310°41.8	N01°22.1	182°21.6	N20°21.9	231°02.7	N22°58.3	313°15.4	S02°34.3					
7	327°25.3	325°42.7	22.4	197°22.9	21.6	246°04.6	58.1	328°17.7	34.2					
8	342°27.8	340°43.5	22.7	212°24.1	21.3	261°06.5	58.1	343°19.9	34.1					
9	357°30.2	355°44.4	•• 23.0	227°25.4	•• 20.9	276°08.5	•• 58.2	358°22.1	•• 34.0					
10	12°32.7	10°45.3	23.3	242°26.7	20.6	291°10.4	58.2	13°24.4	33.9					
11	27°35.2	25°46.1	23.5	257°27.9	20.2	306°12.3	58.3	28°26.6	33.8					
12	42°37.6	40°47.0	N01°23.8	272°29.2	N20°19.9	321°14.2	N22°58.3	43°28.8	S02°33.7					
13	57°40.1	55°47.9	24.1	287°30.5	19.5	336°16.1	58.3	58°31.1	33.6					
14	72°42.6	70°48.7	24.4	302°31.8	19.2	351°18.0	58.4	73°33.3	33.5					
15	87°45.0	85°49.6	•• 24.7	317°33.0	•• 18.8	6°19.9	•• 58.4	88°35.5	•• 33.5					
16	102°47.5	100°50.4	25.0	332°34.3	18.5	21°21.8	58.4	103°37.8	33.4					
17	117°50.0	115°51.3	25.3	347°35.6	18.1	36°23.7	58.5	118°40.0	33.3					
18	132°52.4	130°52.1	N01°25.6	2°36.8	N20°17.8	51°25.7	N22°58.3	133°42.3	S02°33.2					
19	147°54.9	145°53.0	25.9	17°38.1	17.4	66°27.6	58.5	148°44.5	33.1					
20	162°57.3	160°53.9	26.2	32°39.4	17.1	81°29.5	58.6	163°46.7	33.0					
21	177°59.8	175°54.7	•• 26.5	47°40.6	•• 16.7	96°31.4	•• 58.6	178°49.0	•• 32.9					
22	193°02.3	190°55.5	26.8	62°41.9	16.4	111°33.3	58.6	193°51.2	32.8					
23	208°04.7	205°56.4	27.1	77°43.2	16.0	126°35.2	58.7	208°53.4	32.7					
Mer.pass. 09:10			ν 0.9' d 0.3' m -4.69			ν 1.3' d -0.3' m 0.98			ν 1.9' d 0.0' m -1.97			ν 2.2' d 0.1' m 1.17		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	223°07.2	220°57.2	N01°27.4	92°44.4	N20°15.7	141°37.1	N22°58.7	223°55.7	S02°32.6						
1	238°09.7	235°58.1	27.7	107°45.7	15.3	156°39.0	58.7	238°57.9	32.6						
2	253°12.1	250°58.9	28.0	122°47.0	15.0	171°40.9	58.8	254°00.2	32.5						
3	268°14.6	265°59.8	•• 28.3	137°48.2	•• 14.6	186°42.8	•• 58.8	269°02.4	•• 32.4						
4	283°17.1	281°00.6	28.6	152°49.5	14.3	201°44.8	58.9	284°04.6	32.3						
5	298°19.5	296°01.4	28.9	167°50.7	13.9	216°46.7	58.9	299°06.9	32.2						
6	313°22.0	311°02.3	N01°29.2	182°52.0	N20°13.6	231°48.6	N22°58.9	314°09.1	S02°32.1						
7	328°24.4	326°03.1	29.5	197°53.3	13.2	246°50.5	59.0	329°11.3	32.0						
8	343°26.9	341°03.9	29.8	212°54.5	12.9	261°52.4	59.0	344°13.6	31.9						
9	358°29.4	356°04.8	•• 30.1	227°55.8	•• 12.5	276°54.3	•• 59.0	359°15.8	•• 31.8						
10	13°31.8	11°05.6	30.4	242°57.1	12.2	291°56.2	59.1	14°18.1	31.7						
11	28°34.3	26°06.4	30.7	257°58.3	11.8	306°58.1	59.1	29°20.3	31.7						
12	43°36.8	41°07.3	N01°31.0	272°59.6	N20°11.5	322°00.0	N22°59.1	44°22.5	S02°31.6						
13	58°39.2	56°08.1	31.4	288°00.9	11.1	337°01.9	59.2	59°24.8	31.5						
14	73°41.7	71°08.9	31.7	303°02.1	10.8	352°03.8	59.2	74°27.0	31.4						
15	88°44.2	86°09.7	•• 32.0	318°03.4	•• 10.4	7°05.7	•• 59.2	89°29.2	•• 31.3						
16	103°46.6	101°10.5	32.3	333°04.6	10.1	22°07.7	59.3	104°31.5	31.2						
17	118°49.1	116°11.4	32.6	348°05.9	09.7	37°09.6	59.3	119°33.7	31.1						
18	133°51.6	131°12.2	N01°33.0	3°07.2	N20°09.4	52°11.5	N22°59.3	134°36.0	S02°31.0						
19	148°54.0	146°13.0	33.3	18°08.4	09.0	67°13.4	59.4	149°38.2	30.9						
20	163°56.5	161°13.8	33.6	33°09.7	08.7	82°15.3	59.4	164°40.4	30.8						
21	178°58.9	176°14.6	•• 33.9	48°11.0	•• 08.3	97°17.2	•• 59.4	179°42.7	•• 30.8						
22	194°01.4	191°15.4	34.2	63°12.2	08.0	112°19.1	59.5	194°44.9	30.7						
23	209°03.9	206°16.2	34.6	78°13.5	07.6	127°21.0	59.5	209°47.2	30.6						
Mer.pass. 09:06			ν 0.8' d 0.3' m -4.68			ν 1.3' d -0.3' m 0.99			ν 1.9' d 0.0' m -1.97			ν 2.2' d 0.1' m 1.16			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	224°06.3	221°17.0	N01°34.9	93°14.7	N20°07.3	142°22.9	N22°59.5	224°49.4	S02°30.5						
1	239°08.8	236°17.8	35.2	108°16.0	06.9	157°24.8	59.6	239°51.6	30.4						
2	254°11.3	251°18.6	35.6	123°17.3	06.6	172°26.7	59.6	254°53.9	30.3						
3	269°13.7	266°19.4	•• 35.9	138°18.5	•• 06.2	187°28.6	•• 59.7	269°56.1	•• 30.2						
4	284°16.2	281°20.2	36.2	153°19.8	05.8	202°30.5	59.7	284°58.4	30.1						
5	299°18.7	296°21.0	36.6	168°21.0	05.5	217°32.4	59.7	300°06.6	30.0						
6	314°21.1	311°21.8	N01°36.9	183°22.3	N20°05.1	232°34.4	N22°59.8	315°02.8	S02°30.0						
7	329°23.6	326°22.6	37.2	198°23.6	04.8	247°36.3	59.8	330°05.1	29.9						
8	344°26.1	341°23.4	37.6	213°24.8	04.4	262°38.2	59.8	345°07.3	29.8						
9	359°28.5	356°24.2	•• 37.9	228°26.1	•• 04.1	277°40.1	•• 59.9	0°09.6	•• 29.7						
10	14°31.0	11°25.0	38.2	243°27.3	03.7	292°42.0	59.9	15°11.8	29.6						
11	29°33.4	26°25.8	38.6	258°28.6	03.4	307°43.9	22°59.9	30°14.0	29.5						
12	44°35.9	41°26.6	N01°38.9	273°29.8	N20°03.0	322°45.8	N23°00.0	45°16.3	S02°29.4						
13	59°38.4	56°27.4	39.3	288°31.1	02.6	337°47.7	00.0	60°18.5	29.3						
14	74°40.8	71°28.2	39.6	303°32.4	02.3	352°49.6	00.0	75°20.8	29.2						
15	89°43.3	86°28.9	•• 39.9	318°33.6	•• 01.9	7°51.5	•• 00.1	90°23.0	•• 29.2						
16	104°45.8	101°29.7	40.3	333°34.9	01.6	22°53.4	00.1	105°25.2	29.1						
17	119°48.2	116°30.5	40.6	348°36.1	01.2	37°55.3	00.1	120°27.5	29.0						
18	134°50.7	131°31.3	N01°41.0	3°37.4	N20°00.9	52°57.2	N23°00.2	135°29.7	S02°28.9						
19	149°53.2	146°32.0	41.3	18°38.6	00.5	67°59.1	00.2	150°32.0	28.8						
20	164°55.6	161°32.8	41.7	33°39.9	20°00.2	83°01.0	00.2	165°34.2	28.7						
21	179°58.1	176°33.6	•• 42.0	48°41.2	19°59.8	98°02.9	•• 00.3	180°36.4	•• 28.6						
22	195°00.5	191°34.4	42.4	63°42.4	59.4	113°04.8	00.3	195°38.7	28.5						
23	210°03.0	206°35.1	42.7	78°43.7	59.1	128°06.7	00.3	210°40.9	28.4						
Mer.pass. 09:02			ν 0.8' d 0.3' m -4.67			ν 1.3' d -0.4' m 1.00			ν 1.9' d 0.0' m -1.97			ν 2.2' d 0.1' m 1.16			

Stars		
	SHA	Dec
Alpheratz	357°34.8	29°13.6
Ankaa	353°07.2	-42°10.0
Schedar	349°31.3	56°40.4
Diphda	348°47.3	-17°50.9
Achernar	335°20.5	-57°06.4
Hamal	327°51.3	23°34.8
Polaris	314°24.5	89°22.2
Acamar	315°12.0	-40°12.2
Menkar	314°06.2	4°11.3
Mirafak	308°28.4	49°57.0
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elnath	278°01.9	28°37.7
Alnilam	275°37.7	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.6	-52°42.7
Sirius	258°26.2	-16°45.2
Adhara	255°05.9	-29°00.6
Procyon	244°50.7	5°09.6
Pollux	243°17.1	27°58.0
Avior	234°14.8	-59°35.7
Suhail	222°46.1	-43°32.3
Miaplacidus	221°38.3	-69°49.5
Alphard	217°47.5	-8°46.2

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	225°05.5	221°35.9	N01°43.1	93°44.9	N19°58.7	143°08.6	N23°00.4	225°43.2	S02°28.4										
1	240°07.9	236°36.7	43.4	108°46.2	58.4	158°10.5	00.4	240°45.4	28.3										
2	255°10.4	251°37.4	43.8	123°47.4	58.0	173°12.5	00.4	255°47.6	28.2										
3	270°12.9	266°38.2	· · 44.2	138°48.7	· · 57.6	188°14.4	· · 00.5	270°49.9	· · 28.1										
4	285°15.3	281°39.0	44.5	153°49.9	57.3	203°16.3	00.5	285°52.1	28.0										
5	300°17.8	296°39.7	44.9	168°51.2	56.9	218°18.2	00.5	300°54.4	27.9										
6	315°20.3	311°40.5	N01°45.2	183°52.4	N19°56.6	233°20.1	N23°00.6	315°56.6	S02°27.8										
7	330°22.7	326°41.2	45.6	198°53.7	56.2	248°22.0	00.6	330°58.9	27.7										
8	345°25.2	341°42.0	46.0	213°55.0	55.9	263°23.9	00.6	346°01.1	27.7										
9	0°27.7	356°42.8	· · 46.3	228°56.2	· · 55.5	278°25.8	· · 00.7	1°03.3	· · 27.6										
10	15°30.1	11°43.5	46.7	243°57.5	55.1	293°27.7	00.7	16°05.6	27.5										
11	30°32.6	26°44.3	47.1	258°58.7	54.8	308°29.6	00.7	31°07.8	27.4										
12	45°35.0	41°45.0	N01°47.4	274°00.0	N19°54.4	323°31.5	N23°00.8	46°10.1	S02°27.3										
13	60°37.5	56°45.8	47.8	289°01.2	54.1	338°33.4	00.8	61°12.3	27.2										
14	75°40.0	71°46.5	48.2	304°02.5	53.7	353°35.3	00.8	76°14.6	27.1										
15	90°42.4	86°47.3	· · 48.5	319°03.7	· · 53.3	8°37.2	· · 00.9	91°16.8	· · 27.0										
16	105°44.9	101°48.0	48.9	334°05.0	53.0	23°39.1	00.9	106°19.0	27.0										
17	120°47.4	116°48.7	49.3	349°06.2	52.6	38°41.0	00.9	121°21.3	26.9										
18	135°49.8	131°49.5	N01°49.6	4°07.5	N19°52.2	53°42.9	N23°01.0	136°23.5	S02°26.8										
19	150°52.3	146°50.2	50.0	19°08.7	51.9	68°44.8	01.0	151°25.8	26.7										
20	165°54.8	161°51.0	50.4	34°10.0	51.5	83°46.7	01.0	166°28.0	26.6										
21	180°57.2	176°51.7	· · 50.8	49°11.2	· · 51.2	98°48.6	· · 01.1	181°30.3	· · 26.5										
22	195°59.7	191°52.4	51.2	64°12.5	50.8	113°50.5	01.1	196°32.5	26.4										
23	211°02.1	206°53.2	51.5	79°13.7	50.4	128°52.4	01.1	211°34.7	26.3										
Mer.pass. 08:58				ν 0.8' d 0.4' m -4.66				ν 1.3' d -0.4' m 1.02				ν 1.9' d 0.0' m -1.97				ν 2.2' d 0.1' m 1.16			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	226°04.6	221°53.9	N01°51.9	94°15.0	N19°50.1	143°54.3	N23°01.2	226°37.0	S02°26.3
1	241°07.1	236°54.6	52.3	109°16.2	49.7	158°56.2	01.2	241°39.2	26.2
2	256°09.5	251°55.4	52.7	124°17.5	49.4	173°58.1	01.2	256°41.5	26.1
3	271°12.0	266°56.1	· · 53.1	139°18.7	· · 49.0	189°00.0	· · 01.3	271°43.7	· · 26.0
4	286°14.5	281°56.8	53.4	154°20.0	48.6	204°01.9	01.3	286°46.0	25.9
5	301°16.9	296°57.6	53.8	169°21.2	48.3	219°03.8	01.3	301°48.2	25.8
6	316°19.4	311°58.3	N01°54.2	184°22.5	N19°47.9	234°05.7	N23°01.4	316°50.5	S02°25.7
7	331°21.9	326°59.0	54.6	199°23.7	47.5	249°07.6	01.4	331°52.7	25.6
8	346°24.3	341°59.7	55.0	214°25.0	47.2	264°09.5	01.4	346°54.9	25.6
9	1°26.8	357°00.4	· · 55.4	229°26.2	· · 46.8	279°11.4	· · 01.5	1°57.2	· · 25.5
10	16°29.3	12°01.2	55.8	244°27.5	46.4	294°13.3	01.5	16°59.4	25.4
11	31°31.7	27°01.9	56.2	259°28.7	46.1	309°15.2	01.5	32°01.7	25.3
12	46°34.2	42°02.6	N01°56.5	274°30.0	N19°45.7	324°17.1	N23°01.6	47°03.9	S02°25.2
13	61°36.6	57°03.3	56.9	289°31.2	45.3	339°19.0	01.6	62°06.2	25.1
14	76°39.1	72°04.0	57.3	304°32.5	45.0	354°20.9	01.6	77°08.4	25.0
15	91°41.6	87°04.7	· · 57.7	319°33.7	· · 44.6	9°22.8	· · 01.7	92°10.7	· · 25.0
16	106°44.0	102°05.4	58.1	334°35.0	44.3	24°24.7	01.7	107°12.9	24.9
17	121°46.5	117°06.2	58.5	349°36.2	43.9	39°26.6	01.7	122°15.1	24.8
18	136°49.0	132°06.9	N01°58.9	4°37.5	N19°43.5	54°28.5	N23°01.8	137°17.4	S02°24.7
19	151°51.4	147°07.6	59.3	19°38.7	43.2	69°30.4	01.8	152°19.6	24.6
20	166°53.9	162°08.3	01°59.7	34°40.0	42.8	84°32.3	01.8	167°21.9	24.5
21	181°56.4	177°09.0	02°00.1	49°41.2	· · 42.4	99°34.2	· · 01.9	182°24.1	· · 24.4
22	196°58.8	192°09.7	00.5	64°42.4	42.1	114°36.1	01.9	197°26.4	24.4
23	212°01.3	207°10.4	00.9	79°43.7	41.7	129°38.0	01.9	212°28.6	24.3
Mer.pass. 08:54 ν 0.7' d 0.4' m -4.65 ν 1.3' d -0.4' m 1.03 ν 1.9' d 0.0' m -1.96 ν 2.2' d 0.1' m 1.16									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	227°03.8	222°11.1	N02°01.3	94°44.9	N19°41.3	144°39.9	N23°02.0	227°30.9	S02°24.2										
1	242°06.2	237°11.8	01.7	109°46.2	41.0	159°41.8	02.0	242°33.1	24.1										
2	257°08.7	252°12.5	02.1	124°47.4	40.6	174°43.7	02.0	257°35.4	24.0										
3	272°11.1	267°13.2	· · 02.6	139°48.7	· · 40.2	189°45.6	· · 02.1	272°37.6	· · 23.9										
4	287°13.6	282°13.9	03.0	154°49.9	39.9	204°47.5	02.1	287°39.9	23.8										
5	302°16.1	297°14.5	03.4	169°51.2	39.5	219°49.4	02.1	302°42.1	23.8										
6	317°18.5	312°15.2	N02°03.8	184°52.4	N19°39.1	234°51.3	N23°02.1	317°44.3	S02°23.7										
7	332°21.0	327°15.9	04.2	199°53.6	38.8	249°53.2	02.2	332°46.6	23.6										
8	347°23.5	342°16.6	04.6	214°54.9	38.4	264°55.1	02.2	347°48.8	23.5										
9	2°25.9	357°17.3	· · 05.0	229°56.1	· · 38.0	279°57.0	· · 02.2	2°51.1	· · 23.4										
10	17°28.4	12°18.0	05.4	244°57.4	37.6	294°58.9	02.3	17°53.3	23.3										
11	32°30.9	27°18.7	05.8	259°58.6	37.3	310°00.8	02.3	32°55.6	23.2										
12	47°33.3	42°19.3	N02°06.3	274°59.9	N19°36.9	325°02.7	N23°02.3	47°57.8	S02°23.2										
13	62°35.8	57°20.0	06.7	290°01.1	36.5	340°04.6	02.4	63°00.1	23.1										
14	77°38.2	72°20.7	07.1	305°02.4	36.2	355°06.5	02.4	78°02.3	23.0										
15	92°40.7	87°21.4	· · 07.5	320°03.6	· · 35.8	10°08.4	· · 02.4	93°04.6	· · 22.9										
16	107°43.2	102°22.1	07.9	335°04.8	35.4	25°10.3	02.5	108°06.8	22.8										
17	122°45.6	117°22.7	08.4	350°06.1	35.1	40°12.2	02.5	123°09.1	22.7										
18	137°48.1	132°23.4	N02°08.8	5°07.3	N19°34.7	55°14.1	N23°02.5	138°11.3	S02°22.6										
19	152°50.6	147°24.1	09.2	20°08.6	34.3	70°16.0	02.6	153°13.6	22.6										
20	167°53.0	162°24.8	09.6	35°09.8	33.9	85°17.9	02.6	168°15.8	22.5										
21	182°55.5	177°25.4	· · 10.1	50°11.0	· · 33.6	100°19.8	· · 02.6	183°18.1	· · 22.4										
22	197°58.0	192°26.1	10.5	65°12.3	33.2	115°21.7	02.7	198°20.3	22.3										
23	213°00.4	207°26.8	10.9	80°13.5	32.8	130°23.6	02.7	213°22.6	22.2										
Mer.pass. 08:50				ν 0.7' d 0.4' m -4.64				ν 1.2' d -0.4' m 1.04				ν 1.9' d 0.0' m -1.96				ν 2.2' d 0.1' m 1.15			

Stars		
	SHA	Dec
Alpheratz	357°34.8	29°13.6
Ankaa	353°07.2	-42°10.0
Schedar	349°31.2	56°40.4
Diphda	348°47.3	-17°50.9
Achernar	335°20.5	-57°06.4
Hamal	327°51.3	23°34.8
Polaris	314°24.5	89°22.2
Acamar	315°12.0	-40°12.2
Menkar	314°06.2	4°11.3
Mirfak	308°28.4	49°57.0
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elnath	278°01.9	28°37.7
Alnilam	275°37.7	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.7	-52°42.7
Sirius	258°26.2	-16°45.2
Adhara	255°05.9	-29°00.5
Procyon	244°50.7	5°09.6
Pollux	243°17.1	27°58.0
Avior	234°14.8	-59°35.7
Suhail	222°46.2	-43°32.3
Miaplacidus	221°38.3	-69°49.5
Alphard	217°47.5	-8°46.2
Regulus	207°34.1	11°50.6
Dubhe	193°40.4	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.3	-63°14.6
Gacrux	171°51.0	-57°15.5
Alloth	166°12.2	55°49.4
Spica	158°21.7	-11°17.8
Alkaid	152°51.3	49°11.2
Hadar	148°35.1	-60°29.9
Menkent	147°57.0	-36°29.8
Arcturus	145°47.3	19°02.9
Rigel Kent.	139°39.3	-60°56.5
Kochab	137°18.6	74°03.0
Zuben 'ul	136°55.4	-16°08.9
Alphecca	126°03.2	26°37.6
Antares	112°15.2	-26°29.3
Atria	107°08.7	-69°04.3
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	12°07.3
Rasalhague	95°58.0	12°32.3
Eltanin	90°41.7	51°28.8
Kaus Aust.	83°31.9	-34°22.3
Vega	80°32.8	38°48.1
Nunki	75°47.2	-26°15.9
Altair	61°59.6	8°55.9
Peacock	53°05.2	-56°39.0
Deneb	49°25.6	45°21.9
Enif	33°38.6	9°59.3
Al Na'ir	27°32.7	-46°50.1
Fomalhaut	15°14.4	-29°29.2
Scheat	13°45.1	28°13.0
Markab	13°29.8	15°20.0

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	228°02.9	222°27.4	N02°11.3	95°14.8	N19°32.5	145°25.5	N23°02.7	228°24.8	S02°22.1					
1	243°05.4	237°28.1	11.8	110°16.0	32.1	160°27.4	02.8	243°27.0	22.0					
2	258°07.8	252°28.8	12.2	125°17.3	31.7	175°29.2	02.8	258°29.3	22.0					
3	273°10.3	267°29.4	•• 12.6	140°18.5	•• 31.3	190°31.1	•• 02.8	273°31.5	•• 21.9					
4	288°12.7	282°30.1	•• 13.1	155°19.7	31.0	205°33.0	02.8	288°33.8	21.8					
5	303°15.2	297°30.7	13.5	170°21.0	30.6	220°34.9	02.9	303°36.0	21.7					
6	318°17.7	312°31.4	N02°13.9	185°22.2	N19°30.2	235°36.8	N23°02.9	318°38.3	S02°21.6					
7	333°20.1	327°32.0	14.4	200°23.4	29.9	250°38.7	02.9	333°40.5	21.5					
8	348°22.6	342°32.7	14.8	215°24.7	29.5	265°40.6	03.0	348°42.8	21.5					
9	3°25.1	357°33.4	•• 15.2	230°25.9	•• 29.1	280°42.5	•• 03.0	3°45.0	•• 21.4					
10	18°27.5	12°34.0	•• 15.7	245°27.2	28.7	295°44.4	03.0	18°47.3	21.3					
11	33°30.0	27°34.7	16.1	260°28.4	28.4	310°46.3	03.1	33°49.5	21.2					
12	48°32.5	42°35.3	N02°16.6	275°29.6	N19°28.0	325°48.2	N23°03.1	48°51.8	S02°21.1					
13	63°34.9	57°36.0	17.0	290°30.9	27.6	340°50.1	03.1	63°54.0	21.0					
14	78°37.4	72°36.6	17.4	305°32.1	27.2	355°52.0	03.2	78°56.3	20.9					
15	93°39.8	87°37.2	•• 17.9	320°33.4	•• 26.9	10°53.9	•• 03.2	93°58.5	•• 20.9					
16	108°42.3	102°37.9	18.3	335°34.6	26.5	25°55.8	03.2	109°00.8	20.8					
17	123°44.8	117°38.5	18.8	350°35.8	26.1	40°57.7	03.3	124°03.0	20.7					
18	138°47.2	132°39.2	N02°19.2	5°37.1	N19°25.8	55°59.6	N23°03.3	139°05.3	S02°20.6					
19	153°49.7	147°39.8	19.7	20°38.3	25.4	71°01.5	03.3	154°07.5	20.5					
20	168°52.2	162°40.5	20.1	35°39.5	25.0	86°03.4	03.3	169°09.8	20.4					
21	183°54.6	177°41.1	•• 20.6	50°40.8	•• 24.6	101°05.3	•• 03.4	184°12.0	•• 20.4					
22	198°57.1	192°41.7	21.0	65°42.0	24.3	116°07.2	03.4	199°14.3	20.3					
23	213°59.6	207°42.4	21.5	80°43.3	23.9	131°09.0	03.4	214°16.5	20.2					
Mer.pass. 08:46			ν 0.7' d 0.4' m -4.63			ν 1.2' d -0.4' m 1.05			ν 1.9' d 0.0' m -1.96			ν 2.2' d 0.1' m 1.15		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	229°02.0	222°43.0	N02°21.9	95°44.5	N19°23.5	146°10.9	N23°03.5	229°18.8	S02°20.1						
1	244°04.5	237°43.6	22.4	110°45.7	23.1	161°12.8	03.5	244°21.0	20.0						
2	259°07.0	252°44.3	22.8	125°47.0	22.7	176°14.7	03.5	259°23.3	19.9						
3	274°09.4	267°44.9	•• 23.3	140°48.2	•• 22.4	191°16.6	•• 03.6	274°25.5	•• 19.9						
4	289°11.9	282°45.5	23.7	155°49.4	22.0	206°18.5	03.6	289°27.8	19.8						
5	304°14.3	297°46.1	24.2	170°50.7	21.6	221°20.4	03.6	304°30.0	19.7						
6	319°16.8	312°46.8	N02°24.6	185°51.9	N19°21.2	236°22.3	N23°03.7	319°32.3	S02°19.6						
7	334°19.3	327°47.4	25.1	200°53.1	20.9	251°24.2	03.7	334°34.5	19.4						
8	349°21.7	342°48.0	25.6	215°54.4	20.5	266°26.1	•• 03.7	349°36.8	19.4						
9	4°24.2	357°48.6	•• 26.0	230°55.6	•• 20.1	281°28.0	•• 03.7	4°39.0	•• 19.4						
10	19°26.7	12°49.3	26.5	245°56.8	19.7	296°29.9	03.8	19°41.3	19.3						
11	34°29.1	27°49.9	26.9	260°58.1	19.4	311°31.8	03.8	34°43.6	19.2						
12	49°31.6	42°50.5	N02°27.4	275°59.3	N19°19.0	326°33.7	N23°03.8	49°45.8	S02°19.1						
13	64°34.1	57°51.1	27.9	291°00.5	18.6	341°35.6	03.9	64°48.1	19.0						
14	79°36.5	72°51.7	28.3	306°01.8	18.2	356°37.4	03.9	79°50.3	18.9						
15	94°39.0	87°52.3	•• 28.8	321°03.0	•• 17.8	11°39.3	•• 03.9	94°52.6	•• 18.9						
16	109°41.5	102°53.0	29.3	336°04.3	17.5	26°41.2	04.0	109°54.8	18.8						
17	124°43.9	117°53.6	29.7	351°05.5	17.1	41°43.1	04.0	124°57.1	18.7						
18	139°46.4	132°54.2	N02°30.2	6°06.7	N19°16.7	56°45.0	N23°04.0	139°59.3	S02°18.6						
19	154°48.8	147°54.8	30.7	21°07.7	16.3	71°46.9	04.1	155°01.6	18.5						
20	169°51.3	162°55.4	31.1	36°09.2	15.9	86°48.8	04.1	170°03.8	18.4						
21	184°53.8	177°56.0	•• 31.6	51°10.4	•• 15.6	101°50.7	•• 04.1	185°06.1	•• 18.4						
22	199°56.2	192°56.6	32.1	66°11.6	15.2	116°52.6	04.1	200°08.3	18.3						
23	214°58.7	207°57.2	32.5	81°12.9	14.8	131°54.5	04.2	215°10.6	18.2						
Mer.pass. 08:42			ν 0.6' d 0.5' m -4.62			ν 1.2' d -0.4' m 1.07			ν 1.9' d 0.0' m -1.96			ν 2.3' d 0.1' m 1.15			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	230°01.2	222°57.8	N02°33.0	96°14.1	N19°14.4	146°56.4	N23°04.2	230°12.8	S02°18.1						
1	245°03.6	237°58.4	33.5	111°15.3	14.0	161°58.3	04.2	245°15.1	18.0						
2	260°06.1	252°59.0	34.0	126°16.6	13.7	177°00.1	•• 04.3	260°17.3	17.9						
3	275°08.6	267°59.6	•• 34.4	141°17.8	•• 13.3	192°02.0	•• 04.3	275°19.6	•• 17.9						
4	290°11.0	283°00.2	34.9	156°19.0	12.9	207°03.9	04.4	290°21.8	17.8						
5	305°13.5	298°00.8	35.4	171°20.3	12.5	222°05.8	04.4	305°24.1	17.7						
6	320°15.9	313°01.4	N02°35.9	186°21.5	N19°12.1	237°07.7	N23°04.4	320°26.4	S02°17.6						
7	335°18.4	328°02.0	36.4	201°22.7	11.8	252°09.6	04.4	335°28.6	17.5						
8	350°20.9	343°02.6	36.8	216°24.0	11.4	267°11.5	04.4	350°30.9	17.5						
9	5°23.3	358°03.2	•• 37.3	231°25.2	•• 11.0	282°13.4	•• 04.5	5°33.1	•• 17.4						
10	20°25.8	13°03.8	37.8	246°26.4	10.6	297°15.3	04.5	20°35.4	17.3						
11	35°28.3	28°04.4	38.3	261°27.7	10.2	312°17.2	04.5	35°37.6	17.2						
12	50°30.7	43°05.0	N02°38.8	276°28.9	N19°09.9	327°19.1	N23°04.6	50°39.9	S02°17.1						
13	65°33.2	58°05.5	39.3	291°30.1	09.5	342°20.9	04.6	65°42.1	17.0						
14	80°35.7	73°06.1	39.7	306°31.3	09.1	357°22.8	04.6	80°44.4	17.0						
15	95°38.1	88°06.7	•• 40.2	321°32.6	•• 08.7	12°24.7	•• 04.7	95°46.6	•• 16.9						
16	110°40.6	103°07.3	40.7	336°33.8	08.3	27°26.6	04.7	110°48.9	16.8						
17	125°43.1	118°07.9	41.2	351°35.0	07.9	42°28.5	04.7	125°51.1	16.7						
18	140°45.5	133°08.5	N02°41.7	6°36.3	N19°07.6	57°30.4	N23°04.7	140°53.4	S02°16.6						
19	155°48.8	148°09.0	42.2	21°37.5	07.2	72°32.3	04.8	155°55.7	16.6						
20	170°50.4	163°09.6	42.7	36°38.7	06.8	87°34.2	04.8	170°57.9	16.5						
21	185°52.9	178°10.2	•• 43.2	51°39.9	•• 06.4	102°36.1	•• 04.8	186°00.2	•• 16.4						
22	200°55.4	193°10.8	43.7	66°41.2	06.0	117°38.0	04.9	201°02.4	16.3						
23	215°57.8	208°11.4	44.2	81°42.4	05.6	132°39.8	04.9	216°04.7	16.2						
Mer.pass. 08:39			ν 0.6' d 0.5' m -4.61			ν 1.2' d -0.4' m 1.08			ν 1.9' d 0.0' m -1.95			ν 2.3' d 0.1' m 1.14			

	SHA	Dec
Alpheratz	357°34.8	29°13.6
Ankaa	353°07.2	-42°10.0
Schedar	349°31.2	56°40.4
Diphda	348°47.3	-17°50.9
Achernar	335°20.5	-57°06.4
Hamal	327°51.3	23°34.8
Polaris	314°24.3	89°22.2
Acamar	315°12.0	-40°12.2
Menkar	314°06.2	4°11.3
Mirfak	308°28.4	49°57.0
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.5
Bellatrix	278°22.9	6°22.3
Elnath	278°01.9	28°37.7
Alnilam	275°37.8	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.7	-52°42.7
Sirius	258°26.2	-16°45.2
Adhara	255°05.9	-29°00.5
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°14.9	-59°35.7
Suhail	222°46.2	-43°32.3
Miaplacidus	221°38.4	-69°49.6
Alphard	217°47.5	-8°46.2

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	231°00.3	223°11.9	N02°44.7	96°43.6	N19°05.3	147°41.7	N23°04.9	231°06.9	S02°16.1					
1	246°02.8	238°12.5	45.2	111°44.9	04.9	162°43.6	04.9	246°09.2	16.1					
2	261°05.2	253°13.1	45.7	126°46.1	04.5	177°45.5	05.0	261°11.4	16.0					
3	276°07.7	268°13.6	.. 46.1	141°47.3	.. 04.1	192°47.4	.. 05.0	276°13.7	.. 15.9					
4	291°10.2	283°14.2	46.6	156°48.5	03.7	207°49.3	05.0	291°16.0	15.8					
5	306°12.6	298°14.8	47.1	171°49.8	03.3	222°51.2	05.1	306°18.2	15.7					
6	321°15.1	313°15.3	N02°47.6	186°51.0	N19°02.9	237°53.1	N23°05.3	321°20.5	S02°15.2					
7	336°17.6	328°15.9	48.1	201°52.2	02.6	252°54.9	05.1	336°22.7	15.6					
8	351°20.0	343°16.5	48.6	216°53.4	02.2	267°56.8	05.1	351°25.0	15.5					
9	6°22.5	358°17.0	.. 49.2	231°54.7	.. 01.8	282°58.7	.. 05.2	6°27.2	.. 15.4					
10	21°24.9	13°17.6	49.7	246°55.9	01.4	298°00.6	05.2	21°29.5	15.3					
11	36°27.4	28°18.2	50.2	261°57.1	01.0	313°02.5	05.2	36°31.8	15.2					
12	51°29.9	43°18.7	N02°50.7	276°58.3	N19°00.6	328°04.4	N23°05.3	51°34.0	S02°15.2					
13	66°32.3	58°19.3	51.2	291°59.6	19°00.2	343°06.3	05.3	66°36.3	15.1					
14	81°34.8	73°19.8	51.7	307°00.8	18°59.9	358°08.2	05.3	81°38.5	15.0					
15	96°37.3	88°20.4	.. 52.2	322°02.0	.. 59.5	13°10.1	.. 05.4	96°40.8	.. 14.9					
16	111°39.7	103°20.9	52.7	337°03.2	59.1	28°11.9	05.4	111°43.0	14.8					
17	126°42.2	118°21.5	53.2	352°04.5	58.7	43°13.8	05.4	126°45.3	14.8					
18	141°44.7	133°22.0	N02°53.7	7°05.7	N18°58.3	58°15.7	N23°05.4	141°47.5	S02°14.7					
19	156°47.1	148°22.6	54.2	22°06.9	57.9	73°17.6	05.5	156°49.8	14.6					
20	171°49.6	163°23.1	54.7	37°08.1	57.5	88°19.5	05.5	171°52.1	14.5					
21	186°52.1	178°23.7	.. 55.3	52°09.4	.. 57.1	103°21.4	.. 05.5	186°54.3	.. 14.4					
22	201°54.5	193°24.2	55.8	67°10.6	56.8	118°23.3	05.6	201°56.6	14.4					
23	216°57.0	208°24.8	56.3	82°11.8	56.4	133°25.2	05.6	216°58.8	14.3					
Mer.pass. 08:35			ν 0.6' d 0.5' m -4.60			ν 1.2' d -0.4' m 1.09			ν 1.9' d 0.0' m -1.95			ν 2.3' d 0.1' m 1.14		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	231°59.4	223°25.3	N02°56.8	97°13.0	N18°56.0	148°27.0	N23°05.6	232°01.1	S02°14.2					
1	247°01.9	238°25.9	57.3	112°14.3	55.6	163°28.9	05.6	247°03.4	14.1					
2	262°04.4	253°26.4	57.8	127°15.5	55.2	178°30.8	05.7	262°05.6	14.0					
3	277°06.8	268°27.0	· · 58.3	142°16.7	· · 54.8	193°32.7	· · 05.7	277°07.9	· · 14.0					
4	292°09.3	283°27.5	58.9	157°17.9	54.4	208°34.6	05.7	292°10.1	13.9					
5	307°11.8	298°28.0	59.4	172°19.2	54.0	223°36.5	05.8	307°12.4	13.8					
6	322°14.2	313°28.6	N02°59.9	187°20.4	N18°53.6	238°38.4	N23°05.8	322°14.6	S02°13.7					
7	337°16.7	328°29.1	03°00.4	202°21.6	53.2	253°40.2	05.8	337°16.9	13.6					
8	352°19.2	343°29.6	00.9	217°22.8	52.9	268°42.1	05.8	352°19.2	13.6					
9	7°21.6	358°30.2	· · 01.5	232°24.0	· · 52.5	283°44.0	· · 05.9	7°21.4	· · 13.5					
10	22°24.1	13°30.7	02.0	247°25.3	52.1	298°45.9	05.9	22°23.7	13.4					
11	37°26.5	28°31.2	02.5	262°26.5	51.7	313°47.8	05.9	37°25.9	13.3					
12	52°29.0	43°31.8	N03°03.0	277°27.7	N18°51.3	328°49.7	N23°06.0	52°28.2	S02°13.2					
13	67°31.5	58°32.3	03.6	292°28.9	50.9	343°51.6	06.0	67°30.5	13.2					
14	82°33.9	73°32.8	04.1	307°30.2	50.5	358°53.4	06.0	82°32.7	13.1					
15	97°36.4	88°33.4	· · 04.6	322°31.4	· · 50.1	13°55.3	· · 06.0	97°35.0	· · 13.0					
16	112°38.9	103°33.9	05.2	337°32.6	49.7	28°57.2	06.1	112°37.2	12.9					
17	127°41.3	118°34.4	05.7	352°33.8	49.3	43°59.1	06.1	127°39.5	12.8					
18	142°43.8	133°34.9	N03°06.2	7°35.0	N18°48.9	59°01.0	N23°06.1	142°41.8	S02°12.8					
19	157°46.3	148°35.5	06.7	22°36.7	48.6	74°02.9	06.1	157°44.0	12.7					
20	172°48.7	163°36.0	07.3	37°37.5	48.2	89°04.8	06.2	172°46.3	12.6					
21	187°51.2	178°36.5	· · 07.8	52°38.7	· · 47.8	104°06.6	· · 06.2	187°48.5	· · 12.5					
22	202°53.7	193°37.0	08.3	67°39.9	47.4	119°08.5	06.2	202°50.8	12.4					
23	217°56.1	208°37.5	08.9	82°41.1	47.0	134°10.4	06.3	217°53.1	12.4					
Mer.pass. 08:31			ν 0.5' d 0.5' m -4.59			ν 1.2' d -0.4' m 1.10			ν 1.9' d 0.0' m -1.95			ν 2.3' d 0.1' m 1.14		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	232°58.6	223°38.1	N03°09.4	97°42.4	N18°46.6	149°12.3	N23°06.3	232°55.3	S02°12.3					
1	248°01.0	238°38.6	10.0	112°43.6	46.2	164°14.2	06.3	247°57.6	12.2					
2	263°03.5	253°39.1	10.5	127°44.8	45.8	179°16.1	06.3	262°59.8	12.1					
3	278°06.0	268°39.6	.. 11.0	142°46.0	.. 45.4	194°17.9	.. 06.4	278°02.1	.. 12.0					
4	293°08.4	283°40.1	11.6	157°47.2	45.0	209°19.8	06.4	293°04.4	12.0					
5	308°10.9	298°40.6	12.1	172°48.5	44.6	224°21.7	06.4	308°06.6	11.9					
6	323°13.4	313°41.1	N03°12.6	187°49.7	N18°44.2	239°23.6	N23°06.5	323°08.9	S02°11.8					
7	338°15.8	328°41.7	13.2	202°50.9	43.8	254°25.5	06.5	338°11.1	11.7					
8	353°18.3	343°42.2	13.7	217°52.1	43.4	269°27.4	06.6	353°13.4	11.7					
9	8°20.8	358°42.7	.. 14.3	232°53.3	.. 43.0	284°29.3	.. 06.5	8°15.7	.. 11.6					
10	23°23.2	13°43.2	14.8	247°54.5	42.6	299°31.1	06.6	23°17.9	11.5					
11	38°25.7	28°43.7	15.4	262°55.8	42.3	314°33.0	06.6	38°20.2	11.4					
12	53°28.2	43°44.2	N03°15.9	277°57.0	N18°41.9	329°34.9	N23°06.6	53°22.4	S02°11.3					
13	68°30.6	58°44.7	16.4	292°58.2	41.5	344°36.8	06.6	68°24.7	11.3					
14	83°33.1	73°45.2	17.0	307°59.4	41.1	359°38.7	06.7	83°27.0	11.2					
15	98°35.5	88°45.7	.. 17.5	323°00.6	.. 40.7	14°40.6	.. 06.7	98°29.2	.. 11.1					
16	113°38.0	103°46.2	18.1	338°01.9	40.3	29°42.4	06.7	113°31.5	11.0					
17	128°40.5	118°46.7	18.6	353°03.1	39.9	44°44.3	06.8	128°33.8	10.9					
18	143°42.9	133°47.2	N03°19.2	8°04.3	N18°39.5	59°46.2	N23°06.8	143°36.0	S02°10.9					
19	158°45.4	148°47.7	19.7	23°05.5	39.1	74°48.1	06.8	158°38.3	10.8					
20	173°47.9	163°48.2	20.3	38°06.7	38.7	89°50.0	06.8	173°40.5	10.7					
21	188°50.3	178°48.7	.. 20.8	53°07.9	.. 38.3	104°51.8	.. 06.9	188°42.8	.. 10.6					
22	203°52.8	193°49.2	21.4	68°09.2	37.9	119°53.7	06.9	203°45.1	10.6					
23	218°55.3	208°49.7	21.9	83°10.4	37.5	134°55.6	06.9	218°47.3	10.5					
Mer.pass. 08:27			ν 0.5' d 0.5' m -4.58			ν 1.2' d -0.4' m 1.11			ν 1.9' d 0.0' m -1.95			ν 2.3' d 0.1' m 1.14		

Stars	SHA	Dec
Alpheratz	357°34.7	29°13.6
Ankaa	353°07.2	-42°10.0
Schedar	349°31.2	-56°40.4
Diphda	348°47.3	-17°50.8
Achernar	335°20.5	-07°46.4
Hamal	327°51.2	23°34.8
Polaris	314°23.7	89°22.2
Acamar	315°12.0	-40°12.2
Menkar	314°06.2	4°11.3
Mirafak	308°28.4	49°57.0
Aldebaran	290°39.7	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.3
Elinath	278°01.9	28°37.7
Alnilam	275°37.8	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.7	-52°42.7
Sirius	258°26.3	-16°45.2
Adhara	255°05.9	-29°00.5
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°14.9	-59°35.7
Suhail	222°46.2	-43°32.3
Miaplacidus	221°38.4	-69°49.6
Alphard	217°47.5	-8°46.2
Regulus	207°34.1	11°50.6
Dubhe	193°40.4	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.4	-63°14.6
Gacrux	171°51.0	-57°15.6
Alloth	166°12.3	55°49.4
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.2
Hadar	148°35.1	-60°29.9
Menkent	147°56.9	-36°29.8
Arcturus	145°47.3	19°03.0
Rigel Kent.	139°39.3	-60°56.0
Kochab	137°18.6	74°03.1
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.7
Antares	112°15.2	-26°29.3
Atria	107°08.6	-69°04.3
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.3
Rasalhague	95°58.0	12°32.3
Eltanin	90°41.6	51°28.9
Kaus Ausa	83°31.9	-34°22.3
Vega	80°27.2	38°48.2
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.0
Peacock	53°05.1	-56°39.0
Deneb	49°25.5	-45°21.9
Enif	33°38.5	9°59.3
Al Na'ir	27°32.6	-46°50.1
Fomalhaut	15°14.3	-29°29.2
Scheat	13°45.1	28°13.0
Markab	13°29.8	15°20.3

Dubhe	193°40.4	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.4	-63°14.6
Gacrux	171°51.0	-57°15.6
Alioth	166°12.3	55°49.4
Spica	158°21.8	-11°17.7
Alkaid	152°51.3	49°11.2
Hadar	148°35.1	-60°29.9
Menkten	147°56.9	-36°28.9
Arcturus	145°47.3	19°03.0
Rigil Kent	139°39.3	-60°56.5
Kochab	137°18.6	74°03.1
Zuben ubi	136°55.4	-16°08.9
Alphecca	126°03.1	-26°37.7
Antares	112°15.2	-26°29.3
Atria	107°08.6	-69°04.3
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.3
Rasalhague	95°58.0	12°32.3
Eltanin	90°41.6	51°28.9
Kaus Aus	83°31.9	-34°22.3
Vega	80°32.7	38°48.2
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.0
Peacock	53°05.1	-56°39.0
Deneb	49°25.5	45°21.9
Enif	33°38.5	9°59.3

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	233°57.7	223°50.2	N03°22.5	98°11.6	N18°37.1	149°57.5	N23°06.9	233°49.6	S02°10.4										
1	249°00.2	238°50.6		23.1	113°12.8	36.7	164°59.4	07.0	248°51.9	10.3									
2	264°02.7	253°51.1		23.6	128°14.0	36.3	180°01.3	07.0	263°54.1	10.2									
3	279°05.1	268°51.6	.. 24.2	143°15.2	.. 35.9	195°03.1	.. 07.0	278°56.4	.. 10.2										
4	294°07.6	283°52.1		24.7	158°16.4	35.9	210°05.0	07.1	293°58.6	10.1									
5	309°10.0	298°52.6		25.3	173°17.7	35.1	225°06.9	07.1	309°00.9	10.0									
6	324°12.5	313°53.1	N03°25.8	188°18.9	N18°34.7	240°08.8	N23°07.1	324°03.2	S02°09.5										
7	339°15.0	328°53.6		26.4	203°20.1	34.3	255°10.7	07.1	339°05.4	09.9									
8	354°17.4	343°54.0		27.0	218°21.3	33.9	270°12.6	07.2	354°07.7	09.8									
9	9°19.9	358°54.5	.. 27.5	233°22.5	.. 33.5	285°14.4	.. 07.2	9°10.0	.. 09.7										
10	24°22.4	13°55.0		28.1	248°23.7	33.1	300°16.3	07.2	24°12.2	09.6									
11	39°24.8	28°55.5		28.6	263°25.0	32.7	315°18.2	07.2	39°14.5	09.5									
12	54°27.3	43°56.0	N03°29.2	278°26.2	N18°32.3	330°20.1	N23°07.3	54°16.8	S02°09.5										
13	69°29.8	58°56.4		29.8	293°27.4	31.9	345°22.0	07.3	69°19.0	09.4									
14	84°32.2	73°56.9		30.3	308°28.6	31.5	0°23.8	07.3	84°21.3	09.3									
15	99°34.7	88°57.4	.. 30.9	323°29.8	.. 31.1	1°25'57	.. 07.3	99°23.5	.. 09.2										
16	114°37.2	103°57.9		31.5	338°31.0	30.7	307°27.6	07.4	114°25.8	09.2									
17	129°39.6	118°58.3		32.0	353°32.2	30.3	45°29.5	07.4	129°28.1	09.1									
18	144°42.1	133°58.8	N03°32.6	8°33.4	N18°29.9	60°31.4	N23°07.4	144°30.3	S02°09.0										
19	159°44.5	148°59.3		33.2	23°34.7	29.5	75°33.2	07.5	159°32.6	08.9									
20	174°47.0	163°59.7		33.7	38°35.9	29.1	90°35.1	07.5	174°34.9	08.9									
21	189°49.5	170°00.2	.. 34.3	53°37.1	.. 28.7	105°37.0	.. 07.5	189°37.1	.. 08.8										
22	204°51.9	194°00.7		34.9	68°38.3	28.3	120°38.9	07.5	204°39.4	08.7									
23	219°54.4	209°01.2		35.5	83°39.5	27.9	135°40.8	07.6	219°41.7	08.6									
Mer.pass. 08:23				ν 0.5' d 0.6' m -4.57				ν 1.2' d -0.4' m 1.12				ν 1.9' d 0.0' m -1.94				ν 2.3' d 0.1' m 1.13			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	234°56.9	224°01.6	N03°36.0	98°40.7	N18°27.5	150°42.6	N23°07.6	234°43.9	S02°08.5										
1	249°59.3	239°02.1		36.6	113°41.9	27.1	165°44.5	07.6	249°46.2										
2	265°01.8	254°02.5		37.2	128°43.1	26.7	180°46.4	07.6	264°48.5										
3	280°04.3	269°03.0	.. 37.7	143°44.4	.. 26.3	195°48.3	.. 07.7	279°50.7	.. 08.3										
4	295°06.7	284°03.5		38.3	158°45.6	25.9	210°50.2	07.7	294°53.0										
5	310°09.2	299°03.9		38.9	173°46.8	25.5	225°52.0	07.7	309°55.3										
6	325°11.7	314°04.4	N03°39.5	188°48.0	N18°25.1	240°53.9	N23°07.7	324°57.5	S02°08.1										
7	340°14.1	329°04.8		40.0	203°49.2	24.7	255°55.8	07.8	339°59.8										
8	355°16.6	344°05.3		40.6	218°50.4	24.3	270°57.7	07.8	355°02.3										
9	10°19.0	359°05.8	.. 41.2	233°51.6	.. 23.9	285°59.6	.. 07.8	10°04.3	.. 07.9										
10	25°21.5	14°06.2		41.8	248°52.8	23.5	301°01.4	07.8	25°06.6										
11	40°24.0	29°06.7		42.4	263°54.0	23.1	316°03.3	07.9	40°08.9										
12	55°26.4	44°07.1	N03°42.9	278°55.3	N18°22.7	331°05.2	N23°07.9	55°11.1	S02°07.6										
13	70°28.9	59°07.6		43.9	293°56.5	22.3	346°07.1	07.9	70°13.4										
14	85°31.4	74°08.0		44.1	308°57.7	21.9	1°09.0	07.9	85°15.7										
15	100°33.8	89°08.5	.. 44.7	323°58.9	.. 21.5	16°10.8	.. 08.0	100°17.9	.. 07.4										
16	115°36.3	104°08.9		45.3	339°00.1	21.1	31°12.7	08.0	115°20.2										
17	130°38.8	119°09.4		45.9	354°01.3	20.6	46°14.6	08.0	130°22.5										
18	145°41.2	134°09.8	N03°46.4	9°02.5	N18°20.2	61°16.5	N23°08.0	145°24.7	S02°07.2										
19	160°43.7	149°10.3		47.0	24°03.7	19.8	76°18.4	08.1	160°27.0										
20	175°46.1	164°10.7		47.6	39°04.9	19.4	91°20.2	08.1	175°29.3										
21	190°48.6	179°11.1	.. 48.2	54°06.1	.. 19.0	106°22.1	.. 08.1	190°31.5	.. 06.9										
22	205°51.1	194°11.6		48.8	69°07.4	18.6	121°24.0	08.2	205°33.8										
23	220°53.5	209°12.0		49.4	84°08.6	18.2	136°25.9	08.2	220°36.1										
Mer.pass. 08:19				ν 0.5' d 0.6' m -4.55				ν 1.2' d -0.4' m 1.14				ν 1.9' d 0.0' m -1.94				ν 2.3' d 0.1' m 1.13			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	235°56.0	224°12.5	N03°50.0	99°09.8	N18°17.8	151°27.7	N23°08.2	235°38.3	S02°06.7										
1	250°58.5	239°12.9		50.6	114°11.0	17.4	166°29.6	08.2	250°40.6										
2	266°00.9	254°13.4		51.2	129°12.2	17.0	181°31.5	08.3	265°42.9										
3	281°03.4	269°13.8	..	51.7	144°13.4	..	16.6	196°33.4	..										
4	296°05.9	284°14.2		52.3	159°14.6	16.2	211°35.3	08.3	295°47.4										
5	311°08.3	299°14.7		52.9	174°15.8	15.8	226°37.1	08.3	310°49.7										
6	326°10.8	314°15.1	N03°53.5	189°17.0	N18°15.4	241°39.0	N23°08.4	325°51.9	S02°06.3										
7	341°13.3	329°15.5		54.1	204°18.2	15.0	256°40.9	08.4	340°54.2										
8	356°15.7	344°16.0		54.7	219°19.4	14.6	271°42.8	08.4	355°56.5										
9	11°18.2	359°16.4	..	55.3	234°20.6	..	14.1	286°44.6	..										
10	26°20.6	14°16.8		55.9	249°21.8	13.7	301°46.5	08.5	26°10.0										
11	41°23.1	29°17.3		56.5	264°23.1	13.3	316°48.4	08.5	41°03.3										
12	56°25.6	44°17.7	N03°57.1	279°24.3	N18°12.9	331°50.3	N23°08.5	56°05.6	S02°05.8										
13	71°28.0	59°18.1		57.1	294°25.5	12.5	346°52.2	08.5	71°07.8										
14	86°30.5	74°18.5		58.3	309°26.7	12.1	1°54.0	08.6	86°10.1										
15	101°33.0	89°19.0	..	58.9	324°27.9	..	11.7	16°55.9	..										
16	116°35.4	104°19.4	03°59.5	339°29.1	11.3	31°57.8	08.6	116°14.6	05.4										
17	131°37.9	119°19.8	04°00.1	354°30.3	10.9	46°59.7	08.6	131°16.9	05.5										
18	146°40.4	134°20.2	N04°00.7	9°31.5	N18°10.5	62°01.5	N23°08.7	146°19.2	S02°05.4										
19	161°42.8	149°20.7		01.3	24°32.7	10.1	77°03.4	08.7	161°21.4										
20	176°45.3	164°21.1		01.9	39°33.9	09.6	92°05.3	08.7	176°23.7										
21	191°47.8	179°21.5	..	02.5	54°35.1	..	09.2	107°07.2	..										
22	206°50.2	194°21.9		03.1	69°36.3	08.8	122°00.9	08.8	206°28.3										
23	221°52.7	209°22.3		03.7	84°37.5	08.4	137°10.9	08.8	221°30.5										
Mer.pass. 08:15				ν 0.4' d 0.6' m -0.54				ν 1.2' d -0.4' m 1.15				ν 1.9' d 0.0' m -1.94				ν 2.3' d 0.1' m 1.13			

Stars	SHA	Dec
Alpheratz	357°34.7	29°13.6
Ankaa	353°07.1	-42°10.0
Schedar	349°31.2	56°40.4
Diphda	348°47.1	-17°50.8
Achernar	335°20.5	-57°06.3
Hamal	327°51.2	23°34.8
Polaris	341°23.1	89°22.2
Acamar	315°12.0	-40°12.1
Menkar	314°06.2	4°11.3
Mirfak	308°28.4	49°57.0
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.3
Elath	278°01.9	28°37.7
Alnilam	275°37.8	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.7	-52°42.7
Sirius	258°26.3	-16°45.2
Adhara	255°05.9	-29°00.5
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°14.9	-59°35.7
Suhail	222°46.2	-43°32.3
Miaplacidus	221°38.4	-69°49.6
Alphard	217°47.5	-8°46.2
Regulus	207°44.1	11°50.6
Dubhe	193°40.4	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.4	-63°14.7
Gacrux	171°51.0	-57°15.6
Alloth	166°12.3	55°49.5
Spica	158°21.7	-11°17.7
Alkaid	152°51.3	49°11.2
Hadar	148°35.0	-60°29.9
Menkent	147°56.9	-36°29.8
Arcturus	145°47.3	19°03.0
Rigil Kent.	139°39.3	-60°56.5
Kochab	137°18.6	74°03.1
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.7
Antares	112°15.1	-26°29.3
Atria	107°08.6	-69°04.3
Sabik	102°02.1	-15°45.4
Shaula	96°09.6	-37°07.3

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	236°55.1	224°22.8	N04°04.3	99°38.7	N18°08.0	152°12.8	N23°08.8	236°32.8	S02°04.9										
1	251°57.6	239°23.2	04.9	114°39.9	07.6	167°14.7	08.8	251°35.1	04.8										
2	267°00.1	254°23.6	05.5	129°41.1	07.2	182°16.5	08.9	266°37.3	04.8										
3	282°02.5	269°24.0	•• 06.1	144°42.3	•• 06.8	197°18.4	•• 08.9	281°39.6	•• 04.7										
4	297°05.0	284°24.4	06.8	159°43.5	06.4	212°20.3	08.9	296°41.9	04.6										
5	312°07.5	299°24.8	07.4	174°44.7	06.0	227°22.2	08.9	311°44.2	04.5										
6	327°09.9	314°25.2	N04°08.0	189°46.0	N18°05.5	242°24.1	N23°08.9	326°46.4	S02°04.5										
7	342°12.4	329°25.6	08.6	204°47.2	05.1	257°25.9	09.0	341°48.7	04.4										
8	357°14.9	344°26.0	09.2	219°48.4	04.7	272°27.8	09.0	356°51.0	04.3										
9	12°17.3	359°26.5	•• 09.8	234°49.6	•• 04.3	287°29.7	•• 09.0	11°53.2	•• 04.2										
10	27°19.8	14°26.9	10.4	249°50.8	03.9	302°31.6	09.0	26°55.5	04.2										
11	42°22.3	29°27.3	11.0	264°52.0	03.5	317°33.4	09.1	41°57.8	04.1										
12	57°24.7	44°27.7	N04°11.6	279°53.2	N18°03.1	332°35.3	N23°09.1	57°00.1	S02°04.0										
13	72°27.2	59°28.1	12.3	294°54.4	02.7	347°37.2	09.1	72°02.3	04.0										
14	87°29.6	74°28.5	12.9	309°55.6	02.2	2°39.1	09.1	87°04.6	03.9										
15	102°32.1	89°28.9	•• 13.5	324°56.8	•• 01.8	17°40.9	•• 09.2	102°06.9	•• 03.8										
16	117°34.6	104°29.3	14.1	339°58.0	01.4	32°42.8	09.2	117°09.1	03.7										
17	132°37.0	110°29.7	14.7	354°59.2	01.0	47°44.7	09.2	132°11.4	03.7										
18	147°39.5	134°30.1	N04°15.3	10°00.4	N18°06.6	62°46.6	N23°09.2	147°13.7	S02°03.6										
19	162°42.0	149°30.5	16.0	25°01.6	18°00.2	77°48.4	09.3	162°16.0	03.5										
20	177°44.4	164°30.9	16.6	40°02.8	17°59.8	92°50.3	09.3	177°18.2	03.4										
21	192°46.9	179°31.3	•• 17.2	55°04.0	•• 59.3	107°52.2	•• 09.3	192°20.5	•• 03.4										
22	207°49.4	194°31.7	17.8	70°05.2	58.9	122°54.1	09.3	207°22.8	03.3										
23	222°51.8	209°32.1	18.4	85°06.4	58.5	137°55.9	09.4	222°25.1	03.2										
Mer.pass. 08:11				ν 0.4' d 0.6' m -4.53				ν 1.2' d -0.4' m 1.16				ν 1.9' d 0.0' m -1.94				ν 2.3' d 0.1' m 1.12			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	237°54.3	224°32.5	N04°19.1	100°07.6	N17°58.1	152°57.8	N23°09.4	237°27.3	S02°03.1										
1	252°56.7	239°32.9	19.7	115°08.8	57.7	167°59.7	09.4	252°29.6	03.1										
2	267°59.2	254°33.2	20.3	130°10.0	57.3	183°01.5	09.4	267°31.9	03.0										
3	283°01.7	269°33.6	•• 20.9	145°11.2	•• 56.9	198°03.4	•• 09.5	282°34.1	•• 02.9										
4	298°04.1	284°34.0	21.5	160°12.4	56.4	213°05.3	09.5	297°36.4	02.9										
5	313°06.6	299°34.4	22.2	175°13.6	56.0	228°07.2	09.5	312°38.7	02.8										
6	328°09.1	314°34.8	N04°22.8	190°14.8	N17°55.6	243°09.0	N23°09.5	327°41.0	S02°02.7										
7	343°11.5	329°35.2	23.4	205°16.0	55.2	258°10.9	09.5	342°43.2	02.6										
8	358°14.0	344°35.6	24.0	220°17.2	54.8	273°12.8	09.6	357°45.5	02.6										
9	13°16.5	359°36.0	•• 24.7	235°18.4	•• 54.4	288°14.7	•• 09.6	12°47.8	•• 02.5										
10	28°18.9	14°36.3	25.3	250°19.6	53.9	303°16.5	09.6	27°50.1	02.4										
11	43°21.4	29°36.7	25.9	265°20.8	53.5	318°18.4	09.6	42°52.3	02.3										
12	58°23.9	44°37.1	N04°26.6	280°22.0	N17°53.1	333°20.3	N23°09.7	57°54.6	S02°02.3										
13	73°26.3	59°37.5	27.2	295°23.2	52.7	348°22.2	09.7	72°56.9	02.2										
14	88°28.8	74°37.9	27.8	310°24.4	52.3	3°24.0	09.7	87°59.2	02.1										
15	103°31.2	89°38.3	•• 28.5	325°25.6	•• 51.9	18°25.9	•• 09.7	103°01.4	•• 02.1										
16	118°33.7	104°38.6	29.1	340°26.8	51.4	33°27.8	09.8	118°03.7	02.0										
17	133°36.2	119°39.0	29.7	355°28.0	51.0	48°29.6	09.8	133°06.0	01.9										
18	148°38.6	134°39.4	N04°30.3	10°29.2	N17°50.6	63°31.5	N23°09.8	148°08.3	S02°01.8										
19	163°41.1	149°39.8	31.0	25°30.4	50.2	78°33.4	09.8	163°10.5	01.8										
20	178°43.6	164°40.1	31.6	40°31.6	49.8	93°35.3	09.8	178°12.8	01.7										
21	193°46.0	179°40.5	•• 32.2	55°32.8	•• 49.3	108°37.1	•• 09.9	193°15.1	•• 01.6										
22	208°48.5	194°40.9	32.9	70°34.0	48.9	123°39.0	09.9	208°17.4	01.6										
23	223°51.0	209°41.3	33.5	85°35.2	48.5	138°40.9	09.9	223°19.6	01.5										
Mer.pass. 08:07				ν 0.4' d 0.6' m -4.52				ν 1.2' d -0.4' m 1.17				ν 1.9' d 0.0' m -1.94				ν 2.3' d 0.1' m 1.12			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	238°53.4	224°41.6	N04°34.2	100°36.4	N17°48.1	153°42.8	N23°09.9	238°21.9	S02°01.4										
1	253°55.9	239°42.0	34.8	115°37.6	47.7	168°44.6	10.0	253°24.2	01.3										
2	268°58.4	254°42.4	35.4	130°38.8	47.3	183°46.5	10.0	268°26.5	01.3										
3	284°00.8	269°42.7	•• 36.1	145°40.0	•• 46.8	198°48.4	•• 10.0	283°28.7	•• 01.1										
4	299°03.3	284°43.1	36.7	160°41.2	46.4	213°50.2	10.0	298°31.0	01.1										
5	314°05.7	299°43.5	37.3	175°42.4	46.0	228°52.1	10.1	313°33.3	01.0										
6	329°08.2	314°43.8	N04°38.0	190°43.6	N17°45.6	243°54.0	N23°10.1	328°35.6	S02°01.0										
7	344°10.7	329°44.2	38.6	205°44.8	45.2	258°55.9	10.1	343°37.8	00.9										
8	359°13.1	344°44.6	39.3	220°46.0	44.7	273°57.7	10.1	358°40.1	00.8										
9	14°15.6	359°44.9	•• 39.9	235°47.2	•• 44.3	288°59.6	•• 10.1	13°42.4	•• 00.8										
10	29°18.1	14°45.3	40.5	250°48.4	43.9	304°01.5	10.2	28°44.7	00.7										
11	44°20.5	29°45.6	41.2	265°49.6	43.5	319°03.3	10.2	43°47.0	00.6										
12	59°23.0	44°46.0	N04°41.8	280°50.8	N17°43.0	334°05.2	N23°10.2	58°49.2	S02°00.5										
13	74°25.5	59°46.4	42.5	295°52.0	42.6	349°07.1	10.2	73°51.5	00.5										
14	89°27.9	74°46.7	43.1	310°53.2	42.2	4°09.0	10.3	88°53.8	00.4										
15	104°30.4	89°47.1	•• 43.8	325°54.4	•• 41.8	19°10.8	•• 10.3	103°56.1	•• 00.3										
16	119°32.8	104°47.4	44.4	340°55.5	41.4	34°12.7	10.3	118°58.3	00.3										
17	134°35.3	119°47.8	45.1	355°56.7	40.9	49°14.6	10.3	134°00.6	00.2										
18	149°37.8	134°48.2	N04°45.7	10°57.9	N17°40.5	64°16.4	N23°10.3	149°02.9	S02°00.1										
19	164°40.7	149°48.5	46.4	25°59.1	40.1	79°18.3	10.4	164°05.2	00.1										
20	179°42.7	164°48.9	47.0	41°00.3	39.7	94°20.2	10.4	179°07.5	02°00.0										
21	194°45.2	179°49.2	•• 47.7	56°01.5	•• 39.2	109°22.1	•• 10.4	194°09.7	01°59.9										
22	209°47.6	194°49.6	48.3	71°02.7	38.8	124°23.9	10.4	209°12.0	59.8										
23	224°50.1	209°49.9	48.9	86°03.9	38.4	139°25.8	10.5	224°14.3	59.8										
Mer.pass. 08:03				ν 0.4' d 0.6' m -4.51				ν 1.2' d -0.4' m 1.18				ν 1.9' d 0.0' m -1.93				ν 2.3' d 0.1' m 1.12			

Stars			SHA	Dec
Alpheratz	357°34.7	29°13.6		
Ankaa	353°07.1	-42°09.9		
Schedar	349°31.1	56°40.3		
Diphda	348°47.2	-17°50.8		
Achernar	335°20.4	-57°06.3		
Hamal	327°51.2	23°34.8		
Polaris	314°22.7	89°22.2		
Acamar	315°12.0	-40°12.1		
Menkar	314°06.2	4°11.3		
Mirafak	308°28.4	49°57.0		
Aldebaran	290°39.6	16°33.6		
Rigel	281°03.9	-8°10.4		
Capella	280°21.9	46°01.4		
Bellatrix	278°22.9	6°22.3		
Elinath	278°01.9	28°37.7		
Alnilam	275°37.7	-1°11.2		
Betelgeuse	270°52.1	7°24.7		
Canopus	263°52.7	-52°42.7		
Sirius	258°26.3	-16°45.1		
Adhara	255°05.9	-29°00.5		
Procyon	244°50.7	5°09.6		
Pollux	243°17.2	27°58.0		
Avior	234°14.9	-59°35.7		
Suhail	222°46.2	-43°32.3		
Miaplacidus	221°38.5	-69°49.6		
Alphard	217°47.1	-8°46.2		
Regulus	207°34.1	11°50.6		
Dubhe	193°40.5	61°37.1		
Denebola	182°24.5	14°25.8		
Gienah	175°43.1	-17°41.1		
Acrux	172°59.4	-63°14.7		
Gacrux	171°51.0	57°15.6		
Alloth	166°12.3	55°49.5		
Spica	158°21.7	-11°17.8		
Alkaid	152°51.3	49°11.3		
Hadar	148°35.0	-60°29.9		
Nenkent	147°56.9	-36°29.9		
Arcturus	145°47.3	19°03.0		
Rigel Kent.	139°39.3	-60°56.6		
Kochab	137°18.6	74°03.1		</

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	239°52.6	224°50.3	N04°49.6	101°05.1	N17°38.0	154°27.7	N23°10.5	239°16.6	S01°59.7										
1	254°55.0	239°50.6	50.3	116°06.3	37.6	169°29.5	10.5	254°18.9	59.6										
2	269°57.5	254°51.0	50.9	131°07.5	37.1	184°31.4	10.5	269°21.1	59.6										
3	285°00.0	269°51.3	.. 51.6	146°08.7	.. 36.7	199°33.3	.. 10.5	284°23.4	.. 59.5										
4	300°02.4	284°51.6	52.2	161°09.9	36.3	214°35.1	10.6	299°25.7	59.4										
5	315°04.9	299°52.0	52.9	176°11.1	35.9	229°37.0	10.6	314°28.0	59.3										
6	330°07.3	314°52.3	N04°53.5	191°12.3	N17°35.4	244°38.9	N23°10.6	329°30.2	S01°59.3										
7	345°09.8	329°52.7	54.2	206°13.5	35.0	259°40.8	10.6	344°32.5	59.2										
8	0°12.3	344°53.0	54.8	221°14.7	34.6	274°42.6	10.7	359°34.8	59.1										
9	15°14.7	359°53.4	.. 55.5	236°15.9	.. 34.2	289°44.5	.. 10.7	14°37.1	.. 59.1										
10	30°17.2	14°53.7	56.1	251°17.1	33.7	304°46.4	10.7	29°39.4	59.0										
11	45°19.7	29°54.0	56.8	266°18.2	33.3	319°48.2	10.7	44°41.6	58.9										
12	60°22.1	44°54.4	N04°57.4	281°19.4	N17°32.9	334°50.1	N23°10.7	59°43.9	S01°58.9										
13	75°24.6	59°54.7	58.1	296°20.6	32.5	349°52.0	10.8	74°46.2	58.8										
14	90°27.1	74°55.1	58.8	311°21.8	32.0	4°53.8	10.8	89°48.5	58.7										
15	105°29.5	89°55.4	04°59.4	326°23.0	.. 31.6	19°55.7	.. 10.8	104°50.8	.. 58.6										
16	120°32.0	104°55.7	05°00.1	341°24.2	31.2	34°57.6	10.8	119°53.0	58.6										
17	135°34.5	119°56.1	00.7	356°25.4	30.8	49°59.5	10.8	134°55.3	58.5										
18	150°36.9	134°56.4	N05°01.4	1°12.6	N17°30.3	65°01.3	N23°10.9	149°57.6	S01°58.4										
19	165°39.4	149°56.7	02.1	26°27.8	29.9	80°03.2	10.9	164°59.9	58.4										
20	180°41.8	164°57.1	02.7	41°29.0	29.5	95°05.1	10.9	180°02.2	58.3										
21	195°44.3	179°57.4	.. 03.4	56°30.2	.. 29.0	110°06.9	.. 10.9	195°04.4	.. 58.2										
22	210°46.8	194°57.7	04.0	71°31.4	28.6	125°08.8	11.0	210°06.7	58.2										
23	225°49.2	209°58.1	04.7	86°32.6	28.2	140°10.7	11.0	225°09.0	58.1										
Mer.pass. 07:59				ν 0.3' d 0.7' m -4.50				ν 1.2' d -0.4' m 1.19				ν 1.9' d 0.0' m -1.93				ν 2.3' d 0.1' m 1.11			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	240°51.7	224°58.4	N05°05.4	101°33.7	N17°27.8	155°12.5	N23°11.0	240°11.3	S01°58.0
1	255°54.2	239°58.7	06.0	116°34.9	27.3	170°14.4	11.0	255°13.6	58.0
2	270°56.6	254°59.0	06.7	131°36.1	26.9	185°16.3	11.0	270°15.9	57.9
3	285°59.1	269°59.4	.. 07.4	146°37.3	.. 26.5	200°18.1	.. 11.1	285°18.1	.. 57.8
4	301°01.6	284°59.7	08.0	161°38.5	26.1	215°20.0	11.1	300°20.4	57.7
5	316°04.0	300°00.0	08.7	176°39.7	25.6	230°21.9	11.1	315°22.7	57.7
6	331°06.5	315°00.3	N05°09.4	191°40.9	N17°25.2	245°23.7	N23°11.1	330°25.0	S01°57.6
7	346°08.9	330°00.7	10.0	206°42.1	24.8	260°25.6	11.1	345°27.3	57.5
8	1°11.4	345°01.0	10.7	221°43.3	24.3	275°27.5	11.2	0°29.5	57.5
9	16°13.9	0°01.3	.. 11.4	236°44.5	.. 23.9	290°29.3	.. 11.2	15°31.8	.. 57.4
10	31°16.3	15°01.6	12.0	251°45.7	23.5	305°31.2	11.2	30°34.1	57.3
11	46°18.8	30°01.9	12.7	266°46.8	23.0	320°33.1	11.2	45°36.4	57.3
12	61°21.3	45°02.3	N05°13.4	281°48.0	N17°22.6	335°35.0	N23°11.2	60°38.7	S01°57.2
13	76°23.7	60°02.6	14.0	296°49.2	22.2	350°36.8	11.3	75°41.0	57.1
14	91°26.2	75°02.9	14.7	311°50.4	21.8	5°38.7	11.3	90°43.2	57.1
15	106°28.7	90°03.2	.. 15.4	326°51.6	.. 21.3	20°40.6	.. 11.3	105°45.5	.. 57.0
16	121°31.1	105°03.5	16.1	341°52.8	20.9	35°42.4	11.3	120°47.8	56.9
17	136°33.6	120°03.8	16.7	356°54.0	20.5	50°44.3	11.3	135°50.1	56.9
18	151°36.1	135°04.1	N05°17.4	1°15.5	N17°20.0	65°46.2	N23°11.4	150°52.4	S01°56.8
19	166°38.5	150°04.5	18.1	26°56.4	19.6	80°48.0	11.4	165°54.7	56.7
20	181°41.0	165°04.8	18.7	41°57.5	19.2	95°49.9	11.4	180°56.9	56.7
21	196°43.4	180°05.1	.. 19.4	56°58.7	.. 18.7	110°51.8	.. 11.4	195°59.2	.. 56.6
22	211°45.9	195°05.4	20.1	71°59.9	18.3	125°53.6	11.5	211°01.5	56.5
23	226°48.4	210°05.7	20.8	87°01.1	17.9	140°55.5	11.5	226°03.8	56.4
Mer.pass. 07:55 ν 0.3' d 0.7' m -4.49 ν 1.2' d -0.4' m 1.20 ν 1.9' d 0.0' m -1.93 ν 2.3' d 0.1' m 1.11									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	241°50.8	225°06.0	N05°21.4	102°02.3	N17°17.4	155°57.4	N23°11.5	241°06.1	S01°56.4										
1	256°53.3	240°06.3	22.1	117°03.5	17.0	170°59.2	11.5	256°08.4	56.3										
2	271°55.8	255°06.6	22.8	132°04.7	16.6	186°01.1	11.5	271°10.7	56.2										
3	286°58.2	270°06.9	.. 23.5	147°05.9	.. 16.1	201°03.0	.. 11.6	286°12.9	.. 56.2										
4	302°00.7	285°07.2	24.2	162°07.1	15.7	216°04.8	11.6	301°15.2	56.1										
5	317°03.2	300°07.5	24.8	177°08.2	15.3	231°06.7	11.6	316°17.5	56.0										
6	332°05.6	315°07.8	N05°25.5	192°09.4	N17°14.8	246°08.6	N23°11.6	331°19.8	S01°56.0										
7	347°08.1	330°08.1	26.2	207°10.6	14.4	261°10.4	11.6	346°22.1	55.9										
8	2°10.5	345°08.4	26.9	222°11.8	14.0	276°12.3	11.7	1°24.4	55.8										
9	17°13.0	0°08.7	.. 27.6	237°13.0	.. 13.5	291°14.2	.. 11.7	16°26.6	.. 55.8										
10	32°15.5	15°09.0	28.2	252°14.2	13.1	306°16.0	11.7	31°28.9	55.7										
11	47°17.9	30°09.3	28.9	267°15.4	12.7	321°17.9	11.7	46°31.2	55.6										
12	62°20.4	45°09.6	N05°29.6	282°16.6	N17°12.2	336°19.8	N23°11.7	61°33.5	S01°55.6										
13	77°22.9	60°09.9	30.3	297°17.7	11.8	351°21.6	11.7	76°35.8	55.5										
14	92°25.3	75°10.2	31.0	312°18.9	11.4	6°23.5	11.8	91°38.1	55.4										
15	107°27.8	90°10.5	.. 31.6	327°20.1	.. 10.9	21°25.4	.. 11.8	106°40.4	.. 55.4										
16	122°30.3	105°10.8	32.3	342°21.3	10.5	36°27.2	11.8	121°42.6	55.3										
17	137°32.7	120°11.1	33.0	357°22.5	10.1	51°29.1	11.8	136°44.9	55.2										
18	152°35.2	135°11.4	N05°33.7	12°23.7	N17°09.6	66°30.9	N23°11.8	151°47.2	S01°55.2										
19	167°37.7	150°11.7	34.4	27°24.9	09.2	81°32.8	11.9	166°49.5	55.1										
20	182°40.1	165°12.0	35.1	42°26.0	08.8	96°34.7	11.9	181°51.8	55.0										
21	197°42.6	180°12.3	.. 35.8	57°27.2	.. 08.3	111°36.5	.. 11.9	196°54.1	.. 55.0										
22	212°45.0	195°12.6	36.4	72°28.4	07.9	126°38.4	11.9	211°56.4	54.9										
23	227°47.5	210°12.9	37.1	87°29.6	07.5	141°40.3	11.9	226°58.7	54.8										
Mer.pass. 07:51				ν 0.3' d 0.7' m -4.48				ν 1.2' d -0.4' m 1.21				ν 1.9' d 0.0' m -1.93				ν 2.3' d 0.1' m 1.11			

Stars	SHA	Dec
Alpheratz	357°34.7	29°13.6
Ankaa	353°07.1	-42°09.9
Schedar	349°31.1	56°40.3
Diphda	348°47.2	-17°50.8
Achernar	335°20.4	-57°06.3
Hamal	327°51.2	23°34.8
Polaris	314°22.3	89°22.2
Acamar	315°12.0	-40°12.1
Menkar	314°06.2	4°11.3
Mirafax	308°28.4	49°57.0
Aldebaran	299°36.6	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.3
Elath	278°01.9	28°37.7
Alnilam	275°37.8	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.7	-52°42.7
Sirius	258°26.3	-16°45.1
Adhara	255°05.9	-29°00.5
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°15.0	-59°35.7
Suhail	222°46.3	-43°32.3
Miaplacidus	221°38.5	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.1	1°56.6
Dubhe	193°40.5	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.4	-63°14.7
Gacrux	171°51.0	-57°15.6
Alioth	166°12.3	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Hadar	148°35.1	-60°29.9
Menkent	147°56.9	-36°29.9
Arcturus	145°47.3	19°03.0
Rigil Kent.	139°39.3	-60°56.6
Kochab	137°18.6	74°03.1
Zuben'ubi	126°55.4	-16°08.9
Alphecca	126°03.1	26°37.7

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	242°50.0	225°13.2	N05°37.8	102°30.8	N17°07.0	156°42.1	N23°12.0	242°00.9	S01°54.8										
1	257°52.4	240°13.4	38.5	117°32.0	06.6	171°44.0	12.0	257°03.2	54.7										
2	272°54.9	255°13.7	39.2	132°33.2	06.1	186°45.9	12.0	272°05.5	54.6										
3	287°57.4	270°14.0	•• 39.9	147°34.3	•• 05.7	201°47.7	•• 12.0	287°07.8	•• 54.6										
4	302°59.8	285°14.3	40.6	162°35.5	05.3	216°49.6	12.0	302°10.1	54.5										
5	318°02.3	300°14.6	41.3	177°36.7	04.8	231°51.5	12.1	317°12.4	54.4										
6	333°04.8	315°14.9	N05°41.9	192°37.9	N17°04.4	246°53.3	N23°12.1	332°14.7	S01°54.4										
7	348°07.7	330°15.1	42.6	207°39.1	04.0	261°55.2	12.1	347°17.0	54.3										
8	3°09.7	345°15.4	43.3	222°40.3	03.5	276°57.1	12.1	2°19.2	54.2										
9	18°12.2	0°15.7	•• 44.0	237°41.5	•• 03.1	291°58.9	•• 12.1	17°21.5	•• 54.2										
10	33°14.6	15°16.0	44.7	252°42.6	02.6	307°00.8	12.2	32°23.8	54.1										
11	48°17.1	30°16.3	45.4	267°43.8	02.2	322°02.7	12.2	47°26.1	54.0										
12	63°19.5	45°16.6	N05°46.1	282°45.0	N17°01.8	337°04.5	N23°12.2	62°28.4	S01°54.0										
13	78°22.0	60°16.8	46.8	297°46.2	01.3	352°06.4	12.2	77°30.7	53.9										
14	93°24.5	75°17.1	47.5	312°47.4	00.9	7°08.2	12.2	92°33.0	53.8										
15	108°26.9	90°17.4	•• 48.2	327°48.6	•• 00.5	22°10.1	•• 12.2	107°35.3	•• 53.8										
16	123°29.4	105°17.7	48.9	342°49.7	17°00.0	37°12.0	12.3	122°37.6	53.7										
17	138°31.9	120°17.9	49.6	357°50.9	16°59.6	52°13.8	12.3	137°39.8	53.6										
18	153°34.3	135°18.2	N05°50.3	12°52.1	N16°59.1	67°15.7	N23°12.3	152°42.1	S01°53.6										
19	168°36.8	150°18.5	51.0	27°53.3	58.7	82°17.6	12.3	167°44.4	53.5										
20	183°39.3	165°18.7	51.7	42°54.5	58.3	97°19.4	12.3	182°46.7	53.4										
21	198°41.7	180°19.0	•• 52.4	57°55.7	•• 57.8	112°21.3	•• 12.4	197°49.0	•• 53.4										
22	213°44.2	195°19.3	53.1	72°56.8	57.4	127°23.2	12.4	212°51.3	53.3										
23	228°46.7	210°19.6	53.8	87°58.0	56.9	142°25.0	12.4	227°53.6	53.2										
Mer.pass. 07:47				ν 0.3' d 0.7' m -4.47				ν 1.2' d -0.4' m 1.22				ν 1.9' d 0.0' m -1.93				ν 2.3' d 0.1' m 1.11			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	243°49.1	225°19.8	N05°54.5	102°59.2	N16°56.5	157°26.9	N23°12.4	242°55.9	S01°53.2										
1	258°51.6	240°20.1	55.2	118°00.4	56.1	172°28.7	12.4	257°58.2	53.1										
2	273°54.0	255°20.4	55.9	133°01.6	55.6	187°30.6	12.5	273°00.4	53.1										
3	288°56.5	270°20.6	•• 56.6	148°02.7	•• 55.2	202°32.5	•• 12.5	288°02.7	•• 53.0										
4	303°59.0	285°20.9	57.3	163°03.9	54.7	217°34.3	12.5	303°05.0	52.9										
5	319°01.4	300°21.2	58.0	178°05.1	54.3	232°36.2	12.5	318°07.3	52.9										
6	334°03.9	315°21.4	N05°58.7	193°06.3	N16°53.8	247°38.1	N23°12.5	333°09.6	S01°52.8										
7	349°06.4	330°21.7	05°59.4	208°07.5	53.4	262°39.9	12.5	348°11.9	52.7										
8	4°08.8	345°22.0	06°00.1	223°08.7	53.0	277°41.8	12.6	3°14.2	52.7										
9	19°11.3	0°22.2	•• 00.8	238°09.8	•• 52.5	292°43.7	•• 12.6	18°16.5	•• 52.6										
10	34°13.8	15°22.5	01.5	253°11.0	52.1	307°45.5	12.6	33°18.8	52.5										
11	49°16.2	30°22.7	02.2	268°12.2	51.6	322°47.4	12.6	48°21.1	52.5										
12	64°18.7	45°23.0	N06°02.9	283°13.4	N16°51.2	337°49.2	N23°12.6	63°23.4	S01°52.4										
13	79°21.1	60°23.3	03.6	298°14.6	50.7	352°51.1	12.7	78°25.6	52.3										
14	94°23.6	75°23.5	04.3	313°15.7	50.3	7°53.0	12.7	93°27.9	52.3										
15	109°26.1	90°23.8	•• 05.0	328°16.9	•• 49.9	22°54.8	•• 12.7	108°30.2	•• 52.2										
16	124°28.5	105°24.0	05.7	343°18.1	49.4	37°56.7	12.7	123°32.5	52.1										
17	139°31.0	120°24.3	06.4	358°19.3	49.0	52°58.6	12.7	138°34.8	52.1										
18	154°33.5	135°24.5	N06°07.1	13°20.5	N16°48.5	68°00.4	N23°12.7	153°37.1	S01°52.0										
19	169°35.9	150°24.8	07.8	28°21.6	48.1	83°02.3	12.8	168°39.4	52.0										
20	184°38.4	165°25.0	08.5	43°22.8	47.6	98°04.1	12.8	183°41.7	51.9										
21	199°40.9	180°25.3	•• 09.2	58°24.0	•• 47.2	113°06.0	•• 12.8	198°44.0	•• 51.8										
22	214°43.3	195°25.6	09.9	73°25.2	46.8	128°07.9	12.8	213°46.3	51.8										
23	229°45.8	210°25.8	10.6	88°26.4	46.3	143°09.7	12.8	228°48.6	51.7										
Mer.pass. 07:43				ν 0.3' d 0.7' m -4.45				ν 1.2' d -0.4' m 1.23				ν 1.9' d 0.0' m -1.92				ν 2.3' d 0.1' m 1.10			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	244°48.3	225°26.1	N06°11.3	103°27.5	N16°45.9	158°11.6	N23°12.8	243°50.9	S01°51.6
1	259°50.7	240°26.3	12.1	118°28.7	45.4	173°13.4	12.9	258°53.2	51.6
2	274°53.2	255°26.6	12.8	133°29.9	45.0	188°15.3	12.9	273°55.4	51.5
3	289°55.6	270°26.8	•• 13.5	148°31.1	•• 44.5	203°17.2	•• 12.9	288°57.7	•• 51.4
4	304°58.1	285°27.0	14.2	163°32.3	44.1	218°19.0	12.9	304°00.0	51.4
5	320°00.6	300°27.3	14.9	178°33.4	43.6	233°20.9	12.9	319°02.3	51.3
6	335°03.0	315°27.5	N06°15.6	193°34.6	N16°43.2	248°22.8	N23°12.9	334°04.6	S01°51.2
7	350°05.5	330°27.8	16.3	208°35.8	42.7	263°24.6	13.0	349°06.9	51.2
8	5°08.0	345°28.0	17.0	223°37.0	42.3	278°26.5	13.0	4°09.2	51.1
9	20°10.4	0°28.3	•• 17.7	238°38.2	•• 41.9	293°28.3	•• 13.0	19°11.5	•• 51.1
10	35°12.9	15°28.5	18.5	253°39.3	41.4	308°30.2	13.0	34°13.8	51.0
11	50°15.4	30°28.8	19.2	268°40.5	41.0	323°32.1	13.0	49°16.1	50.9
12	65°17.8	45°29.0	N06°19.9	283°41.7	N16°40.5	338°33.9	N23°13.1	64°18.4	S01°50.9
13	80°20.3	60°29.2	20.6	298°42.9	40.1	353°35.8	13.1	79°20.7	50.8
14	95°22.8	75°29.5	21.3	313°44.0	39.6	8°37.6	13.1	94°23.0	50.7
15	110°25.2	90°29.7	•• 22.0	328°45.2	•• 39.2	23°39.5	•• 13.1	109°25.3	•• 50.7
16	125°27.7	105°30.0	22.7	343°46.4	38.7	38°41.4	13.1	124°27.6	50.6
17	140°30.1	120°30.2	23.5	358°47.6	38.3	53°43.2	13.1	139°29.9	50.6
18	155°32.6	135°30.4	N06°24.2	13°48.8	N16°37.8	68°45.1	N23°13.2	154°32.2	S01°50.5
19	170°35.1	150°30.7	24.9	28°49.9	37.4	83°47.0	13.2	169°34.5	50.4
20	185°37.5	165°30.9	25.6	43°51.1	36.9	98°48.8	13.2	184°36.7	50.4
21	200°40.0	180°31.1	•• 26.3	58°52.3	•• 36.5	113°50.7	•• 13.2	199°39.0	•• 50.3
22	215°42.5	195°31.4	27.0	73°53.5	36.0	128°52.5	13.2	214°41.3	50.2
23	230°44.9	210°31.6	27.8	88°54.6	35.6	143°54.4	13.2	229°43.6	50.2
Mer.pass. 07:40 ν 0.2' d 0.7' m -4.44 ν 1.2' d -0.4' m 1.24 ν 1.9' d 0.0' m -1.92 ν 2.3' d 0.1' m 1.10									

Stars		
	SHA	Dec
Alpheratz	357°34.6	29°13.6
Ankaa	353°07.1	-42°09.9
Schedar	349°31.1	56°40.3
Diphda	348°47.2	-17°50.8
Achernar	335°20.4	-57°06.3
Hamal	327°51.2	23°34.8
Polaris	314°21.6	89°22.1
Acamar	315°11.9	-40°12.1
Menkar	314°06.2	4°11.3
Mirfak	308°28.3	49°57.0
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.4
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.3
Elnath	278°01.9	28°37.3
Alnilam	275°37.8	-1°11.2
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.8	-52°42.6
Sirius	258°26.3	-16°45.1
Adhara	255°05.9	-29°00.5
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°15.0	-59°35.7
Suhail	222°46.3	-43°32.3
Miaplacidus	221°38.6	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.5	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.4	-63°14.7
Gacrux	171°51.0	-57°15.6
Alloth	166°12.3	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Hadar	148°35.1	-60°29.9
Menkent	147°56.9	-36°29.9
Arcturus	145°47.3	19°03.6
Rigel Kent.	139°39.3	-60°56.6
Kochab	137°18.7	74°03.1
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.7
Antares	112°15.1	-26°29.4
Atria	107°08.5	-69°04.4
Sobek	102°02.1	-15°45.4
Shaula	96°09.9	-37°07.3
Rasalhague	95°58.0	12°32.4
Eltanin	90°41.5	51°28.9
Kaus Aust.	83°31.8	34°22.3
Vega	80°32.7	38°48.2
Nunki	75°47.1	-26°15.9
Altair	61°59.5	8°56.0
Peacock	53°05.0	-56°39.0
Deneb	49°25.4	45°22.0
Enif	33°38.5	9°59.4
Al Na'ir	27°32.5	-46°50.1
Fomalhaut	15°14.2	-29°29.1
Scheat	13°45.0	28°13.0
Markab	13°29.7	15°20.4

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	245°47.4	225°31.8	N06°28.5	103°55.8	N16°35.1	158°56.3	N23°13.3	244°45.9	S01°50.1										
1	260°49.9	240°32.1	29.2	118°57.0	34.7	173°58.1	13.3	259°48.2	50.1										
2	275°52.3	255°32.3	29.9	133°58.2	34.2	189°00.0	13.3	274°50.5	50.0										
3	290°54.8	270°32.5	•• 30.6	148°59.3	•• 33.8	204°01.8	•• 13.3	289°52.8	•• 49.9										
4	305°57.3	285°32.8	31.3	164°00.5	33.3	219°03.7	13.3	304°55.1	49.9										
5	320°59.7	300°33.0	32.1	179°01.7	32.9	234°05.6	13.3	319°57.4	49.8										
6	336°02.2	315°33.2	N06°32.1	194°02.9	N16°32.4	249°07.4	N23°13.4	334°59.7	S01°49.8										
7	351°04.6	330°33.4	33.5	209°04.0	32.0	264°09.3	13.4	350°02.0	49.7										
8	6°07.1	345°33.7	34.2	224°05.2	31.5	279°11.1	13.4	5°04.3	49.6										
9	21°09.6	0°33.9	•• 35.0	239°06.4	•• 31.1	294°13.0	•• 13.4	20°06.6	•• 49.6										
10	36°12.0	15°34.1	35.7	254°07.6	30.6	309°14.9	13.4	35°08.9	49.5										
11	51°14.5	30°34.3	36.4	269°08.7	30.2	324°16.7	13.4	50°11.2	49.4										
12	66°17.0	45°34.6	N06°37.1	284°09.9	N16°29.7	339°18.6	N23°13.4	65°13.5	S01°49.4										
13	81°19.4	60°34.8	37.8	299°11.1	29.3	354°20.4	13.5	80°15.8	49.3										
14	96°21.9	75°35.0	38.6	314°12.3	28.8	9°22.3	13.5	95°18.1	49.2										
15	111°24.4	90°35.2	•• 39.3	329°13.4	•• 28.4	24°24.2	•• 13.5	110°20.4	•• 49.2										
16	126°26.8	105°35.4	40.0	344°14.6	27.9	39°26.0	13.5	125°22.7	49.1										
17	141°29.3	120°35.7	40.7	359°15.8	27.5	54°27.9	13.5	140°25.0	49.1										
18	156°31.8	135°35.9	N06°41.5	14°17.0	N16°27.0	69°29.7	N23°13.3	155°27.3	S01°49.0										
19	171°34.2	150°36.1	42.2	29°18.1	26.6	84°31.6	13.6	170°29.6	48.9										
20	186°36.7	165°36.3	42.9	44°19.3	26.1	99°33.5	13.6	185°31.9	48.9										
21	201°39.1	180°36.5	•• 43.6	59°20.5	•• 25.7	114°35.3	•• 13.6	200°34.2	•• 48.8										
22	216°41.6	195°36.7	44.4	74°21.7	25.2	129°37.2	13.6	215°36.5	48.8										
23	231°44.1	210°37.0	45.1	89°22.8	24.8	144°39.0	13.6	230°38.8	48.7										
Mer.pass. 07:36				ν 0.2' d 0.7' m -4.43				ν 1.2' d -0.4' m 1.25				ν 1.9' d 0.0' m -1.92				ν 2.3' d 0.1' m 1.10			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	246°46.5	225°37.2	N06°45.8	104°24.0	N16°24.3	159°40.9	N23°13.6	245°41.1	S01°48.6
1	261°49.0	240°37.4	46.5	119°25.2	23.8	174°42.8	13.7	260°43.4	48.6
2	276°51.5	255°37.6	47.3	134°26.4	23.4	189°44.6	13.7	275°45.7	48.5
3	291°53.9	270°37.8	•• 48.0	149°27.5	•• 22.9	204°46.5	•• 13.7	290°48.0	•• 48.4
4	306°56.4	285°38.0	48.7	164°28.7	22.5	219°48.3	13.7	305°50.3	48.4
5	321°58.9	300°38.2	49.5	179°29.9	22.0	234°50.2	13.7	320°52.6	48.3
6	337°01.3	315°38.4	N06°50.2	194°31.1	N16°21.6	249°52.0	N23°13.7	335°54.9	S01°48.3
7	352°03.8	330°38.7	50.9	209°32.2	21.1	264°53.9	13.7	350°57.2	48.2
8	7°06.3	345°38.9	51.6	224°33.4	20.7	279°55.8	13.8	5°59.5	48.1
9	22°08.7	0°39.1	•• 52.4	239°34.6	•• 20.2	294°57.6	•• 13.8	21°01.8	•• 48.1
10	37°11.2	15°39.3	53.1	254°35.8	19.8	309°59.5	13.8	36°04.1	48.0
11	52°13.6	30°39.5	53.8	269°36.9	19.3	325°01.3	13.8	51°06.4	48.0
12	67°16.1	45°39.7	N06°54.6	284°38.1	N16°18.8	340°03.2	N23°13.8	66°08.7	S01°47.9
13	82°18.6	60°39.9	55.3	299°39.3	18.4	355°05.1	13.8	81°11.0	47.8
14	97°21.0	75°40.1	56.0	314°40.4	17.9	10°06.9	13.9	96°13.3	47.8
15	112°23.5	90°40.3	•• 56.8	329°41.6	•• 17.5	25°08.8	•• 13.9	111°15.6	•• 47.7
16	127°26.0	105°40.5	57.5	344°42.8	17.0	40°10.6	13.9	126°17.9	47.7
17	142°28.4	120°40.7	58.2	359°44.0	16.6	55°12.5	13.9	141°20.2	47.6
18	157°30.9	135°40.9	N06°59.0	14°45.1	N16°16.1	70°14.3	N23°13.9	156°22.5	S01°47.5
19	172°33.4	150°41.1	60°59.7	29°46.3	15.7	85°16.2	13.9	171°24.8	47.5
20	187°35.8	165°41.3	61°00.4	44°47.5	15.2	100°18.1	13.9	186°27.1	47.4
21	202°38.3	180°41.5	•• 01.2	59°48.6	•• 14.7	115°19.9	•• 14.0	201°29.4	•• 47.4
22	217°40.8	195°41.7	01.9	74°49.8	14.3	130°21.8	14.0	216°31.7	47.3
23	232°43.2	210°41.9	02.6	89°51.0	13.8	145°23.6	14.0	231°34.0	47.2
Mer.pass. 07:32				ν 1.2' d -0.5' m 1.26		ν 1.9' d 0.0' m -1.92		ν 2.3' d 0.1' m 1.09	

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	247°45.7	225°42.1	N07°03.4	104°52.2	N16°13.4	160°25.5	N23°14.0	246°36.3	S01°47.2
1	262°48.1	240°42.3	04.1	119°53.3	12.9	175°27.4	14.0	261°38.6	47.1
2	277°50.6	255°42.5	04.8	134°54.5	12.5	190°29.2	14.0	276°40.9	47.1
3	292°53.1	270°42.7	•• 05.6	149°55.7	•• 12.0	205°31.1	•• 14.0	291°43.2	•• 47.1
4	307°55.5	285°42.9	06.3	164°56.8	11.5	220°32.9	14.1	306°45.5	46.9
5	322°58.0	300°43.1	07.0	179°58.0	11.1	235°34.8	14.1	321°47.8	46.9
6	338°00.5	315°43.3	N07°07.8	194°59.2	N16°10.6	250°36.6	N23°14.1	336°50.1	S01°46.8
7	353°02.9	330°43.5	08.5	210°00.4	10.2	265°38.5	14.1	351°52.4	46.8
8	8°05.4	345°43.6	09.3	225°01.5	09.7	280°40.4	14.1	6°54.7	46.7
9	23°07.9	0°43.8	•• 10.0	240°02.7	•• 09.2	295°42.2	•• 14.1	21°57.0	•• 46.6
10	38°10.3	15°44.0	10.7	255°03.9	08.8	310°44.1	14.1	36°59.3	46.6
11	53°12.8	30°44.2	11.5	270°05.0	08.3	325°45.9	14.2	52°01.6	46.5
12	68°15.3	45°44.4	N07°12.2	285°06.2	N16°07.9	340°47.8	N23°14.2	67°03.9	S01°46.5
13	83°17.7	60°44.6	12.9	300°07.4	07.4	355°49.6	14.2	82°06.2	46.4
14	98°20.2	75°44.8	13.7	315°08.5	06.9	10°51.5	14.2	97°08.5	46.3
15	113°22.6	90°45.0	•• 14.4	330°09.7	•• 06.5	25°53.4	•• 14.2	112°10.8	•• 46.3
16	128°25.1	105°45.2	15.2	345°10.9	06.0	40°55.2	14.2	127°13.1	46.2
17	143°27.6	120°45.3	15.9	0°12.1	05.6	55°57.1	14.2	142°15.4	46.2
18	158°30.0	135°45.5	N07°16.6	15°13.2	N16°05.1	70°58.9	N23°14.3	157°17.7	S01°46.1
19	173°32.5	150°45.7	17.4	30°14.4	04.6	86°00.8	14.3	172°20.0	46.1
20	188°35.0	165°45.9	18.1	45°15.6	04.2	101°02.6	14.3	187°22.3	46.0
21	203°37.4	180°46.1	•• 18.9	60°16.7	•• 03.7	116°04.5	•• 14.3	202°24.6	•• 45.9
22	218°39.9	195°46.2	19.6	75°17.9	03.3	131°06.3	14.3	217°27.0	45.9
23	233°42.4	210°46.4	20.4	90°19.1	02.8	146°08.2	14.3	232°29.3	45.8
Mer.pass. 07:28 ν 0.2' d 0.7' m -4.41 ν 1.2' d -0.5' m 1.27 ν 1.9' d 0.0' m -1.92 ν 2.3' d 0.1' m 1.09									

SHA		Dec	
Alpheratz	357°34.6	29°13.7	
Ankaa	353°07.0	-42°09.9	
Schedar	349°31.0	56°40.3	
Diphda	348°47.2	-17°50.8	
Achernar	335°20.4	-57°06.3	
Hamal	327°51.1	23°34.8	
Polaris	314°20.5	89°22.1	
Acamar	315°11.9	-40°12.1	
Menkar	314°06.1	4°11.3	
Mirafak	308°28.3	49°57.0	
Aldebaran	290°39.6	16°33.6	
Rigel	281°03.9	-8°10.4	
Capella	280°21.9	46°01.4	
Bellatrix	278°22.9	6°22.3	
Elinath	278°01.9	28°37.7	
Alnilam	275°37.7	-1°11.2	
Betelgeuse	270°52.1	7°24.7	
Canopus	263°52.8	-52°46.2	
Sirius	258°26.3	-16°45.1	
Adhara	255°05.9	-29°00.5	
Procyon	244°50.8	5°09.6	
Pollux	243°17.2	27°58.0	
Avior	234°15.0	-59°35.7	
Suhail	222°46.3	-43°32.3	
Miaplacidus	221°38.6	-69°49.5	
Alphard	217°47.6	-8°46.2	
Regulus	207°34.2	11°50.6	
Dubhe	193°40.5	61°37.1	
Denebola	182°24.5	14°25.8	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	248°44.8	225°46.6	N07°21.1	105°20.2	N16°02.3	161°10.1	N23°14.3	247°31.6	S01°45.8										
1	263°47.3	240°46.8	21.8	120°21.4	01.9	176°11.9	14.4	262°33.9	45.7										
2	278°49.8	255°47.0	22.6	135°22.6	01.4	191°13.8	14.4	277°36.2	45.6										
3	293°52.2	270°47.1	•• 23.3	150°23.7	•• 01.0	206°15.6	•• 14.4	292°38.5	•• 45.6										
4	308°54.7	285°47.3	24.1	165°24.9	00.5	221°17.5	14.4	307°40.8	45.5										
5	323°57.1	300°47.5	24.8	180°26.1	16°00.0	236°19.3	14.4	322°43.1	45.5										
6	338°59.6	315°47.7	N07°25.6	195°27.3	N15°59.6	251°21.2	N23°14.4	337°45.4	S01°45.4										
7	354°02.1	330°47.8	26.3	210°28.4	59.1	266°23.1	14.4	352°47.7	45.4										
8	9°04.5	345°48.0	27.0	225°29.6	58.6	281°24.9	14.5	7°50.0	45.3										
9	24°07.0	0°48.2	•• 27.8	240°30.8	•• 58.2	296°26.8	•• 14.5	22°52.3	•• 45.2										
10	39°59.5	15°48.4	28.5	255°31.9	57.7	311°28.6	14.5	37°54.6	45.2										
11	54°11.9	30°48.5	29.3	270°33.1	57.3	326°30.5	14.5	52°56.9	45.1										
12	69°14.4	45°48.7	N07°30.0	285°34.3	N15°56.8	341°32.3	N23°14.5	67°59.2	S01°45.1										
13	84°16.9	60°48.9	30.8	300°35.4	56.3	356°34.2	14.5	83°01.5	45.0										
14	99°19.3	75°49.0	31.5	315°36.6	55.9	11°36.0	14.5	98°03.8	45.0										
15	114°21.8	90°49.2	•• 32.3	330°37.8	•• 55.4	26°37.9	•• 14.5	113°06.2	•• 44.9										
16	129°24.2	105°49.4	33.0	345°38.9	54.9	41°39.8	14.6	128°08.5	44.8										
17	144°26.7	120°49.6	33.8	0°40.1	54.5	56°41.6	14.6	143°10.8	44.8										
18	159°29.2	135°49.7	N07°34.5	15°41.3	N15°54.0	71°43.5	N23°14.6	158°13.1	S01°44.7										
19	174°31.6	150°49.9	35.3	30°42.4	53.5	86°45.3	14.6	173°15.4	44.7										
20	189°34.1	165°50.1	36.0	45°43.6	53.1	101°47.2	14.6	188°17.7	44.6										
21	204°36.6	180°50.2	•• 36.8	60°44.8	•• 52.6	116°49.0	•• 14.6	203°20.0	•• 44.6										
22	219°39.0	195°50.4	37.5	75°45.9	52.1	131°50.9	14.6	218°22.3	44.5										
23	234°41.5	210°50.5	38.2	90°47.1	51.7	146°52.7	14.7	233°24.6	44.4										
Mer.pass. 07:24				ν 0.2' d 0.7' m -4.40				ν 1.2' d -0.5' m 1.28				ν 1.9' d 0.0' m -1.92				ν 2.3' d 0.1' m 1.09			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	249°44.0	225°50.7	N07°39.0	105°48.3	N15°51.2	161°54.6	N23°14.7	248°26.9	S01°44.4
1	264°46.4	240°50.9	39.7	120°49.4	50.7	176°56.5	14.7	263°29.2	44.3
2	279°48.9	255°51.0	40.5	135°50.6	50.3	191°58.3	14.7	278°31.5	44.3
3	294°51.4	270°51.2	.. 41.2	150°51.8	.. 49.8	207°00.2	.. 14.7	293°33.8	.. 44.2
4	309°53.8	285°51.3	42.0	165°52.9	49.3	222°02.0	14.7	308°36.2	44.2
5	324°56.3	300°51.5	42.7	180°54.1	48.9	237°03.9	14.7	323°38.5	44.1
6	339°58.7	315°51.7	N07°43.5	195°55.3	N15°48.4	252°05.7	N23°14.7	338°40.8	S01°44.0
7	355°01.2	330°51.8	44.2	210°56.4	47.9	267°07.6	14.8	353°43.1	44.0
8	10°03.7	345°52.0	45.0	225°57.6	47.5	282°09.4	14.8	8°45.4	43.9
9	25°06.1	0°52.1	.. 45.7	240°58.8	.. 47.0	297°11.3	.. 14.8	23°47.7	.. 43.9
10	40°08.6	15°52.3	46.5	255°59.9	46.5	312°13.2	14.8	38°50.0	43.8
11	55°11.1	30°52.4	47.3	271°01.1	46.1	327°15.0	14.8	53°52.3	43.8
12	70°13.5	45°52.6	N07°48.0	286°02.3	N15°45.6	342°16.9	N23°14.8	68°54.6	S01°43.7
13	85°16.0	60°52.8	48.8	301°03.4	45.1	357°18.7	14.8	83°56.9	43.6
14	100°18.5	75°52.9	49.5	316°04.6	44.7	12°20.6	14.8	98°59.2	43.6
15	115°20.9	90°53.1	.. 50.3	331°05.8	.. 44.2	27°22.4	.. 14.9	114°01.6	.. 43.5
16	130°23.4	105°53.2	51.0	346°06.9	43.7	42°24.3	14.9	129°03.9	43.5
17	145°25.9	120°53.4	51.8	1°08.1	43.3	57°26.1	14.9	144°06.2	43.4
18	160°28.3	135°53.5	N07°52.5	16°09.2	N15°42.8	72°28.0	N23°14.9	159°08.5	S01°43.4
19	175°30.8	150°53.7	53.3	31°10.4	42.3	87°29.8	14.9	174°10.8	43.3
20	190°33.2	165°53.8	54.0	46°11.6	41.9	102°31.7	14.9	189°13.1	43.3
21	205°35.7	180°54.0	.. 54.8	61°12.7	.. 41.4	117°33.6	.. 14.9	204°15.4	.. 43.2
22	220°38.2	195°54.1	55.5	76°13.9	40.9	132°35.4	14.9	219°17.7	43.1
23	235°40.6	210°54.3	56.3	91°15.1	40.5	147°37.3	15.0	234°20.0	43.1
Mer.pass. 07:20 ν 0.2' d 0.7' m -4.39 ν 1.2' d -0.5' m 1.29 ν 1.9' d 0.0' m -1.91 ν 2.3' d 0.1' m 1.08									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	250°43.1	225°54.4	N07°57.1	106°16.2	N15°40.0	162°39.1	N23°15.0	249°22.4	S01°43.0
1	265°45.6	240°54.5	57.8	121°17.4	39.5	177°41.0	15.0	264°24.7	43.0
2	280°48.0	255°54.7	58.6	136°18.6	39.0	192°42.8	15.0	279°27.0	42.9
3	295°50.5	270°54.8	07°59.3	151°19.7	•• 38.6	207°44.7	•• 15.0	294°29.3	•• 42.9
4	310°53.0	285°55.0	08°00.1	166°20.9	38.1	222°46.5	15.0	309°31.6	42.8
5	325°55.4	300°55.1	00.8	181°22.1	37.6	237°48.4	15.0	324°33.9	42.8
6	340°57.9	315°55.3	N08°01.6	196°23.2	N15°37.2	252°50.2	N23°15.0	339°36.2	S01°42.7
7	356°00.3	330°55.4	02.3	211°24.4	36.7	267°52.1	15.0	354°38.5	42.6
8	11°02.8	345°55.5	03.1	226°25.5	36.2	282°53.9	15.1	9°40.8	42.6
9	26°05.3	0°55.7	•• 03.9	241°26.7	•• 35.8	297°55.8	•• 15.1	24°43.2	•• 42.5
10	41°07.7	15°55.8	04.6	256°27.9	35.3	312°57.7	15.1	39°45.5	42.5
11	56°10.2	30°56.0	05.4	271°29.0	34.8	327°59.5	15.1	54°47.8	42.4
12	71°12.7	45°56.1	N08°06.1	286°30.2	N15°34.3	343°01.4	N23°15.1	69°50.1	S01°42.4
13	86°15.1	60°56.2	06.9	301°31.4	33.9	358°03.2	15.1	84°52.4	42.3
14	101°17.6	75°56.4	07.6	316°32.5	33.4	13°05.1	15.1	99°54.7	42.3
15	116°20.1	90°56.5	•• 08.4	331°33.7	•• 32.9	28°06.9	•• 15.1	114°57.0	•• 42.2
16	131°22.5	105°56.6	09.2	346°34.9	32.5	43°08.8	15.1	129°59.4	42.2
17	146°25.0	120°56.8	09.9	1°36.0	32.0	58°10.6	15.2	145°01.7	42.1
18	161°27.5	135°56.9	N08°10.7	16°37.2	N15°31.5	73°12.5	N23°15.2	160°04.0	S01°42.0
19	176°29.9	150°57.0	11.4	31°38.3	31.0	88°14.3	15.2	175°06.3	42.0
20	191°32.4	165°57.2	12.2	46°39.5	30.6	103°16.2	15.2	190°08.6	41.9
21	206°34.8	180°57.3	•• 13.0	61°40.7	•• 30.1	118°18.0	•• 15.2	205°10.9	•• 41.9
22	221°37.3	195°57.4	13.7	76°41.8	29.6	133°19.9	15.2	220°13.2	41.8
23	236°39.8	210°57.6	14.5	91°43.0	29.1	148°21.8	15.2	235°15.5	41.8
Mer.pass.	07.16	0 01' d 0.8' m	-4.38	0 1.2' d -0.5' m	1.29	0 1.9' d 0.0' m	-1.91	0 2.3' d 0.1' m	1.08

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	251°42.2	225°57.7	N08°15.2	106°44.1	N15°28.7	163°23.6	N23°15.2	250°17.9	S01°41.7										
1	266°44.7	240°57.8	16.0	121°45.3	28.2	178°25.5	15.2	265°20.2	41.7										
2	281°47.2	255°58.0	16.8	136°46.5	27.7	193°27.3	15.3	280°22.5	41.6										
3	296°49.6	270°58.1	•• 17.5	151°47.6	•• 27.2	208°29.2	•• 15.3	295°24.8	•• 41.6										
4	311°52.1	285°58.2	18.3	166°48.8	26.8	223°31.0	15.3	310°27.1	41.5										
5	326°54.6	300°58.3	19.1	181°50.0	26.3	238°32.9	15.3	325°29.4	41.5										
6	341°57.0	315°58.5	N08°19.8	196°51.1	N15°25.8	253°34.7	N23°15.4	340°31.7	S01°41.4										
7	356°59.5	330°58.6	20.6	211°52.3	25.3	268°36.6	15.3	355°34.1	41.3										
8	12°02.0	345°58.7	21.3	226°53.4	24.9	283°38.4	15.3	10°36.4	41.3										
9	27°04.4	0°58.8	•• 22.1	241°54.6	•• 24.4	298°40.3	•• 15.3	25°38.7	•• 41.2										
10	42°06.9	15°59.0	22.9	256°55.8	23.9	313°42.1	15.3	40°41.0	41.2										
11	57°09.3	30°59.1	23.6	271°56.9	23.4	328°44.0	15.4	55°43.3	41.1										
12	72°11.8	45°59.2	N08°24.4	286°58.1	N15°23.0	343°45.8	N23°15.4	70°45.6	S01°41.1										
13	87°14.3	60°59.3	25.2	301°59.2	22.5	358°47.7	15.4	85°48.0	41.0										
14	102°16.7	75°59.4	25.9	317°00.4	22.0	13°49.5	15.4	100°50.3	41.0										
15	117°19.2	90°59.6	•• 26.7	332°01.6	•• 21.5	28°51.4	•• 15.4	115°52.6	•• 40.9										
16	132°21.7	105°59.7	27.4	347°02.7	21.1	43°53.2	15.4	130°54.9	40.9										
17	147°24.1	120°59.8	28.2	2°03.9	20.6	58°55.1	15.4	145°57.2	40.8										
18	162°26.6	135°59.8	N08°29.0	17°05.1	N15°20.1	73°57.0	N23°15.4	160°59.5	S01°40.8										
19	177°29.1	151°00.0	29.7	32°06.2	19.6	88°58.8	15.4	176°01.9	40.7										
20	192°31.5	166°00.2	30.5	47°07.4	19.2	104°00.7	15.4	191°04.2	40.7										
21	207°34.0	181°00.3	•• 31.3	62°08.5	•• 18.7	119°02.5	•• 15.5	206°06.5	•• 40.6										
22	222°36.4	196°00.4	32.0	77°09.7	18.2	134°04.4	15.5	221°08.8	40.5										
23	237°38.9	211°00.5	32.8	92°10.9	17.7	149°06.2	15.5	236°11.1	40.5										
Mer.pass. 07:12				ν 0.1° d 0.8' m -4.37				ν 1.2° d -0.5' m 1.30				ν 1.9° d 0.0' m -1.91				ν 2.3° d 0.1' m 1.08			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	252°41.4	226°00.6	N08°33.6	107°12.0	N15°17.3	164°08.1	N23°15.5	251°13.4	S01°40.4										
1	267°43.8	241°00.7	34.3	122°13.2	16.8	179°09.9	15.5	266°15.8	40.4										
2	282°46.3	256°00.8	35.1	137°14.3	16.3	194°11.8	15.5	281°18.1	40.3										
3	297°48.8	271°00.9	•• 35.9	152°15.5	•• 15.8	209°13.6	•• 15.5	296°20.4	•• 40.3										
4	312°51.2	286°01.1	36.6	167°16.7	15.3	224°15.5	15.5	311°22.7	40.2										
5	327°53.7	301°01.2	37.4	182°17.8	14.9	239°17.3	15.5	326°25.0	40.2										
6	342°56.2	316°01.3	N08°38.2	197°19.0	N15°14.4	254°19.2	N23°15.5	341°27.4	S01°40.1										
7	357°58.6	331°01.4	38.9	212°20.1	13.9	269°21.0	15.6	356°29.7	40.1										
8	13°01.1	346°01.5	39.7	227°21.3	13.4	284°22.9	15.6	11°32.0	40.0										
9	28°03.6	1°01.6	•• 40.5	242°22.4	•• 12.9	299°24.7	•• 15.6	26°34.3	•• 40.0										
10	43°06.0	16°01.7	41.2	257°23.6	12.5	314°26.6	15.6	41°36.6	39.9										
11	58°08.5	31°01.8	42.0	272°24.8	12.0	329°28.4	15.6	56°38.9	39.9										
12	73°10.9	46°01.9	N08°42.8	287°25.9	N15°11.5	344°30.3	N23°15.6	71°41.3	S01°39.8										
13	88°13.4	61°02.0	43.5	302°27.1	11.0	359°32.1	15.6	86°43.6	39.8										
14	103°15.9	76°02.1	44.3	317°28.2	10.5	14°34.0	15.6	101°45.9	39.7										
15	118°18.3	91°02.2	•• 45.1	332°29.4	•• 10.1	29°35.8	•• 15.6	116°48.2	•• 39.7										
16	133°20.8	106°02.3	45.8	347°30.6	09.6	44°37.7	15.6	131°50.5	39.6										
17	148°23.3	121°02.4	46.6	2°31.7	09.1	59°35.9	15.6	146°52.9	39.6										
18	163°25.7	136°02.5	N08°47.4	17°32.9	N15°08.6	74°41.4	N23°15.7	161°55.2	S01°39.5										
19	178°28.2	151°02.6	48.1	32°34.0	08.1	89°43.2	15.7	176°57.5	39.5										
20	193°30.7	166°02.7	48.9	47°35.2	07.7	104°45.1	15.7	191°59.8	39.4										
21	208°33.1	181°02.8	•• 49.7	62°36.4	•• 07.2	119°46.9	•• 15.7	207°02.1	•• 39.4										
22	223°35.6	196°02.9	50.5	77°37.5	06.7	134°48.8	15.7	222°04.5	39.3										
23	238°38.1	211°03.0	51.2	92°38.7	06.2	149°50.7	15.7	237°06.8	39.3										
Mer.pass. 07:08				ν 0.1° d 0.8' m -4.36				ν 1.2° d -0.5' m 1.31				ν 1.9° d 0.0' m -1.91				ν 2.3° d 0.1' m 1.07			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	253°40.5	226°03.1	N08°52.0	107°39.8	N15°05.7	164°52.5	N23°15.7	252°09.1	S01°39.2
1	268°43.0	241°03.2	52.8	122°41.0	05.3	179°54.4	15.7	267°11.4	39.2
2	283°45.4	256°03.3	53.5	137°42.1	04.8	194°56.2	15.7	282°13.7	39.1
3	298°47.9	271°03.4	•• 54.3	152°43.3	•• 04.3	209°58.1	•• 15.7	297°16.1	•• 39.0
4	313°50.4	286°03.5	55.1	167°44.5	03.8	224°59.9	15.7	312°18.4	39.0
5	328°52.8	301°03.6	55.8	182°45.6	03.3	240°01.8	15.8	327°20.7	38.9
6	343°55.3	316°03.7	N08°56.6	197°46.8	N15°02.8	255°03.6	N23°15.8	342°23.0	S01°38.9
7	358°57.8	331°03.8	57.4	212°47.9	02.4	270°05.5	15.8	357°25.4	38.8
8	14°00.2	346°03.9	58.2	227°49.1	01.9	285°07.3	15.8	12°27.7	38.8
9	29°02.7	1°04.0	•• 58.9	242°50.2	•• 01.4	300°09.2	•• 15.8	27°30.0	•• 38.7
10	44°05.2	16°04.1	08°59.7	257°51.4	00.9	315°11.0	15.8	42°32.3	38.7
11	59°07.6	31°04.2	09°00.5	272°52.6	15°00.4	330°12.9	15.8	57°34.6	38.6
12	74°10.1	46°04.2	N09°01.2	287°53.7	N14°59.9	345°14.7	N23°15.8	72°37.0	S01°38.6
13	89°12.5	61°04.3	02.0	302°54.9	59.5	0°16.6	15.8	87°39.3	38.5
14	104°15.0	76°04.4	02.8	317°56.0	59.0	15°18.4	15.8	102°41.6	38.5
15	119°17.5	91°04.5	•• 03.6	332°57.2	•• 58.5	30°20.3	•• 15.8	117°43.9	•• 38.4
16	134°19.9	106°04.6	04.3	347°58.3	58.0	45°22.1	15.9	132°46.3	38.4
17	149°22.4	121°04.7	05.1	2°59.5	57.5	60°24.0	15.9	147°48.6	38.3
18	164°24.9	136°04.8	N09°05.9	18°00.7	N14°57.0	75°25.8	N23°15.9	162°50.9	S01°38.3
19	179°27.3	151°04.8	06.6	33°01.8	56.6	90°27.7	15.9	177°53.2	38.2
20	194°29.8	166°04.9	07.4	48°03.0	56.1	105°29.5	15.9	192°55.5	38.2
21	209°32.3	181°05.0	•• 08.2	63°04.1	•• 55.6	120°31.4	•• 15.9	207°57.9	•• 38.1
22	224°34.7	196°05.1	09.0	78°05.3	55.1	135°33.2	15.9	223°00.2	38.1
23	239°37.2	211°05.2	09.7	93°06.4	54.6	150°35.1	15.9	238°02.5	38.0
Mer.pass. 07:04 ν 0.1° d 0.8' m -4.35 ν 1.2° d -0.5' m 1.32 ν 1.9° d 0.0' m -1.91 ν 2.3° d 0.1' m 1.07									

Stars		
	SHA	Dec
Alpheratz	357°34.6	29°13.7
Ankaa	353°07.0	-42°09.9
Schedar	349°31.0	56°40.3
Diphda	348°47.1	-17°50.8
Achernar	335°20.3	-57°06.2
Hamal	327°51.1	23°34.8
Polaris	314°19.0	89°22.1
Acamar	315°11.9	-40°12.0
Menkar	314°06.1	-4°11.3
Mirfak	308°28.3	49°57.0
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.3
Elnath	278°01.8	28°37.7
Alnilam	275°37.7	-1°12.1
Betelgeuse	270°52.1	7°24.2
Canopus	263°52.8	-52°42.6
Sirius	258°26.3	-16°45.1
Adhara	255°06.0	-29°00.5
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°15.0	-59°35.6
Suhail	222°46.3	-43°32.3
Miaplacidus	221°38.7	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.6	61°37.1
Denebola	182°24.5	14°25.8
Gienah	175°43.1	-17°41.1
Acrux	172°59.5	-63°14.7
Gacrux	171°51.1	-57°15.6
Althoth	166°12.4	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Hadar	148°35.1	-60°30.0
Menkent	147°56.9	-36°29.9
Arcturus	145°47.3	19°03.0
Rigel Kent.	139°39.3	-60°56.6
Kochab	137°18.7	74°03.1
Zuben 'ul	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.7
Antares	112°15.1	-26°29.4
Atria	107°08.4	-69°04.4
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.3
Rasalhague	95°57.9	12°32.4
Eltanin	90°41.5	51°29.0
Kaus Aus.	83°31.7	-34°22.3
Vega	80°32.6	38°48.3
Nunki	75°47.0	-26°15.9
Altair	61°59.4	8°56.0
Peacock	53°04.8	-56°39.0
Deneb	49°25.3	45°22.0
Enif	33°38.4	9°59.4
Al Na'ir	27°32.4	-46°50.1
Fornalhaut	15°14.2	-29°29.1
Scheat	13°44.9	28°13.1
Markab	13°29.6	15°20.4
Jun 03 Tue	SHA	Mer.pas.
Venus	334°15.5	08:56
Mars	215°01.9	16:52
Jupiter	271°41.4	13:05
Saturn	358°35.6	07:18
Jun 04 Wed	SHA	Mer.pas.
Venus	333°19.2	08:56
Mars	214°30.6	16:50
Jupiter	271°26.7	13:02
Saturn	358°32.1	07:14
Jun 05 Thu	SHA	Mer.pas.
Venus	332°22.6	08:56
Mars	213°59.3	16:48
Jupiter	271°12.0	12:59
Saturn	358°28.6	07:10
Horizontal parallax		
Venus:		0.2
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	254°39.7	226°05.3	N09°10.5	108°07.6	N14°54.1	165°36.9	N23°15.9	253°04.8	S01°38.0										
1	269°42.1	241°05.3	11.3	123°08.7	53.6	180°38.8	15.9	268°07.2	37.9										
2	284°44.6	256°05.4	12.1	138°09.9	53.2	195°40.6	15.9	283°09.5	37.9										
3	299°47.0	271°05.5	•• 12.8	153°11.1	•• 52.7	210°42.5	•• 15.9	298°11.8	•• 37.8										
4	314°49.5	286°05.6	13.6	168°12.2	52.2	225°44.3	15.9	313°14.1	37.8										
5	329°52.0	301°05.7	14.4	183°13.4	51.7	240°46.2	16.0	328°16.5	37.7										
6	344°54.4	316°05.7	N09°15.2	198°14.5	N14°51.2	255°48.0	N23°16.3	343°18.8	S01°37.7										
7	359°56.9	331°05.8	15.9	213°15.7	50.7	270°49.9	16.0	358°21.1	37.6										
8	14°59.4	346°05.9	16.7	228°16.8	50.2	285°51.7	16.0	13°23.4	37.6										
9	30°01.8	1°06.0	•• 17.5	243°18.0	•• 49.8	300°53.6	•• 16.0	28°25.8	•• 37.6										
10	45°04.3	16°06.0	18.3	258°19.1	49.3	315°55.4	16.0	43°28.1	37.5										
11	60°06.8	31°06.1	19.0	273°20.3	48.8	330°57.3	16.0	58°30.4	37.5										
12	75°09.2	46°06.2	N09°19.8	288°21.5	N14°48.3	345°59.1	N23°16.0	73°32.7	S01°37.4										
13	90°11.7	61°06.3	20.6	303°22.6	47.8	1°01.0	16.0	88°35.1	37.4										
14	105°14.2	76°06.3	21.4	318°23.8	47.3	16°02.8	16.0	103°37.4	37.3										
15	120°16.6	91°06.4	•• 22.1	333°24.9	•• 46.8	31°04.7	•• 16.0	118°39.7	•• 37.3										
16	135°19.1	106°06.5	22.9	348°26.1	46.3	46°06.5	16.0	133°42.0	37.2										
17	150°21.5	121°06.5	23.7	3°27.2	45.9	61°08.4	16.0	148°44.4	37.2										
18	165°24.0	136°06.6	N09°24.5	18°28.4	N14°45.4	76°10.2	N23°16.1	163°16.3	S01°37.1										
19	180°26.5	151°06.7	25.2	33°29.5	44.9	91°12.1	16.1	178°49.0	37.1										
20	195°28.9	166°06.7	26.0	48°30.7	44.4	106°13.9	16.1	193°51.3	37.0										
21	210°31.4	181°06.8	•• 26.8	63°31.8	•• 43.9	121°15.8	•• 16.1	208°53.7	•• 37.0										
22	225°33.9	196°06.9	27.6	78°33.0	43.4	136°17.6	16.1	223°66.0	36.9										
23	240°36.3	211°06.9	28.3	93°34.2	42.9	151°19.5	16.1	238°58.3	36.9										
Mer.pass. 07:00				ν 0.1' d 0.8' m -4.34				ν 1.2' d -0.5' m 1.33				ν 1.9' d 0.0' m -1.91				ν 2.3' d 0.0' m 1.06			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	255°38.8	226°07.0	N09°29.1	108°35.3	N14°42.4	166°21.3	N23°16.1	254°00.7	S01°36.8						
1	270°41.3	241°07.1	29.9	123°36.5	41.9	181°23.2	16.1	269°03.0	36.8						
2	285°43.7	256°07.1	30.7	138°37.6	41.5	196°25.0	16.1	284°05.3	36.7						
3	300°46.2	271°07.2	•• 31.4	153°38.8	•• 41.0	211°26.9	•• 16.1	299°07.6	•• 36.7						
4	315°48.6	286°07.3	32.2	168°39.9	40.5	226°28.7	16.1	314°10.0	36.6						
5	330°51.1	301°07.3	33.0	183°41.1	40.0	241°30.6	16.1	329°12.3	36.6						
6	345°53.6	316°07.4	N09°33.8	198°42.2	N14°39.5	256°32.4	N23°16.1	344°14.6	S01°36.5						
7	•• 0°56.0	331°07.5	34.6	213°43.4	39.0	271°34.3	16.1	359°16.9	36.5						
8	15°58.5	346°07.5	35.3	228°44.5	38.5	286°36.1	16.1	14°19.3	36.4						
9	31°01.0	1°07.6	•• 36.1	243°45.7	•• 38.0	301°38.0	•• 16.2	29°21.6	•• 36.4						
10	46°03.4	16°07.6	36.9	258°46.8	37.5	316°39.8	16.2	44°23.9	36.3						
11	61°05.9	31°07.7	37.7	273°48.0	37.0	331°41.7	16.2	59°26.3	36.3						
12	76°08.4	46°07.7	N09°38.4	288°49.2	N14°36.5	346°43.5	N23°16.2	74°28.6	S01°36.2						
13	91°10.8	61°07.8	39.2	303°50.3	36.1	1°45.4	16.2	89°30.9	36.2						
14	106°13.3	76°07.9	40.0	318°51.5	35.6	16°47.2	16.2	104°33.3	36.2						
15	121°15.8	91°07.9	•• 40.8	333°52.6	•• 35.1	31°49.0	•• 16.2	119°35.6	•• 36.1						
16	136°18.2	106°08.0	41.6	348°53.8	34.6	46°50.9	16.2	134°37.9	36.1						
17	151°20.7	121°08.0	42.3	3°54.9	34.1	61°52.7	16.2	149°40.2	36.0						
18	166°23.1	136°08.1	N09°43.1	18°56.1	N14°33.6	76°54.6	N23°16.2	164°42.6	S01°36.0						
19	181°25.6	151°08.1	43.9	33°57.2	33.1	91°56.4	16.2	179°44.9	35.9						
20	196°28.1	166°08.2	44.7	48°58.4	32.6	106°58.3	16.2	194°47.2	35.9						
21	211°30.5	181°08.2	•• 45.4	63°59.5	•• 32.1	122°00.1	•• 16.2	209°49.6	•• 35.8						
22	226°33.0	196°08.3	46.2	79°00.7	31.6	137°02.0	16.2	224°51.9	35.8						
23	241°35.5	211°08.3	47.0	94°01.8	31.1	152°03.8	16.2	239°54.2	35.7						
Mer.pass. 06:56				ν 0.1' d 0.8' m -4.33				ν 1.8' d 0.0' m -1.91				ν 2.3' d 0.0' m 1.06			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	256°37.9	226°08.4	N09°47.8	109°03.0	N14°30.6	167°05.7	N23°16.3	254°56.5	S01°35.7						
1	271°40.4	241°08.4	48.6	124°04.1	30.1	182°07.5	16.3	269°58.9	35.6						
2	286°42.9	256°08.5	49.3	139°05.3	29.7	197°09.4	16.3	285°01.2	35.6						
3	301°45.3	271°08.5	•• 50.1	154°06.4	•• 29.2	212°11.2	•• 16.3	300°03.5	•• 35.5						
4	316°47.8	286°08.6	50.9	169°07.6	28.7	227°13.1	16.3	315°05.9	35.5						
5	331°50.3	301°08.6	51.7	184°08.7	28.2	242°14.9	16.3	330°08.2	35.5						
6	346°52.7	316°08.7	N09°52.5	199°09.9	N14°27.7	257°16.8	N23°16.3	345°10.5	S01°35.4						
7	1°55.2	331°08.7	53.2	214°11.0	27.2	272°18.6	16.3	•• 12.9	35.4						
8	16°57.6	346°08.8	54.0	229°12.2	26.7	287°20.5	16.3	15°15.2	35.3						
9	32°00.1	1°08.8	•• 54.8	244°13.3	•• 26.2	302°22.3	•• 16.3	30°17.5	•• 35.3						
10	47°02.6	16°08.8	55.6	259°14.5	25.7	317°24.2	16.3	45°19.9	35.2						
11	62°05.0	31°08.9	56.4	274°15.7	25.2	332°26.0	16.3	60°22.2	35.2						
12	77°07.5	46°08.9	N09°57.1	289°16.8	N14°24.7	347°27.9	N23°16.3	75°24.5	S01°35.1						
13	92°10.0	61°09.0	57.9	304°18.0	24.2	2°29.7	16.3	90°26.9	35.1						
14	107°12.4	76°09.0	58.7	319°19.1	23.7	17°31.6	16.3	105°29.2	35.0						
15	122°14.9	91°09.1	•• 59.5	334°20.3	•• 23.2	32°33.4	•• 16.3	120°31.5	•• 35.0						
16	137°17.4	106°09.1	10°00.3	349°21.4	22.7	47°35.3	16.3	135°33.9	34.9						
17	152°19.8	121°09.1	01.0	4°22.6	22.2	62°37.1	16.3	150°36.2	34.9						
18	167°22.3	136°09.2	N10°01.8	19°23.7	N14°21.7	77°39.0	N23°16.4	165°38.5	S01°34.9						
19	182°24.7	151°09.2	02.6	34°24.9	21.2	92°40.8	16.4	180°40.9	34.8						
20	197°27.2	166°09.2	03.4	49°26.0	20.7	107°42.7	16.4	195°43.2	34.8						
21	212°29.1	181°09.3	•• 04.2	64°27.2	•• 20.3	122°44.5	•• 16.4	210°45.5	•• 34.7						
22	227°32.1	196°09.3	04.9	79°28.3	19.8	137°46.3	16.4	225°47.9	34.7						
23	242°34.6	211°09.3	05.7	94°29.5	19.3	152°48.2	16.4	240°50.2	34.6						
Mer.pass. 06:52				ν 0.0' d 0.8' m -4.32				ν 1.8' d 0.0' m -1.91				ν 2.3' d 0.0' m 1.06			

Stars		
	SHA	Dec
Alpheratz	357°34.5	29°13.7
Ankaa	353°07.0	-42°09.9
Schedar	349°30.9	56°40.3
Diphda	348°47.1	-17°50.7
Achernar	335°20.3	-57°06.2
Hamal	327°51.1	23°34.8
Polaris	341°18.1	89°22.1
Acamar	315°11.9	-40°12.0
Menkar	314°06.1	4°11.3
Mirfak	308°28.3	49°57.0
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.4
Elath	278°01.8	28°37.7
Anilam	275°37.7	-1°11.1
Betelgeuse	270°52.1	7°24.7
Canopus	263°52.8	-52°42.6
Sirius	258°26.3	-16°45.1
Adhara	255°06.0	-29°00.5
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°15.1	-59°35.6
Suhail	222°46.3	-43°32.3
Miaplacidus	221°38.7	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.6	61°37.1
Denebola	182°24.6	14°25.8
Gienah	175°43.2	-17°41.1
Acruz	172°59.5	-63°14.7
Gacrux	171°51.1	-57°15.6
Alloth	166°12.4	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Hadar	148°35.1	-60°30.0
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.0
Rigel Kent.	139°39.3	-60°56.6
Kochab	137°18.8	74°03.2
Zuben 'ul	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.7
Antares	112°15.1	-26°29.4
Atria	107°08.4	-69°04.4
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.3
Rasalhague	95°57.9	12°32.4
Eltanin	90°41.5	51°29.0
Kaus Aust.	83°31.7	-34°22.3
Vega	80°32.6	38°48.3
Nunki	75°47.0	-26°15.9
Altair	61°59.4	8°56.0
Peacock	53°04.8	-56°39.0
Deneb	49°25.3	45°22.0
Enif	33°38.4	9°29.4
Al Na'ir	27°32.4	-46°50.0
Fomalhaut	15°14.1	-29°29.1
Scheat	13°44.9	28°13.1
Markab	13°29.6	15°20.4
Jun 06 Fri	SHA	Mer-pass
Venus	331°25.6	08:56
Mars	213°27.9	16:46
Jupiter	270°57.3	12:56
Saturn	358°25.2	07:07
Jun 07 Sat	SHA	Mer-pass
Venus	330°28.2	08:55
Mars	212°56.5	16:44
Jupiter	270°42.5	12:53
Saturn	358°21.9	07:03
Jun 08 Sun	SHA	Mer-pass
Venus	329°30.5	08:55
Mars	212°25.1	16:43
Jupiter	270°27.8	12:50
Saturn	358°18.6	06:59
Horizontal parallax		
Venus:	0.2	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	257°37.1	226°09.4	N10°06.5	109°30.6	N14°18.8	167°50.0	N23°16.4	255°52.5	S01°34.6										
1	272°39.5	241°09.4	07.3	124°31.8	18.3	182°51.9	16.4	270°54.9	34.5										
2	287°42.0	256°09.4	08.1	139°32.9	17.8	197°53.7	16.4	285°57.2	34.5										
3	302°44.5	271°09.5	•• 08.8	154°34.1	•• 17.3	212°55.6	•• 16.4	300°59.5	•• 34.5										
4	317°46.9	286°09.5	09.4	169°35.2	16.8	227°57.4	16.4	316°01.9	34.4										
5	332°49.4	301°09.5	10.4	184°36.4	16.3	242°59.3	16.4	331°04.2	34.4										
6	347°51.9	316°09.6	N10°11.2	199°37.5	N14°15.8	258°01.1	N23°16.4	346°06.5	S01°34.6										
7	2°54.3	331°09.6	12.0	214°38.7	15.3	273°03.0	16.4	1°08.9	34.3										
8	17°56.8	346°09.6	12.7	229°39.8	14.8	288°04.8	16.4	16°11.2	34.3										
9	32°59.2	1°09.7	•• 13.5	244°41.0	•• 14.3	303°06.7	•• 16.4	31°13.5	•• 34.2										
10	48°01.7	16°09.7	14.3	259°42.1	13.8	318°08.5	16.4	46°15.9	34.1										
11	63°04.2	31°09.7	15.1	274°43.3	13.3	333°10.4	16.4	61°18.2	34.1										
12	78°06.6	46°09.7	N10°15.9	289°44.4	N14°12.8	348°12.2	N23°16.4	76°20.5	S01°34.0										
13	93°09.1	61°09.8	16.7	304°45.6	12.3	3°14.1	16.4	91°22.9	34.0										
14	108°11.6	76°09.8	17.4	319°46.7	11.8	18°15.9	16.4	106°25.2	34.0										
15	123°14.0	91°09.8	•• 18.2	334°47.9	•• 11.3	33°17.8	•• 16.5	121°27.5	•• 33.9										
16	138°16.5	106°09.8	19.0	349°49.0	10.8	48°19.6	16.5	136°29.9	33.9										
17	153°19.0	121°09.9	19.8	4°50.2	10.3	63°21.5	16.5	151°32.2	33.8										
18	168°21.4	136°09.9	N10°20.6	19°51.3	N14°09.8	78°23.3	N23°16.5	166°34.6	S01°33.8										
19	183°23.9	151°09.9	21.1	34°52.5	09.3	93°25.1	16.5	181°36.9	33.7										
20	198°26.4	166°09.9	22.3	49°53.6	08.8	108°27.0	16.5	196°39.2	33.7										
21	213°28.8	181°09.9	•• 22.9	64°54.8	•• 08.3	123°28.8	•• 16.5	211°41.6	•• 33.7										
22	228°31.3	196°10.0	23.7	79°55.9	07.8	138°30.7	16.5	226°43.9	33.6										
23	243°33.7	211°10.0	24.5	94°57.1	07.3	153°32.5	16.5	241°46.2	33.6										
Mer.pass. 06:48				ν 0.0' d 0.8' m -4.31				ν 1.2' d -0.5' m 1.35				ν 1.8' d 0.0' m -1.90				ν 2.3' d 0.0' m 1.05			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	258°36.2	226°10.0	N10°25.2	109°58.2	N14°06.8	168°34.4	N23°16.5	256°48.6	S01°33.5										
1	273°38.7	241°10.0	26.0	124°59.4	06.3	183°36.2	16.5	271°50.9	33.5										
2	288°41.1	256°10.0	26.8	140°00.5	05.8	198°38.1	16.5	286°53.2	33.4										
3	303°43.6	271°10.1	•• 27.6	155°01.6	•• 05.3	213°39.9	•• 16.5	301°55.6	•• 33.4										
4	318°46.1	286°10.1	28.4	170°02.8	04.8	228°41.8	16.5	316°57.9	33.3										
5	333°48.5	301°10.1	29.2	185°03.9	04.3	243°43.6	16.5	332°00.3	33.3										
6	348°51.0	316°10.1	N10°29.9	200°05.1	N14°03.8	258°45.5	N23°16.5	347°02.6	S01°33.3										
7	3°53.5	331°10.1	30.7	215°06.2	03.3	273°47.3	16.5	2°04.9	33.2										
8	18°55.9	346°10.1	31.5	230°07.4	02.8	288°49.2	16.5	7°07.9	33.2										
9	33°58.4	1°10.1	•• 32.3	245°08.5	•• 02.3	303°51.0	•• 16.5	32°09.9	•• 33.1										
10	49°00.0	16°10.1	33.1	260°09.7	01.8	318°52.9	16.5	47°12.0	33.1										
11	64°03.3	31°10.2	33.9	275°10.8	01.3	333°54.7	16.5	62°14.3	33.0										
12	79°05.8	46°10.2	N10°34.6	290°12.0	N14°00.8	348°56.5	N23°16.5	77°16.0	S01°33.0										
13	94°08.2	61°10.2	35.4	305°13.1	14°00.3	3°58.4	16.5	92°19.0	33.0										
14	109°10.7	76°10.2	36.2	320°14.3	13°59.8	19°00.2	16.5	107°21.3	32.9										
15	124°13.2	91°10.2	•• 37.0	335°15.4	•• 59.3	34°02.1	•• 16.5	122°23.6	•• 32.9										
16	139°15.6	106°10.2	37.8	350°16.6	58.8	49°03.9	16.6	137°26.0	32.8										
17	154°18.1	121°10.2	38.5	5°17.7	58.3	64°05.8	16.6	152°28.3	32.8										
18	169°20.6	136°10.2	N10°39.3	20°18.9	N13°57.7	79°07.6	N23°16.6	167°30.7	S01°32.7										
19	184°23.0	151°10.2	40.1	35°20.0	57.2	94°09.5	16.6	182°33.0	32.7										
20	199°25.5	166°10.2	40.9	50°21.2	56.7	109°11.3	16.6	197°35.3	32.7										
21	214°28.0	181°10.2	•• 41.7	65°22.3	•• 56.2	124°13.2	•• 16.6	212°37.7	•• 32.6										
22	229°30.4	196°10.2	42.5	80°23.5	55.7	139°15.0	16.6	227°40.0	32.6										
23	244°32.9	211°10.2	43.2	95°24.6	55.2	154°16.9	16.6	242°42.4	32.5										
Mer.pass. 06:44				ν 0.0' d 0.8' m -4.30				ν 1.1' d -0.5' m 1.36				ν 1.8' d 0.0' m -1.90				ν 2.3' d 0.0' m 1.05			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	259°35.4	226°10.2	N10°44.0	110°25.7	N13°54.7	169°18.7	N23°16.6	257°44.7	S01°32.5										
1	274°37.8	241°10.2	44.8	125°26.9	54.2	184°20.5	16.6	272°47.0	32.4										
2	289°40.3	256°10.3	45.6	140°28.0	53.7	199°22.4	16.6	287°49.4	32.4										
3	304°42.7	271°10.3	•• 46.4	155°29.2	•• 53.2	214°24.2	•• 16.6	302°51.7	•• 32.4										
4	319°45.2	286°10.3	47.2	170°30.3	52.7	229°26.1	16.6	317°54.1	32.3										
5	334°47.7	301°10.3	47.9	185°31.5	52.2	244°27.9	16.6	332°56.4	32.3										
6	349°50.1	316°10.3	N10°48.7	200°32.6	N13°51.7	259°29.8	N23°16.6	347°58.8	S01°32.2										
7	4°52.6	331°10.2	49.5	215°33.8	51.2	274°31.6	16.6	3°01.1	32.2										
8	19°55.1	346°10.2	50.3	230°34.9	50.7	289°33.5	16.6	18°03.4	32.2										
9	34°57.5	1°10.2	•• 51.1	245°36.1	•• 50.2	304°35.3	•• 16.6	33°05.8	•• 32.1										
10	50°00.0	16°10.2	51.9	260°37.2	49.7	319°37.2	16.6	48°08.1	32.1										
11	65°02.5	31°10.2	52.6	275°38.4	49.2	334°39.0	16.6	63°10.5	32.0										
12	80°04.9	46°10.2	N10°53.4	290°39.5	N13°48.7	349°40.9	N23°16.6	78°12.8	S01°32.0										
13	95°07.4	61°10.2	54.2	305°40.7	48.2	4°42.7	16.6	93°15.1	31.9										
14	110°09.8	76°10.2	55.0	320°41.8	47.6	19°44.6	16.6	108°17.5	31.9										
15	125°12.3	91°10.2	•• 55.8	335°42.9	•• 47.1	34°46.4	•• 16.6	123°19.8	•• 31.9										
16	140°14.8	106°10.2	56.5	350°44.1	46.6	49°48.2	16.6	138°22.2	31.8										
17	155°17.2	121°10.2	57.3	5°45.2	46.1	64°50.1	16.6	153°24.5	31.8										
18	170°19.7	136°10.2	N10°58.1	20°46.4	N13°45.6	79°51.9	N23°16.6	168°26.9	S01°31.7										
19	185°22.2	151°10.2	58.9	35°47.5	45.1	94°53.8	16.6	183°29.2	31.7										
20	200°24.6	166°10.2	10°59.7	50°48.7	44.6	109°55.6	16.6	198°31.5	31.7										
21	215°27.1	181°10.2	11°00.5	65°49.8	•• 44.1	124°57.5	•• 16.6	213°33.9	•• 31.6										
22	230°29.6	196°10.1	01.2	80°51.0	43.6	139°59.3	16.6	228°36.2	31.6										
23	245°32.0	211°10.1	02.0	95°52.1	43.1	155°01.2	16.6	243°38.6	31.5										
Mer.pass. 06:41				ν 0.0' d 0.8' m -4.29				ν 1.1' d -0.5' m 1.37				ν 1.8' d 0.0' m -1.90				ν 2.3' d 0.0' m 1.04			

Stars		
	SHA	Dec
Alpheratz	357°34.5	29°13.7
Ankaa	353°06.9	-42°09.8
Schedar	349°30.9	56°40.3
Diphda	348°47.1	-17°50.7
Achernar	335°20.3	-57°06.2
Hamal	327°51.1	23°34.9
Polaris	314°17.0	89°22.1
Acamar	315°11.9	-40°12.0
Menkar	314°06.1	4°11.3
Mirafak	308°28.2	49°56.9
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.9	46°01.4
Bellatrix	278°22.9	6°22.4
Elnath	278°01.8	28°37.7
Alnilam	275°37.7	-1°11.1
Betelgeuse	270°52.1	7°24.7
Canopus	265°52.8	-52°42.6
Sirius	268°26.3	-16°45.1
Adhara	255°06.0	-29°00.4
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°58.0
Avior	234°15.1	-59°35.6
Suhail	222°46.3	-43°32.3
Miaplacidus	221°38.8	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°56.6
Dubhe	193°40.6	61°37.1
Denebola	182°24.6	14°25.8
Gienah	175°43.2	-17°41.1
Acrux	172°59.5	-63°14.7
Gacrux	171°51.1	-57°15.6
Alloth	166°12.4	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Hadar	148°35.1	-60°30.3
Menkent	147°57.0	-36°29.9
Arcturus	145°49.4	19°03.0
Rigel Kent.	139°39.3	-60°56.6
Kochab	137°18.8	74°03.2
Zuben ul	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.8
Antares	112°15.1	-26°29.4
Atria	107°08.4	-69°04.4
Sabik	102°02.0	-15°45.4
Shaula	96°09.5	-37°07.3
Rasalhague	95°57.9	12°32.4
Eltanin	90°41.5	51°29.0
Kaus Aust.	83°31.7	-34°22.3
Vega	80°32.6	38°48.3
Nunki	75°47.0	-26°15.9
Altair	61°59.4	8°56.1
Peacock	53°04.8	-56°39.0
Deneb	49°25.3	45°52.0
Enif	33°38.3	9°59.4
Al Na'ir	27°32.3	-46°50.0
Fomalhaut	15°14.1	-29°29.1
Scheat	13°44.9	28°13.1
Markab	13°29.5	15°20.4
Jun 09 Mon	SHA	Mer. pass.
Venus	328°32.3	08:55
Mars	211°53.5	16:41
Jupiter	270°13.0	12:47
Saturn	358°15.5	06:55
Jun 10 Tue	SHA	Mer. pass.
Venus	327°33.8	08:55
Mars	211°22.0	16:39
Jupiter	269°58.2	12:44
Saturn	358°12.4	06:52
Jun 11 Wed	SHA	Mer. pass.
Venus	326°34.9	08:55
Mars	210°50.4	16:37
Jupiter	269°43.4	12:41
Saturn	358°09.4	06:48
Horizontal parallax		
Venus:		0.2
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	260°34.5	226°10.1	N11°02.8	110°53.3	N13°42.6	170°03.0	N23°16.6	258°40.9	S01°31.5										
1	275°37.0	241°10.1	03.6	125°54.4	42.1	185°04.9	16.6	273°43.3	31.5										
2	290°39.4	256°10.1	04.4	140°55.5	41.6	200°06.7	16.6	288°45.6	31.4										
3	305°41.9	271°10.1	05.2	155°56.7	41.0	215°08.5	16.6	303°47.9	31.4										
4	320°44.3	286°10.1	05.9	170°57.8	40.5	230°10.4	16.6	318°50.3	31.3										
5	335°46.8	301°10.0	06.7	185°59.0	40.0	245°12.2	16.6	333°52.6	31.3										
6	350°49.3	316°10.0	N11°07.5	201°00.1	N13°39.5	260°14.1	N23°16.7	348°55.0	S01°31.5										
7	5°51.7	331°10.0	08.3	216°01.3	39.0	275°15.9	16.7	3°57.3	31.2										
8	20°54.2	346°10.0	09.1	231°02.4	38.5	290°17.8	16.7	18°59.7	31.2										
9	35°56.7	1°10.0	09.8	246°03.6	38.0	305°19.6	16.7	34°02.0	31.1										
10	50°59.1	16°10.0	10.6	261°04.7	37.5	320°21.5	16.7	49°04.4	31.0										
11	66°01.6	31°09.9	11.4	276°05.8	37.0	335°23.3	16.7	64°06.7	31.1										
12	81°04.1	46°09.9	N11°12.2	291°07.0	N13°36.5	350°25.2	N23°16.7	79°09.1	S01°31.0										
13	96°06.5	61°09.9	13.0	306°08.1	36.0	5°27.0	16.7	94°11.4	31.0										
14	111°09.0	76°09.9	13.8	321°09.3	35.4	20°28.8	16.7	109°13.7	30.9										
15	126°11.5	91°09.9	14.5	336°10.4	34.9	35°30.7	16.7	124°16.1	30.9										
16	141°13.9	106°09.8	15.3	351°11.6	34.4	50°32.5	16.7	139°18.4	30.9										
17	156°16.4	121°09.8	16.1	6°12.7	33.9	65°34.4	16.7	154°20.8	30.8										
18	171°18.8	136°09.8	N11°16.9	21°13.9	N13°33.4	80°36.2	N23°16.7	169°23.1	S01°30.8										
19	186°21.3	151°09.8	17.7	36°15.0	32.9	95°38.1	16.7	184°25.5	30.7										
20	201°23.8	166°09.7	18.5	51°16.1	32.4	110°39.9	16.7	199°27.8	30.7										
21	216°26.2	181°09.7	19.2	66°17.3	31.9	125°41.8	16.7	214°30.2	30.7										
22	231°28.7	196°09.7	20.0	81°18.4	31.4	140°43.6	16.7	229°32.5	30.6										
23	246°31.2	211°09.7	20.8	96°19.6	30.8	155°45.5	16.7	244°34.9	30.6										
Mer.pass. 06:37				ν -0.0° d 0.8' m -4.29				ν 1.1° d -0.5' m 1.37				ν 1.8° d 0.0' m -1.90				ν 2.3° d 0.0' m 1.04			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	261°33.6	226°09.6	N11°21.6	111°20.7	N13°30.3	170°47.3	N23°16.7	259°37.2	S01°30.5										
1	276°36.1	241°09.6	22.4	126°21.9	29.8	185°49.1	16.7	274°39.6	30.5										
2	291°38.6	256°09.6	23.1	141°23.0	29.3	200°51.0	16.7	289°41.9	30.5										
3	306°41.0	271°09.5	23.9	156°24.1	28.8	215°52.8	16.7	304°44.3	30.4										
4	321°43.5	286°09.5	24.7	171°25.3	28.3	230°54.7	16.7	319°46.6	30.4										
5	336°46.0	301°09.5	25.5	186°26.4	27.8	245°56.5	16.7	334°48.9	30.3										
6	351°48.4	316°09.4	N11°26.3	201°27.6	N13°27.3	260°58.4	N23°16.7	349°51.3	S01°30.3										
7	6°50.9	331°09.4	27.1	216°28.7	26.7	276°00.2	16.7	4°53.6	30.3										
8	21°53.3	346°09.4	27.8	231°29.9	26.2	291°02.1	16.7	19°56.0	30.2										
9	36°55.8	1°09.3	28.6	246°31.0	25.7	306°03.9	16.7	34°58.3	30.2										
10	51°58.3	16°09.3	29.4	261°32.2	25.2	321°05.8	16.7	50°00.7	30.2										
11	67°00.7	31°09.3	30.2	276°33.3	24.7	336°07.6	16.7	65°03.0	30.1										
12	82°03.2	46°09.2	N11°31.0	291°34.4	N13°24.2	351°09.4	N23°16.7	80°05.4	S01°30.1										
13	97°05.7	61°09.2	31.7	306°35.6	23.7	6°11.3	16.7	95°07.7	30.0										
14	112°08.1	76°09.2	32.5	321°36.7	23.2	21°13.1	16.7	110°10.1	30.0										
15	127°10.6	91°09.1	33.3	336°37.9	22.6	36°15.0	16.7	125°12.4	30.0										
16	142°13.1	106°09.1	34.1	351°39.0	22.1	51°16.8	16.7	140°14.8	29.9										
17	157°15.5	121°09.0	34.9	6°40.1	21.6	66°18.7	16.7	155°17.1	29.9										
18	172°18.0	136°09.0	N11°35.7	21°41.3	N13°21.1	81°20.5	N23°16.7	170°19.5	S01°29.9										
19	187°20.5	151°09.0	36.4	36°42.4	20.6	96°22.4	16.7	185°21.8	29.8										
20	202°22.9	166°08.9	37.2	51°43.6	20.1	111°24.2	16.7	200°24.2	29.8										
21	217°25.4	181°08.9	38.0	66°44.7	19.6	126°26.0	16.7	215°26.5	29.7										
22	232°27.8	196°08.8	38.8	81°45.9	19.0	141°27.9	16.7	230°28.9	29.7										
23	247°30.3	211°08.8	39.6	96°47.0	18.5	156°29.7	16.7	245°31.2	29.7										
Mer.pass. 06:33				ν -0.0° d 0.8' m -4.28				ν 1.1° d -0.5' m 1.38				ν 1.8° d 0.0' m -1.90				ν 2.3° d 0.0' m 1.04			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	262°32.8	226°08.8	N11°40.3	111°48.1	N13°18.0	171°31.6	N23°16.7	260°33.6	S01°29.6										
1	277°35.2	241°08.7	41.1	126°49.3	17.5	186°33.4	16.7	275°35.9	29.6										
2	292°37.7	256°08.7	41.9	141°50.4	17.0	201°35.3	16.7	290°38.3	29.6										
3	307°40.2	271°08.6	42.7	156°51.6	16.5	216°37.1	16.7	305°40.6	29.5										
4	322°42.6	286°08.6	43.5	171°52.7	15.9	231°39.0	16.7	320°43.0	29.5										
5	337°45.1	301°08.5	44.2	186°53.9	15.4	246°40.8	16.7	335°45.3	29.4										
6	352°47.6	316°08.5	N11°45.0	201°55.0	N13°14.9	261°42.7	N23°16.7	350°47.7	S01°29.4										
7	7°50.0	331°08.4	45.6	216°56.1	14.4	276°44.5	16.7	5°50.0	29.4										
8	22°52.5	346°08.4	46.6	231°57.3	13.9	291°46.3	16.7	20°52.4	29.3										
9	37°55.0	1°08.3	47.4	246°58.4	13.4	306°48.2	16.7	35°54.7	29.3										
10	52°57.4	16°08.3	48.1	261°59.6	12.8	321°50.0	16.7	50°57.1	29.3										
11	67°59.9	31°08.2	48.9	277°00.7	12.3	336°51.9	16.7	65°59.5	29.2										
12	83°02.3	46°08.2	N11°49.7	292°01.8	N13°11.8	351°53.7	N23°16.7	81°01.8	S01°29.2										
13	98°04.8	61°08.1	50.5	307°03.0	11.3	6°55.6	16.7	96°04.2	29.1										
14	113°07.3	76°08.1	51.3	322°04.1	10.8	21°57.4	16.7	111°06.5	29.1										
15	128°09.7	91°08.0	52.0	337°05.3	10.3	36°59.3	16.7	126°08.9	29.1										
16	143°12.2	106°08.0	52.8	352°06.4	09.7	52°01.1	16.7	141°11.2	29.0										
17	158°14.7	121°07.9	53.6	7°07.5	09.2	67°02.9	16.7	156°13.6	29.0										
18	173°17.1	136°07.9	N11°54.4	22°08.7	N13°08.7	82°04.8	N23°16.7	171°15.9	S01°29.0										
19	188°19.6	151°07.8	55.2	37°09.8	08.2	97°06.6	16.7	186°18.3	28.9										
20	203°22.1	166°07.8	55.9	52°11.0	07.7	112°08.5	16.7	201°20.6	28.9										
21	218°24.5	181°07.7	56.7	67°12.1	07.1	127°10.3	16.7	216°23.0	28.8										
22	233°27.0	196°07.6	57.5	82°13.3	06.6	142°12.2	16.7	231°25.3	28.8										
23	248°29.4	211°07.6	58.3	97°14.4	06.1	157°14.0	16.7	246°27.7	28.8										
Mer.pass. 06:29				ν -0.0° d 0.8' m -4.27				ν 1.1° d -0.5' m 1.39				ν 1.8° d 0.0' m -1.90				ν 2.4° d 0.0' m 1.03			

SHA	Dec
Alpheratz	357°34.5 29°13.7
Ankaa	353°06.9 -42°09.8
Schedar	349°30.8 56°40.3
Diphda	348°47.1 -17°50.7
Achernar	335°20.2 -57°06.2
Hamal	327°51.0 23°34.9
Polaris	314°15.8 89°22.1
Acamar	315°11.9 -40°12.0
Menkar	314°06.1 4°11.4
Mirfak	308°28.2 49°56.9
Aldebaran	290°39.6 16°33.6
Rigel	281°03.9 -8°10.3
Capella	280°21.9 46°01.4
Bellatrix	278°22.8 6°22.4
Elnath	278°01.8 28°37.7
Alnilam	275°37.7 -1°11.1
Betelgeuse	270°52.1 7°24.7
Canopus	263°52.8 -52°42.6
Sirius	258°26.3 -16°45.1
Adhara	255°06.0 -29°00.4
Procyon	244°50.8 -5°09.6
Pollux	234°17.2 27°57.9
Avior	243°15.1 -59°35.6
Suhail	222°46.3 -43°32.3
Miaplacidus	221°38.8 -69°49.5
Alphard	217°47.6 -8°46.2
Regulus	207°34.2 11°50.6
Dubhe	193°40.7 61°37.1
Denebola	182°24.6 14°25.8
Gienah	175°43.2 -17°41.1
Acrux	172°59.6 -63°14.7
Gacrux	171°51.1 -57°15.6
Alloth	166°12.4 55°49.5
Spica	152°21.8 -11°17.7
Alkaid	152°51.4 49°11.3
Hadar	148°35.1 -60°30.0
Menkent	147°57.0 -36°29.9
Arcturus	145°47.4 -19°03.0
Rigil Kent.	139°39.3 -60°56.6
Kochab	137°18.8 74°03.2
Zuben'ubi	136°55.4 -16°08.9
Alphecca	126°03.1 26°37.8
Antares	112°15.0 -26°29.4
Atria	107°08.4 -69°04.4
Sabik	102°02.0 -15°45.4
Shaula	96°09.5 -37°07.3
Rasalhague	95°57.9 12°32.4
Eltanin	90°41.5 51°29.0
Kaus Aust.	83°31.7 -34°22.3
Vega	80°32.6 38°48.3

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	263°31.9	226°07.5	N11°59.1	112°15.5	N13°05.6	172°15.9	N23°16.7	261°30.0	S01°28.7										
1	278°34.4	241°07.5	11°59.8	127°16.7	05.1	187°17.7	16.7	276°32.4	28.7										
2	293°36.8	256°07.4	12°00.6	142°17.8	04.6	202°19.5	16.7	291°34.8	28.7										
3	308°39.3	271°07.3	12°01.4	157°19.0	04.0	217°21.4	16.7	306°37.1	28.6										
4	323°41.8	286°07.3	02.2	172°20.1	03.5	232°23.2	16.7	321°39.5	28.6										
5	338°44.2	301°07.2	02.9	187°21.2	03.0	247°25.1	16.7	336°41.8	28.6										
6	353°46.7	316°07.2	N12°03.7	202°22.4	N13°02.5	262°26.9	N23°16.7	351°44.2	S01°28.5										
7	8°49.2	331°07.1	04.5	217°23.5	02.0	277°28.8	16.7	6°46.5	28.5										
8	23°51.6	346°07.0	05.3	232°24.7	01.4	292°30.6	16.7	21°49.8	28.5										
9	38°54.1	1°07.0	06.1	247°25.8	00.9	307°32.5	16.7	36°51.2	28.4										
10	53°56.6	16°06.9	06.8	262°26.9	13°00.4	322°34.3	16.7	51°53.6	28.4										
11	68°59.0	31°06.8	07.6	277°28.1	12°59.9	337°36.1	16.7	66°56.0	28.4										
12	84°01.5	46°06.8	N12°08.4	292°29.2	N12°59.4	352°38.0	N23°16.7	81°58.3	S01°28.3										
13	99°03.9	61°06.7	09.2	307°30.4	58.8	7°39.8	16.7	97°00.7	28.3										
14	114°06.4	76°06.6	10.0	322°31.5	58.3	22°41.7	16.7	112°03.0	28.2										
15	129°08.9	91°06.6	10.7	337°32.6	57.8	37°43.5	16.7	127°05.4	28.2										
16	144°11.3	106°06.5	11.5	352°33.8	57.3	52°45.5	16.7	142°07.7	28.2										
17	159°13.8	121°06.4	12.3	7°34.9	56.7	67°47.2	16.7	157°10.1	28.1										
18	174°16.3	136°06.4	N12°13.1	22°36.0	N12°56.2	82°49.0	N23°16.7	172°12.4	S01°28.1										
19	189°18.7	151°06.3	13.8	37°37.2	55.7	97°50.9	16.7	187°14.8	28.1										
20	204°21.2	166°06.2	14.6	52°38.3	55.2	112°52.7	16.7	202°17.2	28.0										
21	219°23.7	181°06.1	15.4	67°39.5	54.7	127°56.4	16.7	217°19.5	28.0										
22	234°26.1	196°06.1	16.2	82°40.6	54.1	142°56.4	16.7	232°21.9	28.0										
23	249°28.6	211°06.0	16.9	97°41.7	53.6	157°58.3	16.7	247°24.2	27.9										
Mer.pass. 06:25				ν -0.1° d 0.8' m -4.26				ν 1.1° d -0.5' m 1.40				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.03			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	264°31.1	226°05.9	N12°17.7	112°42.9	N12°53.1	173°00.1	N23°16.7	262°26.6	S01°27.9						
1	279°33.5	241°05.8	18.5	127°44.0	52.6	188°02.0	16.7	277°28.9	27.9						
2	294°36.0	256°05.8	19.3	142°45.2	52.0	203°03.8	16.6	292°31.3	27.8						
3	309°38.4	271°05.7	20.1	157°46.3	51.5	218°05.6	16.6	307°33.7	27.8						
4	324°40.9	286°05.6	20.8	172°47.4	51.0	233°07.5	16.6	322°36.0	27.8						
5	339°43.4	301°05.5	21.6	187°48.6	50.5	248°09.3	16.6	337°38.4	27.7						
6	354°45.8	316°05.5	N12°22.4	202°49.7	N12°50.4	263°11.2	N23°16.6	352°40.7	S01°27.7						
7	9°48.3	331°05.4	23.2	217°50.9	49.0	278°13.0	16.6	7°43.1	27.7						
8	24°50.8	346°05.3	23.9	232°52.0	48.9	293°14.9	16.6	22°45.5	27.6						
9	39°53.2	1°05.2	24.7	247°53.1	48.4	308°16.7	16.6	37°47.8	27.6						
10	54°55.7	16°05.1	25.5	262°54.3	47.9	323°18.6	16.6	52°50.2	27.6						
11	69°58.2	31°05.1	26.3	277°55.4	47.3	338°20.4	16.6	67°52.5	27.5						
12	85°00.6	46°05.0	N12°27.0	292°56.5	N12°46.8	353°22.2	N23°16.6	82°54.9	S01°27.5						
13	100°03.1	61°04.9	27.8	307°57.7	46.3	8°24.1	16.6	97°57.2	27.5						
14	115°05.6	76°04.8	28.6	322°58.8	45.8	23°25.9	16.6	112°59.6	27.4						
15	130°08.0	91°04.7	29.4	338°00.0	45.2	38°27.8	16.6	128°02.0	27.4						
16	145°10.5	106°04.6	30.1	353°01.1	44.7	53°29.6	16.6	143°04.3	27.4						
17	160°12.9	121°04.6	30.9	8°02.2	44.2	68°31.5	16.6	158°06.7	27.3						
18	175°15.4	136°04.5	N12°31.7	23°03.4	N12°43.7	83°33.3	N23°16.6	173°09.0	S01°27.3						
19	190°17.9	151°04.4	32.5	38°04.5	43.1	98°35.1	16.6	188°11.4	27.3						
20	205°20.3	166°04.3	33.2	53°05.6	42.6	113°37.0	16.6	203°13.8	27.2						
21	220°22.8	181°04.2	34.0	68°06.8	42.1	128°38.8	16.6	218°16.1	27.2						
22	235°25.3	196°04.1	34.8	83°07.9	41.6	143°40.7	16.6	233°18.5	27.2						
23	250°27.7	211°04.0	35.6	98°09.1	41.0	158°42.5	16.6	248°20.9	27.1						
Mer.pass. 06:21				ν -0.1° d 0.8' m -4.25				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.02			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	265°30.2	226°04.0	N12°36.3	113°10.2	N12°40.5	173°44.4	N23°16.6	263°23.2	S01°27.1										
1	280°32.7	241°03.9	37.1	128°11.3	40.0	188°46.2	16.6	278°25.6	27.1										
2	295°35.1	256°03.8	37.9	143°12.5	39.5	203°48.0	16.6	293°27.9	27.0										
3	310°37.6	271°03.7	38.6	158°13.6	38.9	218°49.9	16.6	308°30.3	27.0										
4	325°40.0	286°03.6	39.4	173°14.7	38.4	233°51.7	16.6	323°32.7	27.0										
5	340°42.5	301°03.5	40.2	188°15.9	37.9	248°53.6	16.6	338°35.0	26.9										
6	355°45.0	316°03.4	N12°41.0	203°17.0	N12°37.4	263°55.4	N23°16.6	353°37.4	S01°26.9										
7	10°47.4	331°03.3	41.7	218°18.1	36.8	278°57.3	16.6	8°39.7	26.9										
8	25°49.9	346°03.2	42.5	233°19.3	36.3	293°59.1	16.6	23°42.1	26.8										
9	40°52.4	1°03.1	43.3	248°20.4	35.8	309°01.0	16.6	38°44.5	26.8										
10	55°54.8	16°03.0	44.1	263°21.6	35.2	324°02.8	16.6	53°46.8	26.8										
11	70°57.3	31°02.9	44.8	278°22.7	34.7	339°04.6	16.6	68°49.2	26.7										
12	85°59.8	46°02.8	N12°45.6	293°23.8	N12°34.2	354°06.5	N23°16.6	83°51.6	S01°26.7										
13	101°02.2	61°02.7	46.4	308°25.0	33.7	9°08.3	16.6	98°53.9	26.7										
14	116°04.7	76°02.6	47.1	323°26.1	33.1	24°10.2	16.6	113°56.3	26.6										
15	131°07.2	91°02.5	47.9	338°27.2	32.6	39°12.0	16.6	128°58.6	26.6										
16	146°09.6	106°02.4	48.7	353°28.4	32.1	54°13.9	16.5	144°01.0	26.6										
17	161°12.1	121°02.3	49.5	8°29.5	31.5	69°15.7	16.5	159°03.4	26.5										
18	176°14.5	136°02.2	N12°50.2	23°30.6	N12°31.0	84°17.5	N23°16.5	174°05.7	S01°26.5										
19	191°17.0	151°02.1	51.0	38°31.8	30.5	99°19.4	16.5	189°08.1	26.5										
20	206°19.5	166°02.0	51.8	53°32.9	30.0	114°21.2	16.5	204°10.5	26.5										
21	221°21.9	181°01.9	52.5	68°34.1	29.4	129°23.1	16.5	219°12.8	26.4										
22	236°24.4	196°01.8	53.3	83°35.2	28.9	144°24.9	16.5	234°15.2	26.4										
23	251°26.9	211°01.7	54.1	98°36.3	28.4	159°26.8	16.5	249°17.6	26.4										
Mer.pass. 06:17				ν -0.1° d 0.8' m -4.24				ν 1.1° d -0.5' m 1.41				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.02			

Stars	SHA	Dec
Alpheratz	357°34.5	29°13.7
Ankaa	353°06.9	-42°09.8
Schedar	349°30.8	56°40.4
Diphda	348°47.0	-17°50.7
Achernar	335°20.2	-57°06.2
Hamal	327°51.0	23°34.9
Polaris	314°14.7	89°22.1
Acamar	315°11.8	-40°12.0
Menkar	314°06.0	4°11.4
Mirafak	308°28.2	49°56.9
Aldebaran	290°39.6	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.8	46°01.4
Bellatrix	278°22.8	6°22.4
Elmath	278°01.8	28°37.7
Alnilam	275°37.7	-1°11.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.8	-52°42.5
Sirius	258°26.3	-16°45.1
Adhara	255°06.0	-29°00.4
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.1	-59°35.6
Suhail	222°46.4	-43°32.3
Miaplacidus	221°38.8	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.7	61°37.1
Denebola	182°24.6	14°25.8
Gienah	175°43.2	-17°41.1
Acrux	172°59.6	-63°14.7
Gacrux	171°51.1	-57°15.6
Alloth	166°12.5	-55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.4	49°11.3
Headar	148°35.1	-60°30.0
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.0
Rigel Kent.	139°39.3	-60°56.2
Kochab	137°18.9	74°03.2
Zuben el	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.8
Antares	112°15.0	-26°29.4
Atria	107°08.4	69°04.4</

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	266°29.3	226°01.6	N12°54.9	113°37.5	N12°27.8	174°28.6	N23°16.5	264°19.9	S01°26.3										
1	281°31.8	241°01.5	55.6	128°38.6	27.3	189°30.4	16.5	279°22.3	26.3										
2	296°34.3	256°01.4	56.4	143°39.7	26.8	204°32.3	16.5	294°37.7	26.3										
3	311°36.7	271°01.3	57.2	158°40.9	26.3	219°34.1	16.5	309°27.0	26.2										
4	326°39.2	286°01.2	57.9	173°42.0	25.7	234°36.2	16.5	324°29.4	26.2										
5	341°41.7	301°01.1	58.7	188°43.1	25.2	249°37.8	16.5	339°31.8	26.2										
6	356°44.1	316°01.0	N12°59.5	203°44.3	N12°24.7	264°39.7	N23°16.5	354°34.1	S01°26.3										
7	11°46.6	331°00.9	13°00.2	218°45.4	24.1	279°41.5	16.5	9°36.5	26.1										
8	26°49.0	346°00.8	01.0	233°46.5	23.6	294°43.3	16.5	24°38.8	26.1										
9	41°51.5	1°00.6	01.8	248°47.7	23.1	309°45.2	16.5	39°41.2	26.1										
10	56°54.0	16°00.5	02.5	263°48.8	22.5	324°47.0	16.5	54°43.6	26.0										
11	71°56.4	31°00.4	03.3	278°49.9	22.0	339°48.9	16.5	69°45.9	26.0										
12	86°58.9	46°00.3	N13°04.1	293°51.1	N12°21.5	354°50.7	N23°16.5	84°48.3	S01°26.0										
13	102°01.4	61°00.2	04.8	308°52.2	20.9	9°52.6	16.5	99°50.7	25.9										
14	117°03.8	76°00.1	05.6	323°53.4	20.4	24°54.4	16.5	114°53.0	25.9										
15	132°06.3	91°00.0	06.4	338°54.5	19.9	39°56.3	16.5	129°55.4	25.9										
16	147°08.8	105°59.7	07.1	353°55.6	19.4	54°58.1	16.4	144°57.8	25.8										
17	162°11.2	120°59.7	07.9	8°56.8	18.8	69°59.9	16.4	160°00.1	25.8										
18	177°13.7	135°59.6	N13°08.7	23°57.9	N12°18.3	85°01.8	N23°16.5	175°02.5	S01°25.8										
19	192°16.1	150°59.5	09.5	38°59.0	17.8	100°03.6	16.4	190°04.9	25.8										
20	207°18.6	165°59.4	10.2	54°00.2	17.2	115°05.5	16.5	205°07.2	25.7										
21	222°21.1	180°59.3	11.0	69°01.3	16.7	130°07.3	16.4	220°09.6	25.7										
22	237°23.5	195°59.2	11.8	84°02.4	16.2	145°07.2	16.4	235°12.0	25.7										
23	252°26.0	210°59.0	12.5	99°03.6	15.6	160°11.0	16.4	250°14.4	25.6										
Mer.pass. 06:13				ν -0.1° d 0.8' m -4.23				ν 1.1° d -0.5' m 1.42				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.02			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	267°28.5	225°58.9	N13°13.3	114°04.7	N12°15.1	175°12.8	N23°16.4	265°16.7	S01°25.6		
1	282°30.9	240°58.8	14.0	129°05.8	14.6	190°14.7	16.4	280°19.1	25.6		
2	297°33.4	255°58.7	14.8	144°07.0	14.0	205°16.5	16.4	295°21.5	25.5		
3	312°35.9	270°58.6	15.6	159°08.1	13.5	220°18.4	16.4	310°23.8	25.5		
4	327°38.3	285°58.4	16.3	174°09.2	13.0	235°20.2	16.4	325°26.2	25.5		
5	342°40.8	300°58.3	17.1	189°10.4	12.4	250°22.1	16.4	340°28.6	25.5		
6	357°43.3	315°58.2	N13°17.9	204°11.5	N12°11.9	265°23.9	N23°16.4	355°30.9	S01°25.4		
7	12°45.7	330°58.1	18.6	219°12.6	11.8	280°25.7	16.4	10°33.3	25.4		
8	27°48.2	345°57.9	19.4	234°13.8	10.8	295°27.6	16.4	25°35.7	25.4		
9	42°50.6	0°57.8	20.2	249°14.9	10.3	310°29.4	16.4	40°38.0	25.3		
10	57°53.1	15°57.7	20.9	264°16.0	09.8	325°31.3	16.4	55°40.4	25.3		
11	72°55.6	30°57.6	21.7	279°17.2	09.2	340°33.1	16.4	70°42.8	25.3		
12	87°58.0	45°57.4	N13°22.5	294°18.3	N12°08.7	355°30.5	N23°16.3	85°45.2	S01°25.3		
13	103°00.5	60°57.3	23.2	309°19.4	08.1	10°36.8	16.3	100°47.7	25.2		
14	118°03.0	75°57.2	24.0	324°20.6	07.6	25°38.6	16.3	115°49.9	25.2		
15	133°05.4	90°57.0	24.7	339°21.7	07.1	40°40.5	16.3	130°52.3	25.2		
16	148°07.9	105°56.9	25.5	354°22.8	06.5	55°42.3	16.3	145°54.6	25.1		
17	163°10.4	120°56.8	26.3	9°24.0	06.0	70°44.2	16.3	160°57.0	25.1		
18	178°12.8	135°56.7	N13°27.0	24°25.1	N12°05.5	85°46.0	N23°16.3	175°59.4	S01°25.1		
19	193°15.3	150°56.5	27.8	39°26.2	04.9	100°47.9	16.3	191°01.7	25.1		
20	208°17.8	165°56.4	28.6	54°27.4	04.4	115°49.7	16.3	206°04.1	25.0		
21	223°20.2	180°56.3	29.3	69°28.5	03.9	130°51.5	16.3	221°06.5	25.0		
22	238°22.7	195°56.1	30.1	84°29.6	03.3	145°53.4	16.3	236°08.9	25.0		
23	253°25.1	210°56.0	30.8	99°30.8	02.8	160°55.2	16.3	251°11.2	24.9		
Mer.pass. 06:09				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.01			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	268°27.6	225°55.9	N13°31.6	114°31.9	N12°02.3	175°57.1	N23°16.3	266°13.6	S01°24.9										
1	283°30.1	240°55.7	32.4	129°33.0	01.7	190°58.9	16.3	281°16.0	24.9										
2	298°32.5	255°55.6	33.1	144°34.2	01.2	206°00.8	16.3	296°18.3	24.9										
3	313°35.0	270°55.4	33.9	159°35.3	00.6	221°02.6	16.3	311°20.7	24.8										
4	328°37.5	285°55.3	34.6	174°36.4	12°00.1	236°04.4	16.3	326°23.1	24.8										
5	343°39.9	300°55.2	35.4	189°37.6	11°59.6	251°06.3	16.3	341°25.5	24.8										
6	358°42.4	315°55.0	N13°36.2	204°38.7	N11°59.0	266°08.1	N23°16.2	356°27.8	S01°24.7										
7	13°44.9	330°54.9	36.9	219°39.8	58.5	281°10.0	16.2	11°30.2	24.7										
8	28°47.3	345°54.8	37.7	234°40.9	58.0	296°11.8	16.2	26°32.6	24.7										
9	43°49.8	0°54.6	38.4	249°42.1	57.4	311°13.7	16.2	41°35.0	24.7										
10	58°52.2	15°54.5	39.2	264°43.2	56.9	326°15.5	16.2	56°37.3	24.6										
11	73°54.7	30°54.3	40.0	279°44.3	56.3	341°17.3	16.2	71°39.7	24.6										
12	88°57.2	45°54.2	N13°40.7	294°45.5	N11°55.8	356°19.2	N23°16.2	86°42.1	S01°24.6										
13	103°59.6	60°54.0	41.5	309°46.6	55.3	11°21.0	16.2	101°44.5	24.6										
14	119°02.1	75°53.9	42.2	324°47.7	54.7	26°22.9	16.2	116°46.8	24.5										
15	134°04.6	90°53.8	43.0	339°48.9	54.2	41°24.7	16.2	131°49.2	24.5										
16	149°07.0	105°53.6	43.8	354°50.0	53.7	56°26.6	16.2	146°51.6	24.5										
17	164°09.5	120°53.5	44.5	9°51.1	53.1	71°28.4	16.2	161°53.9	24.4										
18	179°12.0	135°53.3	N13°45.3	24°52.3	N11°52.6	86°30.2	N23°16.2	176°56.3	S01°24.4										
19	194°14.4	150°53.2	46.0	39°53.4	52.0	101°32.1	16.2	191°58.7	24.4										
20	209°16.9	165°53.0	46.8	54°54.5	51.5	116°33.9	16.2	207°01.1	24.4										
21	224°19.4	180°52.9	47.5	69°55.7	51.0	131°35.8	16.1	222°03.4	24.3										
22	239°21.8	195°52.7	48.3	84°56.8	50.4	146°37.6	16.1	237°05.8	24.3										
23	254°24.3	210°52.6	49.0	99°57.9	49.9	161°39.5	16.1	252°08.2	24.3										
Mer.pass. 06:05				ν -0.1° d 0.8' m -4.22				ν 1.1° d -0.5' m 1.43				ν 1.8° d -0.0' m -1.90				ν 2.4° d 0.0' m 1.01			

Stars	SHA	Dec
Alpheratz	357°34.4	29°13.7
Ankaa	353°06.8	-42°09.8
Schedar	349°30.8	-56°40.4
Diphda	348°47.0	-17°50.7
Achernar	335°20.2	-57°06.2
Hamal	327°51.0	23°34.9
Polaris	314°13.7	89°22.1
Acamar	315°11.8	-40°12.0
Menkar	314°06.0	4°11.4
Mirfak	308°28.2	49°56.9
Aldebaran	290°39.5	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.8	46°01.4
Bellatrix	278°22.8	6°22.4
Elnath	278°01.8	28°37.7
Alnilam	275°37.7	-1°11.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.8	-52°42.5
Sirius	258°26.3	-16°45.1
Adhara	255°06.0	-29°00.4
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.1	-59°35.6
Suhail	222°46.4	-43°32.3
Miaplacidus	221°38.9	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.7	61°37.1
Denebola	182°24.6	14°25.9
Gienah	175°43.2	-17°41.1
Acrux	172°59.6	-63°14.7
Gacrux	171°51.2	-57°15.6
Althoth	166°12.5	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.5	49°11.4
Hadar	148°35.1	-60°30.0
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.0
Rigel Kent.	139°39.4	-60°56.7
Kochab	137°18.9	74°03.2
Zuben ubi	136°55.4	-16°08.9
Alphecca	126°03.1	26°37.8
Antares	112°15.0	-26°29.4
Atria	107°08.4	-69°04.5
Satya	102°02.0	-15°45.4
Shaula	96°09.5	-37°07.3
Rasalhague	95°57.9	12°32.5
Eltanin	90°41.5	51°29.1
Kaus Aus.	83°31.6	34°22.3
Vega	80°32.6	38°48.3
Nunki	75°46.9	-26°15.9
Altair	61°59.3	8°56.1
Peacock	53°04.7	-56°39.0
Deneb	49°25.2	45°22.1
Enif	33°38.3	9°59.4
Al Na'ir	27°32.2	-46°50.0
Fomalhaut	15°14.0	-29°15.1
Scheat	13°44.8	28°13.1
Markab	13°29.5	15°20.0

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	269°26.7	225°52.4	N13°49.8	114°59.0	N11°49.3	176°41.3	N23°16.1	267°10.6	S01°24.3
1	284°29.2	240°52.3	50.6	130°00.2	48.8	191°43.1	16.1	282°12.9	24.2
2	299°31.7	255°52.1	51.3	145°01.3	48.3	206°45.0	16.1	297°15.3	24.2
3	314°34.1	270°52.0	•• 52.1	160°02.4	•• 47.7	221°46.8	•• 16.1	312°17.7	•• 24.2
4	329°36.6	285°51.8	52.8	175°03.6	47.2	236°48.7	16.1	327°20.1	24.2
5	344°39.1	300°51.7	53.6	190°04.7	46.6	251°50.5	16.1	342°22.5	24.1
6	359°41.5	315°51.5	N13°54.3	205°05.8	N11°46.1	266°52.3	N23°16.1	357°24.8	S01°24.1
7	14°44.0	330°51.4	55.1	220°07.0	45.6	281°54.2	16.1	12°27.2	24.1
8	29°46.5	345°51.2	55.8	235°08.1	45.0	296°56.0	16.1	27°29.6	24.1
9	44°48.9	0°51.1	•• 56.6	250°09.2	•• 44.5	311°57.9	•• 16.1	42°32.0	•• 24.0
10	59°51.4	15°50.9	57.3	265°10.4	43.9	326°59.7	16.1	57°34.3	24.0
11	74°53.9	30°50.7	58.1	280°11.5	43.4	342°01.6	16.0	72°36.7	24.0
12	89°56.3	45°50.6	N13°58.9	295°12.6	N11°42.8	357°03.4	N23°16.0	87°39.1	S01°23.9
13	104°58.8	60°50.4	58.6	310°13.7	42.3	12°05.2	16.0	102°41.5	23.9
14	120°01.2	75°50.3	14°00.4	325°14.9	41.8	27°07.1	•• 16.0	117°43.8	23.9
15	135°03.7	90°50.1	•• 01.1	340°16.0	•• 41.2	42°08.9	•• 16.0	132°46.2	•• 23.9
16	150°06.2	105°49.9	01.9	355°17.1	40.7	57°10.8	16.0	147°48.6	23.8
17	165°08.6	120°49.8	02.6	10°18.3	40.1	72°12.6	16.0	162°51.0	23.8
18	180°11.1	135°49.6	N14°03.4	25°19.4	N11°39.6	87°14.5	N23°16.0	177°53.4	S01°23.8
19	195°13.6	150°49.5	04.1	40°20.5	39.1	102°16.3	16.0	192°55.7	23.8
20	210°16.0	165°49.3	04.9	55°21.6	38.5	111°18.1	16.0	207°59.1	23.7
21	225°18.5	180°49.1	•• 05.6	70°22.8	•• 38.0	132°20.0	•• 16.0	223°00.5	•• 23.7
22	240°21.0	195°49.0	06.4	85°23.9	37.4	147°21.8	16.0	238°02.9	23.7
23	255°23.4	210°48.8	07.1	100°25.0	36.9	162°23.7	16.0	253°05.2	23.7
Mer.pass. 06:01 ν -0.2° d 0.8' m -4.21 ν 1.1° d -0.5' m 1.44 ν 1.8° d -0.0' m -1.90 ν 2.4° d 0.0' m 1.00									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	270°25.9	225°48.6	N14°07.9	115°26.2	N11°36.3	177°25.5	N23°16.0	268°07.6	S01°23.6						
1	285°28.3	240°48.5		08.6	130°27.3	35.8		283°10.0		15.9		283°10.0		23.6	
2	300°30.8	255°48.3		09.4	145°28.4	35.2		298°12.4		15.9		298°12.4		23.6	
3	315°33.3	270°48.1	••	10.1	160°29.6	••	34.7	222°31.0	••	15.9		313°14.8	••	23.6	
4	330°35.7	285°48.0		10.9	175°30.7	34.2		237°32.9		15.9		328°17.1		23.5	
5	345°38.2	300°47.8		11.6	190°31.8	33.6		252°34.7		15.9		343°19.5		23.5	
6	0°40.7	315°47.6	N14°12.4	205°32.9	N11°33.1	267°36.6	N23°15.9	358°21.9	S01°23.5						
7	15°43.1	330°47.5		13.1	220°34.1	32.5		13°24.3		15.9		13°24.3		23.5	
8	30°45.6	345°47.3		13.9	235°35.2	32.0		28°26.7		15.9		28°26.7		23.5	
9	45°48.1	0°47.1	••	14.6	250°36.3	••	31.4	312°42.1	••	15.9		43°29.0	••	23.4	
10	60°50.5	15°47.0		15.4	265°37.5	30.9		327°43.9		15.9		58°31.4		23.4	
11	75°53.0	30°46.8		16.1	280°38.6	30.3		342°45.8		15.9		73°33.8		23.4	
12	90°55.5	45°46.6	N14°16.8	295°39.7	N11°29.8	357°47.6	N23°15.9	88°36.2	S01°23.4						
13	105°57.9	60°46.4		17.6	310°40.8	29.3		12°49.5		15.8		103°38.6		23.4	
14	121°00.4	75°46.3		18.8	325°42.0	28.7		27°51.3		15.8		118°41.0		23.3	
15	136°02.8	90°46.1	••	19.1	340°43.1	••	28.2	42°53.2	••	15.8		133°43.3	••	23.3	
16	151°05.3	105°45.9		19.8	355°44.2	27.6		57°55.0		15.8		148°45.7		23.3	
17	166°07.8	120°45.7		20.6	10°45.4	27.1		72°56.8		15.8		163°48.1		23.2	
18	181°10.2	135°45.6	N14°21.3	25°46.5	N11°26.5	87°58.7	N23°15.8	178°50.6	S01°23.2						
19	196°12.7	150°45.4		22.1	40°47.6	26.0		103°00.5		15.8		193°52.9		23.2	
20	211°15.2	165°45.2		22.8	55°48.7	25.4		118°02.4		15.8		208°55.2		23.2	
21	226°17.6	180°45.0	••	23.6	70°49.9	••	24.9	133°04.2	••	15.8		223°57.6	••	23.1	
22	241°20.1	195°44.9		24.3	85°51.0	24.3		148°06.0		15.8		239°00.0		23.1	
23	256°22.6	210°44.7		25.0	100°52.1	23.8		163°07.9		15.8		254°02.4		23.1	
Mer.pass. 05:57			ν -0.2° d 0.7' m -4.20			ν 1.1° d -0.5' m 1.44			ν 1.8° d -0.0' m -1.89			ν 2.4° d 0.0' m 1.00			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	271°25.0	225°44.5	N14°25.8	115°53.2	N11°23.3	178°07.9	N23°15.7	269°04.8	S01°23.1						
1	286°27.5	240°44.3		26.5	130°54.4	22.7		193°11.6		15.7		284°07.2		23.1	
2	301°30.0	255°44.1		27.3	145°55.5	22.2		208°13.4		15.7		299°09.5		23.0	
3	316°32.4	270°44.0	••	28.0	160°56.6	••	21.6	223°15.3	••	15.7		314°11.9	••	23.0	
4	331°34.9	285°43.8		28.8	175°57.8	21.1		238°17.1		15.7		329°14.3		23.0	
5	346°37.3	300°43.6		29.5	190°58.9	20.5		253°18.9		15.7		344°16.7		23.0	
6	1°39.8	315°43.4	N14°30.2	206°00.0	N11°20.0	268°20.8	N23°15.7	359°19.1	S01°22.9						
7	16°42.3	330°43.2		31.0	221°01.1	19.4		283°22.6		15.7		14°21.5		22.9	
8	31°44.7	345°43.0		31.7	236°02.3	18.9		298°24.5		15.7		29°23.8		22.9	
9	46°47.2	0°42.9	••	32.5	251°03.4	••	18.3	313°26.3	••	15.7		44°26.2	••	22.9	
10	61°49.7	15°42.7		33.2	266°04.5	17.8		328°28.2		15.6		59°28.6		22.8	
11	76°52.1	30°42.5		33.9	281°05.6	17.2		343°30.0		15.6		74°31.0		22.8	
12	91°54.6	45°42.3	N14°34.7	296°06.8	N11°16.7	358°31.8	N23°15.6	89°33.8	S01°22.8						
13	106°57.1	60°42.1		35.4	311°07.9	16.1		13°33.7		15.6		104°35.4		22.8	
14	121°59.5	75°41.9		36.2	326°09.0	15.6		28°35.5		15.6		119°38.1		22.8	
15	137°02.0	90°41.7	••	36.9	341°10.2	••	15.0	43°37.4	••	15.6		134°40.5	••	22.7	
16	152°04.5	105°41.5		37.6	356°11.3	14.5		58°39.2		15.6		149°42.9		22.7	
17	167°06.9	120°41.4		38.4	11°12.4	13.9		73°41.1		15.6		164°45.3		22.7	
18	182°09.8	135°41.2	N14°39.1	26°13.5	N11°13.4	88°42.9	N23°15.6	179°47.7	S01°22.7						
19	197°11.8	150°41.0		39.8	41°14.7	12.8		103°44.7		15.6		194°50.1		22.6	
20	212°14.3	165°40.8		40.6	56°15.8	12.3		118°46.6		15.6		209°52.5		22.6	
21	227°16.8	180°40.6	••	41.3	71°16.9	••	11.7	133°48.4	••	15.5		224°54.8	••	22.6	
22	242°19.2	195°40.4		42.1	86°18.0	11.2		148°50.3		15.5		239°57.2		22.6	
23	257°21.7	210°40.2		42.8	101°19.2	10.6		163°52.1		15.5		254°59.6		22.6	
Mer.pass. 05:53			ν -0.2° d 0.7' m -4.20			ν 1.1° d -0.5' m 1.45			ν 1.8° d -0.0' m -1.89			ν 2.4° d 0.0' m 0.99			

	SHA	Dec
Alpheratz	357°34.4	29°13.7
Ankaa	353°06.8	-42°09.8
Schedar	349°30.7	56°40.4
Diphda	348°47.0	-17°50.7
Achernar	335°20.1	-57°06.2
Hamal	327°51.0	23°34.9
Polaris	314°12.5	89°22.0
Acamar	315°11.8	-40°12.0
Menkar	314°06.0	4°11.4
Mirfak	308°28.1	49°56.9
Aldebaran	290°39.5	16°33.6
Rigel	281°03.9	-8°10.3
Capella	280°21.8	46°01.4
Bellatrix	278°22.8	6°22.4
Elnath	278°01.8	28°37.7
Alnilam	275°37.7	-1°11.1
Betelgeuse	270°52.0	7°22.7
Canopus	263°52.8	-52°42.5
Sirius	258°26.3	-16°45.0
Adhara	255°06.0	-29°00.4
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.2	-59°35.6
Suhail	222°46.4	-43°32.3
Miapiculus	221°38.9	-69°49.5
Alphard	217°47.6	-8°46.2

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	272°24.2	225°40.0	N14°43.5	116°20.3	N11°10.1	178°53.9	N23°15.5	270°02.0	S01°22.5										
1	287°26.6	240°39.8	44.3	131°21.4	09.5	193°55.8	15.5	285°04.4	22.5										
2	302°29.1	255°39.6	45.0	146°22.5	09.0	208°57.6	15.5	300°06.8	22.5										
3	317°31.6	270°39.4	· · 45.7	161°23.7	· · 08.4	223°59.5	· · 15.5	315°09.2	· · 22.5										
4	332°34.0	285°39.2	46.5	176°24.8	07.9	239°01.3	15.5	330°11.6	22.5										
5	347°36.5	300°39.0	47.2	191°25.9	07.3	254°03.2	15.5	345°13.9	22.4										
6	2°39.0	315°38.8	N14°47.9	206°27.0	N11°06.8	269°05.0	N23°15.5	0°16.3	S01°22.4										
7	17°41.4	330°38.6	48.7	221°28.2	06.2	284°06.8	15.4	15°18.1	22.4										
8	32°43.9	345°38.4	49.4	236°29.3	05.7	299°08.7	15.4	30°21.7	22.4										
9	47°46.3	0°38.2	· · 50.1	251°30.4	· · 05.1	314°10.5	· · 15.4	45°23.5	· · 22.3										
10	62°48.8	15°38.0	50.9	266°31.5	04.6	329°12.4	15.4	60°25.9	22.2										
11	77°51.3	30°37.8	51.6	281°32.7	04.0	344°14.2	15.4	75°28.3	22.3										
12	92°53.7	45°37.6	N14°52.3	296°33.8	N11°03.5	359°16.0	N23°15.4	90°30.7	S01°22.3										
13	107°56.2	60°37.4	53.1	311°34.9	02.9	14°17.9	15.4	105°33.0	22.3										
14	122°58.7	75°37.2	53.8	326°36.0	02.4	29°19.7	15.3	120°35.4	22.2										
15	138°01.1	90°37.0	· · 54.5	341°37.2	· · 01.8	44°21.6	· · 15.3	135°37.8	· · 22.2										
16	153°03.6	105°36.8	55.3	356°38.3	01.3	59°23.4	15.3	150°40.2	22.2										
17	168°06.1	120°36.6	56.0	11°39.4	00.7	74°25.3	15.3	165°42.6	22.2										
18	183°08.5	135°36.4	N14°56.7	26°40.5	N11°00.2	89°27.1	N23°15.3	180°45.0	S01°22.2										
19	198°11.0	150°36.2	57.5	41°41.7	10°59.6	104°29.0	15.3	195°47.4	22.1										
20	213°13.5	165°36.0	58.2	56°42.8	59.1	119°30.8	15.3	210°49.8	22.1										
21	228°15.9	180°35.8	· · 58.9	71°43.9	· · 58.5	134°32.7	· · 15.3	225°52.2	· · 22.1										
22	243°18.4	195°35.6	14°59.6	86°45.0	58.0	149°35.5	15.3	240°64.5	22.1										
23	258°20.8	210°35.4	15°00.4	101°46.2	57.4	164°36.4	15.3	255°56.9	22.1										
Mer.pass. 05:49				ν -0.2° d 0.7' m -4.19				ν 1.1° d -0.6' m 1.45				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.99			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	273°23.3	225°35.2	N15°01.1	116°47.3	N10°56.8	179°38.2	N23°15.3	270°59.3	S01°22.0
1	288°25.8	240°34.9	01.8	131°48.4	56.3	194°40.0	15.3	286°01.7	22.0
2	303°28.2	255°34.7	02.6	146°49.5	55.7	209°41.9	15.2	301°04.1	22.0
3	318°30.7	270°34.5	· · 03.3	161°50.7	· · 55.2	224°43.7	· · 15.2	316°06.5	· · 22.0
4	333°33.2	285°34.3	04.0	176°51.8	54.6	239°45.6	15.2	331°08.9	22.0
5	348°35.6	300°34.1	04.7	191°52.9	54.1	254°47.4	15.2	346°11.3	21.9
6	3°38.1	315°33.9	N15°05.5	206°54.0	N10°53.0	269°49.3	N23°15.2	1°13.7	S01°21.9
7	18°40.6	330°33.7	06.2	221°55.2	53.5	284°51.1	15.2	16°16.1	21.9
8	33°43.0	345°33.5	06.9	236°56.3	52.4	299°52.9	15.2	31°18.5	21.9
9	48°45.5	0°33.2	· · 07.6	251°57.4	· · 51.9	314°55.8	· · 15.2	46°20.0	· · 21.9
10	63°48.0	15°33.0	08.4	266°58.5	51.3	329°56.6	15.2	61°23.2	21.8
11	78°50.4	30°32.8	09.1	281°59.7	50.8	344°58.5	15.1	76°25.6	21.8
12	93°52.9	45°32.6	N15°09.8	297°00.8	N10°50.2	0°00.3	N23°15.1	91°28.0	S01°21.8
13	108°55.3	60°32.4	10.5	312°01.9	49.6	15°02.1	15.1	106°30.4	21.8
14	123°57.8	75°32.2	11.3	327°03.0	49.1	30°04.0	21.8	121°32.8	21.8
15	139°00.3	90°31.9	· · 12.0	342°04.1	· · 48.5	45°05.8	· · 15.1	136°35.5	· · 21.8
16	154°02.7	105°31.7	12.7	357°05.3	48.0	60°07.7	15.1	151°37.6	21.7
17	169°05.2	120°31.5	13.4	12°06.4	47.4	75°09.5	15.1	166°40.0	21.7
18	184°07.7	135°31.3	N15°14.2	27°07.5	N10°46.9	90°11.4	N23°15.1	181°42.4	S01°21.7
19	199°10.1	150°31.1	14.9	42°08.6	46.3	105°13.2	15.1	196°44.8	21.7
20	214°12.6	165°30.8	15.6	57°09.8	45.8	120°15.0	15.0	211°47.2	21.6
21	229°15.1	180°30.6	· · 16.3	72°10.9	· · 45.2	135°16.9	· · 15.0	226°49.6	· · 21.6
22	244°17.5	195°30.4	17.0	87°12.0	44.6	150°18.7	15.0	241°51.9	21.6
23	259°20.0	210°30.2	17.8	102°13.1	44.1	165°20.6	15.0	256°54.3	21.6
Mer.pass. 05:45 ν -0.2° d 0.7' m -4.18 ν 1.1° d -0.6' m 1.46 ν 1.8° d -0.0' m -1.89 ν 2.4° d 0.0' m 0.99									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	274°22.5	225°30.0	N15°18.5	117°14.3	N10°43.5	180°22.4	N23°15.0	271°56.7	S01°21.6
1	289°24.9	240°29.7	19.2	132°15.4	43.0	195°24.3	15.0	286°59.1	21.6
2	304°27.4	255°29.5	19.9	147°16.5	42.4	210°26.1	15.0	302°01.5	21.6
3	319°29.8	270°29.3	· · 20.6	162°17.6	· · 41.9	225°27.9	· · 15.0	317°03.9	· · 21.5
4	334°32.3	285°29.1	21.4	177°18.7	41.3	240°29.8	15.0	332°06.3	21.5
5	349°34.8	300°28.8	22.1	192°19.9	40.7	255°31.6	14.9	347°08.7	21.5
6	4°37.2	315°28.6	N15°22.8	207°21.0	N10°40.2	270°33.5	N23°14.9	2°11.1	S01°21.5
7	19°39.7	330°28.4	23.5	222°22.1	39.6	285°35.3	14.9	17°13.5	21.5
8	34°42.2	345°28.1	24.2	237°23.2	39.1	300°37.2	14.9	32°15.9	21.4
9	49°44.6	0°27.9	· · 25.0	252°24.4	· · 38.5	315°39.0	· · 14.9	47°18.3	· · 21.4
10	64°47.1	15°27.7	25.7	267°25.5	38.0	330°40.8	14.9	62°20.7	21.4
11	79°49.6	30°27.5	26.4	282°26.6	37.4	345°42.7	14.9	77°23.1	21.4
12	94°52.0	45°27.2	N15°27.1	297°27.7	N10°36.8	0°44.5	N23°14.9	92°25.5	S01°21.4
13	109°54.5	60°27.0	27.8	312°28.8	36.3	15°46.4	14.8	107°27.9	21.4
14	124°56.9	75°26.8	28.5	327°30.0	35.7	30°48.2	14.8	122°30.3	21.3
15	139°59.4	90°26.5	· · 29.2	342°31.1	· · 35.2	44°50.1	· · 14.8	137°32.7	· · 21.3
16	155°01.9	105°26.3	30.0	357°32.2	34.6	60°51.9	14.8	152°35.1	21.3
17	170°04.3	120°26.1	30.7	12°33.3	34.0	75°53.7	14.8	167°37.5	21.3
18	185°06.8	135°25.8	N15°31.4	27°34.5	N10°33.5	90°55.6	N23°14.8	182°39.9	S01°21.3
19	200°09.3	150°25.6	32.1	42°35.6	32.9	105°57.4	14.8	197°42.3	21.3
20	215°11.7	165°25.4	32.8	57°36.7	32.4	120°59.3	14.8	212°44.6	21.2
21	230°14.2	180°25.1	· · 33.5	72°37.8	· · 31.8	136°01.1	· · 14.7	227°47.0	· · 21.2
22	245°16.7	195°24.9	34.2	87°38.9	31.2	151°03.0	14.7	242°49.4	21.2
23	260°19.1	210°24.6	34.9	102°40.1	30.7	166°04.8	14.7	257°51.8	21.2
Mer.pass. 05:42 ν -0.2° d 0.7' m -4.17 ν 1.1° d -0.6' m 1.47 ν 1.8° d -0.0' m -1.89 ν 2.4° d 0.0' m 0.98									

Stars	SHA	Dec
Alpheratz	357°34.4	29°13.7
Ankaa	353°06.8	-42°09.8
Schedar	349°30.7	56°40.4
Diphda	348°47.0	-17°50.7
Achernar	335°20.1	-57°06.1
Hamal	327°50.9	23°34.9
Polaris	314°10.9	89°22.0
Acamar	315°11.8	-40°11.9
Menkar	314°06.0	4°11.4
Mirafak	308°28.1	49°56.9
Aldebaran	290°39.5	16°33.6
Rigel	281°03.8	-8°10.3
Capella	280°21.8	46°01.4
Bellatrix	278°22.8	6°22.4
Elmath	278°01.8	28°37.7
Alnilam	275°37.7	-1°11.1
Betelgeuse	270°52.0	7°24.7
Canopus	263°52.8	-52°42.5
Sirius	258°26.3	-16°45.0
Adhara	255°06.0	-29°00.4
Procyon	244°50.8	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.2	-59°35.6
Suhail	222°46.4	-43°32.3
Miaplacidus	221°38.9	-69°49.5
Alphard	217°47.6	-8°46.2
Regulus	207°34.2	11°50.6
Dubhe	193°40.7	61°37.1
Denebola	182°24.6	14°25.9
Gienah	175°43.2	-17°41.1
Acrux	172°59.7	-63°14.7
Gacrux	171°51.2	-57°15.6
Althioth	166°12.5	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.5	49°11.4
Hadar	148°35.2	-60°30.0
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.1
Rigel Kent.	139°39.4	-60°56.2
Kochab	137°19.0	74°03.2

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	275°21.6	225°24.4	N15°35.7	117°41.2	N10°30.1	181°06.6	N23°14.7	272°54.2	S01°21.2										
1	290°24.1	240°24.2	36.4	132°42.3	29.6	196°08.5	14.7	287°56.6	21.2										
2	305°26.5	255°23.9	37.1	147°43.4	29.0	211°10.3	14.7	302°59.0	21.1										
3	320°29.0	270°23.7	•• 37.8	162°44.5	•• 28.4	226°12.2	•• 14.7	318°01.4	•• 21.1										
4	335°31.4	285°23.4	38.5	177°45.7	27.9	241°15.0	14.7	333°03.8	21.1										
5	350°33.9	300°23.2	39.2	192°46.8	27.3	256°15.9	14.6	348°06.2	21.1										
6	5°36.4	315°23.0	N15°39.9	207°47.9	N10°26.8	271°17.7	N23°14.6	3°08.6	S01°21.0										
7	20°38.8	330°22.7	40.6	222°49.0	26.2	286°19.5	14.6	18°11.0	21.1										
8	35°41.3	345°22.5	41.3	237°50.2	25.6	301°21.4	14.6	33°13.4	21.0										
9	50°43.8	•• 02.22	•• 42.0	252°51.3	•• 25.1	316°23.2	•• 14.6	48°15.8	•• 21.0										
10	65°46.2	15°22.0	42.8	267°52.4	24.5	331°25.1	14.6	63°18.2	21.0										
11	80°48.7	30°21.7	43.5	282°53.5	24.0	346°26.9	14.6	78°20.6	21.0										
12	95°51.2	45°21.5	N15°44.2	297°54.6	N10°23.4	1°28.8	N23°14.5	93°23.0	S01°21.0										
13	110°53.6	60°21.3	44.9	312°55.8	22.8	16°30.6	14.5	108°25.4	21.0										
14	125°56.1	75°21.0	45.6	327°56.9	22.3	31°32.4	14.5	123°27.8	20.9										
15	140°58.6	90°20.8	•• 46.3	342°58.0	•• 21.7	46°34.3	•• 14.5	138°30.2	•• 20.9										
16	156°01.0	105°20.5	47.0	357°59.1	21.2	61°36.1	14.5	153°32.6	20.9										
17	171°03.5	120°20.3	47.7	13°00.2	20.6	76°38.0	14.5	168°35.0	20.9										
18	186°05.9	135°20.0	N15°48.4	28°01.4	N10°20.0	91°38.8	N23°14.5	183°37.4	S01°20.9										
19	201°08.4	150°19.8	49.1	43°02.5	19.5	106°41.7	14.5	198°39.8	20.9										
20	216°10.9	165°19.5	49.8	58°03.6	18.9	121°43.5	14.5	213°42.2	20.9										
21	231°13.3	180°19.3	•• 50.5	73°04.7	•• 18.3	136°45.3	•• 14.4	228°44.6	•• 20.8										
22	246°15.8	195°19.0	51.2	88°05.8	17.8	151°47.2	14.4	243°47.0	20.8										
23	261°18.3	210°18.8	51.9	103°07.0	17.2	166°49.0	14.4	258°49.4	20.8										
Mer.pass. 05:38				ν -0.2° d 0.7' m -4.17				ν 1.1° d -0.6' m 1.47				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.98			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	276°20.7	225°18.5	N15°52.6	118°08.1	N10°16.7	181°50.9	N23°14.4	273°51.8	S01°20.8										
1	291°23.2	240°18.3	53.3	133°09.2	16.1	196°52.7	14.4	288°54.2	20.8										
2	306°25.7	255°18.0	54.0	148°10.3	15.5	211°54.6	14.4	303°56.6	20.8										
3	321°28.1	270°17.7	•• 54.7	163°11.4	•• 15.0	226°56.4	•• 14.3	318°59.0	•• 20.8										
4	336°30.6	285°17.5	55.4	178°12.6	14.4	241°58.3	14.3	334°01.4	20.7										
5	351°33.1	300°17.2	56.1	193°13.7	13.8	257°00.1	14.3	349°03.8	20.7										
6	6°35.5	315°17.0	N15°56.8	208°14.8	N10°13.3	272°01.9	N23°14.3	4°06.2	S01°20.7										
7	21°38.0	330°16.7	57.5	223°15.9	12.7	287°03.8	14.3	19°08.6	20.7										
8	36°40.4	345°16.5	58.2	238°17.0	12.1	302°05.6	14.3	34°11.0	20.7										
9	51°42.9	•• 01.62	•• 58.9	253°18.2	•• 11.6	317°07.5	•• 14.3	49°13.4	•• 20.7										
10	66°45.4	15°15.9	59.6	268°19.3	11.0	332°09.3	14.2	64°15.9	20.7										
11	81°47.8	30°15.7	16°00.3	283°20.4	10.5	347°11.2	14.2	79°18.3	20.6										
12	96°50.3	45°15.4	N16°01.0	298°21.5	N10°09.9	2°13.0	N23°14.2	94°20.7	S01°20.6										
13	111°52.8	60°15.2	01.7	313°22.6	09.3	17°14.8	14.2	109°23.1	20.6										
14	126°55.2	75°14.9	02.4	328°23.7	08.8	32°16.7	14.2	124°25.5	20.6										
15	141°57.7	90°14.6	•• 03.1	343°24.9	•• 08.2	47°18.5	•• 14.2	139°27.9	•• 20.6										
16	157°00.2	105°14.4	03.8	358°26.0	07.6	62°20.4	14.2	154°30.3	20.6										
17	172°02.6	120°14.1	04.5	13°27.1	07.1	77°22.2	14.1	169°32.7	20.6										
18	187°05.1	135°13.9	N16°05.2	28°28.2	N10°06.5	92°24.1	N23°14.1	184°35.1	S01°20.5										
19	202°07.6	150°13.6	05.9	43°29.3	05.9	107°25.9	14.1	199°37.5	20.5										
20	217°10.0	165°13.3	06.6	58°30.5	05.4	122°27.7	14.1	214°39.9	20.5										
21	232°12.5	180°13.1	•• 07.3	73°31.6	•• 04.8	137°29.6	•• 14.1	229°42.3	•• 20.5										
22	247°14.9	195°12.8	08.0	88°32.7	04.2	152°31.4	14.1	244°44.7	20.5										
23	262°17.4	210°12.5	08.7	103°33.8	03.7	167°33.3	14.1	259°47.1	20.5										
Mer.pass. 05:34				ν -0.3° d 0.7' m -4.16				ν 1.1° d -0.6' m 1.48				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.97			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	277°19.9	225°12.3	N16°09.3	118°34.9	N10°03.1	182°35.1	N23°14.0	274°49.5	S01°20.5										
1	292°22.3	240°12.0	10.0	133°36.1	02.5	197°37.0	14.0	289°51.9	20.4										
2	307°24.8	255°11.7	10.7	148°37.2	02.0	212°38.8	14.0	304°54.3	20.4										
3	322°27.3	270°11.5	•• 11.4	163°38.3	•• 01.4	227°40.7	•• 14.0	319°56.7	•• 20.4										
4	337°29.7	285°11.2	12.1	178°39.4	00.8	242°42.5	14.0	334°59.1	20.4										
5	352°32.2	300°10.9	12.8	193°40.5	10°00.3	257°44.3	14.0	350°01.5	20.4										
6	7°34.7	315°10.6	N16°13.5	208°41.6	N09°59.7	272°46.2	N23°14.0	5°03.9	S01°20.4										
7	22°37.1	330°10.4	14.2	223°42.8	59.1	287°48.0	13.9	20°06.4	20.4										
8	37°39.6	345°10.1	14.9	238°43.9	58.6	302°49.9	13.9	35°08.8	20.4										
9	52°42.0	•• 09.08	•• 15.6	253°45.0	•• 58.0	317°51.7	•• 13.9	50°11.2	•• 20.3										
10	67°44.5	15°09.6	16.2	268°46.1	57.4	332°53.6	13.9	65°13.6	20.3										
11	82°47.0	30°09.3	16.9	283°47.2	56.9	347°55.4	13.9	80°16.0	20.3										
12	97°49.4	45°09.0	N16°17.6	298°48.4	N09°56.3	2°57.2	N23°13.9	95°18.4	S01°20.3										
13	112°51.9	60°08.7	18.3	313°49.5	55.7	17°59.1	13.8	110°20.8	20.3										
14	127°54.4	75°08.5	19.0	328°50.6	55.2	33°00.9	13.8	125°23.2	20.3										
15	142°56.8	90°08.2	•• 19.7	343°51.7	•• 54.6	48°02.8	•• 13.8	140°25.6	•• 20.3										
16	157°59.3	105°07.9	20.4	358°52.8	54.0	63°04.6	13.8	155°28.0	20.3										
17	173°01.8	120°07.6	21.0	13°53.9	53.5	78°06.5	13.8	170°30.4	20.2										
18	188°04.2	135°07.4	N16°21.7	28°55.1	N09°52.9	93°08.3	N23°13.8	185°32.8	S01°20.2										
19	203°06.7	150°07.1	22.4	43°56.2	52.3	108°10.2	13.8	200°35.2	20.2										
20	218°09.2	165°06.8	23.1	58°57.3	51.8	123°12.0	13.7	215°37.6	20.2										
21	233°11.6	180°06.5	•• 23.8	73°58.4	•• 51.2	138°13.8	•• 13.7	230°40.1	•• 20.2										
22	248°14.1	195°06.2	24.5	88°59.5	50.6	153°15.7	13.7	245°42.5	20.2										
23	263°16.5	210°06.0	25.1	104°00.6	50.1	168°17.5	13.7	260°44.9	20.2										
Mer.pass. 05:30				ν -0.3° d 0.7' m -4.15				ν 1.1° d -0.6' m 1.48				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.97			

SHA	Dec
Alpheratz	357°34.3 29°13.7
Ankaa	353°06.8 -42°09.8
Schedar	349°30.7 56°40.4
Diphda	348°46.9 -17°50.7
Achernar	335°20.1 -57°06.1
Hamal	327°50.9 23°34.9
Polaris	341°05.5 89°22.0
Acamar	315°11.7 -40°11.9
Menkar	314°06.0 4°11.4
Mirfak	308°28.1 49°56.9
Aldebaran	290°39.5 16°33.6
Rigel	281°03.8 -8°10.3
Capella	280°21.8 46°01.3
Bellatrix	278°22.8 6°22.4
Elath	278°07.1 28°37.7
Anilam	275°37.7 -1°11.1
Betelgeuse	270°52.0 7°24.7
Canopus	263°52.8 -52°42.5
Sirius	258°26.2 -16°45.0
Adhara	255°05.9 -29°00.4
Procyon	244°50.7 5°09.6
Pollux	243°17.2 27°57.9
Avior	234°51.2 -59°35.6
Suhail	222°46.4 -43°32.2
Miaplacidus	221°39.9 -69°49.5
Alphard	217°47.6 -8°46.2
Regulus	207°34.2 11°50.6
Dubhe	193°40.8 61°37.1
Denebola	182°24.6 14°25.9
Gienah	175°43.2 -17°41.1
Acrux	172°59.7 -63°14.7
Gacrux	171°51.2 -57°15.6
Alloth	166°12.5 55°49.5
Spica	158°21.8 -11°17.7
Alkaid	152°51.5 49°11.4
Hadar	148°35.2 -60°30.0
Menkent	147°57.0 -19°03.1
Arcturus	145°47.4 19°03.1
Rigel Kent.	139°39.4 -60°56.7
Kochab	137°19.0 74°03.2
Zuben'ubi	136°55.4 -16°08.9
Alphecca	126°03.1 26°37.8
Antares	112°

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	278°19.0	225°05.7	N16°25.8	119°01.8	N09°49.5	183°19.4	N23°13.7	275°47.3	S01°20.2										
1	293°21.5	240°05.4	26.5	134°02.9	48.9	198°21.2	13.7	290°49.7	20.2										
2	308°23.9	255°05.1	27.2	149°04.0	48.3	213°23.1	13.6	305°52.1	20.1										
3	323°26.4	270°04.8	27.9	164°05.1	47.8	228°24.9	13.6	320°54.4	20.1										
4	338°28.9	285°04.5	28.5	179°06.2	47.2	243°26.1	13.6	335°56.9	20.1										
5	353°31.3	300°04.3	29.2	194°07.3	46.6	258°28.6	13.6	350°59.3	20.1										
6	8°33.8	315°04.0	N16°29.9	209°08.5	N09°46.1	273°30.4	N23°13.6	6°01.7	S01°20.6										
7	23°36.3	330°03.7	30.6	224°09.6	45.5	288°32.3	13.6	21°04.2	20.1										
8	38°38.7	345°03.4	31.3	239°10.7	44.9	303°34.1	13.5	36°06.6	20.1										
9	53°41.2	0°03.1	31.9	254°11.8	44.4	318°36.0	13.5	51°09.0	20.1										
10	68°43.7	15°02.8	32.6	269°12.9	43.8	333°37.8	13.5	66°11.4	20.1										
11	83°46.1	30°02.5	33.3	284°14.0	43.2	348°39.7	13.5	81°13.8	20.0										
12	98°48.6	45°02.2	N16°34.0	299°15.2	N09°42.7	3°41.5	N23°13.5	96°16.2	S01°20.0										
13	113°51.0	60°02.0	34.6	314°16.3	42.1	18°43.3	13.5	111°18.6	20.0										
14	128°53.5	75°01.7	35.3	329°17.4	41.5	33°45.2	13.4	126°21.0	20.0										
15	143°56.0	90°01.4	36.0	344°18.5	40.9	48°47.0	13.4	141°23.4	20.0										
16	158°58.4	105°01.1	36.7	359°19.6	40.4	63°48.9	13.4	156°25.9	20.0										
17	174°00.9	120°00.8	37.3	14°20.7	39.8	78°50.7	13.4	171°28.3	20.0										
18	189°03.4	135°00.5	N16°38.0	29°21.9	N09°39.2	93°52.6	N23°13.4	186°30.7	S01°20.0										
19	204°05.8	150°00.2	38.7	44°23.0	38.7	108°54.4	13.4	201°33.1	20.0										
20	219°08.3	164°59.9	39.4	59°24.1	38.1	123°56.3	13.4	216°35.5	20.0										
21	234°10.8	179°59.6	40.7	74°25.2	37.5	138°58.1	13.3	231°37.9	19.9										
22	249°13.2	194°59.3	40.7	89°26.3	36.9	154°00.3	13.3	246°40.3	19.9										
23	264°15.7	209°59.0	41.4	104°27.4	36.4	169°01.8	13.3	261°42.7	19.9										
Mer.pass. 05:26				ν -0.3° d 0.7' m -4.15				ν 1.1° d -0.6' m 1.49				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.96			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	279°18.1	224°58.7	N16°42.1	119°28.5	N09°35.8	184°03.6	N23°13.3	276°45.1	S01°19.9										
1	294°20.6	239°58.4	42.7	134°29.7	35.2	199°05.5	13.3	291°47.6	19.9										
2	309°23.1	254°58.1	43.4	149°30.8	34.7	214°07.3	13.3	306°50.0	19.9										
3	324°25.5	269°57.8	44.1	164°31.9	34.1	229°09.2	13.2	321°52.4	19.9										
4	339°28.0	284°57.5	44.7	179°33.0	33.5	244°11.0	13.2	336°54.8	19.9										
5	354°30.5	299°57.2	45.4	194°34.1	32.9	259°12.9	13.2	351°57.2	19.9										
6	9°32.9	314°56.9	N16°46.1	209°35.2	N09°32.4	274°14.7	N23°13.2	6°59.6	S01°19.9										
7	24°35.4	329°56.6	46.7	224°36.4	31.8	289°16.6	13.2	22°02.0	19.8										
8	39°37.9	344°56.3	47.1	239°37.5	31.2	304°18.4	13.1	37°04.5	19.8										
9	54°40.3	359°56.0	47.8	254°38.6	30.6	319°20.2	13.1	52°06.0	19.8										
10	69°42.8	14°55.7	48.7	269°39.7	30.1	334°22.1	13.1	67°09.3	19.8										
11	84°45.3	29°55.4	49.4	284°40.8	29.5	349°23.9	13.1	82°11.7	19.8										
12	99°47.7	44°55.1	N16°50.1	299°41.9	N09°28.9	4°25.8	N23°13.1	97°14.1	S01°19.8										
13	114°50.2	59°54.8	50.7	314°43.0	28.4	19°27.6	13.1	112°16.5	19.8										
14	129°52.6	74°54.5	51.4	329°44.2	27.8	34°29.5	13.0	127°18.9	19.8										
15	144°55.1	89°54.2	52.1	344°45.3	27.2	49°31.3	13.0	142°21.4	19.8										
16	159°57.6	104°53.9	52.7	359°46.4	26.6	64°33.2	13.0	157°23.8	19.8										
17	175°00.0	119°53.6	53.4	14°47.5	26.1	79°35.0	13.0	172°26.2	19.8										
18	190°02.5	134°53.3	N16°54.0	29°48.6	N09°25.5	94°36.8	N23°13.0	187°28.6	S01°19.7										
19	205°05.0	149°53.0	54.7	44°49.7	24.9	109°38.7	13.0	202°31.0	19.7										
20	220°07.4	164°52.7	55.4	59°50.8	24.3	124°40.5	12.9	217°33.4	19.7										
21	235°09.9	179°52.4	56.0	74°52.0	23.8	139°42.4	12.9	232°35.9	19.7										
22	250°12.4	194°52.1	56.7	89°53.1	23.2	154°44.2	12.9	247°38.3	19.7										
23	265°14.8	209°51.8	57.4	104°54.2	22.6	169°46.1	12.9	262°40.7	19.7										
Mer.pass. 05:22				ν -0.3° d 0.7' m -4.14				ν 1.1° d -0.6' m 1.49				ν 1.8° d -0.0' m -1.89				ν 2.4° d 0.0' m 0.96			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	280°17.3	224°51.5	N16°58.0	119°55.3	N09°22.0	184°47.9	N23°12.9	277°43.1	S01°19.7
1	295°19.8	239°51.1	58.7	134°56.4	21.5	199°49.8	12.9	292°45.5	19.7
2	310°22.2	254°50.8	16°59.3	149°57.5	20.9	214°51.6	12.8	307°47.9	19.7
3	325°24.7	269°50.5	17°00.0	164°58.6	20.3	229°53.5	12.8	322°50.4	19.7
4	340°27.1	284°50.2	00.6	179°59.8	19.7	244°55.3	12.8	337°52.8	19.7
5	355°29.6	299°49.9	01.3	195°00.9	19.2	259°57.1	12.8	352°55.2	19.7
6	10°32.1	314°49.6	N17°02.0	210°02.0	N09°18.6	274°59.0	N23°12.8	7°57.6	S01°19.7
7	25°34.5	329°49.3	02.6	225°03.1	18.0	290°00.8	12.7	23°00.0	19.6
8	40°37.0	344°48.9	03.3	240°04.2	17.4	305°02.7	12.7	38°02.4	19.6
9	55°39.5	359°48.6	03.9	255°05.3	16.9	320°04.5	12.7	53°04.9	19.6
10	70°41.9	14°48.3	04.6	270°06.4	16.3	335°06.4	12.7	68°07.3	19.6
11	85°44.4	29°48.0	05.2	285°07.6	15.7	350°08.2	12.7	83°09.7	19.6
12	100°46.9	44°47.7	N17°05.9	300°08.7	N09°15.1	5°10.1	N23°12.7	98°12.1	S01°19.6
13	115°49.3	59°47.4	06.5	315°09.8	14.6	20°11.9	12.6	113°14.5	19.6
14	130°51.8	74°47.0	07.2	330°10.9	14.0	35°13.8	12.6	128°17.0	19.6
15	145°54.2	89°46.7	07.8	345°12.0	13.4	50°15.6	12.6	143°19.4	19.6
16	160°56.7	104°46.4	08.5	0°13.1	12.8	65°17.4	12.6	158°21.8	19.6
17	175°59.2	119°46.1	09.1	15°14.2	12.2	80°19.3	12.6	173°24.2	19.6
18	191°01.6	134°45.8	N17°09.8	30°15.3	N09°11.7	95°21.1	N23°12.5	188°26.6	S01°19.6
19	206°04.1	149°45.4	10.4	45°16.5	11.1	110°23.0	12.5	203°29.1	19.6
20	221°06.6	164°45.1	11.1	60°17.6	10.5	125°24.8	12.5	218°31.5	19.5
21	236°09.0	179°44.8	11.7	75°18.7	09.9	140°26.7	12.5	233°33.9	19.5
22	251°11.5	194°44.5	12.4	90°19.8	09.4	155°28.5	12.5	248°36.3	19.5
23	266°14.0	209°44.2	13.0	105°20.9	08.8	170°30.4	12.5	263°38.7	19.5
Mer.pass.	05:18	-0.33° d 0.7° m	-4.13	-1.11° d -0.6° m	1.50	-1.18° d -0.0° m	-1.89	-2.47° d 0.0° m	0.95

Lat.	Twilight		Sunrise	Sunset	Twilight	
	Naut.	Civil			Civil	Naut.
N 72°	□	□	□	□	□	□
N 70°	□	□	□	□	□	□
68°	□	□	□	□	□	□
66°	—	—	00:43	23:21	—	—
64°	—	—	01:48	22:20	—	—
62°	—	—	02:21	21:46	—	—
60°	—	01:12	02:46	21:22	22:55	—
N 58°	—	01:54	03:05	21:03	22:14	—
56°	—	02:21	03:21	20:47	21:47	—
54°	01:06	02:42	03:35	20:34	21:26	23:01
52°	01:45	02:59	03:47	20:22	21:09	22:23
50°	02:10	03:13	03:57	20:11	20:55	21:58
45°	02:53	03:42	04:19	19:50	20:27	21:15
N 40°	03:23	04:04	04:37	19:32	20:05	20:46
35°	03:45	04:22	04:51	19:18	19:47	20:23
30°	04:03	04:37	05:04	19:05	19:32	20:05
20°	04:32	05:01	05:25	18:44	19:08	19:37
N 10°	04:54	05:21	05:44	18:25	18:48	19:15
0°	05:12	05:38	06:01	18:08	18:31	18:57
S 10°	05:29	05:55	06:18	17:51	18:14	18:40
20°	05:45	06:12	06:36	17:33	17:57	18:25
30°	06:01	06:30	06:56	17:13	17:39	18:09
35°	06:09	06:40	07:08	17:01	17:29	18:00
40°	06:18	06:52	07:22	16:47	17:17	17:51
45°	06:28	07:05	07:39	16:31	17:04	17:41
S 50°	06:39	07:20	07:59	16:11	16:49	17:30
52°	06:44	07:28	08:08	16:01	16:42	17:25
54°	06:50	07:36	08:19	15:50	16:34	17:20
56°	06:56	07:44	08:31	15:38	16:25	17:14
58°	07:02	07:54	08:45	15:24	16:15	17:07
S 60°	07:09	08:05	09:02	15:08	16:04	17:00

Lat.	Moonrise			Moonset		
	Thu	Fri	Sat	Thu	Fri	Sat
N 72°	14:44	17:21	■	21:52	20:43	■
N 70°	14:26	16:36	■	22:12	21:29	■
68°	14:12	16:07	18:34	22:28	22:00	21:04
66°	14:01	15:45	17:44	22:41	22:23	21:55
64°	13:51	15:28	17:13	22:52	22:41	22:27
62°	13:43	15:14	16:50	23:02	22:57	22:51
60°	13:36	15:02	16:31	23:10	23:09	23:10
N 58°	13:30	14:52	16:16	23:17	23:20	23:26
56°	13:25	14:43	16:03	23:23	23:30	23:39
54°	13:20	14:35	15:52	23:29	23:38	23:51
52°	13:16	14:28	15:42	23:34	23:46	
50°	13:12	14:22	15:33	23:39	23:53	
45°	13:04	14:09	15:15	23:49		00:08
N 40°	12:57	13:58	15:00	23:57		00:20
35°	12:51	13:48	14:47		00:05	00:31
30°	12:46	13:40	14:36		00:11	00:40
20°	12:37	13:26	14:17		00:22	00:56
N 10°	12:29	13:14	14:01		00:32	01:10
0°	12:22	13:03	13:46	00:01	00:41	01:23
S 10°	12:14	12:51	13:31	00:06	00:51	01:36
20°	12:07	12:40	13:15	00:12	01:00	01:51
30°	11:58	12:26	12:57	00:18	01:12	02:07
35°	11:53	12:18	12:46	00:21	01:19	02:17
40°	11:48	12:09	12:34	00:26	01:26	02:27
45°	11:41	11:59	12:20	00:30	01:35	02:40
S 50°	11:34	11:47	12:03	00:36	01:46	02:56
52°	11:30	11:41	11:55	00:39	01:51	03:04
54°	11:26	11:35	11:46	00:42	01:56	03:12
56°	11:22	11:28	11:36	00:45	02:02	03:21
58°	11:17	11:20	11:24	00:49	02:09	03:32
S 60°	11:12	11:11	11:11	00:53	02:17	03:44

Day	Sun			Moon		Age 8-10 52-70%
	Eqn. of Time		Mer. Pass hh:mm	Mer. Pass.		
	00 ^h mm:ss	12 ^h mm:ss		Upper hh:mm	Lower hh:mm	
03	04:14	04:20	12:04	18:31	06:11	
04	04:25	04:30	12:05	19:13	06:52	
05	04:35	04:41	12:05	19:57	07:34	

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	284°13.8	224°18.9	N17°58.9	121°42.0	N08°26.3	187°45.2	N23°11.0	281°35.8	S01°19.2										
1	299°16.3	239°18.5	17°59.5	136°43.1	25.7	202°47.0	11.0	296°38.3	19.2										
2	314°18.8	254°18.2	18°00.1	151°44.2	25.1	217°48.9	10.9	311°40.7	19.2										
3	329°21.2	269°17.8	•• 00.7	166°45.3	•• 24.5	232°50.0	•• 10.9	326°43.1	•• 19.2										
4	344°23.7	284°17.4	01.3	181°46.4	24.0	247°52.6	10.9	341°45.6	19.2										
5	359°26.2	299°17.1	01.9	196°47.5	23.4	262°54.4	10.9	356°48.0	19.2										
6	14°28.6	314°16.7	N18°02.5	211°48.6	N08°22.8	277°56.3	N23°10.9	11°50.4	S01°19.2										
7	29°31.1	329°16.3	03.2	226°49.7	22.2	292°58.1	10.8	26°52.9	19.2										
8	44°33.6	344°15.9	03.8	241°50.9	21.6	308°00.0	10.8	41°55.3	19.2										
9	59°36.0	359°15.6	•• 04.4	256°52.0	•• 21.0	323°01.8	•• 10.8	56°57.7	•• 19.2										
10	74°38.5	14°15.2	05.0	271°53.1	20.4	338°03.6	10.8	72°00.2	19.2										
11	89°40.9	29°14.8	05.6	286°54.2	19.9	353°05.5	10.7	87°02.6	19.2										
12	104°43.4	44°14.5	N18°06.2	301°55.3	N08°19.3	8°07.3	N23°10.7	102°05.0	S01°19.2										
13	119°45.9	59°14.1	06.8	316°56.4	18.7	23°09.2	10.7	117°07.5	19.2										
14	134°48.3	74°13.7	07.4	331°57.5	18.1	38°11.0	10.7	132°09.9	19.2										
15	149°50.8	89°13.3	•• 08.0	346°58.6	•• 17.5	53°12.9	•• 10.7	147°12.3	•• 19.2										
16	164°53.3	104°13.0	08.6	1°59.7	16.9	68°14.7	10.6	162°14.8	19.2										
17	179°55.7	119°12.6	09.2	17°00.8	16.3	83°16.6	10.6	177°17.2	19.2										
18	194°58.2	134°12.2	N18°09.8	32°01.9	N08°15.7	98°18.4	N23°10.6	192°19.6	S01°19.2										
19	210°00.7	149°11.8	10.4	47°03.0	15.1	113°20.3	10.6	207°22.1	19.2										
20	225°03.1	164°11.4	11.0	62°04.1	14.6	128°22.1	10.5	222°24.5	19.2										
21	240°05.6	179°11.1	•• 11.6	77°05.3	•• 14.0	143°24.0	•• 10.5	237°26.9	•• 19.2										
22	255°08.1	194°10.7	12.1	92°06.4	13.4	155°25.8	10.5	252°29.4	19.2										
23	270°10.5	209°10.3	12.7	107°07.5	12.8	173°27.7	10.5	267°31.8	19.2										
Mer.pass. 05:02				ν -0.4' d 0.6' m -4.11				ν 1.1' d -0.6' m 1.52				ν 1.8' d -0.0' m -1.89				ν 2.4' d 0.0' m 0.93			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	285°13.0	224°09.9	N18°13.3	122°08.6	N08°12.2	188°29.5	N23°10.5	282°34.3	S01°19.2
1	300°15.4	239°09.5	13.9	137°09.7	11.6	203°31.4	10.4	297°36.7	19.2
2	315°17.9	254°09.2	14.5	152°10.8	11.0	218°33.2	10.4	312°39.1	19.2
3	330°20.4	269°08.8	•• 15.1	167°11.9	•• 10.4	233°35.1	•• 10.4	327°41.6	•• 19.2
4	345°22.8	284°08.4	15.7	182°13.0	09.9	248°36.9	10.4	342°44.0	19.2
5	0°25.3	299°08.0	16.3	197°14.1	09.3	263°38.8	10.3	357°46.4	19.2
6	15°27.8	314°07.6	N18°16.9	212°15.2	N08°08.7	278°40.6	N23°10.3	12°48.9	S01°19.2
7	30°30.2	329°07.2	17.5	227°16.3	08.1	293°42.5	10.3	27°51.3	19.2
8	45°32.7	344°06.9	18.1	242°17.4	07.5	308°44.3	10.3	42°53.7	19.2
9	60°35.2	359°06.5	•• 18.7	257°18.5	•• 06.9	323°46.2	•• 10.2	57°56.2	•• 19.2
10	75°37.6	14°06.1	19.3	272°19.6	06.6	338°48.0	10.2	72°58.6	19.2
11	90°40.1	29°05.7	19.8	287°20.8	05.7	353°49.9	10.2	88°01.1	19.2
12	105°42.6	44°05.3	N18°20.4	302°21.9	N08°05.1	8°51.7	N23°10.2	103°03.5	S01°19.2
13	120°45.0	59°04.9	21.0	317°23.0	04.5	23°53.6	10.2	118°05.9	19.2
14	135°47.5	74°04.5	21.6	332°24.1	04.0	38°55.4	10.1	133°08.8	19.2
15	150°49.9	89°04.1	•• 22.2	347°25.2	•• 03.4	53°57.3	•• 10.1	148°10.8	•• 19.2
16	165°52.4	104°03.7	22.8	2°26.3	02.8	68°59.1	10.1	163°13.3	19.2
17	180°54.9	119°03.4	23.4	17°27.4	02.2	84°01.0	10.1	178°15.7	19.2
18	195°57.3	134°03.0	N18°23.9	32°28.5	N08°01.6	99°02.8	N23°10.0	193°18.1	S01°19.2
19	210°59.8	149°02.6	24.5	47°29.6	01.0	114°04.7	10.0	208°20.6	19.2
20	226°02.3	164°02.2	25.1	62°30.7	08°00.4	129°06.5	10.0	223°23.0	19.2
21	241°04.7	179°01.8	•• 25.7	77°31.8	07°59.8	144°08.4	•• 10.0	238°25.4	•• 19.2
22	256°07.2	194°01.4	26.3	92°32.9	59.2	159°10.2	09.9	253°27.9	19.2
23	271°09.7	209°01.0	26.8	107°34.0	58.6	174°12.1	09.9	268°30.3	19.2
Mer.pass. 04:58 ν -0.4' d 0.6' m -4.11 ν 1.1' d -0.6' m 1.52 ν 1.8' d -0.0' m -1.89 ν 2.4' d -0.0' m 0.93									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	286°12.1	224°00.6	N18°27.4	122°35.1	N07°58.0	189°13.9	N23°09.9	283°32.8	S01°19.2										
1	301°14.6	239°00.2	28.0	137°36.2	57.5	204°15.8	09.9	298°35.2	19.2										
2	316°17.0	253°59.8	28.6	152°37.3	56.9	219°17.6	09.9	313°37.6	19.3										
3	331°19.5	268°59.4	•• 29.2	167°38.5	•• 56.3	234°19.5	•• 09.8	328°40.1	•• 19.3										
4	346°22.0	283°59.0	29.7	182°39.6	55.7	249°21.3	09.8	343°42.5	19.3										
5	1°24.4	298°58.6	30.3	197°40.7	55.1	264°23.1	09.8	358°45.0	19.3										
6	16°26.9	313°58.2	N18°30.9	212°41.8	N07°54.5	279°25.0	N23°09.8	13°47.8	S01°19.3										
7	31°29.4	328°57.8	31.5	227°42.9	53.9	294°26.8	09.7	28°49.8	19.3										
8	46°31.8	343°57.4	32.0	242°44.0	53.3	309°28.7	09.7	43°52.3	19.3										
9	61°34.3	358°57.0	•• 32.6	257°45.1	•• 52.7	324°30.5	•• 09.7	58°54.7	•• 19.3										
10	76°36.8	13°56.6	33.2	272°46.2	52.1	339°32.4	09.7	73°57.2	19.3										
11	91°39.2	28°56.2	33.8	287°47.3	51.5	354°34.2	09.6	88°59.6	19.3										
12	106°41.7	43°55.8	N18°34.3	302°48.4	N07°50.9	9°36.1	N23°09.6	104°02.1	S01°19.3										
13	121°44.2	58°55.4	34.9	317°49.5	50.4	23°37.9	09.6	119°04.5	19.3										
14	136°46.6	73°55.0	35.5	332°50.6	49.8	39°39.8	09.6	134°06.9	19.3										
15	151°49.1	88°54.6	•• 36.1	347°51.7	•• 49.2	54°41.6	•• 09.5	149°09.4	•• 19.3										
16	166°51.5	103°54.2	36.6	2°52.8	48.6	69°43.5	09.5	164°11.8	19.3										
17	181°54.0	118°53.8	37.2	17°53.9	48.0	84°45.3	09.5	179°14.3	19.3										
18	196°56.5	133°53.4	N18°37.8	32°55.0	N07°47.4	99°47.2	N23°09.5	194°16.7	S01°19.3										
19	211°58.9	148°53.0	38.3	47°56.1	46.8	114°49.0	09.4	209°19.1	19.3										
20	227°01.4	163°52.6	38.9	62°57.2	46.2	129°50.9	09.4	224°21.6	19.3										
21	242°03.9	178°52.2	•• 39.5	77°58.3	•• 45.6	144°52.7	•• 09.4	239°24.0	•• 19.3										
22	257°06.3	193°51.8	40.0	92°59.4	45.0	159°54.6	09.4	254°26.5	19.3										
23	272°08.8	208°51.4	40.6	108°00.6	44.4	174°56.4	09.4	269°28.9	19.3										
Mer.pass. 04:58				ν -0.4' d 0.6' m -4.10				ν 1.1' d -0.6' m 1.53				ν 1.8' d -0.0' m -1.89				ν 2.4' d -0.0' m 0.92			

SHA	Dec
Alpheratz	357°34.3 29°13.8
Ankaa	353°06.7 -42°09.8
Schedar	349°30.5 56°40.0
Diphda	348°46.9 -17°50.6
Achernar	335°20.0 -57°06.1
Hamal	327°50.8 23°34.9
Polaris	314°05.5 89°22.0
Acamar	315°11.7 -40°11.9
Menkar	314°05.9 4°11.4
Mirafak	308°28.0 49°56.9
Aldebaran	290°34.9 16°33.6
Rigel	281°03.8 -8°10.2
Capella	280°21.7 46°01.3
Bellatrix	278°22.8 6°22.4
Elnath	278°01.7 28°37.7
Alnilam	275°37.6 -1°11.1
Betelgeuse	270°52.0 7°24.7
Canopus	263°52.8 -52°42.0
Sirius	258°26.2 -16°45.4
Adhara	255°05.9 -29°00.3
Procyon	244°50.7 5°09.6
Pollux	243°17.2 27°57.9
Avior	234°15.2 -59°35.5
Suhail	222°46.4 -43°32.2
Miaplacidus	221°39.0 -69°49.4
Alphard	217°47.6 -8°46.1
Regulus	207°34.2 11°50.6
Dubhe	193°40.8 61°37.1
Denebola	182°24.6 14°25.9
Gienah	175°43.2 -17°41.1
Acrux	172°59.8 -63°14.7
Gacrux	171°51.3 -57°49.5
Alioth	166°12.6 55°15.6
Spica	158°21.8 -11°17.7
Alkaid	152°51.6 49°11.4
Hamdal	148°35.2 -36°30.0
Mekart	147°57.0 -30°29.9
Nenkant	145°47.4 19°03.1
Arcturus	139°39.5 -60°56.7
Rigil Kent.	137°19.2 74°03.3
Kochab	136°55.4 -16°08.9
Zuben'ubi	126°03.1 26°37.8
Alphecca	112°15.0 -26°29.4
Antares	107°08.4 -60°04.5
Atria	102°02.0 -15°45.

	Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	287°11.3	223°50.9	N18°41.2	123°01.7	N07°43.8	189°58.3	N23°09.3	284°31.4	S01°19.3						
1	302°13.7	238°50.5	41.7	138°02.8	43.2	205°00.1	09.3	299°33.8	19.3						
2	317°16.2	253°50.1	42.3	153°03.9	42.6	220°02.0	09.3	314°36.2	19.3						
3	332°18.7	268°49.7	42.9	168°05.0	42.9	235°03.8	09.3	329°38.7	19.3						
4	347°21.1	283°49.3	43.4	183°06.1	41.4	250°05.7	09.2	344°41.1	19.3						
5	2°23.6	298°48.9	44.0	198°07.2	40.9	265°07.5	09.2	359°43.6	19.3						
6	17°26.0	313°48.5	N18°44.5	213°08.3	N07°40.3	280°09.4	N23°09.2	14°46.0	S01°19.3						
7	32°28.5	328°48.1	45.1	228°09.4	39.7	295°11.3	09.2	29°48.5	19.3						
8	47°31.0	343°47.7	45.7	243°10.5	39.1	310°13.1	09.1	44°50.9	19.3						
9	62°33.4	358°47.2	46.2	258°11.6	38.5	325°15.0	09.1	59°53.4	19.3						
10	77°35.9	373°46.8	46.8	273°12.7	37.9	340°16.8	09.1	74°55.8	19.3						
11	92°38.4	28°46.4	47.3	288°13.8	37.3	355°18.7	09.1	89°58.3	19.4						
12	107°40.8	43°46.0	N18°47.9	303°14.9	N07°36.7	10°20.5	N23°09.0	105°00.7	S01°19.4						
13	122°43.3	58°45.6	48.5	318°16.0	36.1	25°22.4	09.0	120°03.1	19.4						
14	137°45.8	73°45.2	49.0	333°17.1	35.5	40°24.2	09.0	135°05.6	19.4						
15	152°48.2	88°44.7	49.6	348°18.2	34.9	55°26.1	09.0	150°08.0	19.4						
16	167°50.7	103°44.3	50.1	3°19.3	34.3	70°27.9	08.9	165°10.5	19.4						
17	182°53.2	118°43.9	50.7	18°20.4	33.7	85°29.8	08.9	180°12.9	19.4						
18	197°55.6	133°43.5	N18°51.2	33°21.5	N07°33.1	100°31.6	N23°08.9	195°15.4	S01°19.4						
19	212°58.1	148°43.1	51.8	48°22.6	32.5	115°33.5	08.9	210°17.8	19.4						
20	228°00.5	163°42.7	52.3	63°23.7	31.9	130°35.3	08.8	225°20.3	19.4						
21	243°03.0	178°42.2	52.9	78°24.8	31.3	145°37.2	08.8	240°22.7	19.4						
22	258°05.5	193°41.8	53.4	93°25.9	30.7	160°39.0	08.8	255°25.2	19.4						
23	273°07.9	208°41.4	54.0	108°27.0	30.1	175°40.9	08.8	270°27.6	19.4						
Mer.pass. 04:50 ν -0.4' d 0.6' m -4.09 ν 1.1' d -0.6' m 1.53 ν 1.9' d -0.0' m -1.89 ν 2.4' d -0.0' m 0.92															

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	288°10.4	223°41.0	N18°54.5	123°28.1	N07°29.5	190°42.7	N23°08.7	285°30.1	S01°19.4
1	303°12.9	238°40.5	55.1	138°29.2	28.9	205°44.6	08.7	300°32.5	19.4
2	318°15.3	253°40.1	55.6	153°30.3	28.3	220°46.4	08.7	315°34.9	19.4
3	333°17.8	268°39.7	56.2	168°31.5	27.8	235°48.3	08.7	330°37.4	19.4
4	348°20.3	283°39.3	56.7	183°32.6	27.2	250°50.1	08.6	345°39.8	19.4
5	3°22.7	298°38.8	57.3	198°33.7	26.6	265°52.0	08.6	360°42.3	19.4
6	18°25.2	313°38.4	N18°57.8	213°34.8	N07°26.0	280°53.8	N23°08.6	15°44.7	S01°19.4
7	33°27.7	328°38.0	58.4	228°35.9	25.7	295°55.7	08.6	30°47.2	19.5
8	48°30.1	343°37.6	58.9	243°37.0	24.8	310°57.5	08.5	45°49.6	19.5
9	63°32.6	358°37.1	18°59.5	258°38.1	24.2	325°59.4	08.5	60°52.1	19.5
10	78°35.0	13°36.7	19°00.0	273°39.2	23.6	341°01.2	08.5	75°54.5	19.5
11	93°37.5	28°36.3	00.5	288°40.3	23.0	356°03.1	08.5	90°57.0	19.5
12	108°40.0	43°35.9	N19°01.1	303°41.4	N07°22.4	11°04.9	N23°08.4	105°59.4	S01°19.5
13	123°42.4	58°35.4	01.6	318°42.5	21.8	26°06.8	08.4	121°01.9	19.5
14	138°44.9	73°35.0	02.2	333°43.6	21.2	41°08.6	08.4	136°04.3	19.5
15	153°47.4	88°34.6	02.7	348°44.7	20.6	56°10.5	08.3	151°06.8	19.5
16	168°49.8	103°34.1	03.2	3°45.8	20.0	71°12.3	08.3	166°09.2	19.5
17	183°52.3	118°33.7	03.8	18°46.9	19.4	86°14.2	08.3	181°11.7	19.5
18	198°54.8	133°33.3	N19°04.3	33°48.0	N07°18.8	101°16.0	N23°08.3	196°14.1	S01°19.5
19	213°57.2	148°32.8	04.9	48°49.1	18.2	116°17.9	08.2	211°16.6	19.5
20	228°59.7	163°32.4	05.4	63°50.2	17.6	131°19.7	08.2	226°19.0	19.5
21	244°02.2	178°32.0	05.9	78°51.3	17.0	146°21.6	08.2	241°21.5	19.5
22	259°04.6	193°31.5	06.5	93°52.4	16.4	161°23.5	08.2	256°23.9	19.5
23	274°07.1	208°31.1	07.0	108°53.5	15.8	176°25.3	08.1	271°26.4	19.6
Mer.pass. 04:47 ν -0.4' d 0.5' m -4.09 ν 1.1' d -0.6' m 1.53 ν 1.9' d -0.0' m -1.90 ν 2.4' d -0.0' m 0.91									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	289°09.5	223°30.7	N19°07.5	123°54.6	N07°15.2	191°27.2	N23°08.1	286°28.8	S01°19.6
1	304°12.0	238°30.2	08.1	138°55.7	14.6	206°29.0	08.1	301°31.3	19.6
2	319°14.5	253°29.8	08.6	153°56.8	14.0	221°30.9	08.1	316°33.7	19.6
3	334°16.9	268°29.3	.. 09.1	168°57.9	.. 13.4	236°32.7	.. 08.0	331°36.2	.. 19.6
4	349°19.4	283°28.9	09.7	183°59.0	12.8	251°34.6	08.0	346°38.6	19.6
5	4°21.9	298°28.5	10.2	199°00.1	12.2	266°36.4	08.0	1°41.1	19.6
6	19°24.3	313°28.0	N19°10.7	214°01.2	N07°11.6	281°38.3	N23°08.0	16°43.5	S01°19.6
7	34°26.8	328°27.6	11.3	229°02.3	11.0	296°40.1	07.9	31°46.0	19.6
8	49°29.3	343°27.1	11.8	244°03.4	10.4	311°42.0	07.9	46°48.5	19.6
9	64°31.7	358°26.7	12.3	259°04.5	09.8	326°43.8	.. 07.9	61°50.9	.. 19.6
10	79°34.2	13°26.3	12.8	274°05.6	09.2	341°45.7	07.9	76°53.4	19.6
11	94°36.7	28°25.8	13.4	289°06.7	08.6	356°47.5	07.8	91°55.8	19.6
12	109°39.1	43°25.4	N19°13.9	304°07.8	N07°08.0	11°49.4	N23°07.8	106°58.3	S01°19.6
13	124°41.6	58°24.9	14.4	319°08.9	07.4	26°51.2	07.8	122°00.7	19.7
14	139°44.0	73°24.5	14.9	334°10.0	06.8	41°53.1	07.7	137°03.2	19.7
15	154°46.5	88°24.0	.. 15.5	349°11.1	.. 06.2	56°54.9	.. 07.7	152°05.6	.. 19.7
16	169°49.0	103°23.6	16.0	4°12.2	05.6	71°56.8	07.7	167°08.1	19.7
17	184°51.4	118°23.2	16.5	19°13.3	05.0	86°58.7	07.7	182°10.5	19.7
18	199°53.9	133°22.7	N19°17.0	34°14.4	N07°04.4	102°00.5	N23°07.6	197°13.0	S01°19.7
19	214°56.4	148°22.3	17.6	49°15.5	03.8	117°02.4	07.6	212°15.4	19.7
20	229°58.8	163°21.8	18.1	64°16.6	03.2	132°04.2	07.6	227°17.9	19.7
21	245°01.3	178°21.4	.. 18.6	79°17.7	.. 02.6	147°06.1	.. 07.5	242°20.3	.. 19.7
22	260°03.8	193°20.9	19.1	94°18.8	02.0	162°07.9	07.5	257°22.8	19.7
23	275°06.2	208°20.5	19.6	109°19.9	01.4	177°09.8	07.5	272°25.3	19.7
Mer.pass. 04:43			ν -0.4' d 0.5' m -4.08	ν 1.1' d -0.6' m 1.54	ν 1.9' d -0.0' m -1.90	ν 2.5' d -0.0' m 0.91			

Stars	SHA	Dec
Alpheratz	357°34.2	29°13.8
Ankaa	353°06.6	-42°09.8
Schedar	349°30.5	56°40.4
Diphda	348°46.8	-17°50.6
Achernar	335°19.9	-57°06.1
Hamal	327°50.8	23°34.9
Polaris	314°03.8	89°22.0
Acamar	315°11.7	-40°11.9
Menkar	314°05.9	4°11.4
Mirafak	308°27.9	49°56.9
Aldebaran	290°39.4	16°33.6
Rigel	281°03.8	-8°10.2
Capella	280°21.7	46°01.3
Bellatrix	278°22.7	6°22.4
Elath	278°01.7	28°37.7
Alnilam	275°37.6	-1°11.1
Betelgeuse	270°52.0	7°24.8
Canopus	263°52.8	-52°42.0
Sirius	258°26.2	-16°45.0
Adhara	255°05.9	-29°00.3
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.2	-59°35.5
Suhail	222°46.4	-43°32.2
Miaplacidus	221°39.1	-69°49.4
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.8	61°37.1
Denebola	182°24.6	14°25.9
Gienah	175°43.2	-17°41.7
Acrux	172°59.8	-63°14.7
Gacrux	171°51.3	-57°15.6
Alioth	166°12.6	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.6	49°11.4
Headar	148°35.2	-30°30.0
Mekent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.1
Rigel Kent.	139°39.5	-60°56.7
Kochab	137°19.2	74°03.3
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.2	26°37.8
Antares	112°15.0	-26°29.4
Atria	107°08.4	69°04.5
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.8	12°32.5
Eltanin	90°41.5	51°29.5
Kaus Aust.	83°31.6	-34°22.3
Vega	80°32.5	38°48.5
Nunki	75°46.9	-26°15.9
Altair	61°59.2	8°56.2
Peacock	53°04.5	-56°39.0
Deneb	49°25.1	45°22.2
Enif	33°38.1	9°59.5
Al Na'ir	27°32.0	-46°50.0
Fomalhaut	15°13.8	-29°29.0
Scheat	13°44.6	28°13.2
Markab	13°29.3	15°20.5

Jul 09 Wed	SHA	Mer.pass.
Venus	296°39.7	09:05
Mars	195°50.4	15:47
Jupiter	262°47.0	11:19
Saturn	357°20.1	05:01

Jul 10 Thu	SHA	Mer.pass.
Venus	295°30.6	09:06
Mars	195°17.7	15:45
Jupiter	262°32.3	11:16
Saturn	357°19.7	04:57

Jul 11 Fri	SHA	Mer.pass.
Venus	294°21.1	09:06
Mars	194°45.1	15:43
Jupiter	262°17.6	11:13
Saturn	357°19.3	04:53

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	290°08.7	223°20.0	N19°20.1	124°21.0	N07°00.8	192°11.6	N23°07.5	287°27.7	S01°19.7					
1	305°11.1	238°19.6	20.7	139°22.1	07°00.2	207°13.5	07.4	302°30.2	19.7					
2	320°13.6	253°19.1	21.2	154°23.2	06°59.6	222°15.3	07.4	317°32.6	19.8					
3	335°16.1	268°18.7	21.7	169°24.3	59.0	237°17.2	07.4	332°35.1	19.8					
4	350°18.5	283°18.2	22.2	184°25.4	58.4	252°19.6	07.4	347°37.5	19.8					
5	5°21.0	298°17.8	22.7	199°26.5	57.8	267°20.9	07.3	2°40.0	19.8					
6	20°23.5	313°17.3	N19°23.2	214°21.7	N06°57.2	282°22.7	N23°07.3	17°42.0	S01°19.8					
7	35°25.9	328°16.9	23.8	229°28.7	56.6	297°24.6	07.3	32°44.9	19.8					
8	50°28.4	343°16.4	24.3	244°29.8	56.0	312°24.6	07.3	47°47.4	19.8					
9	65°30.9	358°15.9	24.8	259°30.9	55.4	327°28.3	07.2	62°49.8	19.8					
10	80°33.3	13°15.5	25.3	274°32.0	54.8	342°30.2	07.2	77°52.2	19.8					
11	95°35.8	28°15.0	25.8	289°33.1	54.2	357°32.0	07.2	92°54.7	19.8					
12	110°38.3	43°14.6	N19°26.3	304°34.2	N06°53.6	12°33.9	N23°07.1	107°57.2	S01°19.8					
13	125°40.7	58°14.1	26.8	319°35.3	53.0	27°35.7	07.1	122°59.6	19.9					
14	140°43.2	73°13.7	27.3	334°36.4	52.4	42°37.6	07.1	138°02.1	19.9					
15	155°45.6	88°13.2	27.8	349°37.5	51.8	57°39.4	07.1	153°04.6	19.9					
16	170°48.1	103°12.8	28.3	4°38.6	51.2	72°41.3	07.0	168°07.0	19.9					
17	185°50.6	118°12.3	28.8	19°37.7	50.6	87°43.1	07.0	183°09.5	19.9					
18	200°53.0	133°11.8	N19°29.3	34°40.8	N06°50.0	102°45.0	N23°07.0	198°11.9	S01°19.9					
19	215°55.5	148°11.4	29.9	49°41.9	49.4	117°46.8	07.0	213°14.4	19.9					
20	230°58.0	163°10.9	30.4	64°43.0	48.8	132°48.7	06.9	228°16.8	19.9					
21	246°00.4	178°10.5	30.9	79°44.1	48.2	147°50.5	06.9	243°19.3	19.9					
22	261°02.9	193°10.0	31.4	94°45.2	47.5	162°52.4	06.9	258°21.8	19.9					
23	276°05.4	208°09.5	31.9	109°46.3	46.9	177°54.3	06.8	273°24.2	20.0					
Mer.pass. 04:39			ν -0.5° d 0.5' m -4.08			ν 1.1° d -0.6' m 1.54			ν 1.9° d -0.0' m -1.90			ν 2.5° d -0.0' m 0.90		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	291°07.8	223°09.1	N19°32.4	124°47.4	N06°46.3	192°56.1	N23°06.8	288°26.7	S01°20.0
1	306°10.3	238°08.6	32.9	139°48.5	45.7	207°58.0	06.8	303°29.1	20.0
2	321°12.8	253°08.1	33.4	154°49.6	45.1	222°59.8	06.8	318°31.6	20.0
3	336°15.2	268°07.7	33.9	169°50.7	44.5	238°01.7	06.7	333°34.1	20.0
4	351°17.7	283°07.2	34.4	184°51.8	43.9	253°03.5	06.7	348°36.5	20.0
5	6°20.1	298°06.7	34.9	199°52.9	43.3	268°05.4	06.7	3°39.0	20.0
6	21°22.6	313°06.3	N19°35.4	214°54.0	N06°42.7	283°07.2	N23°06.6	18°41.4	S01°20.0
7	36°25.1	328°05.8	35.8	229°55.1	42.1	298°09.1	06.6	33°43.9	20.0
8	51°27.5	343°05.3	36.3	244°56.2	41.5	313°10.9	06.6	48°46.4	20.0
9	66°30.0	358°04.9	36.8	259°57.3	40.9	328°12.8	06.6	63°48.8	20.1
10	81°32.5	13°04.4	37.3	274°58.4	40.3	343°14.7	06.5	78°51.3	20.1
11	96°34.9	28°03.9	37.8	289°59.5	39.7	358°16.5	06.5	93°53.7	20.1
12	111°37.4	43°03.5	N19°38.3	305°00.6	N06°39.1	13°18.4	N23°06.5	108°56.2	S01°20.1
13	126°39.9	58°03.0	38.8	320°01.7	38.5	28°20.2	06.5	123°58.7	20.1
14	141°42.3	73°02.5	39.3	335°02.8	37.9	43°22.1	06.4	139°01.1	20.1
15	156°44.8	88°02.1	39.8	350°03.9	37.3	58°23.9	06.4	154°03.6	20.1
16	171°47.3	103°01.6	40.3	5°05.0	36.7	73°25.8	06.4	169°06.0	20.1
17	186°49.7	118°01.1	40.8	20°06.1	36.1	88°27.6	06.3	184°08.5	20.1
18	201°52.2	133°00.6	N19°41.3	35°07.2	N06°35.5	103°29.5	N23°06.3	193°11.0	S01°20.2
19	216°54.6	148°00.2	41.7	50°08.3	34.9	118°31.4	06.3	214°13.4	20.2
20	231°57.1	162°59.7	42.2	65°09.4	34.2	133°33.2	06.3	229°15.9	20.2
21	246°59.6	177°59.2	42.7	80°10.4	33.6	148°35.1	06.2	244°18.4	20.2
22	262°02.0	192°58.7	43.2	95°11.5	33.0	163°36.9	06.2	259°20.8	20.2
23	277°04.5	207°58.3	43.7	110°12.6	32.4	178°38.8	06.2	274°23.3	20.2
Mer.pass. 04:35 ν -0.5° d 0.5' m -4.07 ν 1.1° d -0.6' m 1.55 ν 1.9° d -0.0' m -1.90 ν 2.5° d -0.0' m 0.90									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	292°07.0	222°57.8	N19°44.2	125°13.7	N06°31.8	193°40.6	N23°06.1	289°25.7	S01°20.2					
1	307°09.4	237°57.3	44.6	140°14.8	31.2	208°42.5	06.1	304°28.2	20.2					
2	322°11.9	252°56.8	45.1	155°15.9	30.6	223°44.3	06.1	319°30.7	20.3					
3	337°14.4	267°56.4	45.6	170°17.0	30.0	238°46.2	06.0	334°33.1	20.3					
4	352°16.8	282°55.9	46.1	185°18.1	29.4	253°48.1	06.0	349°35.6	20.3					
5	7°19.3	297°55.4	46.6	200°19.2	28.8	268°49.9	06.0	4°38.1	20.3					
6	22°21.7	312°54.9	N19°47.0	215°20.3	N06°28.2	283°51.8	N23°06.0	19°40.5	S01°20.3					
7	37°24.2	327°54.4	47.5	230°21.4	27.6	298°53.6	05.9	34°43.0	20.3					
8	52°26.7	342°54.0	48.0	245°22.5	27.0	313°55.5	05.9	49°45.5	20.3					
9	67°29.1	357°53.5	48.5	260°23.6	26.4	328°57.3	05.9	64°47.9	20.3					
10	82°31.6	12°53.0	49.0	275°24.7	25.8	343°59.2	05.8	79°50.4	20.3					
11	97°34.1	27°52.5	49.4	290°25.8	25.2	359°01.0	05.8	94°52.8	20.4					
12	112°36.5	42°52.0	N19°49.9	305°26.9	N06°24.5	14°02.9	N23°05.8	109°55.3	S01°20.4					
13	127°39.0	57°51.6	50.4	320°28.0	23.9	29°04.8	05.8	124°57.8	20.4					
14	142°41.5	72°51.1	50.9	335°29.1	23.3	44°06.6	05.7	140°00.2	20.4					
15	157°43.9	87°50.6	51.3	350°30.2	22.7	59°08.5	05.7	155°02.7	20.4					
16	172°46.4	102°50.1	51.8	5°31.3	22.1	74°10.3	05.7	170°05.2	20.4					
17	187°48.9	117°49.6	52.3	20°32.4	21.5	89°12.2	05.6	185°07.6	20.4					
18	202°51.3	132°49.1	N19°52.7	35°33.5	N06°20.9	104°14.0	N23°05.6	200°10.1	S01°20.5					
19	217°53.8	147°48.7	53.2	50°34.6	20.3	119°15.9	05.6	215°12.6	20.5					
20	232°56.2	162°48.2	53.7	65°35.7	19.7	134°17.7	05.6	230°15.0	20.5					
21	247°58.7	177°47.7	54.1	80°36.8	19.1	149°19.6	05.5	245°17.5	20.5					
22	263°01.2	192°47.2	54.6	95°37.9	18.5	164°21.5	05.5	260°20.0	20.5					
23	278°03.6	207°46.7	55.1	110°38.9	17.9	179°23.3	05.5	275°22.4	20.5					
Mer.pass. 04:31			ν -0.5° d 0.5' m -4.07			ν 1.1° d -0.6' m 1.55			ν 1.9° d -0.0' m -1.90			ν 2.5° d -0.0' m 0.89		

	SHA	Dec
Alpheratz	357°34.2	29°13.8
Ankaa	353°06.6	-42°09.7
Schedar	349°30.5	56°40.4
Diphda	348°46.8	-17°50.6
Achernar	335°19.9	-57°06.1
Hamal	327°50.8	23°34.9
Polaris	314°02.4	89°22.0
Acamar	315°11.6	-40°11.9
Menkar	314°05.8	4°11.4
Miraf	308°27.9	49°56.9
Aldebaran	290°39.4	16°33.6
Rigel	281°03.7	-8°10.2
Capella	280°21.7	46°01.3
Bellatrix	278°22.7	6°22.4
Elnath	278°01.7	28°37.7
Alnilam	275°37.6	-1°11.1
Betelgeuse	270°51.9	7°24.8
Canopus	263°52.7	-52°42.0
Sirius	258°26.2	-16°45.0
Adhara	255°05.9	-29°00.3
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.2	-59°35.5
Suhail	222°46.4	-43°32.2
Miaplacidus	221°39.1	-69°49.4
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.8	61°37.0
Denebola	182°24.6	14°25.9
Gienah	175°43.2	-17°41.1
Acrux	172°59.8	-63°14.7
Gacrux	171°51.3	-57°15.6
Alioth	166°12.6	55°49.5
Spica	158°21.8	-11°17.7
Alkaid	152°51.6	49°11.4
Hadar	148°35.3	-36°30.0
Menkent	147°57.0	-36°29.9
Arcturus	145°47.4	19°03.1
Rigil Kent.	139°39.5	-60°56.6
Kochab	137°19.3	74°03.3
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.2	-26°37.8
Antares	112°15.0	-26°29.4
Atria	107°08.4	-69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.8	12°32.5
Eltanin	90°41.5	51°29.2
Kaus Aust.	83°31.5	-34°22.3
Vega	80°32.5	38°48.5
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.2
Peacock	53°04.5	-56°39.0
Deneb	49°25.1	45°22.2
Enif	33°38.1	9°59.5
Al Na'ir	27°32.0	-46°50.0
Fomalhaut	15°13.8	-29°29.0
Scheat	13°44.6	28°13.2
Markab	13°29.3	15°20.5
Jul 12 Sat	SHA	Mer.pass
Venus	293°11.3	09:07
Mars	194°12.3	15:41
Jupiter	262°02.9	11:10
Saturn	357°19.0	04:49
Jul 13 Sun	SHA	Mer.pass
Venus	292°01.2	09:08
Mars	193°39.6	15:40
Jupiter	261°48.3	11:07
Saturn	357°18.9	04:45
Jul 14 Mon	SHA	Mer.pass
Venus	290°50.8	09:08
Mars	193°06.8	15:38
Jupiter	261°33.7	11:04
Saturn	357°18.8	04:42
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	293°06.1	222°46.2	N19°55.5	125°40.0	N06°17.3	194°25.2	N23°05.4	290°24.9	S01°20.5										
1	308°08.6	237°45.7	56.0	140°41.1	16.6	209°27.0	05.4	305°27.4	20.5										
2	323°11.0	252°45.2	56.5	155°42.2	16.0	224°28.9	05.4	320°28.0	20.6										
3	338°13.5	267°44.7	56.9	170°43.3	15.4	239°30.7	05.3	335°32.3	20.6										
4	353°16.0	282°44.3	57.4	185°44.4	14.8	254°32.6	05.3	350°34.8	20.6										
5	8°18.4	297°43.8	57.9	200°45.5	14.2	269°34.5	05.3	5°37.2	20.6										
6	23°20.9	312°43.3	N19°58.3	215°46.6	N06°13.6	284°36.3	N23°05.3	20°39.7	S01°20.6										
7	38°23.4	327°42.8	58.8	230°47.7	13.0	299°38.2	05.2	35°42.2	20.6										
8	53°25.8	342°42.3	59.2	245°48.8	12.4	314°40.0	05.2	50°44.6	20.6										
9	68°28.3	357°41.8	59°59.7	260°49.9	11.8	329°41.9	05.2	65°47.1	20.7										
10	83°30.7	12°41.3	20°00.2	275°51.0	11.2	344°43.0	05.1	80°49.6	20.7										
11	98°33.2	27°40.8	00.6	290°52.1	10.6	359°45.6	05.1	95°52.0	20.7										
12	113°35.7	42°40.3	N20°01.1	305°53.2	N06°10.0	14°47.5	N23°05.1	110°54.5	S01°20.7										
13	128°38.1	57°39.8	01.5	320°54.3	09.3	29°49.3	05.0	125°57.0	20.7										
14	143°40.6	72°39.3	02.0	335°55.4	08.7	44°51.2	05.0	140°59.4	20.7										
15	158°43.1	87°38.8	02.4	350°56.5	08.1	59°53.0	05.0	155°01.9	20.7										
16	173°45.5	102°38.3	02.9	5°57.6	07.5	74°54.9	05.0	171°04.4	20.8										
17	188°48.0	117°37.8	03.3	20°58.7	06.9	89°56.7	04.9	186°06.9	20.8										
18	203°50.5	132°37.3	N20°03.8	35°59.7	N06°06.3	104°58.6	N23°04.9	201°09.3	S01°20.8										
19	218°52.9	147°36.8	04.3	51°00.8	05.7	120°00.5	04.9	216°11.8	20.8										
20	233°55.4	162°36.3	04.7	66°01.9	05.1	135°02.3	04.9	231°14.3	20.8										
21	248°57.8	177°35.8	05.2	81°03.0	05.1	150°04.2	04.8	246°16.7	20.8										
22	264°00.3	192°35.3	05.6	96°04.1	03.9	165°06.0	04.8	261°19.2	20.8										
23	279°02.8	207°34.8	06.0	111°05.2	03.2	180°07.9	04.7	276°21.7	20.9										
Mer.pass. 04:27				ν -0.5° d 0.5' m -4.07				ν 1.1° d -0.6' m 1.55				ν 1.9° d -0.0' m -1.90				ν 2.5° d -0.0' m 0.89			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	294°05.2	222°34.3	N20°06.5	126°06.3	N06°02.6	195°09.7	N23°04.7	291°24.1	S01°20.9										
1	309°07.7	237°33.8	06.9	141°07.4	02.0	210°11.6	04.7	306°26.6	20.9										
2	324°10.2	252°33.3	07.4	156°08.5	01.5	225°13.5	04.6	321°29.1	20.9										
3	339°12.6	267°32.8	07.8	171°09.6	00.8	240°15.3	04.6	336°31.6	20.9										
4	354°15.1	282°32.3	08.3	186°10.7	00.0	255°17.2	04.6	351°34.0	20.9										
5	9°17.6	297°31.8	08.7	201°11.8	05°59.6	270°19.0	04.6	6°36.5	20.9										
6	24°20.0	312°31.3	N20°09.2	216°12.9	N05°59.0	285°20.9	N23°04.5	21°39.0	S01°21.0										
7	39°22.5	327°30.8	09.6	231°14.0	58.4	300°22.8	04.5	36°41.4	21.0										
8	54°25.0	342°30.3	10.0	246°15.1	57.7	315°24.6	04.5	51°43.9	21.0										
9	69°27.4	357°29.8	10.5	261°16.2	57.1	330°26.5	04.4	66°46.4	21.0										
10	84°29.9	12°29.3	10.9	276°17.2	56.5	345°28.3	04.4	81°48.9	21.0										
11	99°32.3	27°28.8	11.4	291°18.3	55.9	0°30.2	04.4	96°51.3	21.0										
12	114°34.8	42°28.3	N20°11.8	306°19.4	N05°55.3	15°32.0	N23°04.3	111°53.8	S01°21.1										
13	129°37.3	57°27.8	12.2	321°20.5	54.7	30°33.9	04.3	126°56.3	21.1										
14	144°39.7	72°27.3	12.7	336°21.6	54.1	45°35.8	04.3	141°58.7	21.1										
15	159°42.2	87°26.7	13.1	351°22.7	53.5	60°37.6	04.2	157°01.2	21.1										
16	174°44.7	102°26.2	13.5	6°23.8	52.9	75°39.5	04.2	172°03.7	21.1										
17	189°47.1	117°25.7	14.0	21°24.9	52.2	90°43.1	04.2	187°06.2	21.1										
18	204°49.6	132°25.2	N20°14.4	36°26.0	N05°51.6	105°43.2	N23°04.2	202°08.6	S01°21.2										
19	219°52.1	147°24.7	14.8	51°27.1	51.0	120°45.1	04.1	217°11.1	21.2										
20	234°54.5	162°24.2	15.3	66°28.2	50.4	135°46.9	04.1	232°13.6	21.2										
21	249°57.0	177°23.7	15.7	81°29.3	49.8	150°48.8	04.1	247°16.1	21.2										
22	264°59.4	192°23.2	16.1	96°30.4	49.2	165°50.6	04.0	262°18.5	21.2										
23	280°01.9	207°22.7	16.6	111°31.4	48.6	180°52.5	04.0	277°21.0	21.2										
Mer.pass. 04:23				ν -0.5° d 0.4' m -4.06				ν 1.1° d -0.6' m 1.56				ν 1.9° d -0.0' m -1.90				ν 2.5° d -0.0' m 0.88			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	295°04.4	222°22.1	N20°17.0	126°32.5	N05°48.0	195°54.3	N23°04.0	292°23.5	S01°21.3										
1	310°06.8	237°21.6	17.4	141°33.6	47.3	210°56.2	03.9	307°26.0	21.3										
2	325°09.3	252°21.1	17.9	156°34.7	46.7	225°58.1	03.9	322°28.4	21.3										
3	340°11.8	267°20.6	18.3	171°35.8	46.1	240°59.9	03.9	337°30.9	21.3										
4	355°14.2	282°20.1	18.7	186°36.9	45.5	256°01.8	03.8	352°33.4	21.3										
5	10°16.7	297°19.6	19.1	201°38.0	44.9	271°03.6	03.8	7°35.9	21.3										
6	25°19.2	312°19.0	N20°19.6	216°39.1	N05°44.3	286°05.5	N23°03.8	22°38.3	S01°21.4										
7	40°21.6	327°18.5	20.0	231°40.2	43.7	301°07.4	03.7	37°40.8	21.4										
8	55°24.1	342°18.0	20.4	246°41.3	43.1	316°09.2	03.7	52°43.3	21.4										
9	70°26.6	357°17.5	20.8	261°42.4	42.4	331°11.1	03.7	67°45.8	21.4										
10	85°29.0	12°17.0	21.2	276°43.5	41.8	346°12.9	03.6	82°48.2	21.4										
11	100°31.5	27°16.5	21.7	291°44.5	41.2	1°14.8	03.6	97°50.7	21.4										
12	115°33.9	42°15.9	N20°22.1	306°45.6	N05°40.6	16°16.7	N23°03.6	112°53.2	S01°21.5										
13	130°36.4	57°15.4	22.5	321°46.7	40.0	31°18.5	03.6	127°55.7	21.5										
14	145°38.9	72°14.9	22.9	336°47.8	39.4	46°20.4	03.5	142°58.1	21.5										
15	160°41.3	87°14.4	23.3	351°48.9	38.8	61°22.2	03.5	158°00.6	21.5										
16	175°43.8	102°13.8	23.8	6°50.0	38.1	76°24.1	03.5	173°03.1	21.5										
17	190°46.3	117°13.3	24.2	21°51.1	37.5	91°26.0	03.4	188°05.6	21.5										
18	205°48.7	132°12.8	N20°24.6	36°52.2	N05°36.9	106°27.8	N23°03.4	203°08.0	S01°21.6										
19	220°51.2	147°12.3	25.0	51°53.3	36.3	121°29.7	03.4	218°10.5	21.6										
20	235°53.7	162°11.8	25.4	66°54.4	35.7	136°31.5	03.3	233°13.0	21.6										
21	250°56.1	177°11.2	25.8	81°55.5	35.1	151°33.4	03.3	248°15.5	21.6										
22	265°58.6	192°10.7	26.2	96°56.5	34.5	166°35.3	03.3	263°18.0	21.6										
23	281°01.1	207°10.2	26.6	111°57.6	33.8	181°37.1	03.2	278°20.4	21.7										
Mer.pass. 04:19				ν -0.5° d 0.4' m -4.06				ν 1.1° d -0.6' m 1.56				ν 1.9° d -0.0' m -1.90				ν 2.5° d -0.0' m 0.88			

	SHA	Dec
Alpheratz	357°34.2	29°13.8
Ankaa	353°06.6	-42°09.7
Schedar	349°30.4	56°40.4
Diphda	348°46.8	-17°50.6
Achernar	335°19.9	-57°06.4
Hamal	327°50.8	23°34.9
Polaris	314°01.1	89°22.0
Acamar	315°11.6	-40°11.8
Menkar	314°05.8	4°11.5
Mirafak	308°27.9	49°56.9
Aldebaran	290°39.4	16°33.6
Rigel	281°03.7	-8°10.2
Capella	280°21.6	46°01.3
Bellatrix	278°22.7	6°22.4
Elmath	278°01.6	28°37.7
Alnilam	275°37.6	-1°11.1
Betelgeuse	270°51.9	7°24.8
Canopus	263°52.7	-52°42.0
Sirius	258°26.2	-16°45.0
Adhara	255°05.9	-29°00.3
Procyon	244°50.7	5°09.6
Pollux	243°17.2	27°57.9
Avior	234°15.2	-59°35.5
Suhail	222°46.4	-43°32.2
Miaplacidus	221°39.1	-69°49.4
Alphard	217°47.6	-8°46.1

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	296°03.5	222°09.7	N20°27.1	126°58.7	N05°33.2	196°39.0	N23°03.2	293°22.9	S01°21.7										
1	311°06.0	237°09.1	27.5	141°59.8	32.6	211°40.8	03.2	308°25.4	21.7										
2	326°08.4	252°08.6	27.5	157°00.9	32.0	226°42.7	03.1	326°27.9	21.7										
3	341°10.9	267°08.1	28.3	172°02.0	31.4	241°44.6	03.1	338°30.4	21.7										
4	356°13.4	282°07.5	28.7	187°03.1	30.8	256°46.4	03.1	353°32.8	21.8										
5	11°15.8	297°07.0	29.1	202°04.2	30.1	271°48.3	03.0	8°35.3	21.8										
6	26°18.3	312°06.5	N20°29.5	217°05.3	N05°29.5	286°50.1	N23°03.0	23°37.8	S01°21.8										
7	41°20.8	327°06.0	29.9	232°06.4	28.9	301°52.0	03.0	38°40.3	21.8										
8	56°23.2	342°05.4	30.3	247°07.4	28.3	316°53.9	02.9	53°42.7	21.8										
9	71°25.7	357°04.9	30.7	262°08.5	27.7	331°55.7	02.9	68°45.2	21.8										
10	86°28.2	12°04.4	31.1	277°09.6	27.1	346°57.6	02.9	83°47.7	21.9										
11	101°30.6	27°03.8	31.5	292°10.7	26.5	1°59.4	02.8	98°50.2	21.9										
12	116°33.1	42°03.3	N20°31.9	307°11.8	N05°25.8	17°01.3	N23°02.8	113°52.7	S01°21.9										
13	131°35.5	57°02.8	32.3	322°12.9	25.2	32°03.2	02.8	128°55.1	21.9										
14	146°38.0	72°02.2	32.7	337°14.0	24.6	47°05.0	02.7	143°57.6	21.9										
15	161°40.5	87°01.7	33.1	352°15.1	24.0	62°06.9	02.7	159°00.1	22.0										
16	176°42.9	102°01.2	33.5	7°16.2	23.4	77°06.2	02.7	174°02.6	22.0										
17	191°45.4	117°00.6	33.9	22°17.2	22.8	92°10.6	02.6	189°05.1	22.0										
18	206°47.9	132°00.1	N20°34.3	37°18.3	N05°22.1	107°12.5	N23°02.6	204°07.6	S01°22.0										
19	221°50.3	146°59.6	34.7	52°19.4	21.5	122°14.3	02.6	219°10.0	22.0										
20	236°52.8	161°59.0	35.1	67°20.5	20.9	137°16.2	02.5	234°12.5	22.1										
21	251°55.3	176°58.5	35.5	82°21.6	20.3	152°18.1	02.5	249°15.0	22.1										
22	266°57.7	191°58.0	35.9	97°22.7	19.7	167°19.9	02.5	264°17.5	22.1										
23	282°00.2	206°57.4	36.3	112°23.8	19.1	182°21.8	02.4	279°20.0	22.1										
Mer.pass. 04:15				ν -0.5° d 0.4' m -4.05				ν 1.1° d -0.6' m 1.56				ν 1.9° d -0.0' m -1.90				ν 2.5° d -0.0' m 0.87			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	297°02.7	221°56.9	N20°36.6	127°24.9	N05°18.4	197°23.6	N23°02.4	294°22.4	S01°22.1										
1	312°05.1	236°56.3	37.0	142°26.0	17.8	212°25.5	02.4	309°24.9	22.2										
2	327°07.6	251°55.8	37.4	157°27.0	17.2	227°27.4	02.3	324°27.4	22.2										
3	342°10.0	266°55.3	37.8	172°28.1	16.6	242°29.2	02.3	339°29.9	22.2										
4	357°12.5	281°54.7	38.2	187°29.2	16.0	257°31.1	02.3	354°32.4	22.2										
5	12°15.0	296°54.2	38.6	202°30.3	15.4	272°33.0	02.2	9°34.9	22.2										
6	27°17.4	311°53.7	N20°39.0	217°31.4	N05°14.7	287°34.8	N23°02.2	24°37.3	S01°22.3										
7	42°19.9	326°53.1	39.4	232°32.5	14.1	302°36.7	02.2	39°39.8	22.3										
8	57°22.4	341°52.6	39.7	247°33.6	13.5	317°38.5	02.1	54°42.3	22.3										
9	72°24.8	356°52.0	40.0	262°34.7	12.9	332°40.4	02.1	69°44.8	22.3										
10	87°27.3	11°51.5	40.5	277°35.7	12.3	347°42.3	02.1	84°47.3	22.3										
11	102°29.8	26°50.9	40.9	292°36.8	11.6	2°44.1	02.0	99°49.8	22.4										
12	117°32.2	41°50.4	N20°41.3	307°37.9	N05°11.0	17°46.0	N23°02.0	114°52.2	S01°22.4										
13	132°34.7	56°49.9	41.6	322°39.0	10.4	327°47.9	02.0	129°54.7	22.4										
14	147°37.2	71°49.3	42.0	337°40.1	09.8	347°49.7	01.9	144°57.2	22.4										
15	162°39.6	86°48.8	42.4	352°41.2	9.2	62°51.6	01.9	159°59.7	22.4										
16	177°42.1	101°48.2	42.8	7°42.3	08.6	77°53.4	01.9	175°02.2	22.5										
17	192°44.5	116°47.7	43.2	22°43.4	07.9	92°55.3	01.8	190°04.7	22.5										
18	207°47.0	131°47.1	N20°43.5	37°44.4	N05°07.3	107°57.2	N23°01.8	205°07.1	S01°22.5										
19	222°49.5	146°46.6	43.9	52°45.5	06.7	122°59.0	01.8	220°09.6	22.5										
20	237°51.9	161°46.0	44.3	67°46.6	06.1	138°00.9	01.7	235°12.1	22.6										
21	252°54.4	176°45.5	44.6	82°47.7	05.5	153°02.8	01.7	250°14.6	22.6										
22	267°56.9	191°44.9	45.0	97°48.8	04.8	168°04.6	01.7	265°17.1	22.6										
23	282°59.3	206°44.4	45.4	112°49.9	04.2	183°06.5	01.6	280°19.6	22.6										
Mer.pass. 04:11				ν -0.5° d 0.4' m -4.05				ν 1.1° d -0.6' m 1.57				ν 1.9° d -0.0' m -1.90				ν 2.5° d -0.0' m 0.87			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	298°01.8	221°43.8	N20°45.8	127°51.0	N05°03.6	198°08.3	N23°01.6	295°22.1	S01°22.6
1	313°04.3	236°43.3	46.1	142°52.1	03.0	213°10.2	01.6	310°24.5	22.7
2	328°06.7	251°42.7	46.5	157°53.1	02.4	228°12.1	01.5	325°27.0	22.7
3	343°09.2	266°42.2	46.9	172°54.2	01.7	243°13.9	01.5	340°29.5	22.7
4	358°11.7	281°41.6	47.2	187°55.3	01.1	258°15.8	01.5	355°32.0	22.7
5	13°14.1	296°41.1	47.6	202°56.4	05°00.5	273°17.7	01.4	10°34.5	22.7
6	28°16.6	311°40.5	N20°48.0	217°57.5	N04°59.9	288°19.5	N23°01.4	25°37.0	S01°22.8
7	43°19.0	326°40.0	48.3	232°58.6	59.3	303°21.4	01.4	40°39.5	22.8
8	58°21.5	341°39.4	48.7	247°59.7	58.6	318°23.3	01.3	55°42.0	22.8
9	73°24.0	356°38.9	49.1	263°00.7	58.0	333°25.1	01.3	70°44.4	22.8
10	88°26.4	11°38.3	49.4	278°01.8	57.4	348°27.0	01.3	85°46.9	22.9
11	103°28.9	26°37.8	49.8	293°02.9	56.8	3°28.8	01.2	100°49.4	22.9
12	118°31.4	41°37.2	N20°50.1	308°04.0	N04°56.2	18°30.7	N23°01.2	115°51.9	S01°22.9
13	133°33.8	56°36.7	50.5	323°05.1	55.5	33°32.6	01.2	130°54.4	22.9
14	148°36.3	71°36.1	50.9	338°06.2	54.9	48°34.4	01.1	145°56.9	22.9
15	163°38.8	86°35.6	51.2	353°07.3	54.3	63°36.3	01.1	160°59.4	22.9
16	178°41.2	101°35.0	51.6	8°08.3	53.7	78°38.2	01.1	176°01.9	23.0
17	193°43.7	116°34.4	51.9	23°09.4	53.1	93°40.0	01.0	191°04.3	23.0
18	208°46.1	131°33.9	N20°52.3	38°10.5	N04°52.4	108°41.9	N23°01.0	206°06.8	S01°23.0
19	223°48.6	146°33.3	52.6	53°11.6	51.8	123°43.8	01.0	221°09.3	23.1
20	238°51.1	161°32.8	53.0	68°12.7	51.2	138°45.6	00.9	236°11.8	23.1
21	253°53.5	176°32.2	53.3	83°13.8	50.6	153°47.5	00.9	251°14.3	23.1
22	268°56.0	191°31.6	53.7	98°14.9	50.0	168°49.4	00.8	266°16.8	23.1
23	283°58.5	206°31.1	54.0	113°15.9	49.3	183°51.2	00.8	281°19.3	23.2
Mer.pass. 04:07 ν -0.5° d 0.4' m -4.04 ν 1.1° d -0.6' m 1.57 ν 1.9° d -0.0' m -1.90 ν 2.5° d -0.0' m 0.86									

Stars		SHA	Dec
Alpheratz	357°34.2	29°13.8	
Ankaa	353°06.6	-42°09.7	
Schedar	349°30.4	56°40.4	
Diphda	348°46.8	-17°50.6	
Achernar	335°19.8	-57°06.1	
Hamal	327°50.7	23°34.9	
Polaris	313°59.5	89°22.0	
Acamar	315°11.6	-40°11.8	
Menkar	314°05.8	4°11.5	
Mirfak	308°27.9	49°56.9	
Aldebaran	290°39.4	16°33.6	
Rigel	281°03.7	-8°10.2	
Capella	280°21.6	46°01.3	
Bellatrix	278°22.7	6°22.4	
Elath	278°01.6	28°37.7	
Anilam	275°37.6	-1°11.0	
Betelgeuse	270°51.9	7°24.8	
Canopus	263°52.7	-52°42.0	
Sirius	258°26.2	-16°45.4	
Adhara	255°05.9	-29°00.3	
Procyon	244°50.7	5°09.6	
Pollux	243°17.1	27°57.9	
Avior	234°51.2	-59°35.5	
Suhail	222°46.4	-43°32.2	
Miaplacidus	221°39.1	-69°49.4	
Alphard	217°47.6	-8°46.1	
Regulus	207°34.2	11°50.6	
Dubhe	193°40.9	61°37.0	
Denebola	182°24.7	14°25.9	
Gienah	175°43.3	-17°41.1	
Acrux	172°59.9	-63°14.7	
Gacrux	171°51.4	-57°15.6	
Alloth	166°12.7	55°49.5	
Spica	158°21.9	-11°17.7	
Alkaid	152°51.6	49°11.4	
Hadar	148°35.3	-60°30.0	
Menkent	147°57.1	-19°03.1	
Arcturus	145°47.4	19°03.1	
Rigel Kent.	139°39.5	60°56.7	
Kochab	137°19.4	74°03.3	
Zuben 'ul	136°55.4	-16°08.9	
Alphecca	126°03.2	26°37.9	
Antares	112°15.0	-26°29.4	
Atria	107°08.4	-69°04.6	
Sabik	102°02.0	-15°45.4	
Shaula	96°09.4	-37°07.4	
Rasalhague	95°57.8	12°32.5	
Eltanin	90°41.5	51°29.2	
Kaus Aust.	83°31.5	-34°22.4	
Vega	80°32.5	38°48.5	
Nunki	75°46.8	-26°15.9	
Altair	61°59.2	8°56.2	
Peacock	53°04.4	-56°39.1	
Deneb	49°25.1	45°52.2	
Enif	33°38.1	9°59.6	
Al Na'ir	27°32.0	-46°50.0	
Fomalhaut	15°13.8	-29°29.0	
Scheat	13°44.5	-28°13.2	
Markab	13°29.2	15°20.6	
Jul 18 Fri	SHA	Mer.pass	
Venus	286°06.1	09:11	
Mars	190°55.2	15:31	
Jupiter	260°35.5	10:51	
Saturn	357°19.4	04:26	
Jul 19 Sat	SHA	Mer.pass	
Venus	284°54.2	09:13	
Mars	190°22.2	15:29	
Jupiter	260°21.0	10:49	
Saturn	357°19.8	04:22	
Jul 20 Sun	SHA	Mer.pass	
Venus	283°42.0	09:13	
Mars	189°49.2	15:27	
Jupiter	260°06.6	10:46	
Saturn	357°20.3	04:18	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	299°00.9	221°30.5	N20°54.4	128°17.0	N04°48.7	198°53.1	N23°00.8	296°21.8	S01°23.2					
1	314°03.4	236°30.0	54.7	143°18.1	48.1	213°54.9	00.7	311°24.3	23.2					
2	329°05.9	251°29.4	55.1	158°19.2	47.5	228°56.8	00.7	326°26.7	23.2					
3	344°08.3	266°28.8	55.4	173°20.3	46.9	243°58.7	00.7	341°29.2	23.2					
4	359°10.8	281°28.3	55.8	188°21.4	46.2	259°00.5	00.6	356°31.7	23.2					
5	14°13.3	296°27.7	56.1	203°22.4	45.6	274°02.4	00.6	11°34.2	23.3					
6	29°15.7	311°27.2	N20°56.5	218°23.5	N04°45.0	289°04.3	N23°00.6	26°36.7	S01°23.3					
7	44°18.2	326°26.6	56.8	233°24.6	44.4	304°06.1	00.5	41°39.2	23.3					
8	59°20.6	341°26.0	57.2	248°25.7	43.7	319°08.0	00.5	56°41.7	23.4					
9	74°23.1	356°25.5	57.5	263°26.8	43.1	334°09.9	00.5	71°44.2	23.4					
10	89°25.6	11°24.9	57.8	278°27.9	42.5	349°11.7	00.4	86°46.2	23.4					
11	104°28.0	26°24.3	58.2	293°29.0	41.9	4°13.6	00.4	101°49.2	23.4					
12	119°30.5	41°23.8	N20°58.5	308°30.0	N04°41.3	19°15.5	N23°00.4	116°51.7	S01°23.5					
13	134°33.0	56°23.2	58.9	323°31.1	40.6	34°17.3	00.3	131°54.2	23.5					
14	149°35.4	71°22.6	59.2	338°32.2	40.0	49°19.2	00.3	146°56.6	23.5					
15	164°37.9	86°22.1	59.5	353°33.3	39.4	64°21.1	00.2	161°59.1	23.5					
16	179°40.4	101°21.5	20°59.6	8°34.4	38.8	79°22.9	00.2	177°01.6	23.6					
17	194°42.8	116°20.9	21°00.2	23°35.5	38.1	94°24.8	00.2	192°04.1	23.6					
18	209°45.3	131°20.4	N21°00.5	38°36.5	N04°37.5	109°26.7	N23°00.1	207°06.6	S01°23.6					
19	224°47.8	146°19.8	00.9	53°37.6	36.9	124°28.5	00.1	222°09.1	23.6					
20	239°50.2	161°19.2	01.2	68°38.7	36.3	139°30.4	00.1	237°11.6	23.7					
21	254°52.7	176°18.7	01.5	83°39.8	35.7	154°32.3	00.0	252°14.1	23.7					
22	269°55.1	191°18.1	01.9	98°40.9	35.0	169°34.1	00.0	267°16.6	23.7					
23	284°57.6	206°17.5	02.2	113°42.0	34.4	184°36.0	00.0	282°19.1	23.7					
Mer.pass. 04:03			ν -0.6° d 0.3' m -4.04			ν 1.1° d -0.6' m 1.57			ν 1.9° d -0.0' m -1.90			ν 2.5° d -0.0' m 0.86		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	300°00.1	221°16.9	N21°02.5	128°43.0	N04°33.8	199°37.9	N22°59.9	297°21.6	S01°23.8					
1	315°02.5	236°16.4	02.9	143°44.1	33.2	214°39.7	59.9	312°24.1	23.8					
2	330°05.0	251°15.8	03.2	158°45.2	32.5	229°41.6	59.9	327°26.6	23.8					
3	345°07.5	266°15.2	03.5	173°46.3	31.9	244°43.5	59.8	342°29.1	23.8					
4	0°09.9	281°14.7	03.8	188°47.4	31.3	259°45.3	59.8	357°31.5	23.9					
5	15°12.4	296°14.1	04.2	203°48.4	30.7	274°47.2	59.8	12°34.0	23.9					
6	30°14.9	311°13.5	N21°04.5	218°49.5	29.4	289°49.1	N22°59.7	27°36.5	S01°23.9					
7	45°17.3	326°12.9	04.8	233°50.6	28.0	304°50.9	59.7	42°39.0	23.9					
8	60°19.8	341°12.4	05.1	248°51.7	28.8	319°52.8	59.6	57°41.5	24.0					
9	75°22.3	356°11.8	05.5	263°52.8	28.2	334°54.7	59.6	72°44.0	24.0					
10	90°24.7	11°11.2	05.8	278°53.9	27.6	349°56.5	59.6	87°46.5	24.0					
11	105°27.2	26°10.6	06.1	293°54.9	26.9	4°58.4	59.5	102°49.0	24.0					
12	120°29.6	41°10.1	N21°06.4	308°56.0	N04°26.3	20°00.3	N22°59.5	117°51.5	S01°24.1					
13	135°32.1	56°09.5	06.7	323°57.1	25.7	35°02.1	59.5	132°54.0	24.1					
14	150°34.6	71°08.9	07.1	338°58.2	25.1	50°04.0	59.4	147°56.5	24.1					
15	165°37.0	86°08.3	07.4	353°59.3	24.4	65°05.9	59.4	162°59.0	24.1					
16	180°39.5	101°07.8	07.7	9°00.3	23.8	80°07.7	59.4	178°01.5	24.2					
17	195°42.0	116°07.2	08.0	24°01.4	23.2	95°09.6	59.3	193°04.0	24.2					
18	210°44.4	131°06.6	N21°08.3	39°02.5	N04°22.6	110°11.5	N22°59.3	208°06.5	S01°24.2					
19	225°46.9	146°06.0	08.6	54°03.6	21.9	125°13.3	59.2	223°09.0	24.2					
20	240°49.4	161°05.4	08.9	69°04.7	21.3	140°15.2	59.2	238°11.5	24.3					
21	255°51.8	176°04.9	09.3	84°05.8	20.7	155°17.1	59.2	253°14.0	24.3					
22	270°54.3	191°04.3	09.6	99°06.8	20.1	170°18.9	59.1	268°16.5	24.3					
23	285°56.8	206°03.7	09.9	114°07.9	19.4	185°20.8	59.1	283°19.0	24.3					
Mer.pass. 03:59			ν -0.6° d 0.3' m -4.04			ν 1.1° d -0.6' m 1.58			ν 1.9° d -0.0' m -1.90			ν 2.5° d -0.0' m 0.85		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	300°59.2	221°03.1	N21°10.2	129°09.0	N04°18.8	200°22.7	N22°59.1	298°21.5	S01°24.4					
1	316°01.7	236°02.5	10.5	144°10.1	18.2	215°24.5	59.0	313°24.0	24.4					
2	331°04.1	251°02.0	10.8	159°11.2	17.6	230°26.4	59.0	328°26.5	24.4					
3	346°06.6	266°01.4	11.1	174°12.2	16.9	245°28.3	59.0	343°29.0	24.4					
4	1°09.1	281°00.8	11.4	189°13.3	16.3	260°30.1	58.9	358°31.5	24.5					
5	16°11.5	296°00.2	11.7	204°14.4	15.7	275°32.0	58.9	13°34.0	24.5					
6	31°14.0	310°59.6	N21°12.0	219°15.5	N04°15.1	290°33.9	N22°58.8	28°36.5	S01°24.5					
7	46°16.5	325°59.0	12.3	234°16.6	14.1	305°35.7	58.8	43°39.0	24.6					
8	61°18.9	340°58.5	12.6	249°17.6	13.8	320°37.6	58.8	58°41.5	24.6					
9	76°21.4	355°57.9	12.9	264°18.7	13.2	335°39.5	58.7	73°44.0	24.6					
10	91°23.9	10°57.3	13.2	279°19.8	12.6	350°41.3	58.7	88°46.5	24.6					
11	106°26.3	25°56.7	13.5	294°20.9	11.9	5°43.2	58.7	103°48.9	24.7					
12	121°28.8	40°56.1	N21°13.8	309°22.0	N04°11.3	20°45.1	N22°58.6	118°51.4	S01°24.7					
13	136°31.3	55°55.5	14.1	324°23.0	10.7	35°47.0	58.6	133°53.9	24.7					
14	151°33.7	70°54.9	14.4	339°24.1	10.0	50°48.8	58.6	148°56.4	24.7					
15	166°36.2	85°54.4	14.7	354°25.2	9.4	65°50.7	58.5	163°58.9	24.7					
16	181°38.6	100°53.8	15.0	9°26.3	08.8	80°52.6	58.5	179°01.4	24.8					
17	196°41.1	115°53.2	15.3	24°27.4	08.2	95°54.4	58.4	194°03.9	24.8					
18	211°43.6	130°52.6	N21°15.6	39°28.4	N04°07.5	110°56.3	N22°58.4	209°06.4	S01°24.9					
19	226°46.0	145°52.0	15.9	54°29.5	06.9	125°58.2	58.4	224°08.9	24.9					
20	241°48.5	160°51.4	16.2	69°30.6	06.3	141°00.0	58.3	239°11.4	24.9					
21	256°51.0	175°50.8	16.4	84°31.7	05.7	156°01.9	58.3	254°14.0	24.9					
22	271°53.4	190°50.2	16.7	99°32.8	05.0	171°03.8	58.3	269°16.5	25.0					
23	286°55.9	205°49.6	17.0	114°33.8	04.4	186°05.6	58.2	284°19.0	25.0					
Mer.pass. 03:55			ν -0.6° d 0.3' m -4.03			ν 1.1° d -0.6' m 1.58			ν 1.9° d -0.0' m -1.91			ν 2.5° d -0.0' m 0.85		

Stars		
SHA	Dec	
Alpheratz	357°34.1	29°13.8
Ankaa	353°06.5	-42°09.7
Schedar	349°30.4	56°40.4
Diphda	348°46.7	-17°50.6
Achernar	335°19.8	-57°06.1
Hamal	327°50.7	23°34.9
Polaris	313°57.7	89°22.0
Acamar	315°11.5	-40°11.8
Menkar	314°05.8	4°11.5
Mirfak	308°27.8	49°56.9
Aldebaran	299°39.3	16°33.6
Rigel	281°03.7	-8°10.2
Capella	280°21.6	46°01.3
Bellatrix	278°22.7	6°22.4
Elnath	278°01.6	28°37.7
Alnilam	275°37.5	-1°11.0
Betelgeuse	270°51.9	7°24.8
Canopus	263°52.7	-52°44.0
Sirius	258°26.2	-16°45.0
Adhara	255°05.9	-29°00.3
Procyon	244°50.7	5°09.6
Pollux	243°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.2
Miaplacidus	221°39.1	-69°49.4
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°37.0
Denebola	182°24.7	14°25.9
Gienah	175°43.3	-17°41.1
Acrux	172°59.9	-63°44.7
Gacrux	171°51.4	-57°15.6
Alloth	166°12.7	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.6	49°11.4
Headar	148°35.3	-36°30.0
Menkent	147°57.1	-36°29.9
Arcturus	145°47.5	19

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	301°58.4	220°49.1	N21°17.3	129°34.9	N04°03.8	201°07.5	N22°58.2	299°21.5	S01°25.0										
1	317°00.8	235°48.5	17.6	144°36.0	03.2	216°09.4	58.1	314°24.0	25.0										
2	332°03.3	250°47.9	17.9	159°37.1	02.5	231°11.3	58.1	329°26.5	25.1										
3	347°05.8	265°47.3	18.2	174°38.1	01.9	246°13.1	58.1	344°29.0	25.1										
4	2°08.2	280°46.7	18.5	189°39.2	01.3	261°15.0	58.0	359°31.5	25.1										
5	17°10.7	295°46.1	18.7	204°40.3	00.6	276°16.9	58.0	14°34.0	25.2										
6	32°13.1	310°45.5	N21°18.0	219°41.4	N04°00.0	291°18.7	N22°58.0	29°36.5	S01°25.2										
7	47°15.6	325°44.9	19.3	234°42.5	03°59.4	306°20.6	57.9	44°39.0	25.2										
8	62°18.1	340°44.3	19.6	249°43.5	58.8	321°22.5	57.9	59°45.5	25.2										
9	77°20.5	355°43.7	19.9	264°44.6	58.1	336°24.3	57.8	74°44.0	25.3										
10	92°23.0	10°43.1	20.1	279°45.7	57.5	351°26.7	57.5	89°46.5	25.2										
11	107°25.5	25°42.5	20.4	294°46.8	56.9	6°28.1	57.8	104°49.0	25.3										
12	122°27.9	40°41.9	N21°20.7	309°47.9	N03°56.3	21°30.0	N22°57.7	119°51.5	S01°25.4										
13	137°30.4	55°41.3	21.0	324°48.9	55.6	36°31.8	57.7	134°54.0	25.4										
14	152°32.9	70°40.7	21.2	339°50.0	55.0	51°33.7	57.7	149°56.5	25.4										
15	167°35.3	85°40.1	21.5	354°51.1	54.4	66°35.6	57.6	164°59.0	25.4										
16	182°37.8	100°39.5	21.8	9°52.2	53.7	81°37.4	57.6	180°01.5	25.5										
17	197°40.7	115°38.9	22.1	24°53.2	53.1	96°39.3	57.5	195°04.0	25.5										
18	212°42.7	130°38.3	N21°22.3	39°54.3	N03°52.5	111°41.2	N22°57.5	210°06.5	S01°25.5										
19	227°45.2	145°37.7	22.6	54°55.4	51.9	126°43.1	57.5	225°09.0	25.6										
20	242°47.6	160°37.1	22.9	69°56.5	51.2	141°44.9	57.4	240°11.5	25.6										
21	257°50.1	175°36.6	23.1	84°57.5	50.6	156°46.8	57.4	255°14.0	25.6										
22	272°52.6	190°36.0	23.4	99°58.6	50.0	171°48.7	57.4	270°16.5	25.7										
23	287°55.0	205°35.4	23.7	114°59.7	49.3	186°50.5	57.3	285°19.0	25.7										
Mer.pass. 03:51				ν -0.6° d 0.3' m -4.03				ν 1.1° d -0.6' m 1.58				ν 1.9° d -0.0' m -1.91				ν 2.5° d -0.0' m 0.84			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	302°57.5	220°34.8	N21°23.9	130°00.8	N03°48.7	201°52.4	N22°57.3	300°21.5	S01°25.7										
1	318°00.0	235°34.1	24.2	145°01.9	48.1	216°54.3	57.2	315°24.0	25.7										
2	333°02.4	250°33.5	24.5	160°02.9	47.5	231°56.1	57.2	330°26.5	25.8										
3	348°04.0	265°32.9	24.7	175°04.0	46.8	246°58.0	57.2	345°29.0	25.8										
4	3°07.4	280°32.3	25.0	190°05.1	46.2	261°59.9	57.1	0°31.6	25.8										
5	18°09.8	295°31.7	25.2	205°06.2	45.6	277°01.8	57.1	15°34.1	25.9										
6	33°12.3	310°31.1	N21°25.8	220°07.2	N03°44.9	292°03.6	N22°57.0	30°36.6	S01°25.9										
7	48°14.7	325°30.5	25.5	235°08.3	44.3	307°05.5	57.0	45°39.1	25.9										
8	63°17.2	340°29.9	26.0	250°09.4	43.7	322°07.4	57.0	60°41.6	26.0										
9	78°19.7	355°29.3	26.3	265°10.5	43.0	337°09.3	56.9	75°44.1	26.0										
10	93°22.1	10°28.7	26.5	280°11.5	42.4	352°11.1	56.9	90°46.6	26.0										
11	108°24.6	25°28.1	26.8	295°12.6	41.8	7°13.0	56.9	105°49.1	26.0										
12	123°27.1	40°27.5	N21°27.0	310°13.7	N03°41.2	22°14.9	N22°56.8	120°51.6	S01°26.1										
13	138°29.5	55°26.9	27.0	325°14.8	40.5	37°16.7	56.8	135°54.1	26.1										
14	153°32.0	70°26.3	27.5	340°15.8	39.9	52°18.6	56.7	150°56.6	26.1										
15	168°34.5	85°25.7	27.8	355°16.9	39.3	67°20.5	56.7	165°59.1	26.2										
16	183°36.9	100°25.1	28.0	10°18.0	38.6	82°22.4	56.6	181°01.6	26.2										
17	198°39.4	115°24.5	28.3	25°19.1	38.0	97°24.2	56.7	196°04.1	26.2										
18	213°41.9	130°23.9	N21°28.5	40°20.2	N03°37.4	112°26.1	N22°56.6	211°06.7	S01°26.3										
19	228°44.3	145°23.3	28.8	55°21.2	36.7	127°28.0	56.6	226°09.2	26.3										
20	243°46.8	160°22.7	29.0	70°22.3	36.1	142°29.8	56.5	241°11.7	26.3										
21	258°49.2	175°22.1	29.3	85°23.4	35.5	157°31.7	56.5	256°14.2	26.3										
22	273°51.7	190°21.4	29.5	100°24.5	34.9	172°33.6	56.4	271°16.7	26.4										
23	288°54.2	205°20.8	29.8	115°25.5	34.2	187°35.5	56.4	286°19.2	26.4										
Mer.pass. 03:48				ν -0.6° d 0.3' m -4.03				ν 1.1° d -0.6' m 1.59				ν 1.9° d -0.0' m -1.91				ν 2.5° d -0.0' m 0.84			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	303°56.6	220°20.2	N21°30.0	130°26.6	N03°33.6	202°37.3	N22°56.4	301°21.7	S01°26.4						
1	318°59.1	235°19.6	30.3	145°27.7	33.0	217°39.2	56.3	316°24.2	26.5						
2	334°01.6	250°19.0	30.5	160°28.8	32.3	232°41.1	56.3	331°26.7	26.5						
3	349°04.0	265°18.4	30.7	175°29.8	31.7	247°43.0	56.2	346°29.2	26.5						
4	4°06.5	280°17.8	31.0	190°30.9	31.1	262°44.8	56.2	1°31.7	26.6						
5	19°09.0	295°17.2	31.2	205°32.0	30.4	277°46.7	56.2	16°34.2	26.6						
6	34°11.4	310°16.6	N21°31.5	220°33.0	N03°29.8	292°48.6	N22°56.1	31°36.8	S01°26.6						
7	49°13.9	325°16.0	31.7	235°34.1	29.2	307°50.5	56.1	46°39.3	26.7						
8	64°16.4	340°15.3	31.9	250°35.2	28.6	322°52.3	56.0	61°41.8	26.7						
9	79°18.8	355°14.7	32.2	265°36.3	27.9	337°54.2	56.0	76°44.3	26.7						
10	94°21.3	10°14.1	32.4	280°37.3	27.3	352°56.1	56.0	91°46.8	26.8						
11	109°23.7	25°13.5	32.6	295°38.4	26.7	7°58.0	55.9	106°49.3	26.8						
12	124°26.2	40°12.9	N21°32.9	310°39.5	N03°26.0	22°59.8	N22°55.9	121°51.8	S01°26.8						
13	139°28.7	55°12.3	33.1	325°40.6	25.4	38°01.7	55.9	136°54.3	26.9						
14	154°31.1	70°11.7	33.3	340°41.6	24.8	53°03.6	55.8	151°56.8	26.9						
15	169°33.6	85°11.0	33.6	355°42.7	24.1	68°05.4	55.8	166°59.4	26.9						
16	184°36.1	100°10.4	33.8	10°43.8	23.5	83°07.3	55.7	182°01.9	27.0						
17	199°38.5	115°09.8	34.0	25°44.9	22.9	98°09.2	55.7	197°04.4	27.0						
18	214°41.0	130°09.2	N21°34.2	40°45.9	N03°22.2	113°11.1	N22°55.7	212°06.9	S01°27.0						
19	229°43.5	145°08.6	34.5	55°47.0	21.6	128°12.9	55.6	227°09.4	27.0						
20	244°45.9	160°08.0	34.7	70°48.1	21.0	143°14.8	55.6	242°11.9	27.1						
21	259°48.4	175°07.3	34.9	85°49.2	20.3	158°16.7	55.5	257°14.4	27.1						
22	274°50.8	190°06.7	35.1	100°50.2	19.7	173°18.6	55.5	272°16.9	27.1						
23	289°53.3	205°06.1	35.4	115°51.3	19.1	188°20.4	55.5	287°19.4	27.2						
Mer.pass. 03:44				ν -0.6° d 0.2' m -4.02				ν 1.9° d -0.0' m -1.91				ν 2.5° d -0.0' m 0.83			

Stars		
	SHA	Dec
Alpheratz	357°34.1	29°13.8
Ankaa	353°06.5	-42°09.7
Schedar	349°30.3	56°40.5
Diphda	348°46.6	-17°50.6
Achernar	335°19.8	-57°06.1
Hamal	327°50.0	23°35.0
Polaris	313°56.0	89°22.0
Acamar	315°11.5	-40°11.8
Menkar	314°05.7	4°11.5
Mirfak	308°27.8	49°56.9
Aldebaran	290°39.3	16°33.7
Rigel	281°03.7	-8°10.2
Capella	280°21.6	46°01.3
Bellatrix	278°22.6	6°22.4
Elath	278°01.6	28°37.7
Anilam	275°37.5	-1°11.0
Betelgeuse	270°51.9	7°24.8
Canopus	265°52.7	-52°42.3
Sirius	258°26.2	-16°44.9
Adhara	255°05.9	-29°00.3
Procyon	244°50.7	5°09.6
Pollux	234°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.1	-69°49.4
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°37.0
Denebola	182°24.7	14°25.9
Gienah	175°43.3	-17°44.1
Acruz	172°59.9	-63°14.7
Gacrux	171°51.4	-57°15.6
Alioth	166°12.7	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.6	49°11.4
Hadar	148°35.4	-60°30.0
Menkent	147°57.1	-36°29.9
Arcturus	145°47.5	19°03.1
Rigil Kent.	139°39.6	-60°56.7
Kochab	137°19.5	74°03.3
Zuben 'ul	136°55.4	-16°08.9
Alphecca	126°03.2	26°37.9
Antares	112°15.0	-26°29.4
Atria	107°08.4	-69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.8	12°32.6
Eltanin	90°41.5	51°29.2
Kaus Aust.	83°31.5	-34°22.4
Vega	80°32.5	38°48.5
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.2
Peacock	53°04.4	-56°39.1
Deneb	49°25.0	45°22.3
Enif	33°38.0	9°59.6
Al Na'ir	27°31.9	-46°50.0
Fomalhaut	15°13.7	-29°29.0
Scheat	13°44.5	28°13.3
Markab	13°29.2	15°20.6
Jul 24 Thu	SHA	Mer.pas.
Venus	278°50.7	09:17
Mars	187°36.6	15:21
Jupiter	259°09.2	10:34
Saturn	357°23.1	04:02
Jul 25 Fri	SHA	Mer.pas.
Venus	277°37.3	09:18
Mars	187°03.3	15:19
Jupiter	258°54.9	10:31
Saturn	357°24.0	03:58
Jul 26 Sat	SHA	Mer.pas.
Venus	276°23.6	09:19
Mars	186°30.0	15:17
Jupiter	258°40.7	10:28
Saturn	357°25.1	03:54
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	304°55.8	220°05.5	N21°35.6	130°52.4	N03°18.4	203°22.3	N22°55.4	302°22.0	S01°27.2										
1	319°58.2	235°04.9	35.8	145°53.4	17.8	218°24.2	55.4	317°24.5	27.2										
2	335°00.7	250°04.3	36.0	160°54.5	17.2	233°26.1	55.3	332°27.0	27.3										
3	350°03.2	265°03.6	•• 36.2	175°55.6	•• 16.5	248°27.9	•• 55.3	347°29.5	•• 27.3										
4	5°05.6	280°03.0	36.5	190°56.7	15.9	263°29.8	55.3	2°32.0	27.3										
5	20°08.1	295°02.4	36.9	205°57.7	15.3	278°31.7	55.2	17°34.5	27.4										
6	35°10.6	310°01.8	N21°36.7	220°58.8	N03°14.6	293°33.6	N22°55.2	32°37.0	S01°27.4										
7	50°13.0	325°01.2	37.1	235°59.9	14.0	308°35.5	55.1	47°39.6	27.4										
8	65°15.5	340°00.5	37.3	251°01.0	13.4	323°37.5	55.1	62°42.1	27.5										
9	80°18.0	354°59.9	•• 37.5	266°02.0	•• 12.8	338°39.2	•• 55.1	77°44.6	•• 27.5										
10	95°20.4	9°59.3	37.7	281°03.1	12.1	353°41.1	55.0	92°47.1	27.5										
11	110°22.9	24°58.7	37.9	296°04.2	11.5	8°43.0	55.0	107°49.6	27.6										
12	125°25.3	39°58.0	N21°38.2	311°05.2	N03°10.9	23°44.8	N22°54.9	122°52.1	S01°27.6										
13	140°27.8	54°57.4	38.4	326°06.3	10.2	38°46.7	54.9	137°54.6	27.6										
14	155°30.3	69°56.8	38.6	341°07.4	09.6	53°48.6	54.9	152°57.2	27.7										
15	170°32.7	84°56.2	•• 38.8	356°08.5	•• 09.0	68°50.5	•• 54.8	167°59.7	•• 27.7										
16	185°35.2	99°55.6	39.0	11°09.5	08.3	83°52.3	54.8	183°02.2	27.7										
17	200°37.7	114°54.9	39.2	26°10.6	07.7	98°54.2	54.7	198°04.7	27.8										
18	215°40.1	129°54.3	N21°39.4	41°11.7	N03°07.1	113°56.1	N22°54.7	213°07.2	S01°27.8										
19	230°42.6	144°53.7	39.6	56°12.7	06.4	128°58.0	54.7	228°09.7	27.8										
20	245°45.1	159°53.1	39.8	71°13.8	05.8	143°59.8	54.6	243°12.2	27.9										
21	260°47.5	174°52.4	•• 40.0	86°14.9	•• 05.2	159°01.7	•• 54.6	258°14.8	•• 27.9										
22	275°50.0	189°51.8	40.2	101°16.0	04.5	174°03.6	54.5	273°17.3	27.9										
23	290°52.5	204°51.2	40.4	116°17.0	03.9	189°05.5	54.5	288°19.8	28.0										
Mer.pass. 03:40				ν -0.6' d 0.2' m -4.02				ν 1.1' d -0.6' m 1.59				ν 1.9' d -0.0' m -1.91				ν 2.5' d -0.0' m 0.83			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	305°54.9	219°50.6	N21°40.6	131°18.1	N03°03.3	204°07.3	N22°54.5	303°22.3	S01°28.0										
1	320°57.4	234°49.9	40.8	146°19.2	02.6	219°09.2	54.4	318°24.8	28.1										
2	335°59.8	249°49.3	41.0	161°20.2	02.0	234°11.1	54.3	333°27.3	28.1										
3	351°02.3	264°48.7	•• 41.2	176°21.3	•• 01.3	249°13.0	•• 54.3	348°29.9	•• 28.1										
4	6°04.8	279°48.0	41.4	191°22.4	00.7	264°14.9	54.3	3°32.4	28.2										
5	21°07.2	294°47.4	41.6	206°23.4	03°00.1	279°16.7	54.3	18°34.9	28.2										
6	36°09.7	309°46.8	N21°41.8	221°24.5	N02°59.4	294°18.6	N22°54.2	33°37.4	S01°28.2										
7	51°12.2	324°46.2	42.0	236°25.6	58.8	309°20.5	54.2	48°39.9	28.3										
8	66°14.6	339°45.5	42.1	251°26.7	58.2	324°22.4	54.1	63°42.4	28.3										
9	81°17.1	354°44.9	•• 42.3	266°27.7	•• 57.5	339°24.2	•• 54.1	78°45.0	•• 28.3										
10	96°19.6	9°44.3	42.5	281°28.8	56.9	354°26.1	54.1	93°47.5	28.4										
11	111°22.0	24°43.6	42.7	296°29.9	56.3	9°28.0	54.0	108°50.0	28.4										
12	126°24.5	39°43.0	N21°42.9	311°30.9	N02°55.6	24°29.9	N22°54.0	123°52.5	S01°28.4										
13	141°26.9	54°42.4	43.1	326°32.0	55.0	39°31.8	53.9	138°55.0	28.5										
14	156°29.9	69°41.8	43.3	341°33.1	54.4	54°33.6	53.9	153°57.6	28.5										
15	171°31.9	84°41.1	•• 43.5	356°34.1	•• 53.7	69°35.5	•• 53.9	169°00.1	•• 28.5										
16	186°34.3	99°40.5	43.6	1°135.2	53.1	84°37.4	53.8	184°02.6	28.6										
17	201°36.8	114°39.8	43.8	26°36.3	52.5	99°39.3	53.8	199°05.1	28.6										
18	216°39.3	129°39.2	N21°44.0	41°37.4	N02°51.8	114°41.2	N22°53.7	214°07.6	S01°28.6										
19	231°41.7	144°38.6	44.2	56°38.4	51.2	129°43.0	53.7	229°10.2	28.7										
20	246°44.2	159°38.0	44.4	71°39.5	50.6	144°44.9	53.7	244°12.7	28.7										
21	261°46.7	174°37.3	•• 44.5	86°40.6	•• 49.9	159°46.8	•• 53.6	259°15.2	•• 28.8										
22	276°49.1	189°36.7	44.7	101°41.6	49.3	174°48.7	53.6	274°17.7	28.8										
23	291°51.6	204°36.1	44.9	116°42.7	48.7	189°50.5	53.5	289°20.2	28.8										
Mer.pass. 03:36				ν -0.6' d 0.2' m -4.02				ν 1.1' d -0.6' m 1.59				ν 1.9' d -0.0' m -1.91				ν 2.5' d -0.0' m 0.82			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	306°54.1	219°35.4	N21°45.1	131°43.8	N02°48.0	204°52.4	N22°53.5	304°22.7	S01°28.9										
1	321°56.5	234°34.8	45.2	146°44.8	47.4	219°54.3	53.4	319°25.3	28.9										
2	336°59.0	249°34.2	45.4	161°45.9	46.7	234°56.2	53.4	334°27.8	28.9										
3	352°01.4	264°33.5	•• 45.6	176°47.0	•• 46.1	249°58.1	•• 53.4	349°30.3	•• 29.0										
4	7°03.9	279°32.9	45.8	191°48.0	45.5	264°59.9	53.3	4°32.8	29.0										
5	22°06.4	294°32.2	45.9	206°49.1	44.8	280°01.8	53.3	19°35.4	29.0										
6	37°08.8	309°31.6	N21°46.1	221°50.2	N02°44.2	295°03.7	N22°53.2	34°37.9	S01°29.1										
7	52°11.3	324°31.0	46.3	236°51.2	43.6	310°05.6	53.2	49°40.4	29.1										
8	67°13.8	339°30.3	46.4	251°52.3	42.9	325°07.5	53.2	64°42.9	29.2										
9	82°16.2	354°29.7	•• 46.6	266°53.4	•• 42.3	340°09.3	•• 53.1	79°45.4	•• 29.2										
10	97°18.7	9°29.1	46.8	281°54.5	41.7	355°11.2	53.1	94°48.0	29.2										
11	112°21.2	24°28.4	46.9	296°55.5	41.0	10°13.1	53.0	109°50.5	29.3										
12	127°23.6	39°27.8	N21°47.1	311°56.6	N02°40.4	25°15.0	N22°53.0	124°53.0	S01°29.3										
13	142°26.1	54°27.2	47.3	326°57.7	39.8	40°16.9	53.0	139°55.5	29.3										
14	157°28.5	69°26.5	47.4	341°58.7	39.1	55°18.7	52.9	154°58.0	29.4										
15	172°31.0	84°25.9	•• 47.6	356°59.8	•• 38.5	70°20.6	•• 52.9	170°00.6	•• 29.4										
16	187°33.5	99°25.2	47.7	12°00.9	37.8	85°22.5	52.8	185°03.1	29.4										
17	202°35.9	114°24.6	47.9	27°01.9	37.2	100°24.4	52.8	200°05.6	29.5										
18	217°38.4	129°24.0	N21°48.1	42°03.0	N02°36.6	115°26.3	N22°52.7	215°08.1	S01°29.5										
19	232°40.9	144°23.3	48.2	57°04.1	35.9	130°28.1	52.7	230°10.7	29.6										
20	247°43.3	159°22.7	48.4	72°05.1	35.3	145°30.0	52.7	245°13.2	29.6										
21	262°45.8	174°22.0	•• 48.5	87°06.2	•• 34.7	160°31.9	•• 52.6	260°15.7	•• 29.6										
22	277°48.3	189°21.4	48.7	102°07.3	34.0	175°33.8	52.6	275°18.2	29.7										
23	292°50.7	204°20.8	48.8	117°08.3	33.4	190°35.7	52.5	290°20.8	29.7										
Mer.pass. 03:32				ν -0.6' d 0.2' m -4.01				ν 1.1' d -0.6' m 1.60				ν 1.9' d -0.0' m -1.91				ν 2.5' d -0.0' m 0.82			

	SHA	Dec
Alpheratz	357°34.1	29°13.9
Ankaa	353°06.5	-42°09.7
Schedar	349°30.3	56°40.5
Diphda	348°46.7	-17°50.6
Achernar	335°19.7	-57°06.1
Hamal	327°50.7	23°35.0
Polaris	313°54.6	89°22.0
Acamar	315°11.5	-40°11.8
Menkar	314°05.7	4°11.5
Mirfak	308°27.7	49°56.9
Aldebaran	290°39.3	16°33.7
Rigel	281°03.7	-8°10.2
Capella	280°21.5	46°01.3
Bellatrix	278°22.6	6°22.4
Elnath	278°01.6	28°37.7
Alnilam	275°37.5	-1°11.0
Betelgeuse	270°51.9	7°24.8
Canopus	263°52.7	-52°44.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.9	-29°00.2
Procyon	244°50.7	5°09.6
Pollux	243°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.3
Alphard	217°47.6	-8°46.1

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	307°53.2	219°20.1	N21°49.0	132°09.4	N02°32.8	205°37.5	N22°52.5	305°23.3	S01°29.7										
1	322°55.7	234°19.5	49.1	147°10.5	32.1	220°39.4	52.5	320°25.8	29.8										
2	337°58.1	249°18.8	49.3	162°11.5	31.5	235°41.3	52.4	335°28.3	29.8										
3	353°00.6	264°18.2	49.4	177°12.6	30.8	250°43.2	52.4	350°30.8	29.9										
4	8°03.0	279°17.5	49.6	192°13.7	30.2	265°45.1	52.3	5°33.4	29.9										
5	23°05.5	294°16.9	49.7	207°14.7	29.6	280°47.0	52.3	20°35.9	29.9										
6	38°08.0	309°16.3	N21°49.9	222°15.8	N02°28.9	295°48.8	N22°52.2	35°38.4	S01°30.0										
7	53°10.4	324°15.6	50.0	237°16.9	28.3	310°50.7	52.2	50°40.9	30.0										
8	68°12.9	339°15.0	50.2	252°17.9	27.7	325°52.6	52.2	65°43.5	30.0										
9	83°15.4	354°14.3	50.3	267°19.0	27.0	340°54.5	52.1	80°46.0	30.1										
10	98°17.8	9°13.7	50.5	282°20.1	26.4	355°56.4	52.1	95°48.5	30.1										
11	113°20.3	24°13.0	50.6	297°21.1	25.7	10°58.2	52.0	110°51.0	30.2										
12	128°22.8	39°12.4	N21°50.7	312°22.2	N02°25.1	26°00.1	N22°52.0	125°53.6	S01°30.2										
13	143°25.2	54°11.7	50.9	327°23.3	24.5	41°02.0	52.0	140°56.1	30.2										
14	158°27.7	69°11.1	51.0	342°24.3	23.8	56°03.9	51.9	155°58.6	30.3										
15	173°30.2	84°10.5	51.2	357°25.4	23.2	71°05.8	51.9	171°01.2	30.3										
16	188°32.6	99°09.8	51.3	12°26.4	22.6	86°07.7	51.8	186°03.7	30.3										
17	203°35.1	114°09.2	51.4	27°27.5	21.9	101°09.5	51.8	201°06.2	30.4										
18	218°37.5	129°08.5	N21°51.6	42°28.6	N02°21.3	116°11.4	N22°51.7	216°08.7	S01°30.4										
19	233°40.0	144°07.9	51.7	57°29.6	20.6	131°13.3	51.7	231°11.3	30.5										
20	248°42.5	159°07.2	51.8	72°30.7	20.0	146°15.2	51.7	246°13.8	30.5										
21	263°44.9	174°06.6	52.0	87°31.8	19.4	161°17.1	51.6	261°16.3	30.5										
22	278°47.4	189°05.9	52.1	102°32.8	18.7	176°19.0	51.6	276°18.8	30.6										
23	293°49.9	204°05.3	52.2	117°33.9	18.1	191°20.8	51.5	291°21.4	30.6										
Mer.pass. 03:28				ν -0.6' d 0.2' m -4.01				ν 1.1' d -0.6' m 1.60				ν 1.9' d -0.0' m -1.91				ν 2.5' d -0.0' m 0.81			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	308°52.3	219°04.6	N21°52.3	132°35.0	N02°17.4	206°22.7	N22°51.5	306°23.9	S01°30.7
1	323°54.8	234°04.0	52.5	147°36.0	16.8	221°24.6	51.4	321°26.4	30.7
2	338°57.3	249°03.3	52.6	162°37.1	16.2	236°26.5	51.4	336°28.9	30.7
3	353°59.7	264°02.7	52.7	177°38.2	15.5	251°28.4	51.4	351°31.5	30.8
4	9°02.2	279°02.0	52.8	192°39.2	14.9	266°30.3	51.3	6°34.0	30.8
5	24°04.6	294°01.4	53.0	207°40.3	14.3	281°32.1	51.3	21°36.5	30.9
6	39°07.1	309°00.7	N21°53.1	222°41.4	N02°13.6	296°34.0	N22°51.2	36°39.1	S01°30.9
7	54°09.6	324°00.1	53.2	237°42.4	13.0	311°35.9	51.2	51°41.6	30.9
8	69°12.0	338°59.4	53.3	252°43.5	12.3	326°37.8	51.1	66°44.1	31.0
9	84°14.5	353°58.8	53.5	267°44.5	11.7	341°39.7	51.1	81°46.6	31.0
10	99°17.0	8°58.1	53.6	282°45.6	11.1	356°41.6	51.1	96°49.2	31.0
11	114°19.4	23°57.5	53.7	297°46.7	10.4	11°43.4	51.0	111°51.7	31.1
12	129°21.9	38°56.8	N21°53.8	312°47.7	N02°09.8	26°45.3	N22°51.0	126°54.2	S01°31.1
13	144°24.4	53°56.2	53.9	327°48.8	09.1	41°47.2	50.9	141°56.8	31.2
14	159°26.8	68°55.5	54.0	342°49.9	08.5	56°49.1	50.9	156°59.3	31.2
15	174°29.3	83°54.9	54.2	357°50.9	07.9	71°51.0	50.8	172°01.8	31.2
16	189°31.8	98°54.2	54.3	12°52.0	07.2	86°52.9	50.8	187°04.4	31.3
17	204°34.2	113°53.6	54.4	27°53.0	06.6	101°54.8	50.8	202°06.9	31.3
18	219°36.7	128°52.9	N21°54.5	42°54.1	N02°06.0	116°56.6	N22°50.7	217°09.4	S01°31.4
19	234°39.1	143°52.3	54.6	57°55.2	05.3	131°58.5	50.7	232°11.9	31.4
20	249°41.6	158°51.6	54.7	72°56.2	04.7	147°00.4	50.6	247°14.5	31.4
21	264°44.1	173°51.0	54.8	87°57.3	04.0	162°02.3	50.5	262°17.0	31.5
22	279°46.5	188°50.3	54.9	102°58.4	03.4	177°04.2	50.5	277°19.5	31.5
23	294°49.0	203°49.6	55.0	117°59.4	02.8	192°06.1	50.5	292°22.1	31.6
Mer.pass. 03:24 ν -0.6' d 0.1' m -4.01 ν 1.1' d -0.6' m 1.60 ν 1.9' d -0.0' m -1.92 ν 2.5' d -0.0' m 0.81									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	309°51.5	218°49.0	N21°55.1	133°00.5	N02°02.1	207°08.0	N22°50.5	307°24.6	S01°31.6										
1	324°53.9	233°48.3	55.2	148°01.5	01.5	222°09.8	50.4	322°27.1	31.6										
2	339°56.4	248°47.7	55.3	163°02.6	00.8	237°11.7	50.4	337°29.7	31.7										
3	354°58.9	263°47.0	55.4	178°03.7	02°00.2	252°13.6	50.3	352°32.2	31.7										
4	10°01.3	278°46.4	55.5	193°04.7	01°59.6	267°15.5	50.3	7°34.7	31.8										
5	25°03.8	293°45.7	55.7	208°05.8	58.9	282°17.4	50.2	22°37.3	31.8										
6	40°06.3	308°45.1	N21°55.7	223°06.9	N01°58.3	297°19.3	N22°50.2	37°39.8	S01°31.9										
7	55°08.7	323°44.4	55.8	238°07.9	57.6	312°21.2	50.2	52°42.3	31.9										
8	70°11.2	338°43.7	55.9	253°09.0	57.0	327°23.0	50.1	67°44.8	31.9										
9	85°13.6	353°43.1	56.0	268°10.0	56.4	342°24.9	50.1	82°47.4	32.0										
10	100°16.1	8°42.4	56.1	283°11.1	55.7	357°26.8	50.0	97°49.9	32.0										
11	115°18.6	23°41.8	56.2	298°12.2	55.1	12°28.7	50.0	112°52.4	32.1										
12	130°21.0	38°41.1	N21°56.3	313°13.2	N01°54.4	27°30.6	N22°49.9	127°55.0	S01°32.1										
13	145°23.5	53°40.5	56.4	328°14.3	53.8	42°32.5	49.9	142°57.5	32.1										
14	160°26.0	68°39.8	56.5	343°15.3	53.2	57°34.4	49.9	158°00.0	32.2										
15	175°28.4	83°39.1	56.6	358°16.4	52.5	72°36.2	49.8	173°02.6	32.2										
16	190°30.9	98°38.5	56.7	13°17.5	51.9	87°38.1	49.8	188°05.1	32.3										
17	205°33.4	113°37.8	56.8	28°18.5	51.2	102°40.0	49.7	203°07.6	32.3										
18	220°35.8	128°37.2	N21°56.9	43°19.6	N01°50.6	117°41.9	N22°49.7	218°10.2	S01°32.3										
19	235°38.3	143°36.5	56.9	58°20.7	49.9	132°43.8	49.6	233°12.7	32.4										
20	250°40.7	158°35.8	57.0	73°21.7	49.3	147°45.7	49.6	248°15.2	32.4										
21	265°43.2	173°35.2	57.1	88°22.8	48.7	162°47.6	49.6	263°17.8	32.5										
22	280°45.7	188°34.5	57.2	103°23.8	48.0	177°49.5	49.5	278°20.3	32.5										
23	295°48.1	203°33.9	57.3	118°24.9	47.4	192°51.3	49.5	293°22.8	32.6										
Mer.pass. 03:20				ν -0.7' d 0.1' m -4.00				ν 1.1' d -0.6' m 1.60				ν 1.9' d -0.0' m -1.92				ν 2.5' d -0.0' m 0.80			

Stars	SHA	Dec
Alpheratz	357°34.1	29°13.9
Ankaa	353°06.4	-42°09.7
Schedar	349°30.3	56°40.3
Diphda	348°46.7	-17°50.6
Achernar	335°19.7	-57°06.1
Hamal	327°50.6	23°35.0
Polaris	313°53.1	89°22.0
Acamar	315°11.5	-40°11.8
Menkar	314°05.7	4°11.5
Mirfak	308°27.7	49°56.9
Aldebaran	290°39.3	16°33.7
Rigel	281°03.6	-8°10.2
Capella	280°21.5	46°01.3
Bellatrix	278°22.6	6°22.5
Elnath	278°01.5	28°37.7
Alnilam	275°37.5	-1°11.0
Betelgeuse	270°51.8	7°24.8
Canopus	263°52.7	-52°42.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.7	5°09.7
Pollux	243°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.3
Alphard	217°47.6	-8°46.1

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	310°50.6	218°33.2	N21°57.4	133°26.0	N01°46.7	207°53.2	N22°49.4	308°25.4	S01°32.6					
1	325°53.1	233°32.5	57.4	148°27.0	46.1	222°55.1	49.4	323°27.9	32.6					
2	340°55.5	248°31.9	57.5	163°28.1	45.5	237°57.0	49.3	338°30.5	32.7					
3	355°58.0	263°31.2	•• 57.6	178°29.1	•• 44.8	252°58.9	•• 49.3	353°30.3	•• 32.7					
4	11°00.5	278°30.6	57.7	193°30.2	44.2	268°00.8	49.2	8°35.5	32.8					
5	26°02.9	293°29.9	57.8	208°31.3	43.5	283°02.7	49.2	23°38.1	32.8					
6	41°05.4	308°29.2	N21°57.8	223°32.3	N01°42.9	298°04.6	N22°49.2	38°40.6	S01°32.8					
7	56°07.9	323°28.6	57.9	238°33.4	42.3	313°06.4	49.1	53°43.1	32.9					
8	71°10.3	338°27.9	58.0	253°34.4	41.6	328°08.3	49.1	68°45.7	32.9					
9	86°12.8	353°27.2	•• 58.1	268°35.5	•• 41.0	343°10.2	•• 49.0	83°48.2	•• 33.0					
10	101°15.2	8°26.6	58.1	283°36.6	40.3	358°12.1	49.0	98°50.7	33.0					
11	116°17.7	23°25.9	58.2	298°37.6	39.7	13°14.0	48.9	113°53.3	33.1					
12	131°20.2	38°25.2	N21°58.3	313°38.7	N01°39.0	28°15.9	N22°48.9	128°55.8	S01°33.1					
13	146°22.6	53°24.6	58.3	328°39.7	38.4	43°17.8	48.8	143°58.3	33.1					
14	161°25.1	68°23.9	58.4	343°40.8	37.8	58°19.7	48.8	159°00.9	33.2					
15	176°27.6	83°23.3	•• 58.5	358°41.8	•• 37.1	73°21.6	•• 48.8	174°03.4	•• 33.2					
16	191°30.0	98°22.6	58.5	13°42.9	36.5	88°23.4	48.7	189°06.0	33.3					
17	206°32.5	113°21.9	58.6	28°44.0	35.8	103°25.3	48.7	204°08.5	33.3					
18	221°35.0	128°21.3	N21°58.7	43°45.0	N01°35.2	118°27.2	N22°48.6	219°11.0	S01°33.4					
19	236°37.4	143°20.6	58.7	58°46.1	34.6	133°29.1	48.6	234°13.6	33.4					
20	251°39.9	158°19.9	58.8	73°47.1	33.9	148°31.0	48.5	249°16.1	33.4					
21	266°42.4	173°19.3	•• 58.8	88°48.2	•• 33.3	163°32.9	•• 48.5	264°18.6	•• 33.5					
22	281°44.8	188°18.6	58.9	103°49.3	32.6	178°34.8	48.5	279°21.2	33.5					
23	296°47.3	203°17.9	59.0	118°50.3	32.0	193°36.7	48.4	294°23.7	33.6					
Mer.pass. 03:16			ν -0.7° d 0.1' m -4.00			ν 1.1' d -0.6' m 1.60			ν 1.9' d -0.0' m -1.92			ν 2.5' d -0.0' m 0.79		

Sun	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	311°49.7	218°17.3	N21°59.0	133°51.4	N01°31.3	208°38.6	N22°48.4	309°26.3
1	326°52.2	233°16.6	59.1	148°52.4	30.7	223°40.5	48.3	324°28.8
2	341°54.7	248°15.9	59.1	163°53.5	30.1	238°42.3	48.3	339°31.3
3	356°57.1	263°15.3	•• 59.2	178°54.5	•• 29.4	253°44.2	•• 48.2	354°33.9
4	11°59.6	278°14.6	59.2	193°55.6	28.8	268°46.1	48.2	9°36.4
5	27°02.1	293°13.9	59.3	208°56.7	28.1	283°48.0	48.1	24°39.0
6	42°04.5	308°13.3	N21°59.3	223°57.7	N01°27.5	298°49.9	N22°48.1	39°41.5
7	57°07.0	323°12.6	59.4	238°58.8	26.8	313°51.8	48.1	54°44.0
8	72°09.5	338°11.9	59.4	253°59.8	26.2	328°53.7	•• 48.0	69°46.1
9	87°11.9	353°11.3	•• 59.5	269°00.9	•• 25.6	343°55.6	•• 48.0	84°49.1
10	102°14.4	8°10.6	59.5	284°01.9	24.9	358°57.5	47.9	99°51.6
11	117°16.8	23°09.9	59.6	299°03.0	24.3	13°59.4	47.9	114°54.2
12	132°19.3	38°09.3	N21°59.6	314°04.1	N01°23.6	29°01.3	N22°47.8	129°56.7
13	147°21.8	53°08.6	59.7	329°05.1	23.0	44°03.1	47.8	144°59.3
14	162°24.2	68°07.9	59.7	344°06.2	22.4	59°05.0	•• 47.7	160°01.8
15	177°26.7	83°07.2	•• 59.8	359°07.2	•• 21.7	74°06.9	•• 47.7	175°04.3
16	192°29.2	98°06.6	59.8	14°08.3	21.1	89°08.8	47.6	190°06.9
17	207°31.6	113°05.9	59.8	29°09.3	20.4	104°10.7	47.6	205°09.4
18	222°34.1	128°05.2	N21°59.9	44°10.4	N01°19.8	119°12.6	N22°47.6	220°12.0
19	237°36.6	143°04.6	21°59.9	59°11.5	19.1	134°14.5	47.5	235°14.5
20	252°39.0	158°03.9	22°00.0	74°12.5	18.5	149°16.4	47.5	250°17.1
21	267°41.5	173°03.2	•• 00.0	89°13.6	•• 17.8	164°18.3	•• 47.4	265°19.6
22	282°44.0	188°02.5	00.0	104°14.6	17.2	179°20.2	47.4	280°22.1
23	297°46.4	203°01.9	00.1	119°15.7	16.6	194°22.1	47.3	295°24.7
Mer.pass. 03:12			ν -0.7° d 0.1' m -4.00			ν 1.1' d -0.6' m 1.61		

Mon	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	312°48.9	218°01.2	N22°00.1	134°16.7	N01°15.9	209°24.0	N22°47.3	310°27.2
1	327°51.3	233°00.5	00.1	149°17.8	15.3	224°25.8	47.2	325°29.8
2	342°53.8	247°59.9	00.2	164°18.8	14.6	239°27.7	47.2	340°32.3
3	357°56.3	262°59.2	•• 00.2	179°19.9	•• 14.0	254°29.6	•• 47.2	355°34.8
4	12°58.7	277°58.5	00.2	194°21.0	13.3	269°31.5	47.1	10°37.4
5	28°01.2	292°57.8	00.2	209°22.0	12.7	284°33.4	47.1	25°39.9
6	43°03.7	307°57.2	N22°00.3	224°23.1	N01°12.1	299°35.3	N22°47.0	40°42.5
7	58°06.1	322°56.5	00.3	239°24.1	11.4	314°37.2	47.0	55°45.0
8	73°08.6	337°55.8	00.3	254°25.2	10.8	329°39.1	46.9	70°47.6
9	88°11.1	352°55.2	•• 00.3	269°26.2	•• 10.1	344°41.0	•• 46.9	85°50.1
10	103°13.5	7°54.5	00.4	284°27.3	09.5	359°42.9	46.8	100°52.6
11	118°16.0	22°53.8	00.4	299°28.3	08.8	14°44.8	46.8	115°55.2
12	133°18.5	37°53.1	N22°00.4	314°29.4	N01°08.2	29°46.7	N22°46.7	130°57.7
13	148°20.9	52°52.5	00.4	329°30.4	07.6	44°48.6	46.7	146°03.3
14	163°23.4	67°51.8	00.4	344°31.5	06.9	59°50.5	46.7	161°02.8
15	178°25.8	82°51.1	•• 00.5	359°32.6	•• 06.3	74°52.4	•• 46.6	176°05.4
16	193°28.3	97°50.4	00.5	14°33.6	05.6	89°54.2	46.6	191°07.9
17	208°30.8	112°49.8	00.5	29°34.7	05.0	104°56.1	46.5	206°10.4
18	223°33.2	127°49.1	N22°00.5	44°35.7	N01°04.3	119°58.0	N22°46.5	221°13.0
19	238°35.7	142°48.4	00.5	59°36.8	03.7	134°59.9	46.4	236°15.5
20	253°38.2	157°47.7	00.5	74°37.8	03.0	150°01.8	46.4	251°18.1
21	268°40.6	172°47.1	•• 00.6	89°38.9	•• 02.4	165°03.7	•• 46.3	266°20.6
22	283°43.1	187°46.4	00.6	104°39.9	01.8	180°05.6	46.3	281°23.2
23	298°45.6	202°45.7	00.6	119°41.0	01.1	195°07.5	46.2	296°25.7
Mer.pass. 03:08			ν -0.7° d 0.0' m -3.99			ν 1.1' d -0.6' m 1.61		

Stars	SHA	Dec
Alpheratz	357°34.1	29°13.9
Ankaa	353°06.4	-42°09.7
Schedar	349°30.2	56°40.5
Diphda	348°46.6	-17°50.6
Achernar	335°19.7	-07°06.1
Hamal	327°50.6	23°35.0
Polaris	313°51.4	89°22.0
Acamar	315°11.4	-40°11.8
Menkar	314°05.7	4°11.5
Mirafak	308°27.7	49°56.9
Aldebaran	290°39.2	16°33.7
Rigel	281°03.6	-8°10.2
Capella	280°21.5	46°01.3
Bellatrix	278°22.6	6°22.5
Elmath	278°01.5	28°37.7
Alnilam	275°37.5	-1°10.1
Betelgeuse	270°51.8	7°24.8
Canopus	263°52.6	-52°42.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.7	5°09.7
Pollux	243°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.3
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°37.0
Denebola	182°24.7	14°25.9
Gienah	175°43.3	-17°41.1
Acrux	173°00.0	-63°14.7
Gacrux	171°51.5	-57°15.6
Alloth	166°12.8	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.7	49°11.4
Hadar	148°35.4	-60°30.9
Menkent	147°57.1	-36°29.0
Arcturus	145°47.5	19°03.1
Rigel Kent.	139°39.7	-60°56.7
Kochab	137°19.7	74°03.3
Ubeni	136°55.5	-16°08.9
Alphecca	126°03.2	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.5	69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.6	51°29.3
Kaus Aus.	83°31.5	-34°22.4
Vega	80°32.5	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.4
Peacock	53°04.4	-56°39.1
Deneb	49°25.0	45°22.3
Enif	33°38.0	9°59.6
Al Na'ir	27°31.9	-46°50.0
Fomalhaut	15°13.7	-29°29.0
Scheat	13°44.5	28°13.3
Markab	13°29.2	15°20.6

Aug 02 Sat	SHA	Mer.pass
Venus	267°42.6	09:26
Mars	182°35.4	15:05
Jupiter	257°02.6	10:07
Saturn	357°34.8	03:26
Aug 03 Sun	SHA	Mer.pass
Venus	266°27.5	09:27
Mars	182°01.6	15:04
Jupiter	256°48.8	10:04
Saturn	357°36.5	03:22
Aug 04 Mon	SHA	Mer.pass
Venus	265°12.3	09:28
Mars	181°27.9	15:02
Jupiter	256°35.1	10:01
Saturn	357°38.3	03:18
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

h	Sun			Moon			
Sat	GHA	Dec	GHA	ν	Dec	d	HP
0	178°25.2	N17°44.7	89°32.0	13.8'	S20°28.8	10.2'	54.2'
1	193°25.2	44.1	104°04.8	13.7'	20°39.0	10.2'	54.2'
2	208°25.3	43.5	118°37.6	13.7'	20°49.2	10.0'	54.2'
3	223°25.3	42.8	133°10.2	13.6'	20°59.2	10.0'	54.2'
4	238°25.4	42.2	147°42.8	13.5'	21°09.2	9.9'	54.2'
5	253°25.4	41.5	162°15.3	13.4'	21°19.1	9.8'	54.2'
6	268°25.4	N17°40.9	176°47.8	13.4'	S21°28.9	9.8'	54.2'
7	283°25.5	40.2	191°20.1	13.3'	21°38.7	9.6'	54.2'
8	298°25.5	39.6	205°52.4	13.2'	21°48.3	9.6'	54.2'
9	313°25.6	38.9	220°24.7	13.2'	21°57.9	9.4'	54.2'
10	328°25.6	38.3	234°56.8	13.1'	22°07.3	9.4'	54.2'
11	343°25.7	37.7	249°28.9	13.0'	22°16.7	9.3'	54.2'
12	358°25.7	N17°37.0	264°00.9	12.9'	S22°26.0	9.1'	54.2'
13	13°25.8	36.4	278°32.9	12.9'	22°35.1	9.1'	54.2'
14	28°25.8	35.7	293°04.7	12.8'	22°44.2	9.0'	54.2'
15	43°25.9	35.1	307°36.5	12.7'	22°53.2	8.9'	54.2'
16	58°25.9	34.4	322°08.2	12.6'	23°02.1	8.8'	54.2'
17	73°26.0	33.8	336°39.9	12.6'	23°10.9	8.7'	54.2'
18	88°26.0	N17°33.1	351°11.4	12.5'	S23°19.6	8.6'	54.2'
19	103°26.1	32.5	5°42.9	12.4'	23°28.2	8.5'	54.3'
20	118°26.1	31.8	20°14.3	12.3'	23°36.7	8.4'	54.3'
21	133°26.2	31.2	34°45.7	12.3'	23°45.1	8.4'	54.3'
22	148°26.2	30.5	49°16.9	12.2'	23°53.4	8.2'	54.3'
23	163°26.3	29.8	63°48.1	12.1'	24°01.6	8.1'	54.3'

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	313°48.0	217°45.0	N22°00.6	134°42.0	N01°00.5	210°09.4	N22°46.2	311°28.3	S01°35.8					
1	328°50.5	232°44.4	00.6	149°43.1	00°59.8	225°11.3	46.2	326°30.8	35.8					
2	343°53.0	247°43.7	00.6	164°44.1	59.2	240°13.2	46.1	341°33.4	35.8					
3	358°55.4	262°43.0	.. 00.6	179°45.2	.. 58.5	255°15.1	.. 46.1	356°35.9	.. 35.9					
4	13°57.9	277°42.3	00.6	194°46.3	57.9	270°17.0	46.0	11°38.4	35.9					
5	29°00.3	292°41.0	00.6	209°47.3	57.2	285°18.9	46.0	26°41.0	36.0					
6	44°02.8	307°41.6	N22°00.6	224°48.4	N00°56.6	300°20.8	N22°45.9	41°43.5	S01°36.0					
7	59°05.3	322°40.3	00.6	239°49.4	56.0	315°22.7	45.9	56°46.1	36.1					
8	74°07.7	337°39.6	00.6	254°50.5	55.3	330°24.6	45.8	71°48.6	36.1					
9	89°10.2	352°38.9	.. 00.6	269°51.5	.. 54.7	345°26.5	.. 45.8	86°51.2	.. 36.2					
10	104°12.7	7°38.3	00.6	284°52.6	54.0	0°28.4	45.7	101°53.7	36.2					
11	119°15.1	22°37.6	00.6	299°53.6	53.4	15°30.3	45.7	116°56.3	36.3					
12	134°17.6	37°36.9	N22°00.6	314°54.7	N00°52.7	30°32.2	N22°45.7	131°58.8	S01°36.3					
13	149°20.1	52°36.2	00.6	329°55.7	52.1	45°34.0	45.6	147°01.4	36.4					
14	164°22.5	67°35.5	00.6	344°56.8	51.4	60°35.9	45.6	162°03.9	36.4					
15	179°25.0	82°34.9	.. 00.6	359°57.8	.. 50.8	75°37.8	.. 45.5	177°06.5	.. 36.5					
16	194°27.7	97°34.2	00.6	14°58.9	50.1	90°39.0	45.5	192°09.0	36.5					
17	209°29.9	112°33.5	00.6	29°59.9	49.5	105°41.6	45.4	207°11.5	36.5					
18	224°32.4	127°32.8	N22°00.6	45°01.0	N00°48.9	120°43.5	N22°44.5	222°14.1	S01°36.6					
19	239°34.8	142°32.1	00.6	60°02.0	48.2	135°45.4	45.3	237°16.6	36.6					
20	254°37.3	157°31.5	00.5	75°03.1	47.6	150°47.3	45.3	252°19.2	36.7					
21	269°39.8	172°30.8	.. 00.5	90°04.1	.. 46.9	165°49.2	.. 45.2	267°21.7	.. 36.7					
22	284°42.2	187°30.1	00.5	105°05.2	46.3	180°51.1	45.2	282°24.3	36.8					
23	299°44.7	202°29.4	00.5	120°06.2	45.6	195°53.0	45.1	297°26.8	36.8					
Mer.pass. 03:04			ν -0.7' d 0.0' m -3.99			ν 1.1' d -0.6' m 1.61			ν 1.9' d -0.0' m -1.92			ν 2.5' d -0.0' m 0.78		

Wed	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	314°47.2	217°28.7	N22°00.5	135°07.3	N00°45.0	210°54.9	N22°45.1	312°29.4	S01°36.9					
1	329°49.6	232°28.1	00.5	150°08.3	44.3	225°56.8	45.1	327°31.9	36.9					
2	344°52.1	247°27.4	00.5	165°09.4	43.7	240°58.7	45.0	342°34.5	37.0					
3	359°54.6	262°26.7	.. 00.4	180°10.4	.. 43.0	256°00.6	.. 45.0	357°37.0	.. 37.0					
4	14°57.0	277°26.0	00.4	195°11.5	42.4	271°02.5	44.9	12°39.6	37.1					
5	29°59.5	292°25.3	00.4	210°12.5	41.8	286°04.4	44.9	27°42.1	37.1					
6	45°01.9	307°24.7	N22°00.4	225°13.6	N00°44.1	301°06.3	N22°44.8	42°44.1	S01°37.2					
7	60°04.4	322°24.0	00.3	240°14.6	40.5	316°08.2	44.8	57°47.2	37.2					
8	75°06.9	337°23.3	00.3	255°15.7	.. 39.8	331°10.1	.. 44.7	72°49.8	.. 37.3					
9	90°09.3	352°22.6	.. 00.3	270°16.7	.. 39.2	346°12.0	.. 44.7	87°52.3	.. 37.3					
10	105°11.8	7°21.9	00.3	285°17.8	38.5	1°15.8	44.6	102°54.9	37.4					
11	120°14.3	22°21.3	00.2	300°18.8	37.9	16°15.8	44.6	117°57.4	37.4					
12	135°16.7	37°20.6	N22°00.2	315°19.9	N00°37.2	31°17.7	N22°44.5	133°00.4	S01°37.4					
13	150°19.2	52°19.9	00.2	330°20.9	36.6	46°19.6	44.5	148°02.5	37.5					
14	165°21.7	67°19.2	00.2	345°22.0	35.9	61°21.5	44.5	163°05.1	37.5					
15	180°24.1	82°18.5	.. 00.1	0°23.0	.. 35.3	76°23.4	.. 44.4	178°07.6	.. 37.6					
16	195°26.6	97°17.8	00.1	15°24.1	34.6	91°25.3	44.4	193°10.2	37.6					
17	210°29.1	112°17.2	00.1	30°25.1	34.0	106°27.2	44.3	208°12.7	37.7					
18	225°31.5	127°16.5	N22°00.0	45°26.2	N00°33.4	121°29.1	N22°44.3	223°15.3	S01°37.7					
19	240°34.0	142°15.8	00.0	60°27.2	32.7	136°31.0	44.2	238°17.8	37.8					
20	255°36.4	157°15.1	22°00.0	75°28.3	32.1	151°32.9	44.2	253°20.4	37.8					
21	270°38.9	172°14.4	21°59.9	90°29.3	.. 31.4	166°34.8	.. 44.1	268°22.9	.. 37.9					
22	285°41.4	187°13.7	59.9	105°30.4	30.8	181°36.7	44.1	283°25.5	37.9					
23	300°43.8	202°13.1	59.8	120°31.4	30.1	196°38.6	44.0	298°28.0	38.0					
Mer.pass. 03:00			ν -0.7' d -0.0' m -3.99			ν 1.1' d -0.6' m 1.61			ν 1.9' d -0.0' m -1.93			ν 2.5' d -0.0' m 0.77		

Thu	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	315°46.3	217°12.4	N21°59.8	135°32.5	N00°29.5	211°40.5	N22°44.0	313°30.6	S01°38.0					
1	330°48.8	232°11.7	59.8	150°33.5	28.8	226°42.4	43.9	328°33.1	38.1					
2	345°51.2	247°11.0	59.7	165°34.6	28.2	241°44.3	43.9	343°35.7	38.1					
3	0°53.7	262°10.3	.. 59.7	180°35.6	.. 27.5	256°46.2	.. 43.8	358°38.3	.. 38.2					
4	15°56.2	277°09.6	59.6	195°36.7	26.9	271°48.1	43.8	13°40.8	38.2					
5	30°58.6	292°08.9	59.6	210°37.7	26.2	286°50.0	43.8	28°43.4	38.3					
6	46°01.1	307°08.3	N21°59.5	225°38.8	N00°25.6	301°51.9	N22°43.7	43°45.9	S01°38.3					
7	61°03.6	322°07.6	59.5	240°39.8	25.0	316°53.8	43.7	58°48.5	38.4					
8	76°06.0	337°06.9	59.4	255°40.9	24.3	331°55.7	43.6	73°51.0	38.4					
9	91°08.5	352°06.2	.. 59.4	270°41.9	.. 23.7	346°57.6	.. 43.6	88°53.6	.. 38.5					
10	106°10.9	7°05.5	59.3	285°43.0	23.0	1°59.5	43.5	103°56.1	38.5					
11	121°13.4	22°04.8	59.3	300°44.0	22.4	17°01.4	43.5	118°58.7	38.6					
12	136°15.9	37°04.1	N21°59.2	315°45.1	N00°21.7	32°03.3	N22°43.4	134°01.2	S01°38.6					
13	151°18.3	52°03.5	59.2	330°46.1	21.1	47°05.2	43.4	149°03.8	38.7					
14	166°20.8	67°02.8	59.1	345°47.2	20.4	62°07.1	43.3	164°06.3	38.7					
15	181°23.3	82°02.1	.. 59.1	0°48.2	.. 19.8	77°09.0	.. 43.3	179°08.9	.. 38.8					
16	196°25.7	97°01.4	59.0	15°49.3	19.1	92°10.9	43.2	194°11.4	38.8					
17	211°28.2	112°00.7	59.0	30°50.3	18.5	107°12.8	43.2	209°14.0	38.9					
18	226°30.7	127°00.0	N21°58.9	45°51.3	N00°17.8	122°14.7	N22°43.1	224°16.6	S01°38.9					
19	241°33.1	141°59.3	58.8	60°52.4	17.2	137°16.6	43.1	239°19.1	39.0					
20	256°35.6	156°58.7	58.8	75°53.4	16.5	152°18.5	43.0	254°21.7	39.0					
21	271°38.1	171°58.0	.. 58.7	90°54.5	.. 15.9	167°20.4	.. 43.0	269°24.2	.. 39.1					
22	286°40.5	186°57.3	58.7	105°55.5	15.2	182°22.3	43.0	284°26.8	39.1					
23	301°43.0	201°56.6	58.6	120°56.6	14.6	197°24.2	42.9	299°29.3	39.2					
Mer.pass. 02:56			ν -0.7' d -0.0' m -3.99			ν 1.0' d -0.6' m 1.61			ν 1.9' d -0.0' m -1.93			ν 2.6' d -0.0' m 0.77		

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°13.9
Ankaa	353°06.4	-42°09.7
Schedar	349°30.2	56°40.5
Diphda	348°46.6	-17°50.6
Achernar	335°19.6	-57°06.1
Hamal	327°50.6	23°35.0
Polaris	313°49.6	89°22.0
Acmnar	315°11.4	-40°11.8
Menkar	314°05.7	4°11.5
Mirfak	308°27.6	49°57.0
Aldebaran	290°39.2	16°33.7
Rigel	281°03.6	-8°10.2
Capella	280°21.5	46°01.3
Bellatrix	278°22.6	6°22.5
Elath	278°01.5	28°37.9
Anilam	275°37.5	-1°10.1
Betelgeuse	270°51.8	7°24.8
Canopus	263°52.6	-52°42.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.6	5°09.7
Pollux	243°17.1	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.3
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°37.0
Denebola	182°24.7	14°25.9
Gienah	175°43.3	-17°41.1
Acrux	173°00.0	-63°14.7
Gacrux	171°51.5	-57°15.6
Alloth	166°12.8	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.7	49°11.4
Hadar	148°35.5	-60°30.0
Menkent	147°57.1	-36°29.9
Arcturus	145°47.5	19°03.1
Rigel Kent.	139°39.7	-60°56.7
Kochab	137°19.7	74°03.3
Zuben 'ul	136°55.5	-16°08.9
Alphecca	126°03.2	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.5	-69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.6	51°29.3
Kaus Aust.	83°31.5	-34°22.4
Vega	80°32.5	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.2
Peacock	53°04.3	-56°39.1
Deneb	49°25.0	45°22.3
Enif	33°38.0	9°59.6
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.7	-29°20.0
Scheat	13°44.4	28°13.3
Markab	13°29.1	15°20.0

	Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	Dec	GHA	Dec	GHA	GHA	Dec	
0	316°45.4	216°55.9	N21°58.5	135°57.6	N00°14.0	212°26.1	N22°42.9	314°31.9	S01°39.2						
1	331°47.9	231°55.2	58.5	150°58.7	13.3	227°28.0	42.8	329°34.4	39.3						
2	346°50.4	246°54.5	58.4	165°59.7	12.7	242°29.9	42.8	344°37.0	39.3						
3	1°52.8	261°53.8	•• 58.3	181°00.8	•• 12.0	257°31.8	•• 42.7	359°39.6	•• 39.4						
4	16°55.3	276°53.2	58.3	196°01.8	11.4	272°33.7	42.7	14°42.1	39.4						
5	31°57.8	291°52.5	58.2	211°02.9	10.7	287°35.6	42.6	29°44.7	39.5						
6	47°00.2	306°51.8	N21°58.1	226°03.9	N00°10.1	302°37.5	N22°42.6	44°47.2	S01°39.5						
7	62°02.7	321°51.1	58.0	241°04.9	09.4	317°39.4	42.5	59°49.8	39.6						
8	77°05.2	336°50.4	58.0	256°06.0	08.8	332°41.3	42.5	74°52.3	39.6						
9	92°07.6	351°49.7	•• 57.9	271°07.0	•• 08.1	347°43.2	•• 42.4	89°54.9	•• 39.7						
10	107°10.1	6°49.0	57.8	286°08.1	07.5	2°45.1	42.4	104°57.4	39.7						
11	122°12.6	21°48.3	57.7	301°09.1	06.8	17°47.0	42.3	120°00.0	39.8						
12	137°15.0	36°47.6	N21°57.7	316°10.2	N00°06.2	32°48.9	N22°42.3	135°02.6	S01°39.8						
13	152°17.5	51°47.0	57.6	331°11.2	05.5	47°50.8	42.2	150°05.1	39.9						
14	167°19.9	66°46.3	57.5	346°12.3	04.9	62°52.7	42.2	165°07.7	39.9						
15	182°22.4	81°45.6	•• 57.4	1°13.3	•• 04.2	77°54.7	•• 42.1	180°10.2	•• 40.0						
16	197°24.9	96°44.9	57.3	16°14.4	03.6	92°56.6	42.1	195°12.8	40.0						
17	212°27.3	111°44.2	57.3	31°15.4	02.9	107°58.5	42.1	210°15.3	40.1						
18	227°29.8	126°43.5	N21°57.2	46°16.4	N00°02.3	123°00.4	N22°42.0	225°17.9	S01°40.1						
19	242°32.3	141°42.8	57.1	61°17.5	01.6	138°02.3	42.0	240°20.5	40.2						
20	257°34.7	156°42.1	57.0	76°18.5	01.0	153°04.2	41.9	255°23.0	40.2						
21	272°37.2	171°41.4	•• 56.9	91°19.6	N00°00.3	168°06.1	•• 41.9	270°25.6	•• 40.3						
22	287°39.7	186°40.8	56.8	106°20.6	S00°00.3	183°08.0	41.8	285°28.1	40.3						
23	302°42.1	201°40.1	56.7	121°21.7	00.9	198°09.9	41.8	300°30.7	40.4						
Mer.pass. 02:52			ν -0.7° d -0.1' m -3.98			ν 1.0° d -0.6' m 1.61			ν 1.9° d -0.0' m -1.93			ν 2.6° d -0.1' m 0.76			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	317°44.6	216°39.4	N21°56.7	136°22.7	S00°01.6	213°11.8	N22°41.7	315°33.3	S01°40.4						
1	332°47.0	231°38.7		56.6	151°23.7	02.2		328°13.7	41.7	330°35.8	40.5				
2	347°49.5	246°38.0		56.5	166°24.8	02.9		343°38.4	40.5	345°38.4	40.5				
3	2°52.0	261°37.3	••	56.4	181°25.8	••	03.5	358°17.5	••	41.6	0°40.9	••	40.6		
4	17°54.4	276°36.6		56.3	196°26.9	04.2		373°19.4	41.5	15°43.5	40.6				
5	32°56.9	291°35.9		56.2	211°27.9	04.8		388°21.3	41.5	30°46.0	40.7				
6	47°59.4	306°35.2	N21°56.2	136°22.7	S00°05.5	213°11.8	N22°41.4	315°33.3	S01°40.7						
7	63°01.8	321°34.5		56.0	241°30.0	06.1		318°25.1	41.7	60°51.2	40.8				
8	78°04.3	336°33.8		55.9	256°31.0	06.8		333°27.0	41.3	75°53.7	40.8				
9	93°06.8	351°33.2	••	55.8	271°32.1	••	07.4	348°28.9	••	41.3	90°56.3	••	40.9		
10	108°09.2	6°32.5		55.7	286°33.1	08.1		3°30.8	41.2	105°58.8	40.9				
11	123°11.7	21°31.8		55.6	301°34.2	08.7		18°32.8	41.2	121°01.4	41.0				
12	138°14.2	36°31.1	N21°55.5	136°22.7	S00°09.4	213°11.8	N22°41.1	315°33.3	S01°41.1						
13	153°16.6	51°30.4		55.4	331°36.3	10.0		48°36.6	41.1	151°06.5	41.1				
14	168°19.1	66°29.7		55.3	346°37.3	10.0		63°38.5	41.0	166°09.1	41.2				
15	183°21.5	81°29.0	••	55.2	1°38.3	••	11.3	78°40.4	••	41.0	181°11.7	••	41.2		
16	198°24.0	96°28.3		55.1	16°39.4	12.0		93°42.3	40.9	196°14.2	41.3				
17	213°26.5	111°27.6		55.0	31°40.4	12.6		108°44.2	40.9	211°16.8	41.0				
18	228°28.9	126°26.9	N21°54.9	46°14.5	S00°13.3	213°11.8	N22°40.9	315°33.3	S01°41.4						
19	243°31.4	141°26.2		54.7	61°42.5	13.9		138°48.0	40.8	241°21.9	41.4				
20	258°33.9	156°25.5		54.6	76°43.6	14.6		153°49.8	40.8	256°24.5	41.5				
21	273°36.3	171°24.9	••	54.5	91°44.6	••	15.2	168°51.8	••	40.7	271°27.0	••	41.5		
22	288°38.8	186°24.2		54.4	106°45.6	15.9		183°53.7	40.7	286°29.6	41.6				
23	303°41.3	201°23.5		54.3	121°46.7	16.5		198°55.6	40.6	301°32.1	41.6				
Mer.pass. 02:49			ν -0.7° d -0.1' m -3.98			ν 1.0° d -0.6' m 1.61			ν 1.9° d -0.0' m -1.93			ν 2.6° d -0.1' m 0.76			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	318°43.7	216°22.8	N21°54.2	136°47.7	S00°17.2	213°57.5	N22°40.6	316°34.7	S01°41.7						
1	333°46.2	231°22.1		54.1	151°48.8	17.8		328°59.5	40.5	331°37.3	41.7				
2	348°48.7	246°21.4		54.0	166°49.8	18.5		344°01.4	40.5	346°39.8	41.8				
3	3°51.1	261°20.7	••	53.8	181°50.8	••	19.1	259°03.3	••	40.4	1°42.4	••	41.8		
4	18°53.6	276°20.0		53.7	196°51.9	19.8		274°05.2	40.4	16°45.0	41.9				
5	33°56.0	291°19.3		53.6	211°52.9	20.4		289°07.1	40.3	31°47.5	41.9				
6	48°58.5	306°18.6	N21°53.5	226°54.0	S00°21.1	214°04.9	N22°40.3	316°34.7	S01°42.0						
7	64°01.0	321°17.9		53.4	241°55.0	21.7		319°10.9	40.2	61°52.6	42.1				
8	79°03.4	336°17.2		53.2	256°56.0	22.4		334°12.8	40.2	76°55.2	42.1				
9	94°05.9	351°16.5	••	53.1	271°57.1	••	23.0	349°14.7	••	40.1	91°57.8	••	42.2		
10	109°08.4	6°15.8		53.0	286°58.1	23.7		4°16.6	40.1	107°00.3	42.2				
11	124°10.8	21°15.1		52.9	301°59.2	24.3		19°18.5	40.0	122°02.9	42.3				
12	139°13.3	36°14.5	N21°52.7	317°00.2	S00°25.0	214°04.9	N22°40.0	316°34.7	S01°42.3						
13	154°15.8	51°13.8		52.6	332°01.2	25.6		49°22.4	39.9	152°05.0	42.4				
14	169°18.2	66°13.1		52.5	347°02.3	26.3		64°24.3	39.9	167°10.6	42.4				
15	184°20.7	81°12.4	••	52.3	2°03.3	••	26.9	79°26.2	••	39.8	182°13.1	••	42.5		
16	199°23.1	96°11.7		52.2	17°04.4	27.6		94°28.1	39.8	197°15.7	42.5				
17	214°25.6	111°11.0		52.1	32°05.4	28.2		109°30.0	39.7	212°18.3	42.6				
18	229°28.1	126°10.3	N21°51.9	47°06.4	S00°28.9	214°04.9	N22°39.7	316°34.7	S01°42.6						
19	244°30.5	141°09.6		51.8	62°07.5	29.5		139°33.8	39.6	242°23.4	42.7				
20	259°33.0	156°08.9		51.7	77°08.5	30.2		154°35.7	39.6	257°26.0	42.7				
21	274°35.5	171°08.2	••	51.5	92°09.6	••	30.8	169°37.6	••	39.9	272°28.5	••	42.8		
22	289°37.9	186°07.5		51.4	107°10.6	31.5		184°39.5	39.5	287°31.1	42.9				
23	304°40.4	201°06.8		51.3	122°11.6	32.1		199°41.5	39.4	302°33.7	42.9				
Mer.pass. 02:45			ν -0.7° d -0.1' m -3.98			ν 1.0° d -0.6' m 1.62			ν 1.9° d -0.0' m -1.93			ν 2.6° d -0.1' m 0.75			

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°13.9
Ankaa	353°06.4	42°09.7
Schedar	349°30.2	56°40.5
Diphda	348°46.6	17°50.6
Achernar	335°19.6	57°06.0
Hamal	327°50.6	23°35.0
Polaris	313°47.9	89°22.0
Acamar	315°11.4	40°11.8
Menkar	314°05.6	4°11.5
Mirafak	308°27.6	49°57.0
Aldebaran	299°39.2	16°33.7
Rigel	281°03.6	-8°10.1
Capella	280°21.4	46°01.3
Bellatrix	278°22.5	6°22.5
Elath	278°01.5	28°37.7
Alnilam	275°37.4	-1°11.0
Betelgeuse	270°51.8	7°24.8
Canopus	263°52.6	-52°42.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.6	5°09.7
Pollux	243°17.0	27°57.9
Avior	234°15.2	-59°35.4
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.9
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°36.9
Denebola	182°24.7	14°25.9
Geniah	175°43.3	-17°41.1
Acrux	173°00.0	-63°14.7
Gacrux	171°51.5	-57°15.6
Alioth	166°12.8	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.7	-49°11.4
Hadar	148°35.5	-60°30.0
Menkent	147°57.1	-36°29.9
Arcturus	145°47.5	19°03.1
Rigel Kent.	139°39.7	-60°56.7
Kochab	137°19.8	74°03.3
Zuben 'ul	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.6	-69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.6	51°29.3
Kaus Aust.	83°31.5	-34°22.4
Vega	80°32.5	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.3	-56°39.1
Deneb	49°25.0	45°22.4
Enif	33°38.0	9°59.6
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.6	-29°29.0
Scheat	13°44.4	28°13.3
Makab	13°29.1	15°20.7
Aug 08 Fri	SHA	Mer. pass.
Venus	260°10.5	09:33
Mars	179°12.2	14:55
Jupiter	255°40.7	09:49
Saturn	357°46.4	03:01
Aug 09 Sat	SHA	Mer. pass.
Venus	258°54.8	09:34
Mars	178°38.1	14:53
Jupiter	255°27.2	09:46
Saturn	357°48.7	02:57
Aug 10 Sun	SHA	Mer. pass.
Venus	257°39.0	09:35
Mars	178°04.0	14:52
Jupiter	255°13.8	09:43
Saturn	357°51.0	02:53
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	319°42.9	216°06.1	N21°51.1	137°12.7	S00°32.8	214°43.4	N22°39.4	317°36.2	S01°43.0										
1	334°45.3	231°05.4	51.0	152°13.7	33.4	229°45.3	39.3	332°38.8	43.0										
2	349°47.8	246°04.7	50.8	167°14.8	34.1	244°47.2	39.3	347°41.4	43.1										
3	4°50.3	261°04.0	•• 50.7	182°15.8	•• 34.7	259°49.1	•• 39.2	2°43.9	•• 43.1										
4	19°52.7	276°03.3	50.5	197°16.8	35.4	274°51.0	39.2	17°46.9	43.2										
5	34°55.2	291°02.7	50.4	212°17.9	36.0	289°52.9	39.2	32°49.1	43.2										
6	49°57.6	306°02.0	N21°50.3	227°18.9	S00°36.7	304°54.8	N22°39.1	47°51.6	S01°43.3										
7	65°00.1	321°01.3	50.1	242°19.9	37.3	319°56.7	39.1	62°54.2	43.3										
8	80°02.6	336°00.6	50.0	257°21.0	38.0	334°58.7	39.0	77°56.8	43.4										
9	95°05.0	350°59.9	•• 49.8	272°22.0	•• 38.6	350°06.6	•• 39.0	92°59.3	•• 43.5										
10	110°07.5	5°59.2	49.7	287°23.1	39.3	5°02.5	39.8	108°01.9	43.5										
11	125°10.0	20°58.5	49.5	302°24.1	39.9	20°04.4	38.9	123°04.5	43.6										
12	140°12.4	35°57.8	N21°49.4	317°25.1	S00°40.6	35°06.3	N22°38.8	138°07.0	S01°43.6										
13	155°14.9	50°57.1	49.2	332°26.2	41.2	50°08.2	38.8	153°09.6	43.7										
14	170°17.4	65°56.4	49.1	347°27.2	41.9	65°10.1	38.7	168°12.2	43.7										
15	185°19.8	80°55.7	•• 48.9	2°28.2	•• 42.5	80°12.0	•• 38.7	183°14.7	•• 43.8										
16	200°22.3	95°55.0	48.7	17°29.3	43.2	95°13.9	38.6	198°17.3	43.8										
17	215°24.8	110°54.3	48.6	32°30.3	43.8	110°15.9	38.6	213°19.9	43.9										
18	230°27.2	125°53.6	N21°48.4	47°31.3	S00°44.5	125°17.8	N22°38.5	228°22.4	S01°43.9										
19	245°29.7	140°52.9	48.3	62°32.4	45.1	140°19.7	38.5	243°25.0	44.0										
20	260°32.1	155°52.2	48.1	77°33.4	45.8	155°21.6	38.4	258°27.6	44.1										
21	275°34.6	170°51.5	•• 47.9	92°34.5	•• 46.4	170°23.5	•• 38.4	273°30.1	•• 44.1										
22	290°37.1	185°50.8	47.8	107°35.5	47.1	185°25.4	38.3	288°32.7	44.2										
23	305°39.5	200°50.1	47.6	122°36.5	47.7	200°27.3	38.3	303°35.3	44.2										
Mer.pass. 02:41				ν -0.7° d -0.1' m -3.98				ν 1.0° d -0.6' m 1.62				ν 1.9° d -0.0' m -1.94				ν 2.6° d -0.1' m 0.75			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	320°42.0	215°49.4	N21°47.5	137°37.6	S00°48.4	215°29.2	N22°38.2	318°37.8	S01°44.3										
1	335°44.5	230°48.7	47.3	152°38.6	49.0	230°31.2	38.2	333°40.4	44.3										
2	350°46.9	245°48.0	47.1	167°39.6	49.7	245°33.1	38.1	348°43.0	44.4										
3	5°49.4	260°47.4	•• 46.9	182°40.7	•• 50.3	260°35.0	•• 38.1	3°45.5	•• 44.4										
4	20°51.9	275°46.7	46.8	197°41.7	51.0	275°36.9	38.0	18°48.1	44.5										
5	35°54.3	290°46.0	46.6	212°42.7	51.6	290°38.8	38.0	33°50.7	44.6										
6	50°56.8	305°45.3	N21°46.4	227°43.8	S00°52.3	305°40.7	N22°37.9	48°53.2	S01°44.6										
7	65°59.2	320°44.6	46.3	242°44.8	52.9	320°42.6	37.9	63°55.8	44.7										
8	81°01.7	335°43.9	46.1	257°45.8	53.6	335°44.6	37.8	78°58.4	44.7										
9	96°04.0	350°43.2	•• 45.9	272°46.9	•• 54.2	350°46.5	•• 37.8	94°01.0	•• 44.8										
10	111°06.6	5°42.5	45.7	287°47.9	54.9	5°48.4	37.7	109°03.5	44.8										
11	126°09.1	20°41.8	45.6	302°49.0	55.5	20°50.3	37.7	124°06.1	44.9										
12	141°11.6	35°41.1	N21°45.4	317°50.0	S00°56.2	35°52.2	N22°37.6	139°08.7	S01°44.9										
13	156°14.0	50°40.4	45.2	332°51.0	56.8	50°54.1	37.6	154°11.2	45.0										
14	171°16.5	65°39.7	45.0	347°52.1	57.5	65°56.0	37.5	169°13.8	45.1										
15	186°19.0	80°39.0	•• 44.9	2°53.1	•• 58.1	80°58.0	•• 37.5	184°16.4	•• 45.1										
16	201°21.4	95°38.3	44.7	17°54.1	58.8	95°59.9	37.4	199°18.9	45.2										
17	216°23.9	110°37.6	44.5	32°55.2	00°59.4	111°01.8	37.4	214°21.5	45.2										
18	231°26.4	125°36.9	N21°44.3	47°56.2	S01°00.1	126°03.7	N22°37.3	229°24.1	S01°45.3										
19	246°28.8	140°36.2	44.1	62°57.2	00.7	141°05.6	37.3	244°26.7	45.3										
20	261°31.3	155°35.5	43.9	77°58.3	01.4	156°07.5	37.2	259°29.2	45.4										
21	276°33.7	170°34.8	•• 43.7	92°59.3	•• 02.0	171°09.5	•• 37.2	274°31.8	•• 45.4										
22	291°36.2	185°34.1	43.6	108°00.3	02.7	186°11.4	37.1	289°34.4	45.5										
23	306°38.7	200°33.4	43.4	123°01.4	03.3	201°13.3	37.1	304°36.9	45.6										
Mer.pass. 02:37				ν -0.7° d -0.2' m -3.98				ν 1.0° d -0.7' m 1.62				ν 1.9° d -0.0' m -1.94				ν 2.6° d -0.1' m 0.74			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	321°41.1	215°32.7	N21°43.2	138°02.4	S01°04.0	216°15.2	N22°37.0	319°39.5	S01°45.6										
1	336°43.6	230°32.0	43.0	153°03.4	04.6	231°17.1	37.0	334°42.1	45.7										
2	351°46.1	245°31.3	42.8	168°04.5	05.3	246°19.0	36.9	349°44.7	45.7										
3	6°48.5	260°30.6	•• 42.6	183°05.5	•• 05.9	261°20.9	•• 36.9	4°47.2	•• 45.8										
4	21°51.0	275°29.9	42.4	198°06.5	06.6	276°22.9	36.8	19°49.8	45.8										
5	36°53.5	290°29.2	42.2	213°07.6	07.2	291°24.8	36.8	34°52.4	45.9										
6	51°55.9	305°28.5	N21°42.0	228°08.6	S01°07.9	306°26.7	N22°36.7	49°54.9	S01°46.0										
7	66°58.4	320°27.8	41.8	243°09.6	08.5	321°28.6	36.7	64°57.5	46.0										
8	82°00.8	335°27.1	41.6	258°10.6	09.2	336°30.5	36.6	80°00.1	46.1										
9	97°03.3	350°26.5	•• 41.4	273°11.7	•• 09.8	351°32.4	•• 36.6	95°02.7	•• 46.1										
10	112°05.8	5°25.8	41.2	288°12.7	10.5	6°34.4	36.5	110°05.2	46.2										
11	127°08.2	20°25.1	41.0	303°13.7	11.1	21°36.3	36.5	125°07.8	46.2										
12	142°10.7	35°24.4	N21°40.8	318°14.8	S01°11.8	36°38.2	N22°36.4	140°10.4	S01°46.3										
13	157°13.2	50°23.7	40.6	333°15.8	12.4	51°40.1	36.4	155°13.0	46.4										
14	172°15.6	65°23.0	40.4	348°16.8	13.1	66°42.0	36.3	170°15.5	46.4										
15	187°18.1	80°22.3	•• 40.2	3°17.9	•• 13.7	81°44.0	•• 36.3	185°18.1	•• 46.5										
16	202°20.6	95°21.6	40.0	18°18.9	14.4	96°45.9	36.2	200°20.7	46.5										
17	217°23.0	110°20.9	39.8	33°19.9	15.0	111°47.8	36.2	215°23.3	46.6										
18	232°25.5	125°20.2	N21°39.6	48°21.0	S01°15.7	126°49.7	N22°36.1	230°25.8	S01°46.6										
19	247°28.0	140°19.5	39.4	63°22.0	16.4	141°51.6	36.1	245°28.4	46.7										
20	262°30.4	155°18.8	39.2	78°23.0	17.0	156°53.5	36.0	260°31.0	46.8										
21	277°32.9	170°18.1	•• 39.0	93°24.1	•• 17.7	171°55.5	•• 36.0	275°33.6	•• 46.8										
22	292°35.3	185°17.4	38.7	108°25.1	18.3	186°57.4	35.9	290°36.1	46.9										
23	307°37.8	200°16.7	38.5	123°26.1	19.0	201°59.3	35.9	305°38.7	46.9										
Mer.pass. 02:33				ν -0.7° d -0.2' m -3.97				ν 1.0° d -0.7' m 1.62				ν 1.9° d -0.0' m -1.94				ν 2.6° d -0.1' m 0.74			

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°13.9
Ankaa	353°06.3	-42°09.7
Schedar	349°30.1	56°40.5
Diphda	348°46.6	-17°50.6
Achernar	335°19.5	-57°06.0
Hamal	327°50.5	23°35.0
Polaris	313°46.5	89°22.0
Acamar	315°11.4	-40°11.8
Menkar	310°05.6	4°11.5
Mirfak	308°27.6	49°57.0
Aldebaran	290°39.2	16°33.7
Rigel	281°03.6	-8°10.1
Capella	280°21.4	46°01.3
Bellatrix	278°22.5	6°22.5
Elnath	278°01.4	28°37.7
Alnilam	275°37.4	-1°11.0
Betelgeuse	270°51.8	7°24.8
Canopus	263°52.6	-52°42.3
Sirius	258°26.1	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.6	5°09.7
Pollux	243°17.0	27°57.9
Avior	234°15.2	-59°35.3
Suhail	222°46.4	-43°32.1
Miaplacidus	221°39.2	-69°49.3
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°39.6
Denebola	182°24.7	14°25.9
Gienah	175°43.3	-17°41.1
Acrux	173°00.1	-63°14.7
Gacrux	171°51.5	-57°15.6
Alloth	166°12.8	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.8	49°11.4
Hadar	148°35.5	-60°30.0
Menkent	147°57.1	-36°29.9
Arcturus	145°47.5	19°03.1
Rigel Kent.	139°39.7	-60°56.7
Kochab	137°19.8	74°03.3
Zuben ubi	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.6	-69°04.6
Sabik	102°02.0	-15°45.4
Shaula	96°09.4	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.6	51°29.3
Kaus Aust.	83°31.5	-34°22.4
Vega	80°32.6	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.3	-56°39.1
Deneb	49°25.0	45°22.4
Enif	33°38.0	9°59.6
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.6	-29°20.0
Scheat	13°44.4	28°13.3
Markab	13°29.1	15°20.0

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	322°40.3	215°16.0	N21°38.3	138°27.1	S01°19.6	217°01.2	N22°35.8	320°41.3	S01°47.0										
1	337°42.7	230°15.3	38.1	153°28.2	20.3	232°03.1	35.8	335°43.8	47.0										
2	352°45.2	245°14.6	37.9	168°29.2	20.9	247°05.1	35.7	350°46.7	47.1										
3	7°47.7	260°13.9	37.7	183°30.2	21.6	262°07.0	35.7	5°49.0	47.2										
4	22°50.1	275°13.2	37.4	198°31.3	22.2	277°08.9	35.6	20°51.6	47.2										
5	37°52.6	290°12.5	37.2	213°32.3	22.9	292°10.8	35.6	35°54.1	47.3										
6	52°55.1	305°11.8	N21°37.0	228°33.3	S01°23.5	307°12.7	N22°35.5	50°56.7	S01°47.3										
7	67°57.5	320°11.1	36.8	243°34.4	24.2	322°14.7	35.5	65°59.3	47.4										
8	83°00.0	335°10.4	36.6	258°35.4	24.8	337°16.6	35.4	81°01.9	47.5										
9	98°02.5	350°09.7	36.3	273°36.4	25.5	352°18.5	35.4	96°04.5	47.5										
10	113°04.9	35°09.0	36.1	288°37.4	26.1	7°20.4	35.3	111°07.0	47.6										
11	128°07.4	20°08.3	35.9	303°38.5	26.8	22°22.3	35.3	126°09.6	47.6										
12	143°09.8	35°07.6	N21°35.6	318°39.5	S01°27.4	37°24.3	N22°35.2	141°12.2	S01°47.7										
13	158°12.3	50°06.9	35.4	333°40.5	28.1	52°26.2	35.2	156°14.8	47.7										
14	173°14.8	65°06.2	35.2	348°41.6	28.7	67°28.1	35.1	171°17.3	47.8										
15	188°17.2	80°05.5	35.0	3°42.6	29.4	82°30.0	35.1	186°19.9	47.9										
16	203°19.7	95°04.8	34.7	18°43.6	30.0	97°31.9	35.0	201°22.5	47.9										
17	218°22.2	110°04.1	34.5	33°44.6	30.7	112°33.9	35.0	216°25.1	48.0										
18	233°24.6	125°03.4	N21°34.3	48°45.7	S01°31.3	127°35.8	N22°34.9	231°27.6	S01°48.0										
19	248°27.1	140°02.7	34.0	63°46.7	32.0	142°37.7	34.9	246°30.2	48.1										
20	263°29.6	155°02.0	33.8	78°47.7	32.6	157°36.6	34.8	261°32.8	48.2										
21	278°32.0	170°01.3	33.6	93°48.7	33.3	172°41.5	34.8	276°35.4	48.2										
22	293°34.5	185°00.7	33.3	108°49.8	34.0	187°43.5	34.7	291°38.0	48.3										
23	308°36.9	200°00.0	33.1	123°50.8	34.6	202°45.4	34.7	306°40.5	48.3										
Mer.pass. 02:29				ν -0.7° d -0.2° m -3.97				ν 1.0° d -0.7° m 1.62				ν 1.9° d -0.1° m -1.94				ν 2.6° d -0.1° m 0.73			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	323°39.4	214°59.3	N21°32.8	138°51.8	S01°35.3	217°47.3	N22°34.6	321°43.1	S01°48.4
1	338°41.9	229°58.6	32.6	153°52.9	35.9	232°49.2	34.6	336°45.7	48.4
2	353°44.3	244°57.9	32.4	168°53.9	36.6	247°51.2	34.5	351°48.3	48.5
3	8°46.8	259°57.2	32.1	183°54.9	37.2	262°53.1	34.5	6°50.8	48.6
4	23°49.3	274°56.5	31.9	198°55.9	37.9	277°55.0	34.4	21°53.4	48.6
5	38°51.7	289°55.8	31.6	213°57.0	38.5	292°56.9	34.4	36°56.0	48.7
6	53°54.2	304°55.1	N21°31.4	228°58.0	S01°39.2	307°58.8	N22°34.3	51°58.6	S01°48.7
7	68°56.7	319°54.4	31.1	243°59.0	39.8	323°00.8	34.3	67°01.2	48.8
8	83°59.1	334°53.7	30.9	259°00.0	40.5	338°02.7	34.2	82°03.7	48.9
9	99°01.6	349°53.0	30.6	274°01.1	41.1	353°04.6	34.1	97°06.3	48.9
10	114°04.1	4°52.3	30.4	289°02.1	41.8	8°06.5	34.1	112°08.9	49.0
11	129°06.5	19°51.6	30.1	304°03.1	42.4	23°08.5	34.0	127°11.5	49.0
12	144°09.0	34°50.9	N21°29.9	319°04.1	S01°43.1	38°10.4	N22°34.0	142°14.0	S01°49.1
13	159°11.4	49°50.2	29.6	334°05.2	43.7	53°12.3	33.9	157°16.6	49.2
14	174°13.9	64°49.5	29.4	349°06.2	44.4	68°14.2	33.9	172°19.2	49.2
15	189°16.4	79°48.8	29.1	4°07.2	45.0	83°16.1	33.8	187°21.8	49.3
16	204°18.8	94°48.1	28.9	19°08.2	45.7	98°18.1	33.8	202°24.4	49.3
17	219°21.3	109°47.4	28.6	34°09.3	46.3	113°20.0	33.7	217°26.9	49.4
18	234°23.8	124°46.7	N21°28.3	49°10.3	S01°47.0	128°21.9	N22°33.7	232°29.5	S01°49.5
19	249°26.2	139°46.0	28.1	64°11.3	47.7	143°23.8	33.6	247°32.1	49.5
20	264°28.7	154°45.3	27.8	79°12.3	48.3	158°25.8	33.6	262°34.7	49.6
21	279°31.2	169°44.6	27.6	94°13.4	49.0	173°27.7	33.5	277°37.3	49.6
22	294°33.6	184°43.9	27.3	109°14.4	49.6	188°29.6	33.5	292°39.8	49.7
23	309°36.1	199°43.2	27.0	124°15.4	50.3	203°31.5	33.4	307°42.4	49.8
Mer.pass. 02:25 ν -0.7° d -0.2° m -3.97 ν 1.0° d -0.7° m 1.62 ν 1.9° d -0.1° m -1.94 ν 2.6° d -0.1° m 0.73									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	324°38.6	214°42.5	N21°26.8	139°16.4	S01°50.9	218°33.5	N22°33.4	322°45.0	S01°49.8
1	339°41.0	229°41.8	26.5	154°17.5	51.6	233°35.4	33.3	337°47.6	49.9
2	354°43.5	244°41.1	26.2	169°18.5	52.2	248°37.3	33.3	352°50.2	49.9
3	9°45.9	259°40.4	26.0	184°19.5	52.9	263°39.2	33.2	7°52.8	50.0
4	24°48.4	274°39.7	25.7	199°20.5	53.5	278°41.2	33.2	22°55.3	50.1
5	39°50.9	289°39.0	25.4	214°21.6	54.2	293°43.1	33.1	37°57.9	50.1
6	54°53.3	304°38.3	N21°25.1	229°22.6	S01°54.8	308°45.0	N22°33.1	53°00.5	S01°50.2
7	69°55.8	319°37.7	24.9	244°23.6	55.5	323°46.9	33.0	68°03.1	50.2
8	84°58.3	334°37.0	24.6	259°24.6	56.1	338°48.9	33.0	83°05.7	50.3
9	100°00.7	349°36.3	24.3	274°25.7	56.8	353°50.8	32.9	98°08.2	50.4
10	115°03.2	4°35.6	24.1	289°26.7	57.4	8°52.7	32.9	113°10.8	50.4
11	130°05.7	19°34.9	23.8	304°27.7	58.1	23°54.7	32.8	128°13.4	50.5
12	145°08.1	34°34.2	N21°23.5	319°28.7	S01°58.8	38°56.6	N22°32.8	143°16.0	S01°50.5
13	160°10.6	49°33.5	23.2	334°29.7	01°59.4	53°58.5	32.7	158°18.6	50.6
14	175°13.0	64°32.8	22.9	349°30.8	02°00.1	69°00.4	32.7	173°21.2	50.7
15	190°15.5	79°32.1	22.7	4°31.8	00.7	84°02.4	32.6	188°23.7	50.7
16	205°18.0	94°31.4	22.4	19°32.8	01.4	99°04.3	32.6	203°26.3	50.8
17	220°20.4	109°30.7	22.1	34°33.8	02.0	114°06.2	32.5	218°28.9	50.8
18	235°22.9	124°30.0	N21°21.8	49°34.9	S02°02.7	129°08.1	N22°32.5	233°31.5	S01°50.9
19	250°25.4	139°29.3	21.5	64°35.9	03.3	144°10.1	32.4	248°34.1	51.0
20	265°27.8	154°28.6	21.2	79°36.9	04.0	159°12.0	32.4	263°36.7	51.0
21	280°30.3	169°27.9	21.0	94°37.9	04.6	174°13.9	32.3	278°39.2	51.1
22	295°32.8	184°27.2	20.7	109°38.9	05.3	189°15.8	32.2	293°41.8	51.1
23	310°35.2	199°26.5	20.4	124°40.0	05.9	204°17.8	32.2	308°44.4	51.2
Mer.pass. 02:21 ν -0.7° d -0.3° m -3.97 ν 1.0° d -0.7° m 1.62 ν 1.9° d -0.1° m -1.95 ν 2.6° d -0.1° m 0.72									

SHA	Dec
Alpheratz	357°34.0 29°13.9
Ankaa	353°06.3 -42°09.7
Schedar	349°30.1 56°40.6
Diphda	348°46.6 -17°50.6
Achernar	335°19.5 -57°06.1
Hamal	327°50.5 23°35.0
Polaris	313°44.9 89°22.0
Acamar	315°11.3 -40°11.8
Menkar	311°05.6 4°11.5
Mirafak	308°27.5 49°57.0
Aldebaran	290°39.1 16°33.7
Rigel	281°03.5 -8°10.1
Capella	280°21.4 46°01.3
Bellatrix	278°22.5 6°22.5
Elnath	278°01.4 28°37.7
Alnilam	275°37.4 -1°11.0
Betelgeuse	270°51.7 7°24.8
Canopus	263°52.6 -52°42.2
Sirius	258°26.1 -16°44.9
Adhara	255°05.8 -29°00.7
Procyon	244°50.6 5°09.2
Pollux	243°17.0 27°57.9
Avior	234°15.2 -59°35.3
Suhail	222°46.4 -43°32.0
Miaplacidus	221°39.2 -69°49.2
Alphard	217°47.6 -8°46.1
Regulus	207°34.2 11°50.6
Dubhe	193°41.0 61°39.6
Denebola	182°24.7 14°25.9
Geniah	175°43.3 -17°41.0
Acrux	173°00.1 -63°14.7
Gacrux	171°51.5 -57°15.6
Alioth	166°12.8 58°49.9
Spica	158°21.9 -11°17.7
Alkaid	152°51.8 49°11.4
Hadar	148°35.5 -60°30.0
Menkent	147°57.2 -36°29.9
Arcturus	145°47.5 19°45.1
Rigel Kent.	139°39.8 -60°56.7
Kochab	137°19.9 74°03.3
Zuben el	136°55.5 -16°08.9
Alphecca	126°03.3 26°37.9
Antares	112°15.1 -26°29.4
Atria	107°08.6 69°04.6
Sabik	102°02.0 -15°45.4
Shaula	96°09.5 -37°07.4
Rasalhague	95°57.9 12°32.6
Eltanin	90°41.6 51°29.3
Kaus Aus.	83°31.6 -34°22.4
Vega	80°32.6 38°48.

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	325°37.7	214°25.8	N21°20.1	139°41.0	S02°06.6	219°19.7	N22°32.1	323°47.0	S01°51.3										
1	340°42.0	229°25.1	19.8	154°42.0	07.2	234°21.6	32.1	338°49.6	51.3										
2	355°42.6	244°24.4	19.5	169°43.0	07.9	249°23.6	32.0	353°52.2	51.4										
3	10°45.1	259°23.7	.. 19.2	184°44.1	.. 08.5	264°25.5	.. 32.0	8°54.7	.. 51.5										
4	25°47.5	274°23.0	18.9	199°45.1	09.2	279°27.4	31.9	23°57.4	51.5										
5	40°50.0	289°22.3	18.6	214°46.1	09.9	294°29.3	31.9	38°59.9	51.6										
6	55°52.5	304°21.6	N21°18.3	229°47.1	S02°10.5	309°31.3	N22°31.8	54°02.5	S01°51.6										
7	70°54.9	319°21.0	18.0	244°48.1	11.2	324°33.2	31.8	69°05.1	51.7										
8	85°57.4	334°20.3	17.7	259°49.2	11.8	339°35.1	31.7	84°07.7	51.8										
9	100°59.9	349°19.6	.. 17.4	274°50.2	.. 12.5	354°37.1	.. 31.7	99°10.2	.. 51.8										
10	116°02.3	4°18.9	17.1	289°51.2	13.1	9°39.0	31.6	114°12.8	51.9										
11	131°04.8	19°18.2	16.8	304°52.2	13.8	24°40.9	31.6	129°15.4	51.9										
12	146°07.3	34°17.5	N21°16.5	319°53.2	S02°14.4	39°42.8	N22°31.5	144°18.0	S01°52.0										
13	161°09.7	49°16.8	16.2	334°54.3	15.1	54°44.8	31.5	159°20.6	52.1										
14	176°12.2	64°16.1	15.9	349°55.3	15.7	69°46.7	31.4	174°23.2	52.1										
15	191°14.7	79°15.4	.. 15.6	4°56.3	.. 16.4	84°48.6	.. 31.4	189°25.8	.. 52.2										
16	206°17.1	94°14.7	15.3	19°57.3	17.0	99°50.6	31.3	204°28.3	52.3										
17	221°19.6	109°14.0	15.0	34°58.3	17.7	114°52.5	31.3	219°30.9	52.3										
18	236°22.0	124°13.3	N21°14.7	49°59.3	S02°18.4	129°54.4	N22°31.2	234°33.5	S01°52.4										
19	251°24.5	139°12.6	14.4	65°00.4	19.0	144°56.4	31.2	249°36.1	52.4										
20	266°27.0	154°11.9	14.1	80°01.4	19.7	159°58.3	31.1	264°38.7	52.5										
21	281°29.4	169°11.2	.. 13.8	95°02.4	.. 20.3	175°00.2	.. 31.1	279°41.3	.. 52.6										
22	296°31.9	184°10.5	13.4	110°03.4	21.0	190°02.2	31.0	294°43.9	52.6										
23	311°34.4	199°09.8	13.1	125°04.4	21.6	205°04.1	31.0	309°46.4	52.7										
Mer.pass. 02:17				ν -0.7° d -0.3' m -3.97				ν 1.0° d -0.7' m 1.62				ν 1.9° d -0.1' m -1.95				ν 2.6° d -0.1' m 0.72			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	326°36.8	214°09.1	N21°12.8	140°05.5	S02°22.3	220°06.0	N22°30.9	324°49.0	S01°52.7										
1	341°39.3	229°08.4	12.5	155°06.5	22.9	235°07.9	30.8	339°51.6	52.8										
2	356°41.8	244°07.8	12.2	170°07.5	23.6	250°09.9	30.8	354°54.2	52.9										
3	11°44.2	259°07.1	.. 11.9	185°08.5	.. 24.2	265°11.8	.. 30.7	9°56.8	.. 52.9										
4	26°46.7	274°06.4	11.5	200°09.5	24.9	280°13.7	30.7	24°59.4	53.0										
5	41°49.2	289°05.7	11.2	215°10.5	25.5	295°15.7	30.6	40°02.0	53.1										
6	56°51.6	304°05.0	N21°10.9	230°11.6	S02°26.2	310°17.6	N22°30.6	55°04.6	S01°53.1										
7	71°54.1	319°04.3	10.6	245°12.6	26.8	325°19.5	30.5	70°07.1	53.2										
8	86°56.5	334°03.6	10.3	260°13.6	27.5	340°21.5	30.5	85°09.7	53.2										
9	101°59.0	349°02.9	.. 09.9	275°14.6	.. 28.2	355°23.4	.. 30.4	100°12.3	.. 53.3										
10	117°05.1	4°02.2	09.6	290°15.6	28.8	10°25.3	30.4	115°14.9	53.4										
11	132°03.9	19°01.5	09.3	305°16.6	29.5	25°27.3	30.3	130°17.5	53.4										
12	147°06.4	34°00.8	N21°09.0	320°17.7	S02°30.1	40°29.2	N22°30.3	145°20.1	S01°53.5										
13	162°08.9	49°00.1	08.6	335°18.7	30.8	55°31.1	30.2	160°22.7	53.6										
14	177°11.3	63°59.4	08.3	350°19.7	31.4	70°33.1	30.2	175°25.3	53.6										
15	192°13.8	78°58.7	.. 08.0	5°20.7	.. 32.1	85°35.0	.. 30.1	190°27.9	.. 53.7										
16	207°16.3	93°58.0	07.6	20°21.7	32.7	100°36.9	30.1	205°30.4	53.8										
17	222°18.7	108°57.4	07.3	35°22.7	33.4	115°38.9	30.0	220°33.0	53.8										
18	237°21.2	123°56.7	N21°07.0	50°23.8	S02°34.0	130°40.8	N22°30.0	235°35.6	S01°53.9										
19	252°23.7	138°56.0	06.6	65°24.8	34.7	145°42.7	29.9	250°38.2	53.9										
20	267°26.1	153°55.3	06.3	80°25.8	35.3	160°44.7	29.9	265°40.8	54.0										
21	282°28.6	168°54.6	.. 06.0	95°26.8	.. 36.0	175°46.6	.. 29.8	280°43.4	.. 54.1										
22	297°31.0	183°53.9	05.6	110°27.8	36.7	190°48.5	29.8	295°46.0	54.1										
23	312°33.5	198°53.2	05.3	125°28.8	37.3	205°50.5	29.7	310°48.6	54.2										
Mer.pass. 02:13				ν -0.7° d -0.3' m -3.96				ν 1.0° d -0.7' m 1.62				ν 1.9° d -0.1' m -1.95				ν 2.6° d -0.1' m 0.71			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	327°36.0	213°52.5	N21°04.9	140°29.8	S02°38.0	220°52.4	N22°29.6	325°51.2	S01°54.3										
1	342°38.4	228°51.8	04.6	155°30.9	38.6	235°54.3	29.6	340°53.7	54.3										
2	357°40.9	243°51.1	04.3	170°31.9	39.3	250°56.3	29.5	355°56.3	54.4										
3	12°43.4	258°50.4	.. 03.9	185°32.9	.. 39.9	265°58.2	.. 29.5	10°58.9	.. 54.4										
4	27°45.8	273°49.7	03.6	200°33.9	40.6	281°00.1	29.4	26°01.5	54.5										
5	42°48.3	288°49.0	03.2	215°34.9	41.2	296°02.1	29.4	41°04.1	54.6										
6	57°50.8	303°48.4	N21°02.9	230°35.9	S02°41.9	311°04.0	N22°29.3	56°06.7	S01°54.6										
7	72°53.2	318°47.7	02.5	245°36.9	42.5	326°05.9	29.3	71°09.3	54.7										
8	87°55.7	333°47.0	02.2	260°38.0	43.2	341°07.9	29.2	86°11.9	54.8										
9	102°58.2	348°46.3	.. 01.8	275°39.0	.. 43.8	356°09.8	.. 29.2	101°14.5	.. 54.8										
10	118°00.6	3°45.6	01.5	290°40.0	44.5	11°11.7	29.1	116°17.1	54.9										
11	133°03.1	18°44.9	01.1	305°41.0	45.2	26°13.7	29.1	131°19.6	55.0										
12	148°05.5	33°44.2	N21°00.8	320°42.0	S02°45.8	41°15.6	N22°29.0	146°22.2	S01°55.0										
13	163°08.0	48°43.5	00.4	335°43.0	46.5	56°17.6	29.0	161°24.8	55.1										
14	178°10.5	63°42.8	21°00.1	350°44.0	47.1	71°19.5	28.9	176°27.4	55.1										
15	193°12.9	78°42.1	20°59.7	5°45.1	.. 47.8	86°21.4	.. 28.9	191°30.0	.. 55.2										
16	208°15.4	93°41.4	59.4	20°46.1	48.4	101°23.4	28.8	206°32.6	55.3										
17	223°17.9	108°40.8	59.0	35°47.1	49.1	116°25.3	28.8	221°35.2	55.3										
18	238°20.3	123°40.1	N20°58.6	50°48.1	S02°49.7	131°27.2	N22°28.7	236°37.8	S01°55.4										
19	253°22.8	138°39.4	58.3	65°49.1	50.4	146°29.2	28.6	251°40.4	55.5										
20	268°25.3	153°38.7	57.9	80°50.1	51.0	161°31.1	28.6	266°43.0	55.5										
21	283°27.7	168°38.0	.. 57.6	95°51.1	.. 51.7	176°33.0	.. 28.5	281°45.6	.. 55.6										
22	298°30.2	183°37.3	57.2	110°52.1	52.3	191°35.0	28.5	296°48.2	55.7										
23	313°32.6	198°36.6	56.8	125°53.1	53.0	206°36.9	28.4	311°50.7	55.7										
Mer.pass. 02:09				ν -0.7° d -0.3' m -3.96				ν 1.0° d -0.7' m 1.62				ν 1.9° d -0.1' m -1.95				ν 2.6° d -0.1' m 0.71			

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°13.9
Ankaa	353°06.3	-42°09.7
Schedar	349°30.1	56°40.6
Diphda	348°46.5	-17°50.5
Achernar	335°19.5	-57°06.1
Hamal	327°50.5	23°35.0
Polaris	313°43.1	89°22.0
Acamar	315°11.3	-40°11.8
Menkar	314°05.6	4°11.5
Mirfak	308°27.5	49°57.0
Aldebaran	290°39.1	16°33.7
Rigel	281°03.5	-8°10.1
Capella	280°21.3	46°01.3
Bellatrix	278°22.5	6°22.5
Elnath	278°01.4	28°37.7
Alnilam	275°37.4	-1°11.0
Betelgeuse	270°51.7	7°24.8
Canopus	263°52.5	-52°42.2
Sirius	258°26.0	-16°44.9
Adhara	255°05.8	-29°00.2
Procyon	244°50.6	5°09.7
Pollux	243°17.0	27°57.9
Avior	234°15.2	-59°35.3
Suhail	222°46.4	-43°32.0
Miaplacidus	221°39.2	-69°49.2
Alphard	217°47.6	-8°46.1

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	328°35.1	213°35.9	N20°56.5	140°54.2	S02°53.7	221°38.9	N22°28.4	326°53.3	S01°55.8										
1	343°37.6	228°35.2	56.1	155°55.2	54.3	236°40.8	28.3	341°55.9	55.9										
2	358°40.0	243°34.5	55.7	170°56.2	55.0	251°42.7	28.3	356°58.5	55.9										
3	13°42.5	258°33.9	.. 55.4	185°57.2	.. 55.6	266°44.7	.. 28.2	12°01.1	.. 56.0										
4	28°45.0	273°33.2	55.0	200°58.2	56.3	281°46.6	28.2	27°03.7	56.0										
5	43°47.4	288°35.2	54.6	215°59.2	56.9	296°48.6	28.1	42°06.3	56.1										
6	58°49.9	303°31.8	N20°54.3	231°00.2	S02°57.6	311°50.5	N22°28.1	57°08.9	S01°56.2										
7	73°52.4	318°31.1	53.9	246°01.2	58.2	326°52.4	28.0	72°11.5	56.3										
8	88°54.8	333°30.4	53.5	261°02.2	58.9	341°54.4	28.0	87°14.1	56.3										
9	103°57.3	348°29.7	.. 53.2	276°03.3	02°59.5	356°56.3	.. 27.9	102°16.7	.. 56.4										
10	118°59.8	3°29.0	52.8	291°04.3	03°00.2	11°58.2	27.9	117°19.3	56.4										
11	134°02.2	18°28.3	52.4	306°05.3	00.9	27°00.2	27.8	132°21.9	56.5										
12	149°04.7	33°27.7	N20°52.0	321°06.3	S03°01.5	42°02.1	N22°27.8	147°24.5	S01°56.6										
13	164°07.1	48°27.0	51.6	336°07.3	02.2	57°04.1	27.7	162°27.0	56.6										
14	179°09.6	63°26.3	51.3	351°08.3	02.8	72°06.0	27.6	177°29.6	56.7										
15	194°12.1	78°25.6	.. 50.9	6°09.3	.. 03.5	87°07.9	.. 27.6	192°32.2	.. 56.8										
16	209°14.5	93°24.9	50.5	21°10.3	04.1	102°09.9	27.5	207°34.8	56.8										
17	224°17.0	108°24.2	50.1	36°11.3	04.8	117°11.8	27.5	222°37.4	56.9										
18	239°19.5	123°23.5	N20°49.7	51°12.3	S03°05.4	132°13.8	N22°27.4	237°40.0	S01°57.0										
19	254°21.9	138°22.8	49.4	66°13.4	06.1	147°15.7	27.4	252°42.6	57.0										
20	269°24.4	153°22.2	49.0	81°14.4	06.7	162°17.6	27.3	267°45.2	57.1										
21	284°26.9	168°21.5	.. 48.6	96°15.4	.. 07.4	177°19.6	.. 27.3	282°47.8	.. 57.1										
22	299°29.3	183°20.8	48.2	111°16.4	08.0	192°21.5	27.2	297°50.4	57.2										
23	314°31.8	198°20.1	47.8	126°17.4	08.7	207°23.5	27.2	312°53.0	57.3										
Mer.pass. 02:05				ν -0.7° d -0.4° m -3.96				ν 1.0° d -0.7° m 1.62				ν 1.9° d -0.1° m -1.96				ν 2.6° d -0.1° m 0.71			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	329°34.3	213°19.4	N20°47.4	141°18.4	S03°09.4	222°25.4	N22°27.1	327°55.6	S01°57.3
1	344°36.7	228°18.7	47.0	156°19.4	10.0	237°27.3	27.1	342°58.2	57.4
2	359°39.2	243°18.0	46.6	171°20.4	10.7	252°29.3	27.0	358°00.8	57.5
3	14°41.6	258°17.3	.. 46.2	186°21.4	.. 11.3	267°31.2	.. 27.0	13°03.4	.. 57.5
4	29°44.1	273°16.7	45.9	201°22.4	12.0	282°33.2	26.9	28°06.0	57.6
5	44°46.6	288°16.0	45.5	216°23.4	12.6	297°35.1	26.9	43°08.6	57.7
6	59°49.0	303°15.3	N20°45.1	231°24.4	S03°13.3	312°37.1	N22°26.8	58°11.2	S01°57.7
7	74°51.5	318°14.6	44.7	246°25.4	13.9	327°39.0	26.7	73°13.8	57.8
8	89°54.0	333°13.9	44.3	261°26.5	14.6	342°40.9	26.7	88°16.4	57.9
9	104°56.4	348°13.2	.. 43.9	276°27.5	.. 15.2	357°42.9	.. 26.6	103°19.0	.. 57.9
10	119°58.9	3°12.5	43.5	291°28.5	15.9	12°44.8	26.6	118°21.5	58.0
11	135°01.4	18°11.9	43.1	306°29.5	16.6	27°46.8	26.5	133°24.1	58.1
12	150°03.8	33°11.2	N20°42.7	321°30.5	S03°17.2	42°48.7	N22°26.5	148°26.7	S01°58.1
13	165°06.3	48°10.5	42.3	336°31.5	17.9	57°50.7	26.4	163°29.3	58.2
14	180°08.8	63°09.8	41.9	351°32.5	18.5	72°52.6	26.4	178°31.9	58.3
15	195°11.2	78°09.1	.. 41.5	6°33.5	.. 19.2	87°54.5	.. 26.3	193°34.5	.. 58.3
16	210°13.7	93°08.4	41.1	21°34.5	19.8	102°56.5	26.3	208°37.1	58.4
17	225°16.1	108°07.7	40.7	36°35.5	20.5	117°58.4	26.2	223°39.7	58.5
18	240°18.6	123°07.1	N20°40.2	51°36.5	S03°21.1	133°00.4	N22°26.2	238°42.3	S01°58.5
19	255°21.1	138°06.4	39.8	66°37.5	21.8	148°02.3	26.1	253°44.9	58.6
20	270°23.5	153°05.7	39.4	81°38.5	22.4	163°04.3	26.1	268°47.5	58.7
21	285°26.0	168°05.0	.. 39.0	96°39.5	.. 23.1	178°06.2	.. 26.0	283°50.1	.. 58.7
22	300°28.5	183°04.3	38.6	111°40.5	23.8	193°08.1	25.9	298°52.7	58.8
23	315°30.9	198°03.6	38.2	126°41.5	24.4	208°10.1	25.9	313°55.3	58.9
Mer.pass. 02:01 ν -0.7° d -0.4° m -3.96 ν 1.0° d -0.7° m 1.62 ν 1.9° d -0.1° m -1.96 ν 2.6° d -0.1° m 0.70									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	330°33.4	213°03.0	N20°37.8	141°42.5	S03°25.1	223°12.0	N22°25.8	328°57.9	S01°58.9
1	345°35.9	228°02.3	37.4	156°43.6	25.7	238°14.0	25.8	344°00.5	59.0
2	0°38.3	243°01.6	37.0	171°44.6	26.4	253°15.9	25.7	359°03.1	59.1
3	15°40.8	258°00.9	.. 36.5	186°45.6	.. 27.0	268°17.9	.. 25.7	14°05.7	.. 59.1
4	30°43.2	273°00.2	36.1	201°46.6	27.7	283°19.8	25.6	29°08.3	59.2
5	45°45.7	287°59.5	35.7	216°47.7	28.3	298°21.8	25.6	44°10.9	59.3
6	60°48.2	302°58.9	N20°35.3	231°48.6	S03°29.0	313°23.7	N22°25.5	59°13.5	S01°59.3
7	75°50.6	317°58.2	34.9	246°49.6	29.6	328°25.6	25.5	74°16.1	59.4
8	90°53.1	332°57.5	34.4	261°50.6	30.3	343°27.6	25.4	89°18.7	59.5
9	105°55.6	347°56.8	.. 34.0	276°51.6	.. 30.9	358°29.5	.. 25.4	104°21.3	.. 59.5
10	120°58.0	2°56.1	33.6	291°52.6	31.6	13°31.5	25.3	119°23.9	59.6
11	136°00.5	17°55.5	33.2	306°53.6	32.3	28°33.4	25.3	134°26.5	59.7
12	151°03.0	32°54.8	N20°32.7	321°54.6	S03°32.9	43°35.4	N22°25.2	149°29.1	S01°59.7
13	166°05.4	47°54.1	32.3	336°55.6	33.6	58°37.3	25.1	164°31.7	59.8
14	181°07.9	62°53.4	31.9	351°56.6	34.2	73°39.3	25.1	179°34.3	59.9
15	196°10.4	77°52.7	.. 31.5	6°57.6	.. 34.9	88°41.2	.. 25.0	194°36.9	01°59.9
16	211°12.8	92°52.0	31.0	21°58.6	35.5	103°43.2	25.0	209°39.5	02°00.0
17	226°15.3	107°51.4	30.6	36°59.6	36.2	118°45.1	24.9	224°42.1	00.1
18	241°17.7	122°50.7	N20°30.2	52°00.6	S03°36.8	133°47.1	N22°24.9	239°44.7	S02°00.1
19	256°20.2	137°50.0	29.7	67°01.6	37.5	148°49.0	24.8	254°47.3	00.2
20	271°22.7	152°49.3	29.3	82°02.6	38.1	163°51.0	24.8	269°49.9	00.3
21	286°25.1	167°48.6	.. 28.9	97°03.6	.. 38.8	178°52.9	.. 24.7	284°52.5	.. 00.3
22	301°27.6	182°48.0	28.4	112°04.6	39.5	193°54.8	24.7	299°55.1	00.4
23	316°30.1	197°47.3	28.0	127°05.6	40.1	208°56.8	24.6	314°57.7	00.5
Mer.pass. 01:57 ν -0.7° d -0.4° m -3.96 ν 1.0° d -0.7° m 1.62 ν 1.9° d -0.1° m -1.96 ν 2.6° d -0.1° m 0.70									

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.3	-42°09.7
Schedar	349°30.1	56°40.6
Diphda	348°46.5	-17°50.5
Achernar	335°19.5	-28°06.1
Hamal	327°50.5	23°35.0
Polaris	313°41.3	89°22.0
Acamar	315°11.3	-40°11.8
Menkar	314°05.5	4°11.5
Mirfak	308°27.5	49°57.0
Aldebaran	290°39.1	16°33.7
Rigel	281°03.5	-8°10.1
Capella	280°21.3	46°01.3
Bellatrix	278°22.5	6°22.5
Elnath	278°01.4	28°37.7
Alnilam	275°37.3	-1°11.0
Betelgeuse	270°51.7	7°24.8
Canopus	263°52.5	-52°42.2
Sirius	258°26.0	-16°44.9
Adhara	255°05.7	-29°00.2
Procyon	244°50.6	5°09.7
Pollux	243°17.0	27°57.9
Avior	234°15.1	-59°35.3
Suhail	222°46.4	-43°32.0
Miaplacidus	221°39.1	-69°49.2
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°39.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.1	-63°14.6
Gacrux	171°51.5	-57°15.6
Alloth	166°12.9	55°49.5
Spica	158°21.9	-11°17.7
Alkaid	152°51.8	49°11.3
Hadar	148°35.6	-60°30.9
Menkent	147°57.2	-36°29.9
Arcturus	145°47.6	19°03.1
Rigel Kent	139°39.8	-60°56.7
Kochab	137°20.0	74°03.7
Zuben el	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.7	-69°04.6
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.7	51°23.3
Kaus east	83°31.6	-34°22.4
Vega	80°32.6	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.3	-56°39.2
Deneb	49°25.0	45°22.4
Enif	33°38.0	9°59.7
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.6	-29°29.0
Scheat	13°44.4	28°13.4
Markab	13°29.1	15°20.7
Aug 20 Wed		
Venus	245°00.8	09:46
Mars	172°19.0	14:35
Jupiter	253°03.7	09:12
Saturn	358°18.2	02:12
Aug 21 Thu		
Venus	243°45.2	09:47
Mars	171°44.1	14:34
Jupiter	252°51.2	09:09
Saturn	358°21.3	02:08
Aug 22 Fri		
Venus	242°29.6	09:48
Mars	171°09.2	14:32
Jupiter	252°38.6	09:06
Saturn	358°24.5	02:04
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	331°32.5	212°46.6	N20°27.6	142°06.6	S03°40.8	223°58.7	N22°24.6	330°00.3	S02°00.5										
1	346°35.0	227°45.9	27.1	157°07.6	41.4	239°00.7	24.5	345°02.9	00.6										
2	1°37.5	242°45.2	26.7	172°08.6	42.1	254°02.6	24.4	0°05.5	00.7										
3	16°39.9	257°44.6	•• 26.2	187°09.6	•• 42.7	269°04.6	•• 24.4	15°08.1	•• 00.7										
4	31°42.4	272°43.9	25.8	202°10.6	43.4	284°06.5	24.3	30°10.7	00.8										
5	46°44.9	287°43.2	25.4	217°11.6	44.0	299°08.5	24.3	45°13.3	00.9										
6	61°47.3	302°42.5	N20°24.9	232°12.6	S03°44.7	314°10.4	N22°24.2	60°15.9	S02°00.9										
7	76°49.8	317°41.9	24.5	247°13.6	45.3	329°12.4	24.2	75°18.5	01.0										
8	91°52.2	332°41.2	24.0	262°14.6	46.0	344°14.3	24.1	90°21.1	01.1										
9	106°54.7	347°40.5	•• 23.6	277°15.6	•• 46.7	359°16.3	•• 24.1	105°23.7	•• 01.1										
10	121°57.2	•• 23.9	23.1	292°16.6	47.3	14°18.2	24.0	120°26.7	01.2										
11	136°59.6	17°39.1	22.7	307°17.6	48.0	29°20.2	24.0	135°28.9	01.3										
12	152°02.1	32°38.5	N20°22.2	322°18.6	S03°48.6	44°22.1	N22°23.9	150°31.5	S02°01.3										
13	167°04.6	47°37.8	21.8	337°19.6	49.3	59°24.1	23.9	165°34.1	01.4										
14	182°07.0	62°37.1	21.3	352°20.6	49.9	74°26.0	23.8	180°36.7	01.5										
15	197°09.5	77°36.4	•• 20.9	7°21.6	•• 50.6	89°28.0	•• 23.8	195°39.3	•• 01.5										
16	212°12.0	92°35.8	20.4	22°22.6	51.2	104°29.9	23.7	210°41.9	01.6										
17	227°14.4	107°35.1	20.0	37°23.6	51.9	119°31.9	23.6	225°44.5	01.7										
18	242°16.9	122°34.4	N20°19.5	52°24.6	S03°52.5	134°33.8	N22°23.6	240°47.1	S02°01.8										
19	257°19.3	137°33.7	19.0	67°25.6	53.2	149°35.8	23.5	255°49.7	01.8										
20	272°21.8	152°33.1	18.6	82°26.6	53.8	164°37.7	23.5	270°52.3	01.9										
21	287°24.3	167°32.4	•• 18.1	97°27.6	•• 54.5	179°39.7	•• 23.4	285°54.9	•• 02.0										
22	302°26.7	182°31.7	17.7	112°28.6	55.2	194°41.6	23.4	300°57.5	02.0										
23	317°29.2	197°31.0	17.2	127°29.6	55.8	209°43.6	23.3	316°00.1	02.1										
Mer.pass. 01:54				ν -0.7° d -0.4° m -3.96				ν 1.0° d -0.7° m 1.62				ν 1.9° d -0.1° m -1.96				ν 2.6° d -0.1° m 0.69			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	332°31.7	212°30.3	N20°16.8	142°30.6	S03°56.5	224°45.5	N22°23.3	331°02.7	S02°02.2										
1	347°34.1	227°29.7	16.3	157°31.6	57.1	239°47.5	23.2	346°05.3	02.2										
2	2°36.6	242°29.0	15.8	172°32.6	57.8	254°49.4	23.2	1°07.9	02.3										
3	17°39.1	257°28.3	•• 15.4	187°33.6	•• 58.4	269°51.4	•• 23.1	16°10.5	•• 02.4										
4	32°41.5	272°27.6	14.9	202°34.6	59.1	284°53.3	23.1	31°13.1	02.4										
5	47°44.0	287°27.0	14.4	217°35.6	03°59.7	299°55.3	23.0	46°15.7	02.5										
6	62°46.5	302°26.3	N20°14.0	232°36.6	S04°00.4	314°57.3	N22°22.9	61°18.4	S02°02.6										
7	77°48.9	317°25.6	13.5	247°37.6	01.0	329°59.2	22.9	76°21.0	02.6										
8	92°51.4	332°25.0	13.0	262°38.6	01.7	345°01.2	22.8	91°23.6	02.7										
9	107°53.8	347°24.3	•• 12.6	277°39.6	•• 02.4	0°03.1	•• 22.8	106°26.2	•• 02.8										
10	122°56.3	•• 23.6	12.1	292°40.6	03.0	15°05.1	22.7	121°28.8	02.8										
11	137°58.8	17°22.9	11.6	307°41.6	03.7	30°07.0	22.7	136°31.4	02.9										
12	153°01.2	32°22.3	N20°11.1	322°42.6	S04°04.3	45°09.0	N22°22.6	151°34.0	S02°03.0										
13	168°03.7	47°21.6	10.7	337°43.6	05.0	60°10.9	22.6	166°36.6	03.1										
14	183°06.2	62°20.9	10.2	352°44.6	05.6	75°12.9	22.5	181°39.2	03.1										
15	198°08.6	77°20.2	•• 09.7	7°45.6	•• 06.3	90°14.8	•• 22.5	196°41.8	•• 03.2										
16	213°11.1	92°19.6	09.2	22°46.6	06.9	105°16.8	22.4	211°44.4	03.3										
17	228°13.6	107°18.9	08.7	37°47.6	07.6	120°18.7	22.3	226°47.0	03.3										
18	243°16.0	122°18.2	N20°08.3	52°48.5	S04°08.2	135°20.7	N22°22.3	241°49.6	S02°03.4										
19	258°18.5	137°17.6	07.8	67°49.5	08.9	150°22.7	22.2	256°52.2	03.5										
20	273°20.9	152°16.9	07.3	82°50.5	09.5	165°24.6	22.2	271°54.8	03.5										
21	288°23.4	167°16.2	•• 06.8	97°51.5	•• 10.2	180°26.6	•• 22.1	286°57.4	•• 03.6										
22	303°25.9	182°15.5	06.3	112°52.5	10.9	195°28.5	22.1	302°00.0	03.7										
23	318°28.3	197°14.9	05.9	127°53.5	11.5	210°30.5	22.0	317°02.6	03.7										
Mer.pass. 01:50				ν -0.7° d -0.5° m -3.96				ν 1.0° d -0.7° m 1.62				ν 2.0° d -0.1° m -1.97				ν 2.6° d -0.1° m 0.69			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	333°30.8	212°14.2	N20°05.4	142°54.5	S04°12.2	225°32.4	N22°22.0	332°05.2	S02°03.8
1	348°33.3	227°13.5	04.9	157°55.5	12.8	240°34.4	21.9	347°07.8	03.9
2	3°35.7	242°12.9	04.4	172°56.5	13.5	255°36.3	21.9	2°10.4	04.0
3	18°38.2	257°12.2	•• 03.9	187°57.5	•• 14.1	270°38.3	•• 21.8	17°13.1	•• 04.0
4	33°40.7	272°11.5	03.4	202°58.5	14.8	285°40.2	21.8	32°15.7	04.1
5	48°43.1	287°10.8	02.9	217°59.5	15.4	300°42.2	21.7	47°18.3	04.2
6	63°45.6	302°10.2	N20°02.4	233°00.5	S04°16.1	315°44.2	N22°21.6	62°20.9	S02°04.2
7	78°48.1	317°09.5	01.9	248°01.5	16.7	330°46.1	21.6	77°23.5	04.3
8	93°50.5	332°08.8	01.5	263°02.5	17.4	345°48.1	21.5	92°26.1	04.4
9	108°53.0	347°08.2	•• 01.0	278°03.5	•• 18.0	0°50.0	•• 21.5	107°28.7	•• 04.4
10	123°55.4	2°07.5	00.5	293°04.5	18.7	15°52.0	21.4	122°31.3	04.5
11	138°57.9	17°06.8	20°00.0	308°05.4	19.4	30°53.9	21.4	137°33.9	04.6
12	154°00.4	32°06.2	N19°59.5	323°06.4	S04°20.0	45°55.9	N22°21.3	152°36.5	S02°04.6
13	169°02.8	47°05.5	59.0	338°07.4	20.7	60°57.9	21.3	167°39.1	04.7
14	184°05.3	62°04.8	58.5	353°08.4	21.3	75°59.8	21.2	182°41.7	04.8
15	199°07.8	77°04.2	•• 58.0	8°09.4	•• 22.0	91°01.8	•• 21.2	197°44.3	•• 04.9
16	214°10.2	92°03.5	57.5	23°10.4	22.6	106°03.7	21.1	212°46.9	04.9
17	229°12.7	107°02.8	57.0	38°11.4	23.3	121°05.7	21.0	227°49.5	05.0
18	244°15.2	122°02.2	N19°56.5	53°12.4	S04°23.9	136°07.6	N22°21.0	242°52.2	S02°05.1
19	259°17.6	137°01.5	56.0	68°13.4	24.6	151°09.6	20.9	257°54.8	05.1
20	274°20.1	152°00.8	55.5	83°14.4	25.2	166°11.6	20.9	272°57.4	05.2
21	289°22.5	167°00.2	•• 54.9	88°15.4	•• 25.9	181°13.5	•• 20.8	288°00.0	•• 05.3
22	304°25.0	181°59.5	54.4	113°16.4	26.5	196°15.5	20.8	303°02.6	05.3
23	319°27.5	196°58.8	53.9	128°17.3	27.2	211°17.4	20.7	318°05.2	05.4
Mer.pass. 01:46 ν -0.7° d -0.5° m -3.95 ν 1.0° d -0.7° m 1.62 ν 2.0° d -0.1° m -1.97 ν 2.6° d -0.1° m 0.68									

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.3	-42°09.7
Schedar	349°30.0	56°40.6
Diphda	348°46.5	-17°50.5
Achernar	335°19.4	-57°06.1
Hamal	327°50.4	23°35.1
Polaris	313°39.9	89°22.0
Acamar	315°11.2	-40°11.8
Menkar	314°05.5	4°11.6
Mirfak	308°27.4	49°57.0
Aldebaran	290°39.1	16°33.7
Rigel	281°03.5	-8°10.1
Capella	280°21.3	46°01.3
Bellatrix	278°22.4	6°22.5
Elnath	278°01.3	28°37.7
Alnilam	275°37.3	-1°11.0
Betelgeuse	270°51.7	7°24.8
Canopus	263°52.5	-52°42.2
Sirius	258°26.0	-16°44.9
Adhara	255°05.7	-29°00.2
Procyon	244°50.5	5°09.7
Pollux	243°17.0	27°57.9
Avior	234°15.1	-59°35.3
Suhail	222°46.4	-43°32.0
Miaplacidus	221°39.1	-69°49.2
Alphard	217°47.6	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°39.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.1	-63°14.6
Gacrux	171°51.6	-57°15.5
Alloth	166°12.9	55°49.4
Spica	158°21.9	-11°17.7
Alkaid	152°51.8	49°11.3
Hadar	148°35.6	-60°30.0
Menkent	147°57.2	-36°29.9
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°39.8	-60°56.7
Kochab	137°20.1	74°03.2
Zuben el	136°55.5	-16°08.9
Alphecca	126°03.3	26°37.9
Antares	112°15.1	-26°29.4
Atria	107°08.7	-69°04.7
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.4
Rasalhague	95°57.9	12°32.6
Eltanin	90°41.7	51°29.3
Kaus	83°35.6	-34°22.4
Vega	80°32.6	38°48.6
Nunki	75°46.8	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.3	-56°39.2
Deneb	49°25.0	45°22.4
Enif	33°38.0	9°59.7
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.6	-29°20.9
Scheat	13°44.4	28°13.4
Markab	13°29.1	15°20.7
Aug 23 Sat	SHA	Mer.pass
Venus	241°14.1	09:49
Mars	170°34.1	14:31
Jupiter	252°26.2	09:03
Saturn	358°27.8	02:00
Aug 24 Sun	SHA	Mer.pass
Venus	239°58.7	09:50
Mars	169°58.9	14:29
Jupiter	252°13.9	09:00
Saturn	358°31.1	01:55
Aug 25 Mon	SHA	Mer.pass
Venus	238°4.4	09:51
Mars	169°23.7	14:26
Jupiter	252°01.6	08:57
Saturn	358°34.4	01:51
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	334°29.9	211°58.2	N19°53.4	143°18.3	S04°27.9	226°19.4	N22°20.7	333°07.8	S02°05.5										
1	349°32.4	226°57.5	52.9	158°19.3	28.5	241°21.4	20.6	348°10.4	05.6										
2	4°34.9	241°56.8	52.4	173°20.3	29.2	256°23.3	20.6	3°13.0	05.6										
3	19°37.3	256°56.2	51.9	188°21.3	29.8	271°25.2	20.5	18°15.6	05.7										
4	34°39.8	271°55.5	51.8	203°22.3	30.5	286°27.2	20.5	33°06.1	05.8										
5	49°42.3	286°54.8	50.9	218°23.3	31.1	301°29.2	20.4	48°20.8	05.8										
6	64°44.7	301°54.2	N19°50.3	233°24.3	S04°31.8	316°31.2	N22°20.3	63°23.4	S02°05.5										
7	79°47.2	316°53.5	49.8	248°25.3	32.4	331°33.1	20.3	78°26.1	06.0										
8	94°49.7	331°52.8	49.3	263°26.3	33.1	346°35.1	20.2	93°28.7	06.0										
9	109°52.1	346°52.2	48.8	278°27.2	33.7	1°37.0	20.2	108°31.3	06.1										
10	124°54.6	1°51.5	48.3	293°28.2	34.4	16°30.0	20.1	123°33.9	06.2										
11	139°57.0	16°50.8	47.8	308°29.2	35.0	31°41.0	20.1	138°36.5	06.3										
12	154°59.5	31°50.2	N19°47.2	323°30.2	S04°35.7	46°42.9	N22°20.0	153°39.1	S02°06.3										
13	170°02.0	46°49.5	46.7	338°31.2	36.4	61°44.9	20.0	168°41.7	06.4										
14	185°04.4	61°48.9	46.2	353°32.2	37.0	76°46.8	19.9	183°44.3	06.5										
15	200°06.9	76°48.2	45.7	8°33.2	37.7	91°48.8	19.9	198°46.9	06.5										
16	215°09.4	91°47.5	45.1	23°34.2	38.3	106°50.8	19.8	213°33.5	06.6										
17	230°11.8	106°46.9	44.6	38°35.2	39.0	121°52.7	19.7	228°52.1	06.7										
18	245°14.3	121°46.2	N19°44.1	53°36.1	S04°39.6	136°54.7	N22°19.7	243°54.8	S02°06.8										
19	260°16.8	136°45.5	43.6	68°37.1	40.3	151°56.6	19.6	258°57.4	06.8										
20	275°19.2	151°44.9	43.0	83°38.1	40.9	166°58.6	19.6	274°00.0	06.9										
21	290°21.7	166°44.2	42.5	98°39.1	41.6	182°00.6	19.5	289°02.6	07.0										
22	305°24.2	181°43.6	42.0	113°40.1	42.2	197°02.5	19.5	304°05.6	07.0										
23	320°26.6	196°42.9	41.4	128°41.1	42.9	212°04.5	19.4	319°07.8	07.1										
Mer.pass. 01:42				ν -0.7° d -0.5° m -3.95				ν 1.0° d -0.7° m 1.62				ν 2.0° d -0.1° m -1.97				ν 2.6° d -0.1° m 0.68			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	335°29.1	211°42.2	N19°40.9	143°42.1	S04°43.5	227°06.5	N22°19.4	334°10.4	S02°07.2										
1	350°31.5	226°41.6	40.4	158°43.1	44.2	242°08.4	19.3	349°13.0	07.2										
2	5°34.0	241°40.9	39.8	173°44.0	44.8	257°10.4	19.3	4°15.6	07.3										
3	20°36.5	256°40.3	39.3	188°45.0	45.5	272°12.4	19.2	19°18.2	07.4										
4	35°38.9	271°39.6	38.8	203°46.0	46.2	287°14.3	19.1	34°20.9	07.5										
5	50°41.4	286°38.9	38.2	218°47.0	46.8	302°16.3	19.1	49°23.5	07.5										
6	65°43.9	301°38.3	N19°37.7	233°48.0	S04°47.5	317°18.2	N22°19.0	64°26.1	S02°07.6										
7	80°46.3	316°37.6	37.1	248°49.0	48.1	332°20.2	19.0	79°28.7	07.7										
8	95°48.8	331°37.0	36.6	263°50.0	48.8	347°22.2	18.9	94°31.3	07.7										
9	110°51.3	346°36.3	36.1	278°51.0	49.4	2°24.1	18.9	109°33.9	07.8										
10	125°53.7	1°35.6	35.5	293°51.9	50.1	17°26.1	18.8	124°36.5	07.9										
11	140°56.2	16°35.0	35.0	308°52.9	50.7	32°28.1	18.8	139°39.1	08.0										
12	155°58.6	31°34.3	N19°34.4	323°53.9	S04°51.4	47°30.0	N22°18.7	154°41.7	S02°08.0										
13	171°01.1	46°33.7	33.9	338°54.9	52.0	62°32.0	18.8	169°44.4	08.1										
14	186°03.6	61°33.0	33.3	353°55.9	52.7	77°34.0	18.6	184°47.0	08.2										
15	201°06.0	76°32.4	32.8	8°56.9	53.7	92°35.9	18.5	199°49.6	08.2										
16	216°08.5	91°31.7	32.3	23°57.8	54.0	107°37.9	18.5	214°52.2	08.3										
17	231°11.0	106°31.0	31.7	38°58.8	54.6	122°39.9	18.4	229°54.8	08.4										
18	246°13.4	121°30.4	N19°31.2	53°59.8	S04°55.3	137°41.8	N22°18.4	244°57.4	S02°08.5										
19	261°15.9	136°29.7	30.6	69°00.8	56.0	152°43.8	18.3	260°00.0	08.5										
20	276°18.4	151°29.1	30.0	84°01.8	56.6	167°45.8	18.3	275°02.6	08.6										
21	291°20.8	166°28.4	29.5	99°02.8	57.3	182°47.7	18.2	290°05.2	08.7										
22	306°23.3	181°27.8	28.9	114°03.8	57.9	197°49.7	18.2	305°07.9	08.7										
23	321°25.8	196°27.1	28.4	129°04.7	58.6	212°51.7	18.1	320°10.5	08.8										
Mer.pass. 01:38				ν -0.7° d -0.5° m -3.95				ν 1.0° d -0.7° m 1.62				ν 2.0° d -0.1° m -1.98				ν 2.6° d -0.1° m 0.67			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	336°28.2	211°26.5	N19°27.8	144°05.7	S04°59.2	227°53.6	N22°18.1	335°13.1	S02°08.9										
1	351°30.7	226°25.8	27.3	159°06.7	04°59.9	242°55.6	18.0	350°15.7	09.0										
2	6°33.1	241°25.1	26.7	174°07.7	05°00.5	257°57.6	17.9	5°18.3	09.0										
3	21°35.6	256°24.5	26.2	189°08.7	05.12	272°59.5	17.9	20°20.9	09.1										
4	36°38.1	271°23.8	25.6	204°09.7	01.8	288°01.5	17.8	35°23.5	09.2										
5	51°40.5	286°23.2	25.0	219°10.6	02.5	303°03.5	17.8	50°26.2	09.2										
6	66°43.0	301°22.5	N19°24.5	234°11.6	S05°03.1	318°05.4	N22°17.7	65°28.8	S02°09.3										
7	81°45.5	316°21.9	23.9	249°12.6	03.8	333°07.4	17.7	80°31.4	09.4										
8	96°47.9	331°21.2	23.3	264°13.6	04.4	348°09.4	17.6	95°34.0	09.5										
9	111°50.4	346°20.6	22.8	279°14.6	05.1	3°11.3	17.6	110°36.6	09.5										
10	126°52.9	1°19.9	22.2	294°15.5	05.7	18°13.3	17.5	125°39.2	09.6										
11	141°55.3	16°19.3	21.7	309°16.5	06.4	33°15.3	17.4	140°41.8	09.7										
12	156°57.8	31°18.6	N19°21.1	324°17.5	S05°07.1	48°17.2	N22°17.4	155°44.4	S02°09.7										
13	172°00.2	46°18.0	20.5	339°18.5	07.7	63°19.2	17.3	170°47.1	09.8										
14	187°02.7	61°17.3	19.9	354°19.5	08.4	78°21.2	17.3	185°49.7	09.9										
15	202°05.2	76°16.7	19.4	9°20.5	09.0	93°23.1	17.2	200°52.3	10.0										
16	217°07.6	91°16.0	18.8	24°21.4	09.7	108°25.1	17.2	215°54.9	10.1										
17	232°10.1	106°15.4	18.2	39°22.4	10.3	123°27.1	17.1	230°57.5	10.1										
18	247°12.6	121°14.7	N19°17.7	54°23.4	S05°11.0	138°29.0	N22°17.1	246°00.1	S02°10.2										
19	262°15.0	136°14.1	17.1	69°24.4	11.6	153°31.0	17.0	261°02.7	10.3										
20	277°17.5	151°13.4	16.5	84°25.4	12.3	168°33.0	17.0	276°05.4	10.3										
21	292°20.0	166°12.8	15.9	99°26.3	12.9	183°35.0	16.9	291°08.0	10.4										
22	307°22.4	181°12.1	15.4	114°27.3	13.6	198°36.9	16.8	306°10.6	10.5										
23	322°24.9	196°11.5	14.8	129°28.3	14.2	213°38.9	16.8	321°13.2	10.5										
Mer.pass. 01:34				ν -0.7° d -0.6° m -3.95				ν 1.0° d -0.7° m 1.62				ν 2.0° d -0.1° m -1.98				ν 2.6° d -0.1° m 0.67			

Stars			
	SHA	Dec	
Alpheratz	357°33.9	29°14.0	
Ankaa	353°06.2	-42°09.7	
Schedar	349°30.0	56°40.6	
Diphda	348°46.5	-17°50.5	
Achernar	335°19.4	-57°06.1	
Hamal	327°50.4	23°25.1	
Polaris	313°38.5	89°22.0	
Acamar	315°11.2	-40°11.8	
Menkar	314°05.5	4°11.6	
Miraf	308°27.4	49°57.0	
Aldebaran	290°39.0	16°33.7	
Rigel	281°03.4	-8°10.1	
Capella	280°21.2	46°01.3	
Bellatrix	278°22.4	6°22.5	
Elnath	278°01.3	28°37.7	
Alnilam	275°37.3	-1°11.0	
Betelgeuse	270°51.7	7°24.8	
Canopus	263°52.5	-52°42.2	
Sirius	258°26.0	-16°44.9	
Adhara	255°05.7	-29°00.1	
Procyon	244°50.5	5°09.7	
Pollux	243°16.9	27°57.9	
Avior	234°15.1	-59°35.3	
Suhail	222°46.4	-43°32.0	
Miaplacidus	221°39.1	-69°49.2	
Alphard	217°47.6	-8°46.1	
Regulus	207°34.2	11°50.6	
Dubhe	193°41.0	61°36.9	
Denebola	182°24.7	14°25.8	
Gienah	175°43.3	-17°41.0	
Acrux	173°00.1	-63°14.6	
Gacrux	171°51.6	-57°15.5	
Alioth	166°12.9	55°49.4	
Spica	158°22.0	-11°17.7	
Alkaid	152°51.8	49°11.3	
Hadar	148°35.6	-60°30.9	
Menkent	147°57.2	-36°29.9	
Arcturus	145°47.6	19°03.1	
Rigel Kent.	139°39.9	-60°56.7	
Kochab	137°20.1	74°03.2	
Zuben el	136°55.5	-16°08.9	
Alphecca	126°03.3	26°37.9	
Antares	112°15.2	-26°29.4	
Atria	107°08.8	-69°04.7	
Sabik	102°02.1	-15°45.4	
Shaula	96°09.5	-37°07.4	
Rasalhague	95°57.9	12°32.6	
Eltanin	90°41.7	51°29.3	
Kaus Ast.	83°31.6	-34°22.2	
Vega	80°26.6	38°46.8	
Nunki	75°46.9	-26°15.9	
Altair	61°59.2	8°56.3	
Peacock	53°04.3	-56°39.2	
Deneb	49°25.0	45°22.5	
Enif	33°38.0	9°59.7	
Al Na'ir	27°31.8	-46°50.1	
Fomalhaut	15°13.6	-29°29.0	
Scheat	13°44.4	28°13.4	
Makab	13°29.1	15°20.7	
Aug 26	SHA	Mer.pass	
Venus	237°28.2	09:53	
Mars	168°48.4	14:26	
Jupiter	251°49.5	08:54	
Saturn	358°37.9	01:47	
Aug 27	SHA	Mer.pass	
Venus	236°13.2	09:54	
Mars	168°13.0	14:24	
Jupiter	251°37.4	08:50	
Saturn	358°41.3	01:43	
Aug 28	SHA	Mer.pass	
Venus	234°58.2	09:55	
Mars	167°51.5	14:23	
Jupiter	251°25.4	08:47	
Saturn	358°44.9	01:39	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	337°27.4	211°10.8	N19°14.2	144°29.3	S05°14.9	228°40.9	N22°16.7	336°15.8	S02°10.6					
1	352°29.8	226°10.2	13.6	159°30.3	15.5	243°42.8	16.7	351°18.4	10.7					
2	7°32.3	241°09.5	13.0	174°31.2	16.2	258°44.8	16.6	6°21.0	10.8					
3	22°34.7	256°08.9	.. 12.5	189°32.2	.. 16.8	273°46.8	.. 16.6	21°23.7	.. 10.8					
4	37°37.2	271°08.2	11.9	204°33.2	17.5	288°48.8	16.5	36°26.3	10.9					
5	52°39.7	286°07.6	11.3	219°34.2	18.1	303°50.7	16.5	51°28.9	11.0					
6	67°42.1	301°06.9	N19°10.7	234°35.2	S05°18.8	318°52.7	N22°16.4	66°31.5	S02°11.0					
7	82°44.6	316°06.3	10.1	249°36.1	19.5	333°54.7	16.4	81°34.1	11.1					
8	97°47.1	331°05.6	09.5	264°37.1	20.1	348°56.6	16.3	96°36.7	11.2					
9	112°49.5	346°05.0	.. 09.0	279°38.1	.. 20.8	3°58.6	.. 16.2	111°39.3	.. 11.3					
10	127°52.0	1°04.3	08.4	294°39.1	21.4	19°00.6	16.2	126°42.0	11.3					
11	142°54.5	16°03.7	07.8	309°40.0	22.1	34°02.6	16.1	141°44.6	11.4					
12	157°56.9	31°03.0	N19°07.2	324°41.0	S05°22.7	49°04.5	N22°16.1	156°47.2	S02°11.5					
13	172°59.4	46°02.4	06.6	339°42.0	23.4	64°06.5	16.0	171°49.8	11.6					
14	188°01.9	61°01.7	06.0	354°43.0	24.0	79°08.5	16.0	186°52.4	11.6					
15	203°04.3	76°01.1	.. 05.4	9°44.0	.. 24.7	94°10.4	.. 15.9	201°55.0	.. 11.7					
16	218°06.8	91°00.5	04.8	24°44.9	25.3	109°12.4	15.9	216°57.7	11.8					
17	233°09.2	105°59.8	04.2	39°45.9	26.0	124°14.4	15.8	232°00.3	11.8					
18	248°11.7	120°59.2	N19°03.6	54°46.9	S05°26.6	139°16.6	N22°15.7	247°02.9	S02°11.9					
19	263°14.2	135°58.5	03.0	69°47.9	27.3	154°18.3	15.7	262°05.5	12.0					
20	278°16.6	150°57.9	02.4	84°48.8	27.9	169°20.3	15.6	277°08.1	12.1					
21	293°19.1	165°57.2	.. 01.8	99°49.8	.. 28.6	184°22.3	.. 15.6	292°10.7	.. 12.1					
22	308°21.6	180°56.6	01.2	114°50.8	29.2	199°24.3	15.5	307°13.4	12.2					
23	323°24.0	195°55.9	00.6	129°51.8	29.9	214°26.2	15.5	322°16.0	12.3					
Mer.pass. 01:30			ν -0.6° d -0.6' m -3.95			ν 1.0° d -0.7' m 1.62			ν 2.0° d -0.1' m -1.98			ν 2.6° d -0.1' m 0.66		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	338°26.5	210°55.3	N19°00.0	144°52.8	S05°30.5	229°28.2	N22°15.4	337°18.6	S02°12.4
1	353°29.0	225°54.7	18°59.4	159°53.7	31.2	244°30.2	15.4	352°21.2	12.4
2	8°31.4	240°54.0	58.8	174°54.7	31.8	259°32.2	15.3	7°23.8	12.5
3	23°33.9	255°53.4	· · 58.2	189°55.7	· · 32.5	274°34.1	· · 15.3	22°26.4	· · 12.6
4	38°36.3	270°52.7	57.6	204°56.7	33.1	289°36.1	15.2	37°29.1	12.7
5	53°38.8	285°52.1	57.0	219°57.6	33.8	304°38.1	15.1	52°31.7	12.7
6	68°41.3	300°51.4	N18°56.4	234°58.6	S05°34.5	319°40.1	N22°15.1	67°34.3	S02°12.8
7	83°43.7	315°50.8	55.8	249°59.6	35.1	334°42.0	15.0	82°36.9	12.9
8	98°46.2	330°50.2	55.2	265°00.6	35.8	349°44.0	15.0	97°39.5	12.9
9	113°48.7	345°49.5	· · 54.6	280°01.5	· · 36.4	4°46.0	· · 14.9	112°42.1	· · 13.0
10	128°51.1	0°48.9	54.0	295°02.5	37.1	19°48.0	14.9	127°44.8	13.1
11	143°53.6	15°48.2	53.4	310°03.5	37.7	34°49.9	14.8	142°47.4	13.2
12	158°56.1	30°47.6	N18°52.7	325°04.5	S05°38.4	49°51.9	N22°14.8	157°50.0	S02°13.2
13	173°58.5	45°47.0	52.1	340°05.4	39.0	64°53.9	14.7	172°52.6	13.3
14	189°01.0	60°46.3	51.5	355°06.4	39.7	79°55.9	14.6	187°55.2	13.4
15	204°03.5	75°45.7	· · 50.9	10°07.4	· · 40.3	94°57.9	· · 14.6	202°57.2	· · 13.5
16	219°05.9	90°45.0	50.3	25°08.3	41.0	109°59.8	14.5	218°00.5	13.5
17	234°08.4	105°44.4	49.7	40°09.3	41.6	125°01.8	14.5	233°03.1	13.6
18	249°10.8	120°43.8	N18°49.0	55°10.3	S05°42.3	140°03.8	N22°14.4	248°05.7	S02°13.7
19	264°13.3	135°43.1	48.4	70°11.3	42.9	155°05.8	14.4	263°08.3	13.8
20	279°15.8	150°42.5	47.8	85°12.2	43.6	170°07.7	14.3	278°10.9	13.8
21	294°18.2	165°41.9	· · 47.2	100°13.2	· · 44.2	185°09.7	· · 14.3	293°13.6	· · 13.9
22	309°20.7	180°41.2	46.6	115°14.2	44.9	200°11.7	14.2	308°16.2	14.0
23	324°23.2	195°40.6	45.9	130°15.2	45.5	215°13.7	14.2	323°18.8	14.0
Mer.pass. 01:26 ν -0.6° d -0.6' m -3.95 ν 1.0° d -0.7' m 1.62 ν 2.0° d -0.1' m -1.99 ν 2.6° d -0.1' m 0.66									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	339°25.6	210°39.9	N18°45.3	145°16.1	S05°46.2	230°15.7	N22°14.1	338°21.4	S02°14.1					
1	354°28.1	225°39.3	44.7	160°17.1	46.8	245°17.6	14.0	353°24.0	14.2					
2	9°30.6	240°38.7	44.1	175°18.1	47.5	260°19.6	14.0	8°26.7	14.3					
3	24°33.0	255°38.0	.. 43.4	190°19.0	.. 48.1	275°21.6	.. 13.9	23°29.3	.. 14.3					
4	39°35.5	270°37.4	42.8	205°20.0	48.8	290°23.6	13.9	38°31.9	14.4					
5	54°38.0	285°36.8	42.2	220°21.0	49.4	305°25.5	13.8	53°34.5	14.5					
6	69°40.4	300°36.1	N18°41.6	235°22.0	S05°50.1	320°27.5	N22°13.8	68°37.1	S02°14.6					
7	84°42.9	315°35.5	40.9	250°22.9	50.7	335°29.5	13.7	83°39.7	14.6					
8	99°45.3	330°34.9	40.3	265°23.9	51.4	350°31.5	13.7	98°42.4	14.7					
9	114°47.8	345°34.2	.. 39.7	280°24.9	.. 52.0	5°33.5	.. 13.6	113°45.0	.. 14.8					
10	129°50.3	0°33.6	39.0	295°25.8	52.7	20°35.4	13.5	128°47.6	14.9					
11	144°52.7	15°33.0	38.4	310°26.8	53.3	35°37.4	13.5	143°50.2	14.9					
12	159°55.2	30°32.3	N18°37.8	325°27.8	S05°54.0	50°39.4	N22°13.4	158°52.8	S02°15.0					
13	174°57.7	45°31.7	37.1	340°28.8	54.6	65°41.4	13.4	173°55.5	15.1					
14	190°00.1	60°31.1	36.5	355°29.7	55.3	80°43.4	13.3	188°58.1	15.2					
15	205°02.6	75°30.4	.. 35.8	10°30.7	.. 55.9	95°45.4	.. 13.3	204°00.7	.. 15.2					
16	220°05.1	90°29.8	35.2	25°31.7	56.6	110°47.3	13.2	219°03.3	15.3					
17	235°07.5	105°29.2	34.6	40°32.6	57.2	125°49.3	13.2	234°05.9	15.4					
18	250°10.0	120°28.5	N18°33.9	55°33.6	S05°57.9	140°51.3	N22°13.1	249°08.6	S02°15.5					
19	265°12.5	135°27.9	33.3	70°34.6	58.5	155°53.3	13.1	264°11.2	15.5					
20	280°14.9	150°27.3	32.6	85°35.5	59.2	170°55.3	13.0	279°13.8	15.6					
21	295°17.4	165°26.6	.. 32.0	100°36.5	05°59.9	185°57.2	.. 12.9	294°16.4	.. 15.7					
22	310°19.8	180°26.0	31.4	115°37.5	06°00.5	200°59.2	12.9	309°19.0	15.7					
23	325°22.2	195°25.4	30.7	130°38.4	01.2	216°01.2	12.8	324°21.7	15.8					
Mer.pass. 01:23			ν -0.6° d -0.6' m -3.95			ν 1.0° d -0.7' m 1.62			ν 2.0° d -0.1' m -1.99			ν 2.6° d -0.1' m 0.66		

Stars		
SHA	Dec	
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.2	-42°09.8
Schedar	349°30.0	56°40.6
Diphda	348°46.5	-17°50.5
Achernar	335°19.4	-57°06.1
Hamal	327°50.8	23°35.1
Polaris	313°36.8	89°22.0
Acamar	315°11.2	-40°11.8
Menkar	314°05.5	4°11.6
Mirfak	308°27.4	49°57.0
Aldebaran	299°39.0	16°33.7
Rigel	281°03.4	-8°10.1
Capella	280°21.2	46°01.3
Bellatrix	278°22.4	6°22.5
Elnath	278°01.3	28°37.7
Alnilam	275°37.3	-1°11.0
Betelgeuse	270°51.6	7°24.8
Canopus	263°52.4	-52°42.2
Sirius	258°26.0	-16°44.8
Adhara	255°05.7	-29°00.1
Procyon	244°50.5	5°09.7
Pollux	243°16.9	27°57.9
Avior	234°15.1	-59°35.2
Suhail	222°46.4	-43°32.0
Miaplacidus	221°39.1	-69°49.2
Alphard	217°47.5	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°38.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.6
Gacrux	171°51.6	-57°15.6
Alioth	166°12.9	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.6	-60°30.0
Menkent	147°57.2	-36°29.9
Arcturus	145°47.6	19°03.1
Rigil Kent.	137°20.2	-50°56.7
Kochab	136°55.6	-74°03.2
Zuben'ubi	126°03.4	-26°37.9
Alphecca	112°15.2	-26°29.4
Antares	107°08.8	-69°04.7
Atria	102°02.1	-15°45.4
Sabik	96°09.5	-37°07.4
Shaula	95°57.9	12°32.6
Rasalhague	90°41.7	51°29.4
Eltanin	83°31.6	-34°22.4
Kaus Aust.	80°32.6	38°28.6
Vega	75°46.9	-26°15.9
Nunki	61°59.2	8°56.3
Altair	53°04.4	-56°39.2
Peacock	49°25.0	45°22.5
Deneb	33°38.0	9°59.7
Enif	27°31.8	-46°50.1
Al Na'ir	15°13.6	-29°29.0
Fomalhaut	13°44.3	28°13.4
Scheat	13°29.0	15°20.7
Markab		

Aug 29 Fri	
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Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	340°24.8	210°24.8	N18°30.1	145°39.4	S06°01.8	231°03.2	N22°12.8	339°24.3	S02°15.9										
1	355°27.2	225°24.1	29.4	160°40.4	02.5	246°05.2	12.7	354°26.9	16.0										
2	10°29.7	240°23.5	28.8	175°41.4	03.1	261°07.2	12.7	9°29.5	16.0										
3	25°32.2	255°22.9	•• 28.1	190°42.3	•• 03.8	276°09.1	•• 12.6	24°32.2	•• 16.1										
4	40°34.6	270°22.2	27.5	205°43.3	04.4	291°11.1	12.6	39°34.8	16.2										
5	55°37.1	285°21.6	26.8	220°44.3	05.1	306°13.1	12.5	54°37.4	16.3										
6	70°39.6	300°21.0	N18°26.2	235°45.2	S06°05.7	321°15.1	N22°12.4	69°40.0	S02°16.3										
7	85°42.0	315°20.3	25.5	250°46.2	06.4	336°17.1	12.4	84°42.6	16.4										
8	100°44.5	330°19.7	24.9	265°47.2	07.0	351°19.1	12.3	99°45.3	16.5										
9	115°46.9	345°19.1	•• 24.2	280°48.1	•• 07.7	6°21.0	•• 12.3	114°47.9	•• 16.6										
10	130°49.4	•• 01.85	23.5	295°49.1	08.3	21°23.0	12.2	129°50.5	16.6										
11	145°51.9	15°17.8	22.9	310°50.1	09.0	36°25.0	12.2	144°53.1	16.7										
12	160°54.3	30°17.2	N18°22.2	325°51.0	S06°09.6	51°27.0	N22°12.1	159°55.7	S02°16.8										
13	175°56.8	45°16.6	21.6	340°52.0	10.3	66°29.0	12.1	174°58.4	16.9										
14	190°59.3	60°16.0	20.9	355°53.0	10.9	81°31.0	12.0	190°01.0	16.9										
15	206°01.7	75°15.3	•• 20.3	10°53.9	•• 11.6	96°33.0	•• 12.0	205°03.6	•• 17.0										
16	221°04.2	90°14.7	19.6	25°54.9	12.2	111°34.9	11.9	220°06.2	17.1										
17	236°06.7	105°14.1	18.9	40°55.9	12.9	126°36.9	11.8	235°08.9	17.2										
18	251°09.1	120°13.5	N18°18.3	55°56.8	S06°13.5	141°38.9	N22°11.8	250°11.5	S02°17.2										
19	266°11.6	135°12.8	17.6	70°57.8	14.2	156°40.9	11.7	265°14.1	17.3										
20	281°14.1	150°12.2	17.0	85°58.8	14.8	171°42.9	11.7	280°16.7	17.4										
21	296°16.5	165°11.6	•• 16.3	100°59.7	•• 15.5	186°44.9	•• 11.6	295°19.3	•• 17.5										
22	311°19.0	180°11.0	15.6	116°00.7	16.1	201°46.9	11.6	310°22.0	17.5										
23	326°21.4	195°10.3	15.0	131°01.6	16.8	216°48.8	11.5	325°24.6	17.6										
Mer.pass. 01:18				ν -0.6° d -0.6° m -3.95				ν 1.0° d -0.7° m 1.62				ν 2.0° d -0.1° m -1.99				ν 2.6° d -0.1° m 0.65			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	341°23.9	210°09.7	N18°14.3	146°02.6	S06°17.4	231°50.8	N22°11.5	340°27.2	S02°17.7										
1	356°26.4	225°09.1	13.6	161°03.6	18.1	246°52.8	11.4	355°29.8	17.8										
2	11°28.8	240°08.5	13.0	176°04.5	18.7	261°54.8	11.3	10°32.5	17.8										
3	26°31.3	255°07.8	•• 12.3	191°05.5	•• 19.4	276°56.8	•• 11.3	25°35.1	•• 17.9										
4	41°33.8	270°07.2	11.6	206°06.5	20.0	291°58.8	11.2	40°37.7	18.0										
5	56°36.2	285°06.6	10.9	221°07.4	20.7	307°00.8	11.2	55°40.3	18.1										
6	71°38.7	300°06.0	N18°10.3	236°08.4	S06°21.3	322°02.8	N22°11.1	70°42.9	S02°18.1										
7	86°41.2	315°05.4	09.6	251°09.4	22.0	337°04.7	11.1	85°45.6	18.2										
8	101°43.6	330°04.7	08.9	266°10.3	22.6	352°06.7	11.0	100°48.2	18.3										
9	116°46.1	345°04.1	•• 08.2	281°11.3	•• 23.3	7°08.7	•• 11.0	115°50.8	•• 18.4										
10	131°48.6	•• 03.05	07.6	296°12.2	23.9	22°10.7	10.9	130°53.4	18.4										
11	146°51.0	15°02.9	06.9	311°13.2	24.6	37°12.7	10.8	145°56.1	18.5										
12	161°53.5	30°02.3	N18°06.2	326°14.2	S06°25.2	52°14.7	N22°10.8	160°58.7	S02°18.6										
13	176°55.9	45°01.6	05.5	341°15.1	25.9	67°16.7	10.7	176°01.3	18.7										
14	191°58.4	60°01.0	04.8	356°16.1	26.5	82°18.7	10.7	191°03.9	18.7										
15	207°00.9	75°00.4	•• 04.2	11°17.1	•• 27.1	97°20.7	•• 10.6	206°06.6	•• 18.8										
16	222°03.3	89°59.8	03.5	26°18.0	27.8	112°22.6	10.6	221°09.2	18.9										
17	237°05.8	104°59.2	02.8	41°19.0	28.4	127°24.6	10.5	236°11.8	19.0										
18	252°08.3	119°58.5	N18°02.1	56°19.9	S06°29.1	142°26.6	N22°10.5	251°14.4	S02°19.0										
19	267°10.7	134°57.9	01.4	71°20.9	29.7	157°28.6	10.4	266°17.0	19.1										
20	282°13.2	149°57.3	00.7	86°21.9	30.4	172°30.6	10.4	281°19.7	19.2										
21	297°15.7	164°56.7	18°00.1	101°22.8	•• 31.0	187°32.6	•• 10.3	296°22.3	•• 19.3										
22	312°18.1	179°56.1	17°59.4	116°23.8	31.7	202°34.6	10.2	311°24.9	19.3										
23	327°20.6	194°55.5	58.7	131°24.8	32.3	217°36.6	10.2	326°27.5	19.4										
Mer.pass. 01:14				ν -0.6° d -0.7° m -3.95				ν 1.0° d -0.6° m 1.62				ν 2.0° d -0.1° m -2.00				ν 2.6° d -0.1° m 0.65			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	342°23.1	209°54.8	N17°58.0	146°25.7	S06°33.0	232°38.6	N22°10.1	341°30.2	S02°19.5										
1	357°25.5	224°54.2	57.3	161°26.7	33.6	247°40.6	10.1	356°32.8	19.6										
2	12°28.0	239°53.6	56.6	176°27.6	34.3	262°42.6	10.0	11°35.4	19.6										
3	27°30.4	254°53.0	•• 55.9	191°28.6	•• 34.9	277°44.5	•• 10.0	26°38.0	•• 19.7										
4	42°32.9	269°52.4	55.2	206°29.6	35.6	292°46.5	09.9	41°40.7	19.8										
5	57°35.4	284°51.8	54.5	221°30.5	36.2	307°48.5	09.9	56°43.3	19.9										
6	72°37.8	299°51.2	N17°53.8	236°31.5	S06°36.9	322°50.5	N22°09.8	71°45.9	S02°19.9										
7	87°40.3	314°50.5	53.1	251°32.4	37.5	337°52.5	09.7	86°48.5	20.0										
8	102°42.8	329°49.9	52.5	266°33.4	38.2	352°54.5	09.7	101°51.2	20.1										
9	117°45.2	344°49.3	•• 51.8	281°34.3	•• 38.8	7°56.5	•• 09.6	116°53.8	•• 20.2										
10	132°47.7	359°48.7	51.1	296°35.3	39.5	22°58.5	09.6	131°56.4	20.2										
11	147°50.2	1°48.1	50.4	311°36.3	40.1	38°00.5	09.5	146°59.0	20.3										
12	162°52.6	29°47.5	N17°49.7	326°37.2	S06°40.8	53°02.5	N22°09.5	162°01.7	S02°20.4										
13	177°55.1	44°46.9	49.0	341°38.2	41.4	68°04.5	09.4	174°03.3	20.5										
14	192°57.5	59°46.2	48.3	356°39.1	42.1	83°06.5	09.4	192°06.9	20.6										
15	208°00.0	74°45.6	•• 47.6	11°40.1	•• 42.7	98°08.5	•• 09.3	207°09.5	•• 20.6										
16	223°02.5	89°45.0	46.8	26°41.1	43.4	113°10.5	09.2	222°12.2	20.7										
17	238°04.9	104°44.4	46.1	41°42.0	44.0	128°12.5	09.2	237°14.8	20.8										
18	253°07.4	119°43.8	N17°45.4	56°43.0	S06°44.7	143°14.4	N22°09.1	252°17.4	S02°20.9										
19	268°09.9	134°43.2	44.7	71°43.9	45.3	158°16.0	09.1	267°20.0	20.9										
20	283°12.3	149°42.6	44.0	86°44.9	46.0	173°18.4	09.0	282°22.7	21.0										
21	298°14.8	164°42.0	•• 43.3	101°45.8	•• 46.6	188°20.4	•• 09.0	297°25.3	•• 21.1										
22	313°17.3	179°41.4	42.6	116°46.8	47.3	203°22.4	08.9	312°27.9	21.2										
23	328°19.7	194°40.7	41.9	131°47.8	47.9	218°24.4	08.9	327°30.5	21.2										
Mer.pass. 01:10				ν -0.6° d -0.7° m -3.94				ν 1.0° d -0.6° m 1.62				ν 2.0° d -0.1° m -2.00				ν 2.6° d -0.1° m 0.64			

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.2	-42°09.8
Schedar	349°30.0	56°40.6
Diphda	348°46.5	-17°50.5
Achernar	335°19.3	-57°06.1
Hamal	327°50.4	23°35.1
Polaris	313°35.1	89°22.1
Acamar	315°11.2	-40°11.8
Menkar	314°05.5	4°11.6
Mirafak	308°27.3	49°57.0
Aldebaran	290°39.0	16°33.7
Rigel	281°03.4	-8°10.1
Capella	280°21.2	46°01.3
Bellatrix	278°22.4	6°22.5
Elnath	278°01.3	28°37.7
Alnilam	275°37.3	-1°11.0
Betelgeuse	270°51.6	7°24.8
Canopus	263°52.4	-52°42.2
Sirius	258°25.9	-16°44.8
Adhara	255°05.7	-29°00.1
Procyon	244°50.5	5°09.7
Pollux	243°16.9	27°57.9
Avior	234°15.1	-59°35.2
Suhail	222°46.3	-43°32.0
Miaplacidus	221°39.1	-69°49.2
Alphard	217°47.5	-8°46.1
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°36.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.6
Gacrux	171°51.6	-57°15.5
Alloth	166°12.9	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.7	-60°30.0
Menkent	147°57.2	-36°29.9
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°39.9	-60°56.7
Kochab	137°20.3	74°03.2
Zuben el	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°04.4
Atria	107°08.8	-69°04.7
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.4
Rasalhague	95°58.0	12°32.6
Eltanin	90°41.7	51°29.4
Kaus Aust.	83°31.6	-34°22.4
Vega	80°32.7	38°48.7
Nunki	75°46.9	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.4	-56°39.2
Deneb	49°25.1	45°25.2
Enif	33°38.0	9°59.7
Al Na'ir	27°31.8	-46°50.1
Fomalhaut	15°13.5	-29°20.0
Scheat	13°44.3	28°13.4
Markab	13°29.0	15°20.7

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	343°22.2	209°40.1	N17°41.2	146°48.7	S06°48.6	233°26.4	N22°08.8	342°33.2	S02°21.3					
1	358°24.7	224°39.5	40.5	161°49.7	49.2	248°28.4	08.8	357°35.8	21.4					
2	13°27.1	239°38.9	39.8	176°50.6	49.8	263°30.4	08.7	12°38.4	21.5					
3	28°29.6	254°38.3	.. 39.1	191°51.6	.. 50.5	278°32.4	.. 08.6	27°41.1	.. 21.5					
4	43°32.0	269°37.7	38.3	206°52.5	51.1	293°34.4	08.6	42°43.7	21.6					
5	58°34.5	284°37.1	37.6	221°53.5	51.8	308°36.4	08.5	57°46.3	21.7					
6	73°37.0	299°36.5	N17°36.9	236°54.5	S06°52.4	323°38.4	N22°08.5	72°48.9	S02°21.8					
7	88°39.4	314°35.9	36.2	251°55.4	53.1	338°40.4	08.4	87°51.6	21.8					
8	103°41.9	329°35.3	35.5	266°56.4	53.7	353°42.4	08.4	102°54.2	21.9					
9	118°44.4	344°34.7	.. 34.8	281°57.3	.. 54.4	8°44.4	.. 08.3	117°56.8	.. 22.0					
10	133°46.8	359°34.1	34.0	296°58.3	55.0	23°46.4	08.3	132°59.4	22.1					
11	148°49.3	14°33.5	33.3	311°59.2	55.7	38°48.4	08.2	148°02.1	22.1					
12	163°51.8	29°32.9	N17°32.6	327°00.2	S06°56.3	53°50.4	N22°08.1	163°04.7	S02°22.2					
13	178°54.2	44°32.2	31.9	342°01.1	57.0	68°52.4	08.1	178°07.3	22.3					
14	193°56.7	59°31.6	31.2	357°02.1	57.6	83°54.4	08.0	193°09.9	22.4					
15	208°59.2	74°31.0	.. 30.4	12°03.0	.. 58.3	98°56.4	.. 08.0	208°12.6	.. 22.5					
16	224°01.6	89°30.4	29.7	27°04.0	58.9	117°55.4	07.9	223°55.2	22.5					
17	239°04.1	104°29.8	28.0	42°05.0	06°59.6	129°00.4	07.9	238°17.8	22.6					
18	254°06.5	119°29.2	N17°28.3	57°05.9	S07°00.2	144°02.4	N22°07.8	253°20.5	S02°22.7					
19	269°09.0	134°28.6	27.5	72°06.9	00.9	159°04.4	07.8	268°23.1	22.8					
20	284°11.5	149°28.0	26.8	87°07.8	01.5	174°06.4	07.7	283°25.7	22.8					
21	299°13.9	164°27.4	.. 26.1	102°08.8	.. 02.1	189°08.4	.. 07.7	298°28.3	.. 22.9					
22	314°16.4	179°26.8	25.0	117°09.7	02.8	204°10.4	07.6	313°31.0	23.0					
23	329°18.9	194°26.2	24.6	132°10.7	03.4	219°12.4	07.5	328°33.6	23.1					
Mer.pass. 01:06 ν -0.6° d -0.7° m -3.94 ν 1.0° d -0.6° m 1.62 ν 2.0° d -0.1° m -2.00 ν 2.6° d -0.1° m 0.64														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	344°21.3	209°25.6	N17°23.9	147°11.6	S07°04.1	234°14.4	N22°07.5	343°36.2	S02°23.1
1	359°23.8	224°25.0	23.2	162°12.6	04.7	249°16.4	07.4	358°38.8	23.2
2	14°26.3	239°24.4	22.4	177°13.5	05.4	264°18.4	07.4	13°41.5	23.3
3	29°28.7	254°23.8	.. 21.7	192°14.5	.. 06.0	279°20.4	.. 07.3	28°44.1	.. 23.4
4	44°31.2	269°23.2	21.0	207°15.4	06.7	294°22.4	07.3	43°46.7	23.4
5	59°33.7	284°22.6	20.2	222°16.4	07.3	309°24.4	07.2	58°49.4	23.5
6	74°36.1	299°22.0	N17°19.5	237°17.3	S07°08.0	324°26.4	N22°07.2	73°52.0	S02°23.6
7	89°38.6	314°21.4	18.7	252°18.3	08.6	339°28.4	07.1	88°54.6	23.7
8	104°41.0	329°20.8	18.0	267°19.2	09.3	354°30.4	07.0	103°57.2	23.7
9	119°43.5	344°20.2	.. 17.3	282°20.2	.. 09.9	9°32.4	.. 07.0	118°59.9	.. 23.8
10	134°46.0	359°19.6	16.5	297°21.1	10.6	24°34.4	06.9	134°02.5	23.9
11	149°48.4	14°19.0	15.8	312°22.1	11.2	39°36.4	06.9	149°05.1	24.0
12	164°50.9	29°18.4	N17°15.0	327°23.0	S07°11.8	54°38.4	N22°06.8	164°07.8	S02°24.1
13	179°53.4	44°17.8	14.3	342°24.0	12.5	69°40.4	06.8	179°10.4	24.1
14	194°55.8	59°17.2	13.6	357°24.9	13.1	84°42.4	06.7	194°13.0	24.2
15	209°58.3	74°16.6	.. 12.8	12°25.9	.. 13.8	99°44.4	.. 06.7	209°15.6	.. 24.3
16	225°00.8	89°16.0	12.1	27°26.8	14.4	114°46.4	06.6	224°18.3	24.4
17	240°03.2	104°15.4	11.3	42°27.8	15.1	129°48.4	06.5	239°20.9	24.5
18	255°05.7	119°14.8	N17°10.6	57°28.7	S07°15.7	144°50.4	N22°06.5	254°23.5	S02°24.5
19	270°08.1	134°14.2	09.8	72°29.7	16.4	159°52.4	06.4	269°26.2	24.6
20	285°10.6	149°13.6	09.1	87°30.6	17.0	174°54.4	06.4	284°28.8	24.7
21	300°13.1	164°13.0	.. 08.3	102°31.6	.. 17.7	189°56.4	.. 06.3	299°31.4	.. 24.7
22	315°15.5	179°12.4	07.6	117°32.5	18.3	204°58.4	06.3	314°34.0	24.8
23	330°18.0	194°11.9	06.8	132°33.5	19.0	220°00.4	06.2	329°36.7	24.9
Mer.pass. 01:02 ν -0.6° d -0.7° m -3.94 ν 1.0° d -0.6° m 1.62 ν 2.0° d -0.1° m -2.01 ν 2.6° d -0.1° m 0.64									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	345°20.5	209°11.3	N17°06.1	147°34.4	S07°19.6	235°02.4	N22°06.2	344°39.3	S02°25.0
1	0°22.9	224°10.7	05.3	162°35.4	20.2	250°04.4	09.1	359°41.9	25.1
2	15°25.4	239°10.1	04.6	177°36.3	20.9	265°06.4	09.1	14°44.6	25.1
3	30°27.9	254°09.5	.. 03.8	192°37.3	.. 21.5	280°08.4	.. 06.0	29°47.2	.. 25.2
4	45°30.3	269°08.9	03.1	207°38.2	22.2	295°10.4	05.9	44°49.8	25.3
5	60°32.8	284°08.3	02.3	222°39.2	22.8	310°12.4	05.9	59°52.4	25.4
6	75°35.3	299°07.7	N17°01.6	237°40.1	S07°23.5	325°14.4	N22°05.8	74°55.1	S02°25.4
7	90°37.7	314°07.1	00.8	252°41.1	24.1	340°16.5	05.8	89°57.7	25.5
8	105°40.2	329°06.5	17°00.0	267°42.0	24.8	355°18.5	05.7	105°00.3	25.6
9	120°42.6	344°05.9	16°59.3	282°43.0	.. 25.4	10°20.5	.. 05.7	120°03.0	.. 25.7
10	135°45.1	359°05.3	58.5	297°43.9	26.1	25°22.5	05.6	135°05.6	25.7
11	150°47.6	14°04.7	57.8	312°44.8	26.7	40°24.5	05.6	150°08.2	25.8
12	165°50.0	29°04.1	N16°57.0	327°45.8	S07°27.3	55°26.5	N22°05.5	165°10.8	S02°25.9
13	180°52.5	44°03.6	56.2	342°46.7	28.0	70°28.5	05.4	180°13.5	26.0
14	195°55.0	59°03.0	55.5	357°47.7	28.6	85°30.5	05.4	195°16.1	26.1
15	210°57.4	74°02.4	.. 54.7	12°48.6	.. 29.3	100°32.5	.. 05.3	210°18.7	.. 26.1
16	225°59.9	89°01.8	53.9	27°49.6	29.9	115°34.5	05.3	225°21.4	26.2
17	241°02.4	104°01.2	53.2	42°50.5	30.6	130°36.5	05.2	240°24.0	26.3
18	256°04.8	119°00.6	N16°52.4	57°51.5	S07°31.2	145°38.5	N22°05.2	255°26.6	S02°26.4
19	271°07.3	134°00.0	51.6	72°52.4	31.9	160°40.5	05.1	270°29.3	26.4
20	286°09.8	148°59.4	50.9	87°53.4	32.5	175°42.5	05.1	285°31.9	26.5
21	301°12.2	163°58.8	.. 50.1	102°54.3	.. 33.1	190°44.6	.. 05.0	300°34.5	.. 26.6
22	316°14.7	178°58.3	49.3	117°55.2	33.8	205°46.6	05.0	315°37.2	26.7
23	331°17.1	193°57.7	48.6	132°56.2	34.4	220°48.6	04.9	330°39.8	26.8
Mer.pass. 00:58 ν -0.6° d -0.8° m -3.94 ν 0.9° d -0.6° m 1.62 ν 2.0° d -0.1° m -2.01 ν 2.6° d -0.1° m 0.63									

Stars	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.2	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.3	-57°06.1
Hamal	327°50.4	23°35.1
Polaris	313°33.6	89°22.1
Acamar	315°11.1	-40°11.8
Menkar	314°05.4	4°11.6
Mirafak	308°27.3	49°57.0
Aldebaran	290°39.0	16°33.7
Rigel	281°03.4	-8°10.1
Capella	280°21.1	46°01.3
Bellatrix	278°22.3	6°22.5
Elnath	278°01.2	28°37.7
Alnilam	275°37.2	-1°11.0
Betelgeuse	270°51.6	7°24.8
Canopus	263°52.4	-52°42.2
Sirius	258°25.9	-16°44.8
Adhara	255°05.6	-29°00.1
Procyon	244°50.5	5°09.7
Pollux	243°16.9	27°57.9
Avior	234°15.0	-59°35.2
Suhail	222°46.3	-43°32.0
Miaplacidus	221°39.1	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°50.6
Dubhe	193°41.0	61°36.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acruz	173°00.2	-63°14.6
Gacrux	171°51.6	-57°15.5
Alioth	166°12.0	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.7	-60°30.0
Menkent	147°57.2	-36°29.8
Arcturus	145°47.6	19°03.1
Rigil Kent.	139°39.9	-60°56.7
Kochab	136°55.6	74°03.2
Zuben'ubi	126°03.4	-16°08.9
Alphecca	112°15.2	26°37.9
Antares	112°15.2	-26°29.4
Atria	107°08.9	69°04.7
Sabik	102°02.1	-15°45.4
Shaula	96°09.5	-37°07.4
Rasalhague	95°58.0	12°32.6
Eltanin	90°41.8	51°29.4
Kaus Aust.	83°31.6	-34°22.4
Vega	80°32.7	38°48.7
Nunki	75°46.9	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.4	-56°39.2
Deneb	49°25.1	45°22.5
Enif	33°37.9	9°59.7
Al Na'ir	27°31.7	-46°50.1
Fomalhaut	15°13.5	-29°29.0
Scheat	13°44.3	28°13.4
Markab	13°29.0	15°20.7

Sep 04 Thu	SHA	Mer.pass
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Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	346°19.6	208°57.1	N16°47.8	147°57.1	S07°35.1	235°50.6	N22°04.8	345°42.4	S02°26.8										
1	1°22.1	223°56.5	47.0	162°58.1	35.7	250°52.6	04.8	0°45.0	26.9										
2	16°24.5	238°55.9	46.2	177°59.0	36.4	265°54.6	04.7	15°47.0	27.0										
3	31°27.0	253°55.3	.. 45.5	193°00.0	.. 37.0	280°56.6	.. 04.7	30°50.3	.. 27.1										
4	46°29.5	268°54.7	44.7	208°00.9	37.7	295°58.6	04.6	45°52.9	27.1										
5	61°31.9	283°54.2	43.9	223°01.9	38.3	311°00.6	04.6	60°55.6	27.2										
6	76°34.4	298°53.6	N16°43.1	238°02.8	S07°38.9	326°02.6	N22°04.5	75°58.2	S02°27.3										
7	91°36.9	313°53.0	42.4	253°03.7	39.6	341°06.4	04.5	91°00.8	27.4										
8	106°39.3	328°52.4	41.6	268°04.7	40.2	356°04.7	04.4	106°03.5	27.4										
9	121°41.8	343°51.8	.. 40.8	283°05.6	.. 40.9	383°05.6	.. 04.3	121°06.1	.. 27.5										
10	136°44.2	358°51.2	40.0	298°06.6	41.5	26°10.7	27.6	136°08.7	27.6										
11	151°46.7	13°50.6	39.2	313°07.5	42.2	41°12.7	04.2	151°11.4	27.7										
12	166°49.2	28°50.1	N16°38.5	328°08.5	S07°42.8	56°14.7	N22°04.2	166°14.0	S02°27.8										
13	181°51.6	43°49.5	37.7	343°09.4	43.4	71°16.7	04.1	181°16.6	27.8										
14	196°54.1	58°48.9	36.9	358°10.3	44.1	86°18.7	04.1	196°19.2	27.9										
15	211°56.6	73°48.3	.. 36.1	13°11.3	.. 44.7	101°20.7	.. 04.0	211°21.9	.. 28.0										
16	226°59.0	88°47.7	35.3	28°12.2	45.4	116°22.7	04.0	226°24.5	28.1										
17	242°01.5	103°47.1	34.5	43°13.2	46.0	131°24.8	03.9	241°27.1	28.1										
18	257°04.0	118°46.6	N16°33.8	58°14.1	S07°46.7	146°26.8	N22°03.9	256°29.8	S02°28.2										
19	272°06.4	133°46.0	33.0	73°15.0	47.3	161°28.8	03.8	271°32.4	28.3										
20	287°08.9	148°45.4	32.2	88°16.0	48.0	176°30.8	03.7	286°35.0	28.4										
21	302°11.4	163°44.8	.. 31.4	103°16.9	.. 48.6	191°32.8	.. 03.7	301°37.7	.. 28.5										
22	317°13.8	178°44.2	30.6	118°17.9	49.2	206°34.8	03.6	316°40.3	28.5										
23	332°16.3	193°43.7	29.8	133°18.8	49.9	221°36.8	03.6	331°42.9	28.6										
Mer.pass. 00:55				ν -0.6° d -0.8° m -3.94				ν 0.9° d -0.6° m 1.62				ν 2.0° d -0.1° m -2.01				ν 2.6° d -0.1° m 0.63			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	347°18.7	208°43.1	N16°29.0	148°19.7	S07°50.5	236°38.8	N22°03.5	346°45.6	S02°28.7										
1	2°21.2	223°42.5	28.2	163°20.7	51.2	251°40.9	03.5	1°48.2	28.8										
2	17°23.7	238°41.9	27.4	178°21.6	51.8	266°42.9	03.4	16°50.8	28.8										
3	32°26.1	253°41.3	.. 26.6	193°22.6	.. 52.5	281°44.9	.. 03.4	31°53.5	.. 28.9										
4	47°28.6	268°40.8	25.8	208°23.5	53.1	296°46.9	03.3	46°56.1	29.0										
5	62°31.1	283°40.2	25.0	223°24.4	53.7	311°48.9	03.3	61°58.7	29.1										
6	77°33.5	298°39.6	N16°24.2	238°25.4	S07°54.4	326°50.9	N22°03.2	77°01.4	S02°29.2										
7	92°36.0	313°39.0	23.5	253°26.3	55.0	341°52.9	03.1	92°04.0	29.2										
8	107°38.5	328°38.5	22.7	268°27.3	55.7	356°55.0	03.1	107°06.6	29.3										
9	122°40.9	343°37.9	.. 21.9	283°28.2	.. 56.3	11°57.0	.. 03.0	122°09.3	.. 29.4										
10	137°43.4	358°37.3	21.1	298°29.1	57.0	26°59.0	03.0	137°11.9	29.5										
11	152°45.8	13°36.7	20.3	313°30.1	57.6	42°01.0	02.9	152°14.5	29.5										
12	167°48.3	28°36.2	N16°19.5	328°31.0	S07°58.2	57°03.0	N22°02.9	167°17.1	S02°29.6										
13	182°50.8	43°35.6	18.7	343°31.9	58.9	72°05.0	02.8	182°19.8	29.6										
14	197°53.2	58°35.0	17.8	358°32.9	07°59.5	87°07.1	02.8	197°22.4	29.8										
15	212°55.7	73°34.4	.. 17.0	13°33.8	08°00.2	102°09.1	.. 02.7	212°25.0	.. 29.9										
16	227°58.2	88°33.9	16.2	28°34.8	00.8	117°11.1	02.6	227°27.7	29.9										
17	243°00.6	103°33.3	15.4	43°35.7	01.5	132°13.1	02.6	242°30.3	30.0										
18	258°03.1	118°32.7	N16°14.6	58°36.6	S08°02.1	147°15.1	N22°02.5	257°32.9	S02°30.1										
19	273°05.6	133°32.1	13.8	73°37.6	02.7	162°17.1	02.5	272°35.6	30.2										
20	288°08.0	148°31.6	13.0	88°38.5	03.4	177°19.2	02.4	287°38.2	30.2										
21	303°10.5	163°31.0	.. 12.2	103°39.4	.. 04.0	192°21.2	.. 02.4	302°40.8	.. 30.3										
22	318°13.0	178°30.4	11.4	118°40.4	04.7	207°23.2	02.3	317°43.5	30.4										
23	333°15.4	193°29.8	10.6	133°41.3	05.3	222°25.2	02.3	332°46.1	30.5										
Mer.pass. 00:51				ν -0.6° d -0.8° m -3.94				ν 0.9° d -0.6° m 1.62				ν 2.0° d -0.1° m -2.02				ν 2.6° d -0.1° m 0.63			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	348°17.9	208°29.3	N16°09.8	148°42.2	S08°05.9	237°27.2	N22°02.2	347°48.7	S02°30.6										
1	3°20.3	223°28.7	09.0	163°43.2	06.6	252°29.2	02.2	2°51.4	30.6										
2	18°22.8	238°28.1	08.1	178°44.1	07.2	267°31.3	02.1	17°54.0	30.7										
3	33°25.3	253°27.6	.. 07.3	193°45.0	.. 07.9	282°33.3	.. 02.0	32°56.6	.. 30.8										
4	48°27.7	268°27.0	06.5	208°46.0	08.5	297°35.3	02.0	47°59.3	30.9										
5	63°30.2	283°26.4	05.7	223°46.9	09.2	312°37.3	01.9	63°01.9	30.9										
6	78°32.7	298°25.8	N16°04.9	238°47.8	S08°09.8	327°39.3	N22°01.9	78°04.5	S02°31.0										
7	93°35.1	313°25.3	04.1	253°48.8	10.4	342°41.4	01.8	93°07.2	31.1										
8	108°37.6	328°24.7	03.3	268°49.7	11.1	357°43.4	01.8	108°09.8	31.2										
9	123°40.1	343°24.1	.. 02.4	283°50.7	.. 11.7	12°45.4	.. 01.7	123°12.4	.. 31.3										
10	138°42.5	358°23.6	01.6	298°51.6	12.4	27°47.4	01.7	138°15.1	31.3										
11	153°45.0	13°23.0	00.8	313°52.5	13.0	42°49.4	01.6	153°17.7	31.4										
12	168°47.4	28°22.4	N16°00.0	328°53.5	S08°13.6	57°51.5	N22°01.6	168°20.3	S02°31.5										
13	183°49.9	43°21.9	15°59.2	343°54.4	14.3	72°53.5	01.5	183°23.0	31.6										
14	198°52.4	58°21.3	58.3	358°55.3	14.9	87°55.5	01.4	198°25.6	31.6										
15	213°54.8	73°20.7	.. 57.5	13°56.2	.. 15.6	102°57.5	.. 01.4	213°28.2	.. 31.7										
16	228°57.3	88°20.2	56.7	28°57.2	16.2	117°59.5	01.3	228°30.9	31.8										
17	243°59.8	103°19.6	55.9	43°58.1	16.8	133°01.6	01.3	243°33.5	31.9										
18	259°02.2	118°19.0	N15°55.0	58°59.0	S08°17.5	148°03.6	N22°01.2	258°36.1	S02°32.0										
19	274°04.7	133°18.5	54.2	74°00.0	18.1	163°05.6	01.2	273°38.8	32.0										
20	289°07.2	148°17.9	53.4	89°00.9	18.8	178°07.6	01.1	288°44.4	32.1										
21	304°09.6	163°17.3	.. 52.6	104°01.8	.. 19.4	193°09.7	.. 01.1	303°44.0	.. 32.2										
22	319°12.1	178°16.8	51.7	119°02.8	20.0	208°11.7	01.0	318°46.7	32.3										
23	334°14.6	193°16.2	50.9	134°03.7	20.7	223°13.7	01.0	333°49.3	32.4										
Mer.pass. 00:47				ν -0.6° d -0.8° m -3.94				ν 0.9° d -0.6° m 1.61				ν 2.0° d -0.1° m -2.02				ν 2.6° d -0.1° m 0.62			

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.2	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.3	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°32.3	89°22.1
Acamar	315°11.1	-40°11.8
Menkar	314°05.4	4°11.6
Mirfak	308°27.3	49°57.0
Aldebaran	290°39.0	16°33.7
Rigel	281°03.4	-8°10.1
Capella	280°21.1	46°01.3
Bellatrix	278°22.3	6°22.5
Elnath	278°01.2	28°37.2
Alnilam	275°37.2	-1°11.0
Betelgeuse	270°51.6	7°24.8
Canopus	263°52.3	-52°42.2
Sirius	258°25.9	-16°44.8
Adhara	255°05.6	-29°00.1
Procyon	244°50.5	5°09.7
Pollux	243°16.9	27°57.9
Avior	234°15.0	-59°35.2
Suhail	222°46.3	-43°32.0
Miaplacidus	221°39.0	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°36.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.6
Gacrux	171°51.6	-57°15.5
Alioth	166°12.9	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.7	-60°30.0
Menkent	147°57.2	-36°29.8
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°40.0	-60°56.7
Kochab	137°20.3	74°03.2
Zuben el	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°29.4
Atria	107°08.9	69°04.7
Sabik	102°02.1	-15°45.4
Shaula	96°09.6	-37°07.4
Rasalhague	95°58.0	12°32.6
Eltanin	90°41.8	51°29.4
Kaus Aus.	83°31.6	-34°22.4
Vega	80°32.7	38°48.7
Nunki	75°46.9	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°44.8	-56°39.2
Deneb	40°25.3	9°59.7
Enif	33°38.0	9°59.7
Al Na'ir	27°31.7	-46°50.1
Fomalhaut	15°13.5	-29°29.0
Scheat	13°44.3	28°13.5
Markab	13°29.0	15°20.7
Sep 07 Mon	SHA	Mer.pass
Venus	222°37.5	10:05
Mars	161°37.5	14:07
Jupiter	249°31.0	08:16
Saturn	359°22.8	00:57
Sep 08 Mon	SHA	Mer.pass
Venus	221°24.3	10:06
Mars	161°01.0	14:06
Jupiter	249°20.1	08:12
Saturn	359°26.8	00:53
Sep 09 Tue	SHA	Mer.pass
Venus	223°11.4	10:06
Mars	160°24.4	14:05
Jupiter	249°09.3	08:09
Saturn	359°30.9	00:49
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	349°17.0	208°15.6	N15°50.1	149°04.6	S08°21.3	238°15.7	N22°00.9	348°52.0	S02°32.4										
1	4°19.5	223°15.1	49.2	164°05.6	22.0	253°17.7	00.8	3°54.6	32.5										
2	19°21.1	238°14.5	48.4	179°06.5	22.6	268°19.8	00.8	18°57.2	32.6										
3	34°24.4	253°13.9	· · 47.6	194°07.4	· · 23.3	283°21.8	· · 00.7	33°59.9	· · 32.7										
4	49°26.9	268°13.4	46.7	209°08.4	23.9	298°23.8	00.7	49°05.2	32.7										
5	64°29.3	283°12.8	45.9	224°09.3	24.5	313°25.8	00.6	64°05.1	32.8										
6	79°31.8	298°12.3	N15°45.1	239°10.2	S08°25.2	328°27.9	N22°00.6	79°07.6	S02°32.9										
7	94°34.3	313°11.7	44.2	254°11.1	25.8	343°29.9	00.5	94°10.4	33.0										
8	109°36.7	328°11.1	43.4	269°12.1	26.4	358°31.9	00.5	109°13.0	33.1										
9	124°39.2	343°10.6	· · 42.6	284°13.0	· · 27.1	13°33.9	· · 00.4	124°15.7	· · 33.1										
10	139°41.7	358°10.0	41.7	299°13.9	27.7	28°36.0	00.4	139°18.3	33.2										
11	154°44.1	13°09.4	40.9	314°14.9	28.4	43°38.0	00.3	154°20.9	33.3										
12	169°46.6	28°08.9	N15°40.0	329°15.8	S08°29.0	58°40.0	N22°00.2	169°23.6	S02°33.4										
13	184°49.0	43°08.3	39.2	344°16.7	29.6	73°42.0	00.2	184°26.2	33.4										
14	199°51.5	58°07.8	38.4	359°17.6	30.3	88°44.1	00.1	199°28.8	33.5										
15	214°54.0	73°07.2	· · 37.5	14°18.6	· · 30.9	103°46.1	· · 00.1	214°31.5	· · 33.6										
16	229°56.4	88°06.6	36.7	29°19.5	31.6	118°48.1	00.0	229°34.1	33.7										
17	244°58.9	103°06.1	35.8	44°20.4	32.2	133°50.1	22°00.0	244°36.7	33.8										
18	260°01.4	118°05.5	N15°35.0	59°21.4	S08°32.8	148°52.2	N21°59.9	259°39.4	S02°33.8										
19	275°03.8	133°05.0	34.1	74°22.3	33.5	163°54.2	59.9	274°42.0	33.9										
20	290°06.3	148°04.4	33.3	89°23.2	34.1	178°56.2	59.9	289°44.6	34.0										
21	305°08.8	163°03.9	· · 32.5	104°24.1	· · 34.8	193°58.2	· · 59.8	304°47.3	· · 34.1										
22	320°11.2	178°03.3	31.6	119°25.1	35.4	209°00.3	59.7	319°139.9	34.2										
23	335°13.7	193°02.7	30.8	134°26.0	36.0	224°02.3	59.6	334°52.6	34.2										
Mer.pass. 00:43				ν -0.6' d -0.8' m -3.94				ν 0.9' d -0.6' m 1.61				ν 2.0' d -0.1' m -2.02				ν 2.6' d -0.1' m 0.62			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	350°16.2	208°02.2	N15°29.9	149°26.9	S08°36.7	239°04.3	N21°59.6	349°55.2	S02°34.3
1	5°18.6	223°01.6	29.1	164°27.8	37.3	254°06.4	59.5	4°57.8	34.4
2	20°21.1	238°01.1	28.2	179°28.8	38.0	269°08.4	59.5	20°00.5	34.5
3	35°23.5	253°00.5	· · 27.4	194°29.7	· · 38.6	284°10.4	· · 59.4	35°03.1	· · 34.5
4	50°26.0	268°00.0	26.5	209°30.6	39.2	299°12.4	59.4	50°05.7	34.6
5	65°28.5	282°59.4	25.7	224°31.5	39.9	314°14.5	59.3	65°08.4	34.7
6	80°30.9	297°58.8	N15°24.8	239°32.5	S08°40.5	329°16.5	N21°59.3	80°11.0	S02°34.8
7	95°33.4	312°58.3	23.9	254°33.4	41.1	344°18.5	59.2	95°13.6	34.9
8	110°35.9	327°57.7	23.1	269°34.3	41.8	359°20.6	59.2	110°16.3	34.9
9	125°38.3	342°57.2	· · 22.2	284°35.2	· · 42.4	14°22.6	· · 59.1	125°18.9	· · 35.0
10	140°40.8	357°56.6	21.4	299°36.2	43.1	29°24.6	59.0	140°21.5	35.1
11	155°43.3	12°56.1	20.5	314°37.1	43.7	44°26.6	59.0	155°24.2	35.2
12	170°45.7	27°55.5	N15°19.7	329°38.0	S08°44.3	59°28.7	N21°58.9	170°26.8	S02°35.3
13	185°48.2	42°55.0	18.8	344°38.9	45.0	74°30.7	58.9	185°29.5	35.3
14	200°50.7	57°54.4	17.9	359°39.9	45.6	89°32.7	58.8	200°32.1	35.4
15	215°53.1	72°53.9	· · 17.1	14°40.8	· · 46.3	104°34.8	· · 58.8	215°34.7	· · 35.5
16	230°55.6	87°53.3	16.2	29°41.7	46.9	119°36.8	58.7	230°37.4	35.6
17	245°58.0	102°52.8	15.4	44°42.6	47.5	134°38.8	58.7	245°40.0	35.6
18	261°00.5	117°52.2	N15°14.5	59°43.6	S08°48.2	149°40.9	N21°58.6	260°42.6	S02°35.7
19	276°03.0	132°51.7	13.6	74°44.5	48.8	164°42.9	58.6	275°45.3	35.8
20	291°05.4	147°51.1	12.8	89°45.4	49.4	179°44.9	58.5	290°47.9	35.9
21	306°07.9	162°50.6	· · 11.9	104°46.3	· · 50.1	194°46.9	· · 58.4	305°50.5	· · 36.0
22	321°10.4	177°50.0	11.0	119°47.2	50.7	209°49.0	58.4	320°53.2	36.0
23	336°12.8	192°49.5	10.2	134°48.2	51.4	224°51.0	58.3	335°55.8	36.1
Mer.pass. 00:39 ν -0.6' d -0.8' m -3.94 ν 0.9' d -0.6' m 1.61 ν 2.0' d -0.1' m -2.03 ν 2.6' d -0.1' m 0.61									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	351°15.3	207°48.9	N15°09.3	149°49.1	S08°52.0	239°53.0	N21°58.3	350°58.5	S02°36.2										
1	6°17.8	222°48.4	08.4	164°50.0	52.6	254°55.1	58.2	6°01.1	36.3										
2	21°20.2	237°47.8	07.6	179°50.9	53.3	269°57.1	58.2	21°03.7	36.4										
3	36°22.7	252°47.3	· · 06.7	194°51.9	· · 53.9	284°59.1	· · 58.1	36°06.4	· · 36.4										
4	51°25.1	267°46.7	05.8	209°52.8	54.5	300°01.2	58.1	51°09.0	36.5										
5	66°27.6	282°46.2	05.0	224°53.7	55.2	315°03.2	58.0	66°11.6	36.6										
6	81°30.1	297°45.6	N15°04.1	239°54.6	S08°55.8	330°05.2	N21°58.0	81°14.3	S02°36.7										
7	96°32.5	312°45.1	03.2	254°55.5	56.4	345°07.3	57.9	96°16.9	36.7										
8	111°35.0	327°44.5	02.3	269°56.5	57.1	0°09.3	57.8	111°19.5	36.8										
9	126°37.5	342°44.0	· · 01.5	284°57.4	· · 57.7	15°11.3	· · 57.8	126°22.2	· · 36.9										
10	141°39.9	357°43.4	15°00.6	299°58.3	58.4	30°13.4	57.7	141°24.8	37.0										
11	156°42.4	12°42.9	14°59.7	314°59.2	59.0	45°15.4	57.7	156°27.5	37.1										
12	171°44.9	27°42.3	N14°58.8	330°00.1	S08°59.6	60°17.4	N21°57.6	171°30.1	S02°37.1										
13	186°47.3	42°41.8	58.0	345°01.1	09°03.3	75°19.5	57.6	186°32.7	37.2										
14	201°49.8	57°41.3	57.1	0°02.0	00.9	90°21.5	57.5	201°35.4	37.3										
15	216°52.3	72°40.7	· · 56.2	15°02.9	· · 01.5	105°23.6	· · 57.5	216°38.0	· · 37.4										
16	231°54.7	87°40.2	55.3	30°03.8	02.2	120°25.6	57.4	231°40.6	37.5										
17	246°57.2	102°39.6	54.4	45°04.7	02.8	135°27.6	57.4	246°43.3	37.5										
18	261°59.6	117°39.1	N14°53.6	60°05.6	S09°03.4	150°29.7	N21°57.3	261°45.9	S02°37.6										
19	277°02.1	132°38.5	52.7	75°06.6	04.1	165°31.7	57.3	277°08.2	37.7										
20	292°04.6	147°38.0	51.8	90°07.5	04.7	180°33.7	57.2	291°51.2	37.8										
21	307°07.0	162°37.5	· · 50.9	105°08.4	· · 05.4	195°35.8	· · 57.1	307°53.8	· · 37.9										
22	322°09.5	177°36.9	50.0	120°09.3	06.0	210°37.8	57.1	321°56.5	37.9										
23	337°12.0	192°36.4	49.2	135°10.2	06.6	225°39.8	57.0	336°59.1	38.0										
Mer.pass. 00:35				ν -0.5' d -0.9' m -3.94				ν 0.9' d -0.6' m 1.61				ν 2.0' d -0.1' m -2.03				ν 2.6' d -0.1' m 0.61			

Stars		
SHA	Dec	
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.2	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.3	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°30.9	89°22.1
Acamar	315°11.1	-40°11.8
Menkar	310°05.4	4°11.6
Mirafak	308°27.3	49°57.0
Aldebaran	299°38.9	16°33.7
Rigel	281°03.3	-8°10.1
Capella	280°21.1	46°01.3
Bellatrix	278°22.3	6°22.5
Elmath	278°01.2	28°37.7
Alnilam	275°37.2	-1°11.0
Betelgeuse	270°51.5	7°24.8
Canopus	263°52.3	-52°42.2
Sirius	268°25.9	-16°44.8
Adhara	255°05.6	-29°00.1
Procyon	244°50.4	5°09.7
Pollux	243°16.8	27°57.9
Avior	234°15.0	-59°35.2
Suhail	222°46.3	-43°31.9
Miaplacidus	221°39.0	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.2	11°50.6
Dubhe	193°40.9	61°36.8
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.5
Alloth	166°12.9	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.7	-60°30.0
Menkent	147°57.3	-36°29.8
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°40.0	-60°56.7
Kochab	137°20.4	74°03.2
Ukaiab	126°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°04.7

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	352°14.4	207°35.8	N14°48.3	150°11.2	S09°07.3	240°41.9	N21°57.0	352°01.7	S02°38.1										
1	7°16.9	222°35.3	47.4	165°12.1	07.9	255°43.9	56.9	7°04.0	38.2										
2	22°19.4	237°34.7	46.5	180°13.0	08.5	270°46.0	56.9	22°07.4	38.2										
3	37°21.8	252°34.2	.. 45.6	195°13.9	.. 09.2	285°48.0	.. 56.8	37°09.7	.. 38.3										
4	52°24.3	267°33.7	44.7	210°14.8	09.8	300°50.0	56.8	52°12.3	38.4										
5	67°26.8	282°33.1	43.8	225°15.7	10.4	315°52.1	56.7	67°14.9	38.5										
6	82°29.2	297°32.6	N14°42.9	240°16.7	S09°11.3	330°54.1	N21°56.7	82°17.6	S02°38.6										
7	97°31.7	312°32.0	42.1	255°17.6	11.7	345°56.1	56.6	97°20.2	38.6										
8	112°34.1	327°31.5	41.2	270°18.5	12.3	0°58.2	56.5	112°22.8	38.7										
9	127°36.6	342°31.0	.. 40.3	285°19.4	.. 13.0	16°00.2	.. 56.5	127°25.5	.. 38.8										
10	142°39.1	357°30.4	39.4	300°20.3	13.6	31°02.3	56.4	142°28.1	38.9										
11	157°41.5	12°29.9	38.5	315°21.2	14.3	46°04.3	56.4	157°30.8	39.0										
12	172°44.0	27°29.4	N14°37.6	330°22.1	S09°14.9	61°06.3	N21°56.3	172°33.4	S02°39.0										
13	187°46.5	42°28.8	36.7	345°23.1	15.5	76°08.4	56.3	187°36.0	39.1										
14	202°48.9	57°28.3	35.8	0°24.0	16.2	91°10.4	56.2	202°38.7	39.2										
15	217°51.4	72°27.7	.. 34.9	15°24.9	.. 16.8	106°12.5	.. 56.2	217°41.3	.. 39.3										
16	232°53.9	87°27.2	34.0	30°35.8	17.4	121°14.5	56.1	232°43.9	39.4										
17	247°56.3	102°26.7	33.1	45°26.7	18.1	136°16.5	56.1	247°46.6	39.4										
18	262°58.8	117°26.1	N14°32.2	60°27.6	S09°18.7	151°18.6	N21°56.0	262°49.2	S02°39.5										
19	278°01.3	132°25.6	31.3	75°28.5	19.3	166°20.6	56.0	277°51.9	39.6										
20	293°03.7	147°25.1	30.4	90°29.5	20.0	181°22.7	55.9	292°54.5	39.7										
21	308°06.2	162°24.5	.. 29.5	105°30.4	.. 20.6	196°24.7	.. 55.8	307°57.1	.. 39.7										
22	323°08.6	177°24.0	28.6	120°31.3	21.2	211°26.8	55.8	322°59.8	39.8										
23	338°11.1	192°23.5	27.7	135°32.2	21.9	226°28.8	55.7	338°02.4	39.9										
Mer.pass. 00:31				ν -0.5° d -0.9° m -3.94				ν 0.9° d -0.6° m 1.61				ν 2.0° d -0.1° m -2.04				ν 2.6° d -0.1° m 0.61			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	353°13.6	207°22.9	N14°26.8	150°33.1	S09°22.5	241°30.8	N21°55.7	353°05.1	S02°40.0
1	8°16.0	222°22.4	25.9	165°34.0	23.1	256°32.9	55.6	8°07.7	40.1
2	23°18.5	237°21.9	25.0	180°34.9	23.8	271°34.9	55.6	23°03.1	40.1
3	38°21.0	252°21.3	.. 24.1	195°35.8	.. 24.4	286°37.0	.. 55.5	38°13.0	.. 40.2
4	53°23.4	267°20.8	23.2	210°36.7	25.0	301°39.0	55.5	53°15.6	40.3
5	68°25.9	282°20.3	22.3	225°37.7	25.7	316°41.1	55.4	68°18.2	40.4
6	83°28.4	297°19.7	N14°21.4	240°38.6	S09°26.3	331°43.1	N21°55.4	83°20.9	S02°40.5
7	98°30.8	312°19.2	20.5	255°39.5	26.9	346°45.1	55.3	98°23.5	40.5
8	113°33.3	327°18.7	19.6	270°40.4	27.6	1°47.2	55.3	113°26.2	40.6
9	128°35.8	342°18.1	.. 18.6	285°41.3	.. 28.2	16°49.2	.. 55.2	128°28.8	.. 40.7
10	143°38.2	357°17.6	17.7	300°42.2	28.8	31°51.3	55.1	143°31.4	40.8
11	158°40.7	12°17.1	16.8	315°43.1	29.5	46°53.3	55.1	158°34.1	40.9
12	173°43.1	27°16.5	N14°15.9	330°44.0	S09°30.1	61°55.4	N21°55.0	173°36.7	S02°40.9
13	188°45.6	42°16.0	15.0	345°44.9	30.7	76°57.4	55.0	188°39.4	41.0
14	203°48.1	57°15.5	14.1	0°45.8	31.4	91°59.5	54.9	203°42.0	41.1
15	218°50.5	72°14.9	.. 13.2	15°46.8	.. 32.0	107°01.5	.. 54.9	218°44.6	.. 41.2
16	233°53.0	87°14.4	12.3	30°47.7	32.6	122°03.5	54.8	233°47.3	41.2
17	248°55.5	102°13.9	11.3	45°48.6	33.3	137°05.6	54.8	248°49.9	41.3
18	263°57.9	117°13.4	N14°10.4	60°49.5	S09°33.9	152°07.6	N21°54.7	263°52.5	S02°41.4
19	279°00.4	132°12.8	09.5	75°50.4	34.5	167°09.7	54.7	278°55.2	41.5
20	294°02.9	147°12.3	08.6	90°51.3	35.2	182°11.7	54.6	293°57.8	41.6
21	309°05.3	162°11.8	.. 07.7	105°52.2	.. 35.8	197°13.8	.. 54.6	309°00.5	.. 41.6
22	324°07.8	177°11.3	06.8	120°53.1	36.4	212°15.8	54.5	324°03.1	41.7
23	339°10.2	192°10.7	05.8	135°54.0	37.1	227°17.9	54.5	339°05.7	41.8
Mer.pass. 00:27 ν -0.5° d -0.9° m -3.94 ν 0.9° d -0.6° m 1.61 ν 2.0° d -0.1° m -2.04 ν 2.6° d -0.1° m 0.60									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	354°12.7	207°10.2	N14°04.9	150°54.9	S09°37.7	242°19.9	N21°54.4	354°08.4	S02°41.9
1	9°15.2	222°09.7	04.0	165°55.8	38.3	257°22.0	54.3	9°11.0	42.0
2	24°17.6	237°09.1	03.1	180°56.7	39.0	272°24.0	54.3	24°13.7	42.0
3	39°20.1	252°08.6	.. 02.2	195°57.7	.. 39.6	287°26.1	.. 54.2	39°16.3	.. 42.1
4	54°22.6	267°08.1	01.2	210°58.6	40.2	302°28.1	54.2	54°18.9	42.2
5	69°25.0	282°07.6	14°00.3	225°59.5	40.8	317°30.2	54.1	69°21.6	42.3
6	84°27.5	297°07.0	N13°59.4	241°00.4	S09°41.5	332°32.2	N21°54.1	84°24.2	S02°42.4
7	99°30.0	312°06.5	58.5	256°01.3	42.1	347°34.3	54.0	99°26.9	42.4
8	114°32.4	327°06.0	57.5	271°02.2	42.7	2°36.3	54.0	114°29.5	42.5
9	129°34.9	342°05.5	.. 56.6	286°03.1	.. 43.4	17°38.4	.. 53.9	129°32.1	.. 42.6
10	144°37.4	357°05.0	55.7	301°04.0	44.0	32°40.4	53.9	144°34.8	42.7
11	159°39.8	12°04.4	54.8	316°04.9	44.6	47°42.4	53.8	159°37.4	42.7
12	174°42.3	27°03.9	N13°53.8	331°05.8	S09°45.3	62°44.5	N21°53.8	174°40.1	S02°42.8
13	189°44.7	42°03.4	52.9	346°06.7	45.9	77°46.5	53.7	189°42.7	42.9
14	204°47.2	57°02.9	52.0	1°07.6	46.5	92°48.6	53.6	204°45.3	43.0
15	219°49.7	72°02.3	.. 51.0	16°08.5	.. 47.2	107°50.7	.. 53.6	219°48.0	.. 43.1
16	234°52.1	87°01.8	50.1	31°09.4	47.8	122°52.7	53.5	234°50.6	43.1
17	249°54.6	102°01.3	49.2	46°10.3	48.4	137°54.8	53.5	249°53.2	43.2
18	264°57.1	117°00.8	N13°48.3	61°11.2	S09°49.1	152°56.8	N21°53.4	264°55.9	S02°43.3
19	279°59.5	132°00.3	47.3	76°12.1	49.7	167°58.9	53.4	279°58.5	43.4
20	295°02.0	146°59.7	46.4	91°13.0	50.3	183°00.9	53.3	295°01.2	43.5
21	310°04.5	161°59.2	.. 45.5	106°13.9	.. 50.9	198°03.0	.. 53.3	310°03.8	.. 43.5
22	325°06.9	176°58.7	44.5	121°14.8	51.6	213°05.0	53.2	325°06.4	43.6
23	340°09.4	191°58.2	43.6	136°15.7	52.2	228°07.1	53.2	340°09.1	43.7
Mer.pass. 00:23 ν -0.5° d -0.9° m -3.93 ν 0.9° d -0.6° m 1.61 ν 2.0° d -0.1° m -2.05 ν 2.6° d -0.1° m 0.60									

Stars	SHA	Dec
Alpheratz	357°33.9	29°14.1
Ankaa	353°06.2	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.2	-50°36.1
Hamal	327°50.3	23°35.1
Polaris	313°29.2	89°22.1
Acamar	315°11.1	-40°11.8
Menkar	314°05.4	4°11.6
Mirafak	308°27.2	49°57.0
Aldebaran	290°38.9	16°33.0
Rigel	281°03.3	-8°10.1
Capella	280°21.0	46°01.3
Bellatrix	278°22.3	6°22.5
Elnath	278°01.2	28°37.7
Alnilam	275°37.2	-1°10.1
Betelgeuse	270°51.5	7°24.8
Canopus	263°52.3	-52°42.2
Sirius	268°25.9	-16°44.8
Adhara	255°05.6	-29°00.1
Procyon	244°50.4	5°09.7
Pollux	243°16.8	27°57.8
Avior	234°15.0	-59°35.2
Suhail	222°46.3	-43°31.9
Miaplacidus	221°39.0	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.1	11°50.6
Dubhe	193°40.9	61°36.6
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.5
Alloth	166°13.0	55°49.4
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Henkar	148°35.7	-60°29.9
Mendator	147°57.3	-36°29.8
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°40.0	-60°56.6
Kochab	137°20.5	74°03.2
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°29.4
Atria	107°09.0	-69°04.7
Sabik	102°02.2	-15°45.4
Shaula	96°09.6	-37°07

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	355°11.9	206°57.7	N13°42.6	151°16.6	S09°52.8	243°09.1	N21°53.1	355°11.7	S02°43.8										
1	10°14.3	221°57.1	41.7	166°17.5	53.5	258°11.2	53.1	10°14.4	43.9										
2	25°16.8	236°56.6	40.8	181°18.4	54.1	273°13.2	53.0	25°17.0	43.9										
3	40°19.2	251°56.1	· · 39.8	196°19.3	· · 54.7	288°15.3	· · 53.0	40°19.6	· · 44.0										
4	55°21.7	266°55.6	38.9	211°20.2	55.4	303°17.3	52.9	55°22.3	44.1										
5	70°24.2	281°55.1	38.0	226°21.2	56.0	318°19.4	52.9	70°24.9	44.2										
6	85°26.6	296°54.5	N13°37.0	241°22.1	S09°56.6	333°21.4	N21°52.8	85°27.6	S02°44.3										
7	100°29.1	311°54.0	36.1	256°23.0	57.2	348°23.5	52.7	100°30.2	44.3										
8	115°31.6	326°53.5	35.1	271°23.9	57.9	3°25.5	52.7	115°32.8	44.4										
9	130°34.0	341°53.0	· · 34.2	286°24.8	· · 58.5	18°27.6	· · 52.6	130°35.5	· · 44.5										
10	145°36.5	356°52.5	33.2	301°25.7	59.1	33°29.6	52.6	145°38.1	44.6										
11	160°39.0	1°52.0	32.3	316°26.6	09°59.8	48°31.7	52.5	160°40.8	44.6										
12	175°41.4	26°51.5	N13°31.4	331°27.5	S10°00.4	63°33.8	N21°52.5	175°43.4	S02°44.7										
13	190°43.9	41°50.9	30.4	346°28.4	01.0	78°35.8	52.4	190°46.0	44.8										
14	205°46.4	56°50.4	29.5	1°29.3	01.6	93°37.9	52.4	205°48.7	44.9										
15	220°48.8	71°49.9	· · 28.5	16°30.2	· · 02.3	108°39.9	· · 52.3	220°51.3	· · 45.0										
16	235°51.3	86°49.4	27.6	31°31.0	02.9	123°42.0	52.3	235°54.0	45.0										
17	250°53.7	101°48.9	26.6	46°31.9	03.5	138°44.0	52.2	250°56.6	45.1										
18	265°56.2	116°48.4	N13°25.7	61°32.8	S10°04.2	153°46.1	N21°52.2	265°59.2	S02°45.2										
19	280°58.7	131°47.9	24.7	76°33.7	04.8	168°48.2	52.1	281°01.9	45.3										
20	296°01.1	146°47.3	23.8	91°34.6	05.4	183°50.2	52.1	296°04.5	45.4										
21	311°03.6	161°46.8	· · 22.8	106°35.5	· · 06.0	198°52.3	· · 52.0	311°07.2	· · 45.4										
22	326°06.1	176°46.3	21.9	121°36.4	06.7	213°54.3	51.9	326°09.8	45.5										
23	341°08.5	191°45.8	20.9	136°37.3	07.3	228°56.4	51.9	341°12.4	45.6										
Mer.pass. 00:19				ν -0.5° d -0.9' m -3.93				ν 0.9° d -0.6' m 1.60				ν 2.1° d -0.1' m -2.05				ν 2.6° d -0.1' m 0.60			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	356°11.0	206°45.3	N13°20.0	151°38.2	S10°07.9	243°58.4	N21°51.8	356°15.1	S02°45.7										
1	11°13.5	221°44.8	19.0	166°39.1	08.6	259°00.5	51.8	11°17.7	45.8										
2	26°15.9	236°44.3	18.1	181°40.0	09.2	274°02.6	51.7	26°20.4	45.8										
3	41°18.4	251°43.8	· · 17.1	196°40.9	· · 09.8	289°04.6	· · 51.7	41°23.0	· · 45.9										
4	56°20.9	266°43.3	16.2	211°41.8	10.4	304°06.7	51.6	56°25.6	46.0										
5	71°23.3	281°42.7	15.2	226°42.7	11.1	319°08.7	51.6	71°28.3	46.1										
6	86°25.8	296°42.2	N13°14.2	241°43.6	S10°11.7	334°10.8	N21°51.5	86°30.9	S02°46.2										
7	101°28.2	311°41.7	13.3	256°44.5	12.3	349°12.8	51.5	101°33.6	46.2										
8	116°30.7	326°41.2	12.3	271°45.4	13.0	4°14.9	· · 51.4	116°36.2	46.3										
9	131°33.2	341°40.7	· · 11.4	286°46.3	· · 13.6	19°17.0	· · 51.4	131°38.9	· · 46.4										
10	146°35.6	356°40.2	10.4	301°47.2	14.2	34°19.0	51.3	146°41.5	46.5										
11	161°38.1	1°39.7	09.4	316°48.1	14.8	49°21.1	51.3	161°44.1	46.5										
12	176°40.6	26°39.2	N13°08.5	331°49.0	S10°15.5	64°23.1	N21°51.2	176°46.8	S02°46.6										
13	191°43.0	41°38.7	07.5	346°49.9	16.1	79°25.2	51.2	191°49.4	46.7										
14	206°45.5	56°38.2	06.6	1°50.8	16.7	94°27.3	51.1	206°52.1	46.8										
15	221°48.0	71°37.7	· · 05.6	16°51.7	· · 17.3	109°29.3	· · 51.1	221°54.7	· · 46.9										
16	236°50.4	86°37.2	04.6	31°52.6	18.0	124°31.4	51.0	236°57.3	46.9										
17	251°52.9	101°36.6	03.7	46°53.5	18.6	139°33.5	50.9	252°00.0	47.0										
18	266°55.3	116°36.1	N13°02.7	61°54.3	S10°19.2	154°35.5	N21°50.9	267°02.6	S02°47.1										
19	281°57.8	131°35.6	01.7	76°55.2	19.8	169°37.6	50.8	282°05.3	47.2										
20	297°00.3	146°35.1	13°00.8	91°56.1	20.5	184°39.6	50.8	297°07.9	47.3										
21	312°02.7	161°34.6	12°59.8	106°57.0	· · 21.1	199°41.7	· · 50.7	312°10.5	· · 47.3										
22	327°05.2	176°34.1	58.8	121°57.9	21.7	214°43.8	50.7	327°13.2	47.4										
23	342°07.7	191°33.6	57.9	136°58.8	22.4	229°45.8	50.6	342°15.8	47.5										
Mer.pass. 00:15				ν -0.5° d -1.0' m -3.93				ν 0.9° d -0.6' m 1.60				ν 2.1° d -0.1' m -2.05				ν 2.6° d -0.1' m 0.59			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	357°10.1	206°33.1	N12°56.9	151°59.7	S10°23.0	244°47.9	N21°50.6	357°18.5	S02°47.6										
1	12°12.6	221°32.6	55.9	167°00.6	23.6	259°50.0	50.5	12°21.1	47.7										
2	27°15.1	236°32.1	55.0	182°01.5	24.2	274°52.0	50.5	27°23.7	47.7										
3	42°17.5	251°31.6	· · 54.0	197°02.4	· · 24.9	289°54.1	· · 50.4	42°26.4	· · 47.8										
4	57°20.0	266°31.1	53.0	212°03.3	25.5	304°56.1	50.4	57°29.0	47.9										
5	72°22.5	281°30.6	52.1	227°04.2	26.1	319°58.2	50.3	72°31.7	48.0										
6	87°24.9	296°30.1	N12°51.1	242°05.1	S10°26.7	335°00.3	N21°50.3	87°34.3	S02°48.1										
7	102°27.4	311°29.6	50.1	257°05.9	27.4	350°02.3	50.2	102°36.9	48.1										
8	117°29.8	326°29.1	49.1	272°06.8	28.0	5°04.4	50.2	117°39.6	48.2										
9	132°32.3	341°28.6	· · 48.2	287°07.7	· · 28.6	20°06.5	· · 50.1	132°42.2	· · 48.3										
10	147°34.8	356°28.1	47.2	302°08.6	29.2	35°08.5	50.1	147°44.9	48.4										
11	162°37.2	1°12.7	46.2	317°09.5	29.9	50°10.6	50.0	162°47.5	48.4										
12	177°39.7	26°27.1	N12°45.2	332°10.4	S10°30.5	65°12.7	N21°50.0	177°50.2	S02°48.5										
13	192°42.2	41°26.6	44.3	347°11.3	31.1	80°14.7	49.9	192°52.8	48.6										
14	207°44.6	56°26.1	43.3	2°12.2	31.7	95°16.8	49.8	207°55.4	48.7										
15	222°47.1	71°25.6	· · 42.3	17°13.1	· · 32.4	110°18.9	· · 49.8	222°58.1	· · 48.8										
16	237°49.6	86°25.1	41.3	32°13.9	33.0	125°20.9	49.7	238°00.7	48.8										
17	252°52.0	101°24.6	40.3	47°14.8	33.6	140°23.0	49.7	253°03.4	48.9										
18	267°54.5	116°24.1	N12°39.4	62°15.7	S10°34.2	155°25.1	N21°49.6	268°06.0	S02°49.0										
19	282°57.0	131°23.6	38.4	77°16.6	34.9	170°27.1	49.6	283°08.6	49.1										
20	297°59.4	146°23.1	37.4	92°17.5	35.5	185°29.2	49.5	298°11.3	49.2										
21	313°01.9	161°22.6	· · 36.4	107°18.4	· · 36.1	200°31.3	· · 49.5	313°13.9	· · 49.2										
22	328°04.3	176°22.1	35.4	122°19.3	36.7	215°33.3	49.4	328°16.6	49.3										
23	343°06.8	191°21.6	34.5	137°20.2	37.4	230°35.4	49.4	343°19.2	49.4										
Mer.pass. 00:11				ν -0.5° d -1.0' m -3.93				ν 0.9° d -0.6' m 1.60				ν 2.1° d -0.1' m -2.06				ν 2.6° d -0.1' m 0.59			

Stars		
SHA	Dec	
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.2	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°27.7	89°22.1
Acamar	315°11.1	-40°11.8
Menkar	313°05.4	4°11.6
Mirafak	308°27.2	49°57.1
Aldebaran	299°38.9	16°33.7
Rigel	281°03.3	-8°10.1
Capella	280°21.0	46°01.3
Bellatrix	278°22.2	6°22.5
Elnath	278°01.1	28°37.7
Alnilam	275°37.1	-1°10.1
Betelgeuse	270°51.5	7°24.8
Canopus	263°52.3	-52°42.2
Sirius	268°25.8	-16°44.8
Adhara	255°05.5	-29°00.1
Procyon	244°50.4	5°09.7
Pollux	243°16.8	27°57.8
Avior	234°14.9	-59°35.2
Suhail	222°46.3	-43°31.9
Miaplacidus	221°39.0	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.1	11°50.6
Dubhe	193°40.9	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.4
Alloth	166°13.0	55°49.3
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.3
Hadar	148°35.7	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.6	19°03.1
Rigel Kent.	139°40.0	-60°56.6
Kochab	137°20.5	74°03.2
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°29.4

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	358°09.3	206°21.1	N12°33.5	152°21.1	S10°38.0	245°37.5	N21°49.3	358°21.8	S02°49.5					
1	13°11.7	221°20.6	32.5	167°21.9	38.6	260°39.5	49.3	13°24.5	49.6					
2	28°14.2	236°20.1	31.5	182°22.8	39.2	275°41.6	49.2	28°27.1	49.6					
3	43°16.7	251°19.6	.. 30.5	197°23.7	.. 39.8	290°43.7	.. 49.2	43°29.8	.. 49.7					
4	58°19.1	266°19.1	29.5	212°24.6	40.5	305°45.2	49.1	58°32.4	49.8					
5	73°21.6	281°18.6	28.5	227°25.5	41.1	320°47.8	49.1	73°35.1	49.9					
6	88°24.1	296°18.1	N12°27.6	242°26.4	S10°41.7	335°49.9	N21°49.9	88°37.1	S02°49.9					
7	103°26.5	311°17.6	26.6	257°27.3	42.3	350°52.0	49.0	103°40.3	50.0					
8	118°29.0	326°17.1	25.6	272°28.1	43.0	5°54.0	48.9	118°43.0	50.1					
9	133°31.4	341°16.6	.. 24.6	287°29.0	.. 43.6	20°56.1	.. 48.9	133°45.6	.. 50.2					
10	148°33.9	356°16.1	23.6	302°29.9	44.2	35°58.2	48.8	148°32.4	50.3					
11	163°36.4	11°15.7	22.6	317°30.8	44.8	51°00.2	48.8	163°50.9	50.3					
12	178°38.8	26°15.2	N12°21.6	332°31.7	S10°45.5	66°02.3	N21°48.7	178°53.5	S02°50.4					
13	193°41.3	41°14.7	20.6	347°32.6	46.1	81°04.4	48.6	193°56.2	50.5					
14	208°43.8	56°14.2	19.6	2°33.4	46.7	96°06.5	48.6	208°58.8	50.6					
15	223°46.2	71°13.7	.. 18.6	17°34.3	.. 47.3	111°08.5	.. 48.5	224°01.5	.. 50.7					
16	238°48.7	86°13.2	17.7	32°35.2	47.9	126°10.6	48.5	239°04.1	50.7					
17	253°51.2	101°12.7	16.7	47°36.1	48.6	141°12.7	48.4	254°06.7	50.8					
18	268°53.6	116°12.2	N12°15.7	62°37.0	S10°49.2	156°14.7	N21°48.4	269°09.4	S02°50.9					
19	283°56.1	131°11.7	14.7	77°37.9	49.8	171°16.8	48.3	284°12.0	51.0					
20	298°58.6	146°11.2	13.7	92°38.7	50.4	186°18.9	48.3	299°14.7	51.1					
21	314°01.0	161°10.7	.. 12.7	107°39.6	.. 51.1	201°21.0	.. 48.2	314°17.3	.. 51.1					
22	329°03.5	176°10.2	11.7	122°40.5	51.7	216°23.0	48.2	329°04.0	51.2					
23	344°05.9	191°09.8	10.7	137°41.4	52.3	231°25.1	48.1	344°22.6	51.3					
Mer.pass. 00:07			ν -0.5° d -1.0° m -3.93	ν 0.9° d -0.6° m 1.60	ν 2.1° d -0.1° m -2.06	ν 2.6° d -0.1° m 0.59								

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	359°08.4	206°09.3	N12°09.7	152°42.3	S10°52.9	246°27.2	N21°48.1	359°25.2	S02°51.4
1	14°10.9	221°08.8	08.7	167°43.2	53.5	261°29.3	48.0	14°27.9	51.4
2	29°13.3	236°08.3	07.7	182°44.0	54.2	276°31.3	48.0	29°30.5	51.5
3	44°15.8	251°07.8	.. 06.7	197°44.9	.. 54.8	291°33.4	.. 47.9	44°33.2	.. 51.6
4	59°18.3	266°07.3	05.7	212°45.8	55.4	306°35.5	47.9	59°35.8	51.7
5	74°20.7	281°06.8	04.7	227°46.7	56.0	321°37.6	47.8	74°38.4	51.8
6	89°23.2	296°06.3	N12°03.7	242°47.6	S10°56.6	336°39.6	N21°47.8	89°41.1	S02°51.8
7	104°25.7	311°05.8	02.7	257°48.4	57.3	351°41.7	47.7	104°43.7	51.9
8	119°28.1	326°05.4	01.7	272°49.3	57.9	6°43.8	47.7	119°46.6	52.0
9	134°30.6	341°04.9	12°00.7	287°50.2	.. 58.5	21°45.9	.. 47.6	134°49.0	.. 52.1
10	149°33.0	356°04.4	11°59.7	302°51.1	59.1	36°47.9	47.6	149°51.7	52.2
11	164°35.5	11°03.9	58.7	317°52.0	10°59.7	51°50.0	47.5	164°54.3	52.2
12	179°38.0	26°03.4	N11°57.7	332°52.8	S11°00.4	66°52.1	N21°47.5	179°56.9	S02°52.3
13	194°40.4	41°02.9	56.6	347°53.7	01.0	81°54.2	47.4	194°59.6	52.4
14	209°42.9	56°02.4	55.6	2°54.6	01.6	96°56.2	47.4	210°02.2	52.5
15	224°45.4	71°02.0	.. 54.6	17°55.5	.. 02.2	111°58.3	.. 47.3	225°04.9	.. 52.6
16	239°47.8	86°01.5	53.6	32°56.4	02.8	127°00.4	47.3	240°07.5	52.6
17	254°50.3	101°01.0	52.6	47°57.2	03.5	142°02.5	47.2	255°10.1	52.7
18	269°52.8	116°00.5	N11°51.6	62°58.1	S11°04.1	157°04.6	N21°47.2	270°12.8	S02°52.8
19	284°55.2	131°00.0	50.6	77°59.0	04.7	172°06.6	47.1	285°15.4	52.9
20	299°57.7	145°59.5	49.6	92°59.9	05.3	187°08.7	47.1	300°18.1	52.9
21	315°00.2	160°59.1	.. 48.6	108°00.7	.. 05.9	202°10.8	.. 47.0	315°20.7	.. 53.0
22	330°02.6	175°58.6	47.6	123°01.6	06.6	217°12.9	46.9	330°23.4	53.1
23	345°05.1	190°58.1	46.6	138°02.5	07.2	232°14.9	46.9	345°26.0	53.2
Mer.pass. 23:59 ν -0.5° d -1.0° m -3.93 ν 0.9° d -0.6° m 1.60 ν 2.1° d -0.1° m -2.07 ν 2.6° d -0.1° m 0.58									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	0°07.5	205°57.6	N11°44.5	153°03.4	S11°07.8	247°17.0	N21°46.8	0°28.6	S02°53.3
1	15°10.0	220°57.1	44.5	168°04.2	08.4	262°19.1	46.8	15°31.3	53.3
2	30°12.5	235°56.6	43.5	183°05.1	09.0	277°21.2	46.7	30°33.9	53.4
3	45°14.9	250°56.2	.. 42.5	198°06.0	.. 09.7	292°23.3	.. 46.7	45°36.6	.. 53.5
4	60°17.4	265°55.7	41.5	213°06.9	10.3	307°25.3	46.6	60°39.2	53.6
5	75°19.9	280°55.2	40.5	228°07.8	10.9	322°27.4	46.6	75°41.8	53.7
6	90°22.3	295°54.7	N11°39.5	243°08.6	S11°11.5	337°29.5	N21°46.5	90°44.5	S02°53.7
7	105°24.8	310°54.2	38.4	258°09.5	12.1	352°31.6	46.5	105°47.1	53.8
8	120°27.3	325°53.8	37.4	273°10.4	12.8	7°33.7	46.4	120°49.8	53.9
9	135°29.7	340°53.3	.. 36.4	288°11.3	.. 13.4	22°35.8	.. 46.4	135°52.4	.. 54.0
10	150°32.2	355°52.8	35.4	303°12.1	14.0	37°37.8	46.3	150°55.1	54.0
11	165°34.6	10°52.3	34.4	318°13.0	14.6	52°39.9	46.3	165°57.7	54.1
12	180°37.1	25°51.8	N11°33.3	333°13.9	S11°15.2	67°42.0	N21°46.2	181°00.3	S02°54.2
13	195°39.6	40°51.4	32.3	348°14.7	15.8	82°44.1	46.2	195°03.0	54.3
14	210°42.0	55°50.9	31.3	3°15.6	16.5	97°46.2	46.1	211°05.6	54.4
15	225°44.5	70°50.4	.. 30.3	18°16.5	.. 17.1	112°48.2	.. 46.1	226°08.3	.. 54.4
16	240°47.0	85°49.9	29.3	33°17.4	17.7	127°50.3	46.0	241°10.9	54.5
17	255°49.4	100°49.4	28.2	48°18.2	18.3	142°52.4	46.0	256°13.5	54.6
18	270°51.9	115°49.0	N11°27.2	63°19.1	S11°18.9	157°54.5	N21°45.9	271°16.2	S02°54.7
19	285°54.8	130°48.5	26.2	78°20.0	19.5	172°56.6	45.9	286°18.8	54.8
20	300°56.8	145°48.0	25.2	93°20.9	20.2	187°58.7	45.8	301°21.5	54.8
21	315°59.3	160°47.5	.. 24.1	108°21.7	.. 20.8	203°00.8	.. 45.8	316°24.1	.. 54.9
22	331°01.8	175°47.1	23.1	123°22.6	21.4	218°02.8	45.7	331°26.8	55.0
23	346°04.2	190°46.6	22.1	138°23.5	22.0	233°04.9	45.7	346°29.4	55.1
Mer.pass. 23:56			ν -0.5° d -1.0° m -3.93	ν 0.9° d -0.6° m 1.59	ν 2.1° d -0.1° m -2.07	ν 2.6° d -0.1° m 0.58			

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.8
Schedar	349°29.9	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.2	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°26.5	89°22.1
Acamar	315°11.0	-40°11.8
Menkar	314°05.3	4°11.6
Mirfak	308°27.2	49°57.1
Aldebaran	290°38.9	16°33.7
Rigel	281°03.3	-8°10.1
Capella	280°21.0	46°01.3
Bellatrix	278°22.2	6°22.5
Elmath	278°01.1	28°37.7
Anilam	275°37.1	-1°10.9
Betelgeuse	270°51.5	7°24.8
Canopus	263°52.2	-52°42.2
Sirius	258°25.8	-16°44.8
Adhara	255°05.5	-29°00.1
Procyon	244°50.4	5°07.7
Pollux	243°16.8	27°57.8
Avior	234°14.9	-59°35.2
Suhail	222°46.2	-43°31.9
Miaplacidus	221°38.9	-69°49.1
Alphard	217°47.5	-8°46.0
Regulus	207°34.1	11°50.6
Dubhe	193°40.9	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.4
Alioth	166°13.0	55°49.3
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.2
Hadar	148°35.8	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.6	19°03.0
Rigel Kent	139°40.0	-60°56.6
Kochab	137°20.5	74°03.1
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.4	26°37.9
Antares	112°15.2	-26°29.4
Atria	107°09.1	69°04.7
Sabik	102°02.2	-15°45.4
Shaula	96°09.6	-37°07.4
Rasalhague	95°58.0	12°32.6
Eltanin	90°41.9	51°29.4
Kaus Aust.	83°31.7	-34°22.4
Vega	80°32.8	38°48.7
Nunki	75°46.9	-26°15.9
Altair	61°59.2	8°56.3
Peacock	53°04.4	-56°39.3
Deneb	49°25.1	45°22.6
Enif	33°38.0	9°59.7
Al Na'ir	27°31.7	-46°50.2
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.5
Markab	13°29.0	15°20.8
Sep 19 Fri		
Venus	208°11.8	10:15
Mars	154°11.8	13:50
Jupiter	247°28.2	07:36
Saturn	0°12.6	00:07
Sep 20 Sat		
Venus	207°00.9	10:16
Mars	153°33.9	13:48
Jupiter	247°18.8	07:33
Saturn	0°16.8	00:02
Sep 21 Sun		
Venus	205°50.1	10:16
Mars	152°55.8	13:47
Jupiter	247°09.5	07:30
Saturn	0°21.1	23:54
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	1°06.7	205°46.1	N11°21.1	153°24.3	S11°22.6	248°07.0	N21°45.6	1°32.0	S02°55.1										
1	16°09.1	220°45.6	20.0	168°25.2	23.2	263°09.1	45.6	16°34.7	55.2										
2	31°11.6	235°45.2	19.0	183°26.1	23.9	278°11.2	45.5	31°37.3	55.3										
3	46°14.1	250°44.7	18.0	198°27.0	24.5	293°13.3	45.5	46°40.0	55.4										
4	61°16.5	265°44.2	16.9	213°27.8	25.1	308°15.4	45.4	61°42.6	55.5										
5	76°19.0	280°43.7	15.9	228°28.7	25.7	323°17.4	45.4	76°45.2	55.5										
6	91°21.5	295°43.3	N11°14.9	243°29.6	S11°26.3	338°19.5	N21°45.3	91°47.9	S02°55.6										
7	106°23.9	310°42.8	13.9	258°30.4	26.9	353°21.6	45.3	106°50.5	55.7										
8	121°26.4	325°42.3	12.8	273°31.3	27.6	8°23.7	45.2	121°53.2	55.8										
9	136°28.9	340°41.8	11.8	288°32.2	28.2	23°25.8	45.2	136°55.8	55.9										
10	151°31.3	355°41.4	10.8	303°33.0	28.8	38°27.9	45.1	151°58.5	55.9										
11	166°33.8	10°40.9	09.7	318°33.9	29.4	53°30.0	45.1	167°01.1	56.0										
12	181°36.2	25°40.4	N11°08.7	333°34.8	S11°30.0	68°32.0	N21°45.0	182°03.7	S02°56.1										
13	196°38.7	40°39.9	07.7	348°35.6	30.6	83°34.1	45.0	197°06.4	56.2										
14	211°41.2	55°39.5	06.6	363°36.5	31.3	98°36.2	44.9	212°09.0	56.2										
15	226°43.6	70°39.0	05.6	378°37.4	31.9	113°38.3	44.9	227°11.7	56.3										
16	241°46.1	85°38.5	04.6	393°38.5	32.5	128°40.4	44.8	242°14.3	56.4										
17	256°48.6	100°38.1	03.5	408°39.1	33.1	143°42.5	44.8	257°16.9	56.5										
18	271°51.0	115°37.6	N11°05.2	423°40.5	S11°33.7	158°44.6	N21°44.7	272°19.6	S02°56.6										
19	286°53.5	130°37.1	01.4	438°40.9	34.3	173°46.7	44.7	287°22.2	56.6										
20	301°56.0	145°36.7	11°00.4	453°41.7	34.9	188°48.8	44.6	302°24.9	56.7										
21	316°58.4	160°36.2	10°59.4	468°42.6	35.6	203°50.9	44.6	317°27.5	56.8										
22	332°00.9	175°35.7	09.4	483°43.5	36.2	218°52.9	44.5	332°30.2	56.9										
23	347°03.4	190°35.2	08.3	498°44.3	36.8	233°55.0	44.5	347°32.8	57.0										
Mer.pass. 23:52				ν -0.5° d -1.0° m -3.93				ν 0.9° d -0.6° m 1.59				ν 2.1° d -0.1° m -2.08				ν 2.6° d -0.1° m 0.58			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	2°05.8	205°34.8	N10°56.2	153°45.2	S11°37.4	248°57.1	N21°44.4	2°35.4	S02°57.0										
1	17°08.3	220°34.3	55.2	168°46.1	38.0	263°59.2	44.4	17°38.1	57.1										
2	32°10.7	235°33.8	54.2	183°46.9	38.6	279°01.3	44.3	32°40.7	57.2										
3	47°13.2	250°33.4	53.1	198°47.8	39.2	294°03.4	44.3	47°43.4	57.3										
4	62°15.7	265°32.9	52.1	213°48.6	39.9	309°05.5	44.2	62°46.0	57.3										
5	77°18.1	280°32.4	51.0	228°49.5	40.5	324°07.6	44.2	77°48.6	57.4										
6	92°20.6	295°32.0	N10°58.9	243°50.4	S11°41.1	339°09.7	N21°44.1	92°51.3	S02°57.5										
7	107°23.1	310°31.5	48.0	258°51.2	41.7	354°11.8	44.1	107°53.9	57.5										
8	122°25.5	325°31.0	47.9	273°52.1	42.3	9°13.9	44.0	122°56.6	57.7										
9	137°28.0	340°30.6	46.9	288°53.0	42.9	24°16.0	44.0	137°59.2	57.7										
10	152°30.5	355°30.1	45.8	303°53.8	43.5	39°18.0	43.9	153°01.9	57.8										
11	167°32.9	10°29.6	44.8	318°54.7	44.1	54°20.1	43.9	168°04.5	57.9										
12	182°35.4	25°29.2	N10°43.7	333°55.6	S11°44.8	69°22.2	N21°43.8	183°07.1	S02°58.0										
13	197°37.9	40°28.7	42.7	348°56.4	45.4	84°24.3	43.8	198°09.8	58.0										
14	212°40.3	55°28.2	41.6	363°57.3	46.0	99°26.4	43.7	213°12.4	58.1										
15	227°42.8	70°27.8	40.6	378°58.1	46.6	114°28.5	43.7	228°15.1	58.2										
16	242°45.2	85°27.3	39.5	393°59.0	47.2	129°30.6	43.6	243°17.7	58.3										
17	257°47.7	100°26.8	38.5	408°59.9	47.8	144°32.7	43.6	258°20.3	58.4										
18	272°50.2	115°26.4	N10°37.4	423°60.7	S11°48.4	159°34.8	N21°43.5	273°23.0	S02°58.4										
19	287°52.6	130°25.9	36.4	438°61.6	49.0	174°36.9	43.5	288°25.6	58.5										
20	302°55.1	145°25.5	35.3	453°62.5	49.7	189°39.0	43.4	303°28.3	58.6										
21	317°57.6	160°25.0	34.3	468°63.3	50.3	204°41.1	43.4	318°30.9	58.7										
22	333°00.0	175°24.5	33.2	483°64.2	50.9	219°43.2	43.3	333°33.6	58.8										
23	348°02.5	190°24.1	32.2	498°65.0	51.5	234°45.3	43.3	348°36.2	58.8										
Mer.pass. 23:48				ν -0.5° d -1.0° m -3.93				ν 0.9° d -0.6° m 1.59				ν 2.1° d -0.1° m -2.08				ν 2.6° d -0.1° m 0.59			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	3°05.0	205°23.6	N10°31.1	154°05.9	S11°52.1	249°47.4	N21°43.2	3°38.8	S02°58.9										
1	18°07.1	220°23.1	30.1	169°06.8	52.7	264°49.5	43.2	18°41.5	59.0										
2	33°09.9	235°22.7	29.0	184°07.6	53.3	279°51.6	43.1	33°44.1	59.1										
3	48°12.3	250°22.2	28.0	199°08.5	53.9	294°53.7	43.1	48°46.8	59.1										
4	63°14.8	265°21.8	26.9	214°09.3	54.5	309°55.8	43.0	63°49.4	59.2										
5	78°17.3	280°21.3	25.8	229°10.2	55.2	324°57.9	43.0	78°52.0	59.3										
6	93°19.7	295°20.8	N10°24.8	244°11.1	S11°55.8	340°00.0	N21°42.9	93°54.7	S02°59.4										
7	108°22.2	310°20.4	23.7	259°11.9	56.4	355°02.1	42.9	108°57.3	59.5										
8	123°24.7	325°19.9	22.7	274°12.8	57.0	10°04.2	42.8	124°00.0	59.5										
9	138°27.1	340°19.5	21.6	289°13.6	57.6	25°06.3	42.8	139°02.6	59.6										
10	153°29.6	355°19.0	20.6	304°14.5	58.2	40°08.4	42.7	154°05.3	59.7										
11	168°32.1	10°18.5	19.5	319°15.3	58.8	55°10.5	42.7	169°07.9	59.8										
12	183°34.5	25°18.1	N10°18.4	334°16.2	S11°59.4	70°12.6	N21°42.6	184°10.5	S02°59.8										
13	198°37.0	40°17.6	17.4	349°17.1	12°00.0	85°14.7	42.6	199°13.2	59.9										
14	213°39.5	55°17.2	16.3	364°17.9	00.6	100°16.8	42.5	214°15.8	03°00.0										
15	228°41.9	70°16.7	15.3	379°18.8	01.3	115°18.9	42.5	229°18.5	00.1										
16	243°44.4	85°16.2	14.2	394°19.6	01.9	130°21.0	42.4	244°21.1	00.2										
17	258°46.8	100°15.8	13.1	409°20.5	02.5	145°23.1	42.4	259°23.7	00.2										
18	273°49.3	115°15.3	N10°12.1	424°21.3	S12°03.1	160°25.2	N21°42.3	274°26.4	S03°00.3										
19	288°51.8	130°14.9	11.0	79°22.2	03.7	175°27.3	42.3	289°29.0	00.4										
20	303°54.2	145°14.4	09.9	94°23.1	04.3	190°29.4	42.2	304°31.7	00.5										
21	318°56.7	160°14.0	08.9	109°23.9	04.9	205°31.5	42.2	319°34.3	00.5										
22	333°59.2	175°13.5	07.8	124°24.8	05.5	220°33.6	42.1	334°36.9	00.6										
23	349°01.6	190°13.0	06.7	139°25.6	06.1	235°35.7	42.1	349°39.6	00.7										
Mer.pass. 23:44				ν -0.5° d -1.1° m -3.93				ν 0.9° d -0.6° m 1.59				ν 2.1° d -0.0° m -2.09				ν 2.6° d -0.1° m 0.59			

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.8
Schedar	349°29.9	56°40.8
Diphda	348°46.4	-17°50.6
Achernar	335°19.2	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°25.4	89°22.1
Acamar	315°11.0	-40°11.8
Menkar	310°05.3	4°11.6
Mirafak	308°27.1	49°57.1
Aldebaran	290°38.8	16°33.7
Rigel	281°03.2	-8°10.1
Capella	280°20.9	46°01.3
Bellatrix	278°22.2	6°22.5
Elmath	278°01.1	28°37.2
Alnilam	275°37.1	-1°10.9
Betelgeuse	270°51.5	7°24.8
Canopus	263°52.2	-52°42.2
Sirius	258°25.8	-16°44.8
Adhara	255°05.5	-29°00.1
Procyon	244°50.4	5°09.7
Pollux	243°16.8	27°57.8
Avior	234°14.9	-59°35.2
Suhail	222°46.2	-43°31.9
Miaplacidus	221°38.9	-69°49.1
Alphard	217°47.4	-8°46.0
Regulus	207°34.1	11°50.6
Dubhe	193°40.9	61°36.7
Denebola	182°24.7	14°25.8
Geniah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.4
Alioth	166°13.0	55°49.3
Spica	158°22.0	-11°17.7
Alkaid	152°51.9	49°11.2
Hadar	148°35.8	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.6
Kochab	137°20.6	74°03.1
Zuben ubi	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.9
Antares	112°15.3	-26°29.4
Atria	107°09.1	-69°04.6
Sabik	102°02.2	-15°45.4
Shaula	96°09.9	-37°07.4
Rasalhague	95°58.0	12°32.6
Eltanin	90°41.9	51°29.4
Kaus Aust.	83°31.7	-34°22.4
Vega	80°32.8	38°48.7
Nunki	75°47.0	-26°15.9
Altair	61°59.3	8°56.3
Peacock	63°04.5	-56°39.3
Deneb	49°25.1	45°22.6
Enif	33°38.0	9°59.7
Al Na'ir	27°31.8	-46°50.2
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.5
Markab	13°29.0	15°20.8

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	4°04.1	205°12.6	N10°05.7	154°26.5	S12°06.7	250°37.8	N21°42.0	4°42.2	S03°00.8					
1	19°06.6	220°12.1	04.6	169°27.3	07.3	265°39.9	42.0	19°44.9	00.9					
2	34°09.0	235°11.7	03.5	184°28.2	07.9	280°42.0	41.9	34°47.5	00.9					
3	49°11.5	250°11.2	02.5	199°29.0	08.6	295°44.1	41.9	49°50.2	01.0					
4	64°13.9	265°10.8	01.4	214°29.9	09.2	310°46.2	41.8	64°52.8	01.1					
5	79°16.4	280°10.3	00°00.3	229°30.8	09.8	325°48.3	41.8	79°55.4	01.2					
6	94°18.9	295°09.9	N09°59.9	244°31.6	S12°10.4	340°50.4	N21°41.7	94°58.1	S03°01.7					
7	109°21.3	310°09.4	58.2	259°32.5	11.0	355°52.5	41.7	110°00.7	01.3					
8	124°23.8	325°08.9	57.1	274°33.5	11.6	10°54.6	41.6	125°03.4	01.4					
9	139°26.3	340°08.5	56.1	289°34.2	12.2	25°56.7	41.6	140°06.0	01.5					
10	154°28.7	355°08.0	55.0	304°35.0	12.8	40°58.8	41.5	155°08.6	01.5					
11	169°31.2	10°07.6	53.9	319°35.9	13.4	56°00.9	41.5	170°11.3	01.6					
12	184°33.7	25°07.1	N09°52.9	334°36.7	S12°14.0	71°03.0	N21°41.4	185°13.9	S03°01.7					
13	199°36.1	40°06.7	51.8	349°37.6	14.6	86°05.1	41.4	200°16.6	01.8					
14	214°38.6	55°06.2	50.7	4°38.4	15.2	101°07.2	41.3	215°19.2	01.9					
15	229°41.1	70°05.8	49.6	19°39.3	15.8	116°09.3	41.3	230°21.8	01.9					
16	244°43.5	85°05.3	48.6	34°40.1	16.5	131°11.5	41.2	245°24.5	02.0					
17	259°46.0	100°04.9	47.5	49°41.0	17.1	146°13.6	41.2	260°27.1	02.1					
18	274°48.4	115°04.4	N09°46.4	64°41.8	S12°17.7	161°15.7	N21°41.1	275°29.8	S03°02.2					
19	289°50.9	130°04.0	45.3	79°42.7	18.3	176°17.8	41.1	290°32.4	02.2					
20	304°53.4	145°03.5	44.3	94°43.5	18.9	191°19.9	41.0	305°35.1	02.3					
21	319°55.8	160°03.1	43.2	109°44.4	19.5	206°22.0	41.0	320°37.7	02.4					
22	334°58.3	175°02.6	42.1	124°45.2	20.1	221°24.1	40.9	335°40.3	02.5					
23	350°00.8	190°02.2	41.0	139°46.1	20.7	236°26.2	40.9	350°43.0	02.6					
Mer.pass. 23:40			ν -0.5' d -1.1' m -3.93			ν 0.9' d -0.6' m 1.59			ν 2.1' d -0.0' m -2.09			ν 2.6' d -0.1' m 0.59		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	5°03.2	205°01.7	N09°39.9	154°46.9	S12°21.3	251°28.3	N21°40.9	5°45.6	S03°02.6		
1	20°05.7	220°01.3	38.9	169°47.8	21.9	266°30.4	40.8	20°48.3	02.7		
2	35°08.2	235°00.8	37.8	184°48.6	22.5	281°32.5	40.8	35°50.9	02.8		
3	50°10.6	250°00.4	36.7	199°49.5	23.1	296°34.6	40.7	50°53.5	02.9		
4	65°13.1	264°59.9	35.6	214°50.3	23.7	311°36.8	40.7	65°56.2	02.9		
5	80°15.6	279°59.5	34.6	229°51.2	24.3	326°38.9	40.6	80°58.8	03.0		
6	95°18.0	294°59.0	N09°33.5	244°52.0	S12°24.9	341°41.0	N21°40.6	96°01.5	S03°03.1		
7	110°20.5	309°58.6	32.4	259°52.9	25.5	356°43.1	40.5	111°04.1	03.2		
8	125°22.9	324°58.1	31.3	274°53.7	26.1	11°45.2	40.5	126°06.7	03.2		
9	140°25.4	339°57.7	30.2	289°54.6	26.7	26°47.3	40.4	141°09.4	03.3		
10	155°27.9	354°57.2	29.1	304°55.4	27.3	41°49.4	40.4	156°12.0	03.4		
11	170°30.3	9°56.8	28.1	319°56.3	28.0	56°51.5	40.3	171°14.7	03.5		
12	185°32.8	24°56.3	N09°27.0	334°57.1	S12°28.6	71°53.6	N21°40.3	186°17.3	S03°03.6		
13	200°35.3	39°55.9	25.9	349°58.0	29.2	86°55.7	40.2	201°20.0	03.6		
14	215°37.7	54°55.5	24.8	4°58.8	29.8	101°57.9	40.2	216°22.6	03.7		
15	230°40.2	69°55.0	23.7	19°59.6	30.4	117°00.0	40.1	231°25.2	03.8		
16	245°42.7	84°54.6	22.6	35°00.5	31.0	132°02.1	40.1	246°27.9	03.9		
17	260°45.1	99°54.1	21.6	50°01.3	31.6	147°04.2	40.0	261°30.5	03.9		
18	275°47.6	114°53.7	N09°20.5	65°02.2	S12°32.2	162°06.3	N21°40.0	276°33.2	S03°04.0		
19	290°50.0	129°53.2	19.4	80°03.0	32.8	177°08.4	39.9	291°35.8	04.1		
20	305°52.5	144°52.8	18.3	95°03.9	33.4	192°10.5	39.9	306°38.4	04.2		
21	320°55.0	159°52.3	17.2	110°04.7	34.0	207°12.7	39.8	321°41.1	04.2		
22	335°57.4	174°51.9	16.1	125°05.6	34.6	222°14.8	39.8	336°43.7	04.3		
23	350°59.9	189°51.4	15.0	140°06.4	35.2	237°16.9	39.7	351°46.4	04.4		
Mer.pass. 23:36											
ν -0.4' d -1.1' m -3.93			ν 0.8' d -0.6' m 1.58			ν 2.1' d -0.0' m -2.10			ν 2.6' d -0.1' m 0.60		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	6°02.4	204°51.0	N09°13.9	155°07.3	S12°35.8	252°19.0	N21°39.7	6°49.0	S03°04.5
1	21°04.8	219°50.6	12.8	170°08.1	36.4	267°21.1	39.6	21°51.6	04.6
2	36°07.3	234°50.1	11.8	185°08.9	37.0	282°23.2	39.6	36°54.3	04.6
3	51°09.8	249°49.7	10.7	200°09.8	37.6	297°25.3	39.5	51°56.9	04.7
4	66°12.2	264°49.2	09.6	215°10.6	38.2	312°27.5	39.5	66°59.6	04.8
5	81°14.7	279°48.8	08.5	230°11.5	38.8	327°29.6	39.5	82°02.2	04.9
6	96°17.2	294°48.3	N09°07.4	245°12.3	S12°39.4	342°31.7	N21°39.4	97°04.8	S03°04.9
7	111°19.6	309°47.9	06.3	260°13.2	40.0	357°33.8	39.4	112°07.5	05.0
8	126°22.1	324°47.5	05.2	275°14.0	40.6	12°35.9	39.3	127°10.1	05.1
9	141°24.5	339°47.0	44.1	290°14.8	41.2	27°38.0	39.3	142°12.8	05.2
10	156°27.0	354°46.6	03.0	305°15.7	41.8	42°40.2	39.2	157°15.4	05.2
11	171°29.5	9°46.1	01.9	320°16.5	42.4	57°42.3	39.2	172°18.0	05.3
12	186°31.9	24°45.7	N09°00.8	335°17.4	S12°43.0	72°44.4	N21°39.1	187°20.7	S03°05.4
13	201°34.4	39°45.3	08°59.7	350°18.2	43.6	87°46.5	39.1	202°23.3	05.5
14	216°36.9	54°44.8	58.6	5°19.0	44.2	102°48.6	39.0	217°26.0	05.6
15	231°39.3	69°44.4	57.5	20°19.9	44.8	117°50.7	39.0	232°28.6	05.6
16	246°41.8	84°43.9	56.4	35°20.7	45.4	132°52.9	38.9	247°31.2	05.7
17	261°44.3	99°43.5	55.3	50°21.6	46.0	147°55.0	38.9	262°33.9	05.8
18	276°46.7	114°43.1	N08°54.2	65°22.4	S12°46.6	162°57.1	N21°38.8	277°36.5	S03°05.9
19	291°49.2	129°42.6	53.1	80°23.2	47.2	177°59.2	38.8	292°39.2	05.9
20	306°51.7	144°42.2	52.0	95°24.1	47.8	193°01.3	38.7	307°41.8	06.0
21	321°54.1	159°41.7	51.0	110°24.9	48.4	208°03.5	38.7	322°44.4	06.1
22	336°56.6	174°41.3	49.9	125°25.8	49.0	223°05.6	38.6	337°47.1	06.2
23	351°59.0	189°40.9	48.8	140°26.6	49.6	238°07.7	38.6	352°49.7	06.2
Mer.pass. 23:32 ν -0.4' d -1.1' m -3.93 ν 0.8' d -0.6' m 1.58 ν 2.1' d -0.0' m -2.10 ν 2.6' d -0.1' m 0.60									

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.8
Schedar	349°29.8	56°40.8
Diphda	348°46.4	-17°50.6
Achernar	335°19.2	-57°06.2
Hamal	327°50.2	23°35.1
Polaris	313°24.0	89°22.1
Acamar	315°11.0	-40°11.8
Menkar	314°05.3	4°11.6
Mirafak	308°27.1	49°57.1
Aldebaran	289°38.8	16°33.7
Rigel	281°03.2	-8°10.1
Capella	280°20.9	46°01.3
Bellatrix	278°22.2	6°22.5
Elath	278°01.1	28°37.7
Alnilam	275°37.1	-1°10.9
Betelgeuse	270°51.4	7°24.8
Canopus	263°52.2	-52°42.2
Sirius	258°25.8	-16°44.8
Adhara	255°05.5	-29°00.1
Procyon	244°50.3	5°09.7
Pollux	243°16.7	27°57.8
Avior	234°14.9	-59°35.2
Suhail	222°46.2	-43°31.9
Miaplacidus	221°38.9	-69°49.1
Alphard	217°47.4	-8°46.0
Regulus	207°34.1	11°56.6
Dubhe	193°40.9	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°44.5
Gacrux	171°51.6	-57°15.4
Alioth	166°13.0	55°49.3
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.2
Hadar	148°35.8	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	-19°03.0
Rigil Kent.	139°40.1	-60°56.6
Kochab	137°20.6	74°03.1
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.9
Antares	112°15.3	-26°29.4
Atria	107°09.2	-69°04.6
Sabik	102°02.2	-15°45.4
Shaula	96°09.6	37°07.4
Rasalhague	95°58.1	51°32.6
Eltanin	90°42.0	51°29.4
Kaus Aust.	83°31.7	-34°22.4
Vega	80°32.8	38°48.7
Nunki	75°47.0	-26°15.9
Altair	61°59.3	8°56.3
Peacock	53°04.5	-56°39.3
Deneb	49°25.2	45°22.6
Enif	33°38.0	9°59.7
Al Na'ir	27°31.8	-46°50.2
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.5
Markab	13°29.0	15°20.8
Sep 25 Thu	SHA	Mer. pass.
Venus	201°08.5	10:19
Mars	150°22.4	13:41
Jupiter	246°33.7	07:16
Saturn	0°38.1	23:37
Sep 26 Fri	SHA	Mer. pass.
Venus	199°58.5	10:20
Mars	149°43.7	13:40
Jupiter	246°25.1	07:13
Saturn	0°42.4	23:33
Sep 27 Sat	SHA	Mer. pass.
Venus	198°48.6	10:21
Mars	149°04.9	13:39
Jupiter	246°16.6	07:10
Saturn	0°46.6	23:29
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	7°01.5	204°40.4	N08°47.6	155°27.4	S12°50.2	253°09.8	N21°38.5	7°52.4	S03°06.3										
1	22°04.0	219°40.0	46.5	170°28.3	50.8	268°11.9	38.5	22°55.0	06.4										
2	37°06.4	234°39.5	45.4	185°29.1	51.4	283°14.1	38.5	37°57.6	06.5										
3	52°08.9	249°39.1	· · 44.3	200°30.0	· · 52.0	298°16.2	· · 38.4	53°00.3	· · 06.5										
4	67°11.4	264°38.7	43.2	215°30.8	52.6	313°18.3	38.4	68°02.9	06.6										
5	82°13.8	279°38.2	42.1	230°31.6	53.2	328°20.4	38.3	83°05.6	06.7										
6	97°16.3	294°37.8	N08°41.0	245°32.5	S12°53.8	343°22.6	N21°38.3	98°08.2	S03°06.8										
7	112°18.2	309°37.4	39.9	260°33.3	54.4	358°24.7	38.2	113°10.8	06.8										
8	127°21.2	324°36.9	38.8	275°34.1	55.0	313°26.8	38.2	128°13.5	06.9										
9	142°23.7	339°36.5	· · 37.7	290°35.0	· · 55.6	28°28.9	· · 38.1	143°16.1	· · 07.0										
10	157°26.2	354°36.1	36.6	305°35.8	56.2	43°31.0	38.1	158°18.8	07.1										
11	172°28.6	· 9°35.6	35.5	320°36.6	56.8	58°33.2	38.0	173°21.4	07.2										
12	187°31.1	24°35.2	N08°34.4	335°37.5	S12°57.4	73°35.3	N21°38.0	188°24.0	S03°07.2										
13	202°33.5	39°34.7	33.3	350°38.3	58.0	88°37.4	37.9	203°26.7	07.3										
14	217°36.0	54°34.3	32.2	5°39.2	58.6	103°39.5	37.9	218°29.3	07.4										
15	232°38.5	69°33.9	· · 31.1	20°40.0	· · 59.2	118°41.7	· · 37.8	233°32.0	· · 07.5										
16	247°40.9	84°33.4	30.0	35°40.8	12°59.8	133°43.8	37.8	248°34.6	07.5										
17	262°43.4	99°33.0	28.9	50°41.7	13°00.4	148°45.9	37.7	263°37.2	07.6										
18	277°45.9	114°32.6	N08°27.8	65°42.5	S13°01.0	163°48.0	N21°37.7	278°39.9	S03°07.7										
19	292°48.3	129°32.1	26.7	80°43.3	01.6	178°50.2	37.7	293°42.5	07.8										
20	307°50.8	144°31.7	25.5	95°44.2	02.2	193°52.3	37.6	308°45.2	07.8										
21	322°53.3	159°31.3	· · 24.4	110°45.0	· · 02.8	208°54.4	· · 37.6	323°47.8	· · 07.9										
22	337°55.7	174°30.8	23.3	125°45.8	03.4	223°56.5	37.5	338°50.4	08.0										
23	352°58.2	189°30.4	22.2	140°46.7	04.0	238°58.7	37.5	353°53.1	08.1										
Mer.pass. 23:28				ν -0.4° d -1.1' m -3.93				ν 0.8° d -0.6' m 1.58				ν 2.1° d -0.0' m -2.11				ν 2.6° d -0.1' m 0.60			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	8°00.6	204°30.0	N08°21.1	155°47.5	S13°04.6	254°08.8	N21°37.4	8°55.7	S03°08.1
1	23°03.1	219°29.5	20.0	170°48.3	05.2	269°02.9	37.4	23°58.4	08.2
2	38°05.6	234°29.1	18.9	185°49.2	05.8	284°05.1	37.3	39°01.0	08.3
3	53°08.0	249°28.7	· · 17.8	200°50.0	· · 06.4	299°07.2	· · 37.3	54°03.6	· · 08.4
4	68°10.8	264°28.2	16.7	215°50.8	06.9	314°09.3	37.2	69°06.3	08.4
5	83°13.0	279°27.8	15.5	230°51.7	07.5	329°11.4	37.2	84°08.9	08.5
6	98°15.4	294°27.4	N08°14.4	245°52.5	S13°08.1	344°13.6	N21°37.1	99°11.6	S03°08.6
7	113°17.9	309°27.0	13.3	260°53.3	08.7	359°15.7	37.1	114°14.2	08.7
8	128°20.4	324°26.5	12.2	275°54.1	09.3	14°17.8	37.1	129°16.8	08.7
9	143°22.8	339°26.1	· · 11.1	290°55.0	· · 09.9	29°20.0	· · 37.0	144°19.5	· · 08.8
10	158°25.3	354°25.7	10.0	305°55.8	10.5	44°22.1	37.0	159°22.1	08.9
11	173°27.8	· 9°25.2	08.9	320°56.6	11.1	59°24.2	36.9	174°24.8	09.0
12	188°30.2	24°24.8	N08°07.7	335°57.5	S13°11.7	74°26.3	N21°36.9	189°27.4	S03°09.0
13	203°32.7	39°24.4	06.6	350°58.3	12.3	89°28.5	36.8	204°30.0	09.1
14	218°35.1	54°23.9	05.5	5°59.1	12.9	104°30.6	36.8	219°32.7	09.2
15	233°37.6	69°23.5	· · 04.4	21°00.0	· · 13.5	119°32.7	· · 36.7	234°35.3	· · 09.3
16	248°40.1	84°23.1	03.3	36°00.8	14.1	134°34.9	36.7	249°37.9	09.3
17	263°42.5	99°22.7	02.1	51°01.6	14.7	149°37.0	36.6	264°40.6	09.4
18	278°45.0	114°22.2	N08°01.0	66°02.4	S13°15.3	164°39.1	N21°36.6	279°43.2	S03°09.5
19	293°47.5	129°21.8	07°59.9	81°03.3	15.9	179°41.3	36.5	294°45.9	09.6
20	308°49.9	144°21.4	58.8	96°04.1	16.5	194°43.4	36.5	309°48.5	09.7
21	323°52.4	159°20.9	· · 57.7	111°04.9	· · 17.1	209°45.5	· · 36.5	324°51.1	· · 09.7
22	338°54.9	174°20.5	56.6	126°05.8	17.6	224°47.7	36.4	339°53.8	09.8
23	353°57.3	189°20.1	55.4	141°06.6	18.2	239°49.8	36.4	354°56.4	09.9
Mer.pass. 23:24 ν -0.4° d -1.1' m -3.93 ν 0.8° d -0.6' m 1.58 ν 2.1° d -0.0' m -2.11 ν 2.6° d -0.1' m 0.61									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	8°59.8	204°19.7	N07°54.3	156°07.4	S13°18.8	254°51.9	N21°36.3	9°59.1	S03°10.0										
1	24°02.3	219°19.2	53.2	171°08.2	19.4	269°54.1	36.3	25°01.7	10.0										
2	39°04.7	234°18.8	52.1	186°09.1	20.0	284°56.2	36.2	40°04.3	10.1										
3	54°07.2	249°18.4	· · 50.9	201°09.9	· · 20.6	299°58.3	· · 36.2	55°07.0	· · 10.2										
4	69°09.6	264°17.9	49.8	216°10.7	21.2	315°00.5	36.1	70°09.6	10.3										
5	84°12.1	279°17.5	48.7	231°11.5	21.8	330°02.6	36.1	85°12.3	10.3										
6	99°14.6	294°17.1	N07°47.6	246°12.4	S13°22.4	345°04.7	N21°36.0	100°14.9	S03°10.4										
7	114°17.0	309°16.7	46.4	261°13.2	23.0	· 0°6.9	36.0	115°17.5	10.5										
8	129°19.5	324°16.2	45.3	276°14.0	23.6	15°09.0	35.9	130°20.2	10.6										
9	144°22.0	339°15.8	· · 44.2	291°14.8	· · 24.2	30°11.1	· · 35.9	145°22.8	· · 10.6										
10	159°24.4	354°15.4	43.1	306°15.7	24.8	45°13.3	35.9	160°25.4	10.7										
11	174°26.9	· 9°15.0	41.9	321°16.5	25.3	60°15.4	35.8	175°28.1	10.8										
12	189°29.4	24°14.5	N07°40.8	336°17.3	S13°25.9	75°17.5	N21°35.8	190°30.7	S03°10.9										
13	204°31.8	39°14.1	39.7	351°18.1	26.5	90°19.7	35.7	205°33.4	10.9										
14	219°34.3	54°13.7	38.6	6°19.0	27.1	105°21.8	35.7	220°36.0	11.0										
15	234°36.8	69°13.3	· · 37.4	21°19.8	· · 27.7	120°24.0	· · 35.6	235°38.6	· · 11.1										
16	249°39.2	84°12.8	36.3	36°20.6	28.3	135°26.1	35.6	250°41.3	11.2										
17	264°41.7	99°12.4	35.2	51°21.4	28.9	150°28.2	35.5	265°43.9	11.2										
18	279°44.1	114°12.0	N07°34.1	66°22.3	S13°29.5	165°30.4	N21°35.5	280°46.6	S03°11.3										
19	294°46.6	129°11.6	32.9	81°23.1	30.1	180°32.5	35.4	295°49.2	11.4										
20	309°49.1	144°11.1	31.8	96°23.9	30.7	195°34.6	35.4	310°51.8	11.4										
21	324°51.5	159°10.7	· · 30.7	111°24.7	· · 31.2	210°36.8	· · 35.4	325°54.5	· · 11.5										
22	339°54.0	174°10.3	29.5	126°25.5	31.8	225°38.9	35.3	340°57.1	11.6										
23	354°56.5	189°09.9	28.4	141°26.4	32.4	240°41.1	35.3	355°59.7	11.7										
Mer.pass. 23:20				ν -0.4° d -1.1' m -3.93				ν 0.8° d -0.6' m 1.57				ν 2.1° d -0.0' m -2.12				ν 2.6° d -0.1' m 0.61			

SHA	Dec
Alpheratz	357°33.8 29°14.1
Ankaa	353°06.1 -42°09.8
Schedar	349°29.8 56°40.8
Diphda	348°46.4 -17°50.6
Achernar	335°19.2 -57°06.2
Hamal	327°50.2 23°35.1
Polaris	313°22.6 89°22.2
Acamar	315°11.0 -40°11.8
Menkar	310°05.3 4°11.6
Mirafak	308°27.1 49°57.1
Aldebaran	290°38.8 16°33.7
Rigel	281°03.2 -8°10.1
Capella	280°20.9 46°01.3
Bellatrix	278°22.2 6°22.5
Elnath	278°01.0 28°37.7
Alnilam	275°37.1 -1°11.0
Betelgeuse	270°51.4 7°24.8
Canopus	263°52.1 -52°42.2
Sirius	258°25.7 -16°44.8
Adhara	255°05.5 -29°00.1
Procyon	244°50.3 5°09.7
Pollux	243°16.7 27°57.8
Avior	234°14.8 -59°35.2
Suhail	222°46.2 -43°31.9
Miaplacidus	221°38.8 -69°49.1
Alphard	217°47.4 -8°46.0
Regulus	207°34.1 11°50.6
Dubhe	193°40.9 61°36.6
Denebola	182°24.7 14°25.8
Gienah	175°43.3 -17°41.0
Acrux	173°00.2 -63°14.5
Gacrux	171°51.6 -57°15.4
Alloth	166°13.0 55°49.3
Spica	158°22.0 -11°17.7
Alkaid	152°52.0 49°11.2
Hadar	148°35.8 -60°29.9
Menkent	147°57.3 -36°29.8
Arcturus	145°47.7 19°03.0
Rigel Kent.	139°40.1 -60°56.6
Kochab	137°20.7 74°03.1
Zuben'ubi	136°55.6 -16°08.9
Alphecca	126°03.5 26°47.8
Antares	112°15.3 -26°29.4
Atria	107°09.2 69°04.6
Sabik	102°02.2 -15°45.4
Shaula	96°09.7 -37°07.4
Rasalhague	95°58.1 12°32.6
Eltanin	90°42.0 51°29.6
Kaus Aust.	83°31.7 -34°22.4
Vega	80°32.8 38°48

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	9°58.9	204°09.5	N07°27.3	156°27.2	S13°33.0	255°43.2	N21°35.2	11°02.4	S03°11.7					
1	25°01.4	219°09.0	26.1	171°28.0	33.6	270°45.3	35.2	26°05.0	11.8					
2	40°03.9	234°08.6	25.0	186°28.8	34.2	285°47.5	35.1	41°07.7	11.9					
3	55°06.3	249°08.2	•• 23.9	201°29.7	•• 34.8	300°49.6	•• 35.1	56°10.3	•• 12.0					
4	70°08.8	264°07.8	22.7	216°30.5	35.4	315°51.8	35.0	71°12.9	12.0					
5	85°11.2	279°07.3	21.6	231°31.3	36.0	330°53.9	35.0	86°15.6	12.1					
6	100°13.7	294°06.9	N07°20.5	246°32.1	S13°36.5	345°56.0	N21°35.0	101°18.2	S03°12.6					
7	115°16.2	309°06.5	19.3	261°32.9	37.1	0°58.2	34.9	116°20.8	12.3					
8	130°18.6	324°06.1	18.2	276°33.8	37.7	16°00.3	34.9	131°23.5	12.3					
9	145°21.1	339°05.7	•• 17.1	291°34.6	•• 38.3	31°02.5	•• 34.8	146°26.1	•• 12.4					
10	160°23.6	354°05.2	15.9	306°40.8	38.9	46°04.6	34.8	161°28.8	12.5					
11	175°26.0	9°04.8	14.8	321°36.2	39.5	61°06.7	34.7	176°31.4	12.6					
12	190°28.5	24°04.4	N07°13.7	336°37.0	S13°40.1	76°08.9	N21°34.7	191°34.0	S03°12.6					
13	205°31.0	39°04.0	12.5	351°37.8	40.7	91°11.0	34.6	206°36.7	12.7					
14	220°33.4	54°03.6	11.4	6°38.7	41.3	106°13.2	34.6	221°39.3	12.8					
15	235°35.9	69°03.1	•• 10.3	21°39.5	•• 41.8	121°15.3	•• 34.5	236°41.9	•• 12.9					
16	250°38.4	84°02.7	09.1	36°40.3	42.4	136°17.5	34.5	251°44.6	12.9					
17	265°40.8	99°02.3	08.0	51°41.1	43.0	151°19.6	34.5	266°47.2	13.0					
18	280°43.3	114°01.9	N07°06.9	66°41.9	S13°43.6	166°21.8	N21°34.4	281°49.9	S03°13.1					
19	295°45.7	129°01.5	05.7	81°42.8	44.2	181°23.9	34.4	296°52.5	13.2					
20	310°48.2	144°01.0	04.6	96°43.6	44.8	196°26.0	34.3	311°55.1	13.2					
21	325°50.7	159°00.6	•• 03.4	111°44.4	•• 45.4	211°28.2	•• 34.3	326°57.8	•• 13.3					
22	340°53.1	174°00.2	02.3	126°45.2	45.9	226°30.3	34.2	342°00.4	13.4					
23	355°55.6	188°59.8	01.2	141°46.0	46.5	241°32.5	34.2	357°03.0	13.5					
Mer.pass. 23:16			ν -0.4° d -1.1° m -3.93	ν 0.8° d -0.6° m 1.57	ν 2.1° d -0.0° m -2.12	ν 2.6° d -0.1° m 0.62								

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	10°58.1	203°59.4	N07°00.0	156°46.8	S13°47.1	256°34.6	N21°34.1	12°05.7	S03°13.5					
1	26°00.5	218°59.0	06°58.9	171°47.6	47.7	271°36.8	34.1	27°08.3	13.6					
2	41°03.0	233°58.5	57.7	186°48.5	48.3	286°38.9	34.1	42°11.0	13.7					
3	56°05.5	248°58.1	•• 56.6	201°49.3	•• 48.9	301°41.1	•• 34.0	57°13.6	•• 13.8					
4	71°07.9	263°57.7	55.5	216°50.1	49.5	316°43.2	34.0	72°16.2	13.8					
5	86°10.4	278°57.3	54.3	231°50.9	50.0	331°45.4	33.9	87°18.9	13.9					
6	101°12.9	293°56.9	N06°53.2	246°51.7	S13°50.6	346°47.5	N21°33.9	102°21.5	S03°14.0					
7	116°15.3	308°56.4	52.0	261°52.5	51.2	1°49.7	34.8	117°24.4	14.0					
8	131°17.8	323°56.0	50.9	276°53.4	51.8	16°51.8	33.8	132°26.8	14.1					
9	146°20.2	338°55.6	•• 49.7	291°54.2	•• 52.4	31°53.9	•• 33.7	147°29.4	14.2					
10	161°22.7	353°55.2	48.6	306°55.0	53.0	46°56.1	33.7	162°32.0	14.3					
11	176°25.2	8°54.8	47.5	321°55.8	53.6	61°58.2	33.7	177°34.7	14.3					
12	191°27.6	23°54.4	N06°46.3	336°56.6	S13°54.1	77°00.4	N21°33.6	192°37.3	S03°14.4					
13	206°30.1	38°54.0	45.2	351°57.4	54.7	92°02.5	33.6	207°40.0	14.5					
14	221°32.6	53°53.5	44.0	6°58.2	55.3	107°04.7	•• 33.5	222°42.6	•• 14.6					
15	236°35.0	68°53.1	•• 42.9	21°59.0	•• 55.9	122°06.8	•• 33.5	237°45.2	•• 14.6					
16	251°37.5	83°52.7	41.7	36°59.9	56.5	137°09.0	33.4	252°47.9	14.7					
17	266°40.0	98°52.3	40.6	52°00.7	57.1	152°11.1	33.4	267°50.5	14.8					
18	281°42.4	113°51.9	N06°39.4	67°01.5	S13°57.6	167°13.3	N21°33.4	282°53.1	S03°14.9					
19	296°44.9	128°51.5	38.3	82°02.3	58.2	182°15.4	33.3	297°55.8	14.9					
20	311°47.3	143°51.0	37.1	97°03.1	58.8	197°17.6	33.3	312°58.4	15.0					
21	326°49.8	158°50.6	•• 36.0	112°03.9	13°59.4	212°19.8	•• 33.2	328°01.0	•• 15.1					
22	341°52.3	173°50.2	34.8	127°04.7	14°00.0	227°21.9	33.2	343°03.7	15.2					
23	356°54.7	188°49.8	33.7	142°05.5	00.6	242°24.1	33.1	358°06.3	15.2					
Mer.pass. 23:12			ν -0.4° d -1.1° m -3.93	ν 0.8° d -0.6° m 1.57	ν 2.1° d -0.0° m -2.13	ν 2.6° d -0.1° m 0.62								

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	11°57.2	203°49.4	N06°32.5	157°06.3	S14°01.1	257°26.2	N21°33.1	13°09.0	S03°15.3					
1	26°59.7	218°49.0	31.4	172°07.1	01.7	272°28.4	33.0	28°11.6	15.4					
2	42°02.1	233°48.6	30.2	187°08.0	02.3	287°30.5	33.0	43°14.2	15.4					
3	57°04.6	248°48.1	•• 29.1	202°08.8	•• 02.9	302°32.7	•• 33.0	58°16.9	•• 15.5					
4	72°07.1	263°47.7	27.9	217°09.6	03.5	317°34.8	32.9	73°19.5	15.6					
5	87°09.5	278°47.3	26.8	232°10.4	04.0	332°37.0	32.9	88°22.1	15.7					
6	102°12.0	293°46.9	N06°25.6	247°11.2	S14°04.6	347°39.1	N21°32.8	103°24.8	S03°15.7					
7	117°14.5	308°46.5	24.5	262°12.0	05.2	2°41.3	32.8	118°27.4	15.8					
8	132°16.9	323°46.1	23.3	277°12.8	05.8	17°43.4	32.7	133°30.0	15.9					
9	147°19.4	338°45.7	•• 22.2	292°13.6	•• 06.4	32°45.6	•• 32.7	148°32.7	•• 16.0					
10	162°21.8	353°45.3	21.0	307°14.4	06.9	47°47.7	32.7	163°35.3	16.0					
11	177°24.3	8°44.8	19.9	322°15.2	07.5	62°49.9	32.6	178°30.0	16.1					
12	192°26.8	23°44.4	N06°18.7	337°16.0	S14°08.1	77°52.1	N21°32.6	193°40.6	S03°16.2					
13	207°29.2	38°44.0	17.6	352°16.8	08.7	92°54.2	32.5	208°43.2	16.2					
14	222°31.7	53°43.6	16.4	7°17.7	09.3	107°56.4	32.5	223°45.9	16.3					
15	237°34.2	68°43.2	•• 15.3	22°18.5	•• 09.8	122°58.5	•• 32.4	238°48.5	•• 16.4					
16	252°36.6	83°42.8	14.1	37°19.3	10.4	138°00.7	32.4	253°51.1	16.5					
17	267°39.1	98°42.4	13.0	52°20.1	11.0	153°02.8	32.4	268°53.8	16.5					
18	282°41.1	113°42.0	N06°11.8	67°20.9	S14°11.6	168°05.0	N21°32.3	283°56.4	S03°16.6					
19	297°44.0	128°41.6	10.6	82°21.7	12.2	183°07.2	32.3	298°59.0	16.7					
20	312°46.5	143°41.1	09.5	97°22.5	12.7	198°09.3	32.2	314°01.7	16.8					
21	327°49.0	158°40.7	•• 08.3	112°23.3	•• 13.3	213°11.5	•• 32.2	329°04.3	•• 16.8					
22	342°51.4	173°40.3	07.2	127°24.1	13.9	228°13.6	32.1	344°06.9	16.9					
23	357°53.9	188°39.9	06.0	142°24.9	14.5	243°15.8	32.1	359°06.6	17.0					
Mer.pass. 23:08			ν -0.4° d -1.1° m -3.92	ν 0.8° d -0.6° m 1.56	ν 2.2° d -0.0° m -2.13	ν 2.6° d -0.1° m 0.63								

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.8
Schedar	349°29.8	56°40.8
Diphda	348°46.4	-17°50.6
Achernar	335°19.1	-57°06.2
Hamal	327°50.2	23°35.2
Polaris	313°21.4	89°22.2
Acamar	315°11.0	-40°11.8
Menkar	314°05.3	4°11.6
Mirafak	308°27.0	49°57.1
Aldebaran	290°38.8	16°33.7
Rigel	281°03.2	-8°10.1
Capella	280°20.8	46°01.3
Bellatrix	278°22.1	6°22.5
Elinath	278°01.0	28°37.7
Alnilam	275°37.0	-1°11.0
Betelgeuse	270°51.4	7°24.8
Canopus	263°52.1	-52°42.2
Sirius	258°25.7	-16°44.8
Adhara	255°05.4	-29°00.1
Procyon	244°50.3	5°09.7
Pollux	243°16.7	27°57.8
Avior	234°14.8	-59°35.2
Suhail	222°46.2	-43°31.9
Miaplacidus	221°38.8	-69°49.0
Alphard	217°47.4	-8°46.0
Regulus	207°34.1	11°50.6
Dubhe	193°40.8	61°36.7
Denebola	182°24.7	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.5
Gacrux	171°51.6	-57°15.4
Alioth	166°13.0	55°49.3
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.2
Hadar	148°35.8	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.6
Kochab	137°20.7	74°03.1
Zuben 'ul	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.3	-26°29.4
Atria	107°09.2	-69°04.6
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.4
Rasalhague	95°58.1	12°02.6
Eltanin	90°42.0	51°29.4
Kaus Aust.	83°31.7	-34°22.4
Vega	80°32.8	38°48.7
Nunki	75°47.0	-26°15.9
Altair	61°59.3	8°56.3
Peacock	53°04.5	-56°39.3
Deneb	49°25.2	45°22.6
Enif	33°38.0	9°59.8
Al Na'ir	27°31.8	-46°50.2
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.5
Markab	13°29.0	15°20.8
Oct 01 Wed	SHA	Mer.pass
Venus	194°10.5	10.24
Mars	146°28.3	13.33
Jupiter	245°44.3	06.56
Saturn	1°03.5	23.12
Oct 02 Thu	SHA	Mer.pass
Venus	193°01.3	10.24
Mars	145°48.8	13.32
Jupiter	245°36.6	06.53
Saturn	1°07.6	23.08
Oct 03 Fri	SHA	Mer.pass
Venus	191°52.2	10.25
Mars	145°09.1	13.31
Jupiter	245°29.0	06.49
Saturn	1°11.8	23.03
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	12°56.3	203°39.5	N06°04.9	157°25.7	S14°15.1	258°17.9	N21°32.1	14°12.2	S03°17.0										
1	27°58.8	218°39.1	03.7	172°26.5	15.6	273°20.1	32.0	29°14.8	17.1										
2	43°01.3	233°38.7	02.6	187°27.3	16.2	288°22.3	32.0	44°17.5	17.2										
3	58°03.7	248°38.3	.. 01.4	202°28.1	.. 16.8	303°24.4	.. 31.9	59°20.1	.. 17.3										
4	73°06.2	263°37.9	06°00.2	217°28.9	17.4	318°26.6	31.9	74°22.7	17.3										
5	88°08.7	278°37.1	05°59.1	232°29.7	18.0	333°28.7	31.8	89°25.4	17.4										
6	103°11.1	293°37.1	N05°57.9	247°30.5	S14°18.5	348°30.9	N21°31.8	104°28.0	S03°17.9										
7	118°13.6	308°36.6	56.8	262°31.3	19.1	3°33.1	31.8	119°30.7	17.6										
8	133°16.1	323°36.2	55.6	277°32.1	19.7	18°35.2	31.7	134°33.3	17.6										
9	148°18.5	338°35.8	.. 54.4	292°32.9	.. 20.3	33°37.4	.. 31.7	149°35.9	.. 17.7										
10	163°21.0	353°35.4	53.3	307°33.7	20.8	48°39.5	31.6	164°38.6	17.8										
11	178°23.4	8°35.0	52.1	322°34.5	21.4	63°41.7	31.6	179°41.2	17.8										
12	193°25.9	23°34.6	N05°51.0	337°35.3	S14°22.0	78°43.9	N21°31.5	194°43.8	S03°17.9										
13	208°28.4	38°34.2	49.8	352°36.1	22.6	93°46.0	31.5	209°46.5	18.0										
14	223°30.8	53°33.8	48.6	7°36.9	23.1	108°48.2	31.5	224°49.1	18.1										
15	238°33.3	68°33.4	.. 47.5	22°37.7	.. 23.7	123°50.4	.. 31.4	239°51.7	.. 18.1										
16	253°35.8	83°33.0	46.3	37°38.5	24.3	138°52.5	31.4	254°54.4	18.2										
17	268°38.2	98°32.6	45.1	52°39.3	24.9	153°54.7	31.3	269°57.0	18.3										
18	283°40.7	113°32.2	N05°44.0	67°40.1	S14°25.4	168°56.8	N21°31.3	284°59.6	S03°18.4										
19	298°43.2	128°31.7	42.8	82°40.9	26.0	183°59.0	31.2	300°02.3	18.4										
20	313°45.6	143°31.3	41.7	97°41.7	26.6	199°01.2	31.2	315°04.9	18.5										
21	328°48.1	158°30.9	.. 40.5	112°42.5	.. 27.2	214°03.3	.. 31.2	330°07.5	.. 18.6										
22	343°50.6	173°30.5	39.7	127°43.3	27.9	229°05.5	31.1	345°10.2	18.6										
23	358°53.0	188°30.1	38.2	142°44.1	28.3	244°07.7	31.1	0°12.8	18.7										
Mer.pass. 23:04				ν -0.4° d -1.2° m -3.92				ν 0.8° d -0.6° m 1.56				ν 2.2° d -0.0° m -2.14				ν 2.6° d -0.1° m 0.63			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	13°55.5	203°29.7	N05°37.0	157°44.9	S14°28.9	259°09.8	N21°31.0	15°15.4	S03°18.8										
1	28°57.9	218°29.3	35.8	172°45.7	29.5	274°12.0	31.0	30°18.1	18.9										
2	44°00.4	233°28.9	34.7	187°46.5	30.0	289°14.0	31.0	45°20.7	18.9										
3	59°02.9	248°28.5	.. 33.5	202°47.3	.. 30.6	304°16.3	.. 30.9	60°23.3	.. 19.0										
4	74°05.3	263°28.1	32.3	217°48.1	31.2	319°18.5	30.9	75°26.0	19.1										
5	89°07.8	278°27.7	31.2	232°48.9	31.8	334°20.7	30.8	90°28.6	19.1										
6	104°10.3	293°27.3	N05°30.0	247°49.7	S14°32.3	349°22.8	N21°30.8	105°31.2	S03°19.2										
7	119°12.7	308°26.9	28.8	262°50.5	32.9	4°25.0	30.7	120°33.9	19.3										
8	134°15.2	323°26.5	27.7	277°51.3	33.5	19°27.2	30.7	135°36.5	19.4										
9	149°17.7	338°26.1	.. 26.5	292°52.1	.. 34.1	34°29.3	.. 30.7	150°39.1	.. 19.4										
10	164°20.1	353°25.7	25.3	307°52.9	34.6	49°31.5	30.6	165°41.8	19.5										
11	179°22.6	8°25.3	24.2	322°53.7	35.2	64°33.7	30.6	180°44.4	19.6										
12	194°25.0	23°24.9	N05°23.0	337°54.5	S14°35.8	79°35.8	N21°30.5	195°47.0	S03°19.6										
13	209°27.5	38°24.4	21.8	352°55.3	36.4	94°38.0	30.5	210°49.7	19.7										
14	224°30.0	53°24.0	20.7	7°56.1	36.9	109°40.2	30.5	225°52.3	19.8										
15	239°32.4	68°23.6	.. 19.5	22°56.9	.. 37.5	124°42.4	.. 30.4	240°54.9	.. 19.9										
16	254°34.9	83°23.2	18.3	37°57.7	38.1	139°44.5	30.4	255°57.6	19.9										
17	269°37.4	98°22.8	17.1	52°58.5	38.6	154°46.7	30.3	271°00.2	20.0										
18	284°39.8	113°22.4	N05°16.0	67°59.2	S14°39.2	169°48.9	N21°30.3	286°02.8	S03°20.1										
19	299°42.3	128°22.0	14.8	83°00.0	39.8	184°51.0	30.2	301°05.5	20.1										
20	314°44.8	143°21.6	13.6	98°00.8	40.4	199°53.2	30.2	316°08.1	20.2										
21	329°47.2	158°21.2	.. 12.5	113°01.6	.. 40.9	214°55.4	.. 30.2	331°10.7	.. 20.3										
22	344°49.7	173°20.8	11.3	128°02.4	41.5	229°57.5	30.1	346°13.4	20.4										
23	359°52.2	188°20.4	10.1	143°03.2	42.1	244°59.7	30.1	1°16.0	20.4										
Mer.pass. 23:01				ν -0.4° d -1.2' m -3.92				ν 0.8° d -0.6' m 1.56				ν 2.2° d -0.0' m -2.15				ν 2.6° d -0.1' m 0.63			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	14°54.6	203°20.0	N05°08.9	158°04.0	S14°42.6	260°01.9	N21°30.0	16°18.6	S03°20.5										
1	29°57.1	218°19.6	07.8	173°04.8	43.2	275°04.1	30.0	31°21.3	20.6										
2	44°59.5	233°19.2	06.6	188°05.6	43.8	290°06.2	30.0	46°23.9	20.6										
3	60°02.0	248°18.8	.. 05.4	203°06.4	.. 44.3	305°08.4	.. 29.9	61°26.5	.. 20.7										
4	75°04.5	263°18.4	04.3	218°07.2	44.9	320°10.6	29.9	76°29.2	20.8										
5	90°06.9	278°18.0	03.1	233°08.0	45.5	335°12.8	29.8	91°31.8	20.9										
6	105°09.4	293°17.6	N05°01.9	248°08.8	S14°46.1	350°14.9	N21°29.8	106°34.4	S03°20.9										
7	120°11.9	308°17.2	05°00.7	263°09.5	46.6	5°17.1	29.8	121°37.1	21.0										
8	135°14.3	323°16.8	04°59.6	278°10.3	47.2	20°19.3	29.7	136°39.7	21.1										
9	150°16.8	338°16.4	.. 58.4	293°11.1	.. 47.8	35°21.5	.. 29.7	151°42.3	.. 21.1										
10	165°19.3	353°16.0	57.2	308°11.9	48.3	50°23.6	29.6	166°45.0	21.2										
11	180°21.7	8°15.6	56.0	323°12.7	48.9	65°25.8	29.6	181°47.6	21.3										
12	195°24.2	23°15.2	N04°54.9	338°13.5	S14°49.5	80°28.0	N21°29.6	196°50.2	S03°21.3										
13	210°26.7	38°14.8	53.7	353°14.3	50.0	95°30.2	29.5	211°52.8	21.4										
14	225°29.1	53°14.4	52.5	8°15.1	50.6	110°32.3	29.5	226°55.5	21.5										
15	240°31.6	68°14.0	.. 51.3	23°15.9	.. 51.2	125°34.5	.. 29.4	241°58.1	.. 21.6										
16	255°34.0	83°13.6	50.2	38°16.6	51.7	140°36.7	29.4	257°00.7	21.6										
17	270°36.5	98°13.2	49.0	53°17.4	52.3	155°38.9	29.3	272°03.4	21.7										
18	285°39.0	113°12.8	N04°47.8	68°18.2	S14°52.9	170°41.0	N21°29.3	287°06.0	S03°21.8										
19	300°41.4	128°12.4	46.6	83°19.0	53.4	185°43.2	29.3	302°08.6	21.8										
20	315°43.9	143°12.0	45.4	98°19.8	54.0	200°45.4	29.2	317°11.3	21.9										
21	330°46.4	158°11.6	.. 44.3	113°20.6	.. 54.6	215°47.6	.. 29.2	332°13.9	.. 22.0										
22	345°48.8	173°11.2	43.1	128°21.4	55.1	230°49.7	29.1	347°16.5	22.1										
23	360°51.3	188°10.8	41.9	143°22.2	55.7	245°51.9	29.1	2°19.2	22.1										
Mer.pass. 22:57				ν -0.4° d -1.2° m -3.92				ν 0.8° d -0.6° m 1.56				ν 2.2° d -0.0° m -2.15				ν 2.6° d -0.1° m 0.64			

Stars	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.8
Diphda	348°46.4	-17°50.6
Achernar	335°19.1	-57°06.2
Hamal	327°50.2	23°35.2
Polaris	313°20.5	89°22.2
Acamar	315°10.9	-40°11.6
Menkar	314°05.3	-4°11.8
Mirafak	308°27.0	49°57.1
Aldebaran	298°38.7	16°33.7
Rigel	281°03.2	-8°10.1
Capella	280°20.8	46°01.3
Bellatrix	278°22.1	6°22.5
Elmath	278°01.0	28°37.7
Alnilam	275°37.0	-1°11.0
Betelgeuse	270°51.4	7°24.8
Canopus	263°52.1	-52°42.2
Sirius	258°25.7	-16°44.8
Adhara	255°05.4	-29°00.1
Procyon	244°50.3	5°09.7
Pollux	243°16.7	27°57.8
Avior	234°14.8	-59°35.1
Suhail	222°46.1	-43°31.9
Miaplacidus	221°38.7	-69°49.0
Alghol	217°47.4	-8°46.0
Regulus	207°34.0	11°56.6
Dubhe	193°40.8	61°36.6
Denelbora	182°24.6	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.4
Gacrux	171°51.6	-57°15.4
Alloth	166°13.0	55°49.2
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.2
Hadar	148°35.8	-60°29.9
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.6
Kochab	137°20.7	74°03.1
Zuben el	136°55.6	-16°09.8
Alphecca	126°03.5	26°37.8
Antares	112°15.3	-26°29.4
Atria	107°09.2	69°04.6
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.4

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	15°53.8	203°10.4	N04°40.7	158°22.9	S14°56.3	260°54.1	N21°29.1	17°21.8	S03°22.2										
1	30°56.2	218°10.0	39.6	173°23.7	56.8	275°56.3	29.0	32°24.4	22.3										
2	45°58.7	233°09.6	38.4	188°24.5	57.4	290°58.5	29.0	47°27.1	22.3										
3	61°01.1	248°09.2	· · 37.2	203°25.3	· · 58.0	306°00.6	· · 28.9	62°29.7	· · 22.4										
4	76°03.6	263°08.8	36.0	218°26.1	58.5	321°02.8	28.9	77°32.3	22.5										
5	91°06.1	278°08.4	34.8	233°26.9	59.1	336°05.0	28.9	92°35.0	22.5										
6	106°08.5	293°08.0	N04°33.7	248°27.7	S14°59.7	351°07.2	N21°28.8	107°37.6	S03°22.2										
7	121°11.0	308°07.6	32.5	263°28.4	15°00.2	6°09.4	28.8	122°40.2	22.7										
8	136°13.5	323°07.2	31.3	278°29.2	00.8	21°11.5	28.7	137°42.8	22.8										
9	151°15.9	338°06.8	· · 30.1	293°30.0	· · 01.4	36°13.7	· · 28.7	152°45.5	· · 22.8										
10	166°18.4	353°06.4	28.9	308°30.8	01.9	51°15.9	28.7	167°48.1	22.9										
11	181°20.9	8°06.0	27.7	323°31.6	02.5	66°18.1	28.6	182°50.7	23.0										
12	196°23.3	23°05.6	N04°26.6	338°32.4	S15°03.1	81°20.3	N21°28.6	197°53.4	S03°23.0										
13	211°25.8	38°05.2	25.4	353°33.1	03.6	96°22.5	28.5	212°56.0	23.1										
14	226°28.3	53°04.8	24.2	8°33.9	04.2	111°24.6	28.5	227°58.6	23.2										
15	241°30.7	68°04.4	· · 23.0	23°34.7	· · 04.8	126°26.8	· · 28.5	243°01.3	· · 23.2										
16	256°33.2	83°04.0	21.8	38°35.5	05.3	141°29.0	28.4	258°03.9	23.2										
17	271°35.6	98°03.6	20.6	53°36.3	05.9	156°31.2	28.4	273°06.5	23.4										
18	286°38.1	113°03.2	N04°19.5	68°37.1	S15°06.5	171°33.4	N21°28.3	288°09.1	S03°23.5										
19	301°40.6	128°02.8	18.3	83°37.8	07.0	186°35.6	28.3	303°11.8	23.5										
20	316°43.0	143°02.4	17.1	98°38.6	07.6	201°37.7	28.3	318°14.4	23.6										
21	331°45.5	158°02.0	· · 15.9	113°39.4	· · 08.1	216°39.9	· · 28.2	333°17.0	· · 23.7										
22	346°48.0	173°01.6	14.7	128°40.2	08.7	231°42.1	28.2	348°19.7	23.7										
23	1°50.4	188°01.2	13.5	143°41.0	09.3	246°44.3	28.2	3°22.3	23.8										
Mer.pass. 22:53				ν -0.4' d -1.2' m -3.92				ν 0.8' d -0.6' m 1.55				ν 2.2' d -0.0' m -2.16				ν 2.6' d -0.1' m 0.64			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	16°52.9	203°00.8	N04°12.4	158°41.7	S15°09.8	261°46.5	N21°28.1	18°24.9	S03°23.9										
1	31°55.4	218°00.4	11.2	173°42.5	10.4	276°48.7	28.1	33°27.6	23.9										
2	46°57.8	233°00.0	10.0	188°43.5	11.0	291°50.9	28.0	48°30.2	24.0										
3	62°00.3	247°59.6	· · 08.8	203°44.1	· · 11.5	306°53.0	· · 28.0	63°32.8	· · 24.1										
4	77°02.7	262°59.2	07.6	218°44.9	12.1	321°55.2	28.0	78°35.4	24.1										
5	92°05.2	277°58.8	06.4	233°45.6	12.6	336°57.4	27.9	93°38.1	24.2										
6	107°07.7	292°58.4	N04°05.2	248°46.4	S15°13.2	351°59.6	N21°27.9	108°40.7	S03°24.3										
7	122°10.1	307°58.0	04.0	263°47.2	13.8	7°01.8	27.8	123°43.3	24.4										
8	137°12.6	322°57.6	02.9	278°48.0	14.3	22°04.4	27.8	138°46.0	24.4										
9	152°15.1	337°57.2	· · 01.7	293°48.7	· · 14.9	37°06.2	· · 27.8	153°48.8	· · 24.5										
10	167°17.5	352°56.8	04°00.5	308°49.5	15.4	52°08.4	27.7	168°51.2	24.6										
11	182°20.0	7°56.4	03°59.3	323°50.3	16.0	67°10.5	27.7	183°53.9	24.6										
12	197°22.5	22°56.0	N03°58.1	338°51.1	S15°16.6	82°12.7	N21°27.6	198°56.5	S03°24.7										
13	212°24.9	37°55.6	56.9	353°51.9	17.1	97°14.9	27.6	213°59.1	24.8										
14	227°27.4	52°55.2	55.7	8°52.6	17.7	112°17.1	27.6	229°01.7	24.8										
15	242°29.9	67°54.8	· · 54.5	23°53.4	· · 18.2	127°19.3	· · 27.5	244°04.4	· · 24.9										
16	257°32.3	82°54.4	53.4	38°54.2	18.8	142°21.5	27.5	259°07.0	25.0										
17	272°34.8	97°54.1	52.2	53°55.0	19.4	157°23.7	27.4	274°09.6	25.0										
18	287°37.2	112°53.7	N03°51.0	68°55.7	S15°19.9	172°25.9	N21°27.4	289°12.3	S03°25.1										
19	302°39.7	127°53.3	49.8	83°56.5	20.5	187°28.1	27.4	304°14.9	25.2										
20	317°42.2	142°52.9	48.6	98°57.3	21.0	202°30.3	27.3	319°17.5	25.2										
21	332°44.6	157°52.5	· · 47.4	113°58.1	· · 21.6	217°32.4	· · 27.3	334°20.1	· · 25.3										
22	347°47.1	172°52.1	46.2	128°58.8	22.2	232°34.6	27.3	349°22.8	25.4										
23	2°49.6	187°51.7	45.0	143°59.6	22.2	247°36.8	27.2	4°25.4	25.5										
Mer.pass. 22:49				ν -0.4' d -1.2' m -3.92				ν 0.8' d -0.6' m 1.55				ν 2.2' d -0.0' m -2.16				ν 2.6' d -0.1' m 0.65			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	17°52.0	202°51.3	N03°43.8	159°00.4	S15°23.3	262°39.0	N21°27.2	19°28.0	S03°25.5
1	32°54.5	217°50.9	42.6	174°01.2	23.8	277°41.2	27.1	34°30.7	25.6
2	47°57.0	232°50.5	41.4	189°01.9	24.4	292°43.4	27.1	49°33.3	25.7
3	62°59.4	247°50.1	· · 40.3	204°02.7	· · 24.9	307°45.6	· · 27.1	64°35.9	· · 25.7
4	78°01.9	262°49.7	39.1	219°03.5	25.5	322°47.8	27.0	79°38.5	25.8
5	93°04.4	277°49.3	37.9	234°04.2	26.1	337°50.0	27.0	94°41.2	25.9
6	108°06.8	292°48.9	N03°36.7	249°05.0	S15°26.6	352°52.2	N21°26.9	109°43.8	S03°25.9
7	123°09.3	307°48.5	35.5	264°05.8	27.2	7°54.4	26.9	124°46.4	26.0
8	138°11.7	322°48.1	34.3	279°06.6	27.7	22°56.6	26.9	139°49.0	26.1
9	153°14.2	337°47.7	· · 33.1	294°07.3	· · 28.3	37°58.8	· · 26.8	154°51.7	· · 26.1
10	168°16.7	352°47.3	31.9	309°08.1	28.8	53°01.0	26.8	169°54.3	26.2
11	183°19.1	7°46.9	30.7	324°08.9	29.4	68°03.2	26.8	184°56.9	26.3
12	198°21.6	22°46.5	N03°29.5	339°09.6	S15°30.0	83°05.4	N21°26.7	199°59.6	S03°26.3
13	213°24.1	37°46.1	28.3	354°10.4	30.5	98°07.5	26.7	215°02.2	26.4
14	228°26.5	52°45.8	27.1	9°11.2	31.1	113°09.7	26.6	230°04.8	26.5
15	243°29.0	67°45.4	· · 25.9	24°12.0	· · 31.6	128°11.9	· · 26.6	245°07.4	· · 26.5
16	258°31.5	82°45.0	24.7	39°12.7	32.2	143°14.1	26.6	260°10.1	26.6
17	273°33.9	97°44.6	23.5	54°13.5	32.7	158°16.3	26.5	275°12.7	26.7
18	288°36.4	112°44.2	N03°22.3	69°14.3	S15°33.3	173°18.5	N21°26.5	290°15.5	S03°26.7
19	303°38.8	127°43.8	21.2	84°15.0	33.8	188°20.7	26.5	305°17.9	26.8
20	318°41.3	142°43.4	20.0	99°15.8	34.4	203°22.9	26.4	320°20.6	26.9
21	333°43.8	157°43.0	· · 18.8	114°16.6	· · 35.0	218°25.1	· · 26.4	335°23.2	· · 27.0
22	348°46.2	172°42.6	17.6	129°17.3	35.5	233°27.3	26.3	350°25.8	27.0
23	3°48.7	187°42.2	16.4	144°18.1	36.1	248°29.5	26.3	5°28.5	27.1
Mer.pass. 22:45 ν -0.4' d -1.2' m -3.92 ν 0.8' d -0.6' m 1.55 ν 2.2' d -0.0' m -2.17 ν 2.6' d -0.1' m 0.65									

	Stars	
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.8
Diphda	348°46.4	-17°50.6
Achernar	335°19.1	-57°06.2
Hamal	327°50.2	23°35.2
Polaris	313°19.5	89°22.2
Acamar	315°10.9	-40°11.8
Menkar	314°05.2	4°11.6
Mirfak	308°27.0	49°57.1
Aldebaran	299°38.7	16°33.7
Rigel	281°03.1	-8°10.1
Capella	280°20.8	46°01.3
Bellatrix	278°22.1	6°22.5
Elnath	278°01.0	28°37.7
Alnilam	275°37.0	-1°11.0
Betelgeuse	270°51.3	7°24.8
Canopus	263°52.0	-52°42.2
Sirius	258°25.7	-16°44.8
Adhara	255°05.4	-29°00.1
Procyon	244°50.3	5°09.7
Pollux	243°16.6	27°57.8
Avior	234°14.7	-59°35.1
Suhail	222°46.1	-43°31.9
Miaplacidus	221°38.7	-69°49.0
Alphard	217°47.4	-8°46.0

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	18°51.2	202°41.8	N03°15.2	159°18.9	S15°36.6	263°31.7	N21°26.3	20°31.1	S03°27.2										
1	33°53.6	217°41.4	14.0	174°19.6	37.2	278°33.9	26.2	35°33.7	27.2										
2	48°56.1	232°41.0	12.8	189°20.4	37.7	293°36.1	26.2	50°36.3	27.3										
3	63°58.6	247°40.6	.. 11.6	204°21.2	.. 38.3	308°38.3	.. 26.1	65°39.0	.. 27.4										
4	79°01.0	262°40.2	10.4	219°21.9	38.8	323°40.5	26.0	80°41.6	27.4										
5	94°03.5	277°39.8	09.2	234°22.7	39.4	338°42.7	26.1	95°44.2	27.5										
6	109°06.0	292°39.4	N03°08.8	249°23.5	S15°39.9	353°44.9	N21°26.3	110°46.8	S03°27.6										
7	124°08.4	307°39.1	06.8	264°24.2	40.5	8°47.1	26.0	125°49.5	27.6										
8	139°10.9	322°38.7	05.6	279°25.0	41.0	23°49.3	26.0	140°52.1	27.7										
9	154°13.3	337°38.3	.. 04.4	294°25.8	.. 41.6	38°51.5	.. 25.9	155°54.7	.. 27.8										
10	169°15.8	352°37.9	03.2	309°26.5	42.1	53°53.7	25.9	170°57.3	27.8										
11	184°18.3	7°37.5	02.0	324°27.3	42.7	68°55.9	25.9	186°00.0	27.9										
12	199°20.7	22°37.1	N03°00.8	339°28.1	S15°43.2	83°58.1	N21°25.8	201°02.6	S03°28.0										
13	214°23.2	37°36.7	02°59.6	354°28.8	43.8	99°00.3	25.8	216°05.2	28.0										
14	229°25.7	52°36.3	58.4	9°29.6	44.4	114°02.5	25.7	231°07.8	28.1										
15	244°28.1	67°35.9	.. 57.2	24°30.4	.. 44.9	129°04.8	.. 25.7	246°10.5	.. 28.2										
16	259°30.6	82°35.5	56.0	39°31.1	45.5	144°07.0	25.7	261°13.1	28.2										
17	274°33.1	97°35.1	54.8	54°31.9	46.0	159°09.2	25.6	276°15.7	28.3										
18	289°35.5	112°34.7	N02°53.6	69°32.6	S15°46.6	174°11.4	N21°25.6	291°18.4	S03°28.4										
19	304°38.0	127°34.3	52.4	84°33.4	47.1	189°13.6	25.6	306°21.0	28.4										
20	319°40.5	142°33.9	51.2	99°34.2	47.7	204°15.8	25.5	321°23.6	28.5										
21	334°42.9	157°33.6	.. 50.0	114°34.9	.. 48.2	219°18.0	.. 25.5	336°26.2	.. 28.6										
22	349°45.4	172°33.2	48.8	129°35.7	48.8	234°20.2	25.5	351°28.9	28.6										
23	4°47.8	187°32.8	47.6	144°36.5	49.3	249°22.4	25.4	6°31.5	28.7										
Mer.pass. 22:41				ν -0.4° d -1.2° m -3.92				ν 0.8° d -0.6° m 1.54				ν 2.2° d -0.0° m -2.17				ν 2.6° d -0.1° m 0.66			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	19°50.3	202°32.4	N02°46.4	159°37.2	S15°49.9	264°24.6	N21°25.4	21°34.1	S03°28.8
1	34°52.8	217°32.0	45.2	174°38.0	50.4	279°26.8	25.3	36°36.7	28.8
2	49°55.2	232°31.6	44.0	189°38.7	51.0	294°29.0	25.3	51°39.4	28.9
3	64°57.7	247°31.2	.. 42.8	204°39.5	.. 51.5	309°31.2	.. 25.3	66°42.0	.. 29.0
4	80°00.2	262°30.8	41.6	219°40.3	52.0	324°33.4	25.2	81°44.6	29.0
5	95°02.6	277°30.4	40.4	234°41.0	52.6	339°35.6	25.2	96°47.2	29.1
6	110°05.1	292°30.0	N02°39.2	249°41.8	S15°53.1	354°37.8	N21°25.2	111°49.9	S03°29.2
7	125°07.6	307°29.6	38.0	264°42.5	53.7	9°40.1	25.1	126°52.5	29.2
8	140°10.0	322°29.2	36.8	279°43.3	54.2	24°42.3	25.1	141°55.1	29.3
9	155°12.5	337°28.8	.. 35.6	294°44.1	.. 54.8	39°44.5	.. 25.1	156°57.7	.. 29.4
10	170°15.0	352°28.5	34.4	309°44.8	55.3	54°46.7	25.0	172°00.3	29.4
11	185°17.4	7°28.1	33.2	324°45.6	55.9	69°48.9	25.0	187°03.0	29.5
12	200°19.9	22°27.7	N02°32.0	339°46.3	S15°56.4	84°51.1	N21°24.9	202°05.6	S03°29.6
13	215°22.3	37°27.3	30.8	354°47.1	57.0	99°53.3	24.9	217°08.2	29.6
14	230°24.8	52°26.9	29.5	9°47.8	57.5	114°55.5	24.9	232°10.8	29.7
15	245°27.3	67°26.5	.. 28.3	24°48.6	.. 58.1	129°57.7	.. 24.8	247°13.5	.. 29.8
16	260°29.7	82°26.1	27.1	39°49.4	58.6	144°59.9	24.8	262°16.1	29.8
17	275°32.2	97°25.7	25.9	54°50.1	59.2	160°02.2	24.8	277°18.7	29.9
18	290°34.7	112°25.3	N02°24.7	69°50.9	S15°59.7	175°04.4	N21°24.7	292°21.3	S03°30.0
19	305°37.1	127°24.9	23.5	84°51.6	16°00.3	209°06.6	24.7	307°24.0	30.0
20	320°39.6	142°24.5	22.3	99°52.4	00.8	205°08.8	24.7	322°26.6	30.1
21	335°42.1	157°24.1	.. 21.1	114°53.1	.. 01.3	220°11.0	.. 24.6	337°29.2	.. 30.2
22	350°44.5	172°23.8	19.9	129°53.9	01.9	235°13.2	24.6	352°31.8	30.2
23	5°47.0	187°23.4	18.7	144°54.7	02.4	250°15.4	24.6	7°34.5	30.3
Mer.pass. 22:37 ν -0.4° d -1.2° m -3.92 ν 0.8° d -0.5° m 1.54 ν 2.2° d -0.0° m -2.18 ν 2.6° d -0.1° m 0.66									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	20°49.5	202°23.0	N02°17.5	159°55.4	S16°03.0	265°17.6	N21°24.5	22°37.1	S03°30.4
1	35°51.9	217°22.6	16.3	174°56.2	03.5	280°19.9	24.5	37°39.7	30.4
2	50°54.4	232°22.2	15.1	189°56.9	04.1	295°22.1	24.4	52°42.3	30.5
3	65°56.8	247°21.8	.. 13.9	204°57.7	.. 04.6	310°24.3	.. 24.4	67°45.0	.. 30.5
4	80°59.3	262°21.4	12.7	219°58.4	05.2	325°26.5	24.4	82°47.6	30.6
5	96°01.8	277°21.0	11.5	234°59.2	05.7	340°28.7	24.3	97°50.2	30.7
6	111°04.2	292°20.6	N02°10.3	249°59.9	S16°06.2	355°30.9	N21°24.3	112°52.8	S03°30.7
7	126°06.7	307°20.2	09.0	265°00.7	06.8	10°33.1	24.3	127°65.4	30.8
8	141°09.2	322°19.8	07.8	280°01.4	07.3	25°35.4	24.2	142°58.1	30.9
9	156°11.6	337°19.4	.. 06.6	295°02.2	.. 07.9	40°37.6	.. 24.2	158°00.7	.. 30.9
10	171°14.1	352°19.1	05.4	310°02.9	08.4	55°39.8	24.2	173°03.3	31.0
11	186°16.6	7°18.7	04.2	325°03.7	09.0	70°42.0	24.1	188°05.9	31.1
12	201°19.0	22°18.3	N02°03.0	340°04.5	S16°09.5	85°44.2	N21°24.1	203°08.6	S03°31.1
13	216°21.5	37°17.9	01.8	355°05.2	10.0	100°46.4	24.1	218°11.2	31.2
14	231°23.9	52°17.5	02°00.6	10°06.0	10.6	115°48.7	.. 24.0	233°13.8	31.3
15	246°26.4	67°17.1	01°59.4	25°06.7	.. 11.1	130°50.9	.. 24.0	248°16.4	.. 31.3
16	261°28.9	82°16.7	58.2	40°07.5	11.7	145°53.1	24.0	263°19.0	31.4
17	276°31.3	97°16.3	57.0	55°08.2	12.2	160°55.3	23.9	278°21.7	31.5
18	291°33.8	112°15.9	N01°55.8	70°09.0	S16°12.8	175°57.5	N21°23.9	293°24.3	S03°31.5
19	306°36.3	127°15.5	54.6	85°09.7	13.3	190°59.8	23.9	308°26.9	31.6
20	321°38.7	142°15.1	53.3	100°10.5	13.8	206°02.0	23.8	323°29.5	31.7
21	336°41.2	157°14.8	.. 52.1	115°11.2	.. 14.4	221°04.2	.. 23.8	338°32.2	.. 31.7
22	351°43.7	172°14.4	50.9	130°12.0	14.9	236°06.4	23.7	353°34.8	31.8
23	6°46.1	187°14.0	49.7	145°12.7	15.5	251°08.6	23.7	8°37.4	31.8
Mer.pass. 22:33 ν -0.4° d -1.2° m -3.92 ν 0.8° d -0.5° m 1.54 ν 2.2° d -0.0° m -2.19 ν 2.6° d -0.1° m 0.67									

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.1
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.9
Diphda	348°46.4	-17°50.6
Achernar	335°19.1	-57°06.2
Hamal	327°50.2	23°35.2
Polaris	313°18.2	89°22.2
Acamar	315°10.9	-40°11.8
Menkar	314°05.2	4°11.6
Mirfak	308°27.0	49°57.1
Aldebaran	299°38.7	16°33.7
Rigel	281°03.1	-8°10.1
Capella	280°20.8	46°01.3
Bellatrix	278°22.1	6°22.5
Elath	278°00.9	28°37.7
Alnilam	275°37.0	-1°11.0
Betelgeuse	270°51.3	7°24.8
Canopus	263°52.0	-52°42.2
Sirius	258°25.7	-16°44.8
Adhara	255°05.4	-29°00.1
Procyon	244°50.2	5°09.6
Pollux	243°16.6	27°57.8
Avior	234°14.7	-59°35.1
Suhail	222°46.1	-43°31.9
Miaplacidus	221°38.6	-69°49.0
Alphard	217°47.3	-8°46.0
Regulus	207°34.0	11°50.5
Dubhe	193°40.8	61°36.6
Denebola	182°24.6	14°25.8
Gienah	175°43.3	-17°41.0
Acrux	173°00.2	-63°14.4
Gacrux	171°51.6	-57°15.3
Alloth	166°13.0	55°49.2
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.1
Hadar	145°35.8	-60°29.8
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.6
Kochab	137°20.8	74°03.0
Zuben'ubi	136°55.7	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.3	-26°29.4
Atria	107°09.3	-69°04.6
Sabik	102°02.3	-15°45.4
Shaula	96°09.7	-37°07.4
Rasalhague	95°58.1	12°32.6
Eltanin	90°42.1	51°29.4
Kaus Aust.	83°31.8	-34°22.4
Vega	80°32.9	38°48.7
Nunki	75°47.0	-26°15.9
Altair	61°59.3	8°56.3
Peacock	53°04.6	-56°39.3
Deneb	49°25.2	45°26.2
Enif	33°38.0	9°59.8
Al Na'ir	27°31.8	-46°50.2
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.6
Makab	13°29.0	15°20.8
Oct 10 Fri	SHA	Mer.pas.
Venus	183°50.6	10:29
Mars	140°27.7	13:22
Jupiter	244°40.6	06:25
Saturn	1°39.9	22:34
Oct 11 Sat	SHA	Mer.pas.
Venus	182°42.1	10:30
Mars	139°46.9	13:21
Jupiter	244°34.3	06:21
Saturn	1°43.8	22:30
Oct 12 Sun	SHA	Mer.pas.
Venus	181°33.5	10:31
Mars	139°06.0	13:20
Jupiter	244°28.2	06:18
Saturn	1°47.6	22:26
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	21°48.6	202°13.6	N01°48.5	160°13.5	S16°16.0	266°10.9	N21°23.7	23°40.0	S03°31.9										
1	36°51.1	217°13.2	47.3	175°14.2	16.5	281°13.1	23.6	38°42.6	32.0										
2	51°53.5	232°12.8	46.1	190°14.9	17.1	296°15.3	23.6	53°45.3	32.0										
3	66°56.0	247°12.4	•• 44.9	205°15.7	•• 17.6	311°17.5	•• 23.6	68°47.9	•• 32.1										
4	81°58.4	262°12.0	43.7	220°16.4	18.2	326°19.7	23.5	83°50.5	32.2										
5	97°00.9	277°11.6	42.5	235°17.2	18.7	341°22.0	23.5	98°53.1	32.2										
6	112°03.4	292°11.2	N01°41.2	250°17.9	S16°19.2	356°24.2	N21°23.5	113°55.7	S03°32.2										
7	127°05.8	307°10.8	40.0	265°18.7	19.8	11°26.4	23.4	128°58.4	32.4										
8	142°08.3	322°10.5	38.8	280°19.4	20.3	26°28.6	23.4	144°01.0	32.4										
9	157°10.8	337°10.1	•• 37.6	295°20.2	•• 20.9	41°30.9	•• 23.4	159°03.6	•• 32.5										
10	172°13.2	352°09.7	36.4	310°20.9	21.4	56°33.1	23.3	174°06.2	32.6										
11	187°15.7	7°09.3	35.2	325°21.7	21.9	71°35.3	23.3	189°08.8	32.6										
12	202°18.2	22°08.9	N01°34.0	340°22.4	S16°22.5	86°37.5	N21°23.3	204°11.5	S03°32.7										
13	217°20.6	37°08.5	32.8	355°23.2	23.0	101°39.8	23.2	219°14.1	32.7										
14	232°23.1	52°08.1	31.5	10°23.9	23.5	116°42.0	23.2	234°16.7	32.8										
15	247°25.6	67°07.7	•• 30.3	25°24.6	•• 24.1	131°44.2	•• 23.2	249°21.9	•• 32.9										
16	262°28.0	82°07.3	29.1	40°25.4	24.6	146°46.4	23.1	264°21.3	33.1										
17	277°30.5	97°06.9	27.9	55°26.1	25.2	161°48.7	23.1	279°24.6	33.0										
18	292°32.9	112°06.6	N01°26.7	70°26.9	S16°25.7	176°50.9	N21°23.1	294°27.2	S03°33.1										
19	307°35.4	127°06.2	25.5	85°27.6	26.2	191°53.1	23.0	309°29.8	33.1										
20	322°37.9	142°05.8	24.3	100°28.4	26.8	206°55.3	23.0	324°32.4	33.2										
21	337°40.3	157°05.4	•• 23.1	115°29.1	•• 27.3	221°57.6	•• 23.0	339°35.0	•• 33.3										
22	352°42.8	172°05.0	21.8	130°29.9	27.8	236°59.8	22.9	354°37.7	33.3										
23	7°45.3	187°04.6	20.6	145°30.6	28.4	252°02.0	22.9	9°40.3	33.4										
Mer.pass. 22:29				ν -0.4' d -1.2' m -3.92				ν 0.7' d -0.5' m 1.53				ν 2.2' d -0.0' m -2.19				ν 2.6' d -0.1' m 0.67			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	22°47.7	202°04.2	N01°19.4	160°31.3	S16°28.9	267°04.2	N21°22.9	24°42.9	S03°33.4
1	37°50.2	217°03.8	18.2	175°32.1	29.4	282°06.5	22.8	39°45.5	33.5
2	52°52.7	232°03.4	17.0	190°32.8	30.0	297°08.7	22.8	54°48.1	33.6
3	67°55.1	247°03.0	•• 15.8	205°33.6	•• 30.5	312°10.9	•• 22.8	69°50.8	•• 33.6
4	82°57.6	262°02.6	14.6	220°34.3	31.0	327°13.2	22.7	84°53.4	33.7
5	98°00.1	277°02.3	13.4	235°35.0	31.6	342°15.4	22.7	99°56.0	33.8
6	113°02.5	292°01.9	N01°12.1	250°35.8	S16°32.1	357°17.6	N21°22.7	114°58.6	S03°33.8
7	128°05.0	307°01.5	10.9	265°36.5	32.7	12°19.8	22.6	130°01.2	33.9
8	143°07.4	322°01.1	09.7	280°37.3	33.2	27°22.1	•• 22.6	145°03.9	•• 34.0
9	158°09.9	337°00.7	•• 08.5	295°38.0	•• 33.7	42°24.3	•• 22.6	160°06.5	•• 34.0
10	173°12.4	352°03.3	07.3	310°38.7	34.3	57°26.5	22.5	175°09.1	34.1
11	188°14.8	6°59.9	06.1	325°39.5	34.8	72°28.8	22.5	190°11.7	34.1
12	203°17.3	21°59.5	N01°04.9	340°40.2	S16°35.3	87°31.0	N21°22.5	205°14.3	S03°34.2
13	218°19.8	36°59.1	03.6	355°41.0	35.9	102°33.2	22.4	220°17.0	34.3
14	233°22.2	51°58.7	02.4	10°41.7	36.4	117°35.5	22.4	235°19.6	34.3
15	248°24.7	66°58.3	•• 01.2	25°42.4	•• 36.9	132°37.7	•• 22.4	250°22.2	•• 34.4
16	263°27.2	81°58.0	01°00.0	40°43.2	37.4	147°39.9	22.3	265°24.8	34.5
17	278°29.6	96°57.6	00°58.8	55°43.9	38.0	162°42.2	22.3	280°27.4	34.5
18	293°32.1	111°57.2	N00°57.6	70°44.7	S16°38.5	177°44.4	N21°22.3	295°30.0	S03°34.6
19	308°34.6	126°56.8	56.3	85°45.4	39.0	192°46.6	22.2	310°32.7	34.6
20	323°37.0	141°56.4	55.1	100°46.1	39.6	207°48.9	22.2	325°35.3	34.7
21	338°39.5	156°56.0	•• 53.9	115°46.9	•• 40.1	222°51.1	•• 22.2	340°37.9	•• 34.8
22	353°41.9	171°55.6	52.7	130°47.6	40.6	237°53.3	22.1	355°40.5	34.8
23	8°44.4	186°55.2	51.5	145°48.3	41.2	252°55.6	22.1	10°43.1	34.9
Messages 22:25 ν -0.4' d -1.2' m -3.92 ν -0.7' d -0.5' m 1.53 ν 2.2' d -0.0' m -2.20 ν 2.6' d -0.1' m 0.68									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	23°46.9	201°54.8	N00°50.3	160°49.1	S16°41.7	267°57.8	N21°22.1	25°45.7	S03°35.0
1	38°49.3	216°54.4	49.1	175°49.8	42.2	283°00.0	22.1	40°48.4	35.0
2	53°51.8	231°54.1	47.8	190°50.5	42.8	298°02.3	22.0	55°51.0	35.1
3	68°54.3	246°53.7	•• 46.6	205°51.3	•• 43.3	313°04.5	•• 22.0	70°53.6	•• 35.1
4	83°56.7	261°53.3	45.4	220°52.0	43.8	328°06.8	22.0	85°56.2	35.2
5	98°59.2	276°52.9	44.2	235°52.7	44.3	343°09.0	21.9	100°58.8	35.3
6	114°01.7	291°52.5	N00°43.0	250°53.5	S16°44.9	358°11.2	N21°21.9	116°01.5	S03°35.3
7	129°04.1	306°52.1	41.8	265°54.2	45.4	13°13.5	21.9	131°04.1	35.4
8	144°06.6	321°51.7	40.5	280°54.9	45.9	28°15.7	21.8	146°06.7	35.5
9	159°09.0	336°51.3	•• 39.3	295°55.7	•• 46.5	43°17.9	•• 21.8	161°09.3	•• 35.5
10	174°11.5	351°50.9	38.1	310°56.4	47.0	58°20.2	21.8	176°11.9	35.6
11	189°14.0	6°50.5	36.9	325°57.1	47.5	73°22.4	21.7	191°14.5	35.6
12	204°16.4	21°50.1	N00°35.7	340°57.9	S16°48.0	88°24.7	N21°21.7	206°17.2	S03°35.7
13	219°18.9	36°49.8	34.4	355°58.6	48.6	103°26.9	21.7	221°19.8	35.8
14	234°21.4	51°49.4	33.2	10°59.3	49.1	118°29.1	21.6	236°22.4	35.8
15	249°23.8	66°49.0	•• 32.0	26°00.1	•• 49.6	133°31.4	•• 21.6	251°25.0	•• 35.9
16	264°26.3	81°48.6	30.8	41°00.8	50.2	148°33.6	21.6	266°27.2	36.0
17	279°28.8	96°48.2	29.6	56°01.5	50.7	163°35.9	21.5	281°30.2	36.0
18	294°31.2	111°47.8	N00°28.4	71°02.3	S16°51.2	178°38.1	N21°21.5	296°32.8	S03°36.1
19	309°33.7	126°47.4	27.1	86°03.0	51.7	193°40.3	21.5	311°35.5	36.1
20	324°36.2	141°47.0	25.9	101°03.7	52.3	208°42.6	21.4	326°38.1	36.2
21	339°38.6	156°46.6	•• 24.7	116°04.5	•• 52.3	223°44.8	•• 21.4	341°40.7	•• 36.3
22	354°41.1	171°46.2	23.5	131°05.2	53.3	238°47.1	21.4	356°43.3	36.3
23	9°43.5	186°45.8	22.3	146°05.9	53.8	253°49.3	21.4	11°45.9	36.4
Mer.pass. 22:21 ν -0.4' d -1.2' m -3.92 ν 0.7' d -0.5' m 1.53 ν 2.2' d -0.0' m -2.21 ν 2.6' d -0.1' m 0.68									

SHA	Dec
Alpheratz	357°33.8 29°14.2
Ankaa	353°06.1 -42°00.9
Schedar	349°29.8 -56°49.9
Diphda	348°46.3 -17°50.6
Achernar	335°19.1 -57°06.2
Hamal	327°50.2 23°35.2
Polaris	313°17.1 89°22.2
Acamar	315°10.9 -40°11.9
Menkar	314°05.2 4°11.6
Mirafak	308°26.9 49°57.1
Aldebaran	290°38.7 16°33.3
Rigel	281°03.1 -8°10.1
Capella	280°20.7 46°01.3
Bellatrix	278°22.0 6°22.5
Elmath	278°00.9 28°37.7
Alnilam	275°36.9 -1°11.0
Betelgeuse	270°51.3 7°24.8
Canopus	263°52.0 -52°42.2
Sirius	258°25.6 -16°44.8
Adhara	255°05.3 -29°00.1
Procyon	244°50.2 5°09.6
Pollux	243°16.6 27°57.8
Avior	234°14.7 -59°35.1
Suhail	222°46.1 -43°41.9
Miaplacidus	221°38.6 -69°39.0
Alphard	217°47.3 -8°46.0
Regulus	207°34.0 11°50.5
Dubhe	193°40.8 61°36.6
Denelbora	182°24.6 14°25.7
Gienah	175°43.3 -17°41.0
Acrux	173°00.1 -63°14.4
Gacrux	171°51.6 -57°15.3
Althoth	166°13.0 55°49.2
Spica	158°22.0 -11°17.7
Alkaid	152°52.0 49°11.1
Hadar	148°35.8 -60°29.8
Menkent	147°57.3 -36°29.8
Arcturus	145°47.7 19°03.0
Rigel Kent.	139°40.1 -60°56.5
Kochab	137°20.8 74°03.0
Ukaiab	136°55.6 -16°08.9
Alphecca	126°03.5 26°37.8
Antares	112°15.3 -26°29.4
Atria	107°09.3 69°04.6
Shaula	102°02.3 -15°45.4
Sabik	96°09.7 -37°07.4
Rasalhague	95°58.1 12°32.6
Eltanin	90°42.1 51°29.6
Kaus Aust.	83°31.8 -34°22.4
Vega	80°32.9 38°48

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	24°46.0	201°45.5	N00°21.1	161°06.6	S16°54.4	268°51.5	N21°21.3	26°48.5	S03°36.4										
1	39°48.5	216°45.1	19.8	176°07.4	54.9	283°53.8	21.3	41°51.2	36.5										
2	54°50.9	231°44.7	18.6	191°08.1	55.4	298°56.0	21.3	56°53.8	36.6										
3	69°53.4	246°44.3	17.4	206°08.8	55.9	313°58.3	21.2	71°56.4	36.6										
4	84°55.9	261°43.9	16.2	221°09.6	56.5	329°00.5	21.2	86°50.0	36.7										
5	99°58.3	276°43.5	15.0	236°10.3	57.0	344°02.8	21.2	102°01.6	36.8										
6	115°00.8	291°43.1	N00°13.7	251°11.0	S16°57.5	359°05.0	N21°21.1	117°04.2	S03°36.8										
7	130°03.3	306°42.7	12.5	266°11.7	58.0	14°07.3	21.1	132°06.8	36.9										
8	145°05.7	321°42.3	11.3	281°12.5	58.6	29°09.5	21.1	147°09.5	36.9										
9	160°08.2	336°41.9	10.1	296°13.2	59.1	44°11.7	21.0	162°12.1	37.0										
10	175°10.7	351°41.5	08.9	311°13.9	16°59.6	59°14.0	21.0	177°14.7	37.1										
11	190°13.1	6°41.1	07.6	326°14.6	17°00.1	74°16.2	21.0	192°17.3	37.1										
12	205°15.6	21°40.8	N00°06.4	341°15.4	S17°00.7	89°18.5	N21°21.0	207°19.9	S03°37.2										
13	220°18.0	36°40.4	05.2	356°16.1	01.2	104°20.7	20.9	222°22.5	37.2										
14	235°20.5	51°40.0	04.0	11°16.8	01.7	119°23.0	20.9	237°25.1	37.3										
15	250°23.0	66°39.6	02.8	26°17.5	02.2	134°25.2	20.9	252°27.8	37.4										
16	265°25.4	81°39.2	01.5	41°18.3	02.7	149°27.5	20.8	267°30.4	37.5										
17	280°27.9	96°38.8	N00°03.0	56°19.0	03.3	164°29.7	20.8	282°33.0	37.5										
18	295°30.4	111°38.4	S00°00.9	71°19.7	S17°03.8	179°32.0	N21°20.8	297°35.6	S03°37.5										
19	310°32.8	126°38.0	02.1	86°20.4	04.3	194°34.2	20.7	312°38.2	37.6										
20	325°35.3	141°37.6	03.3	101°21.2	04.8	209°36.5	20.7	327°40.8	37.7										
21	340°37.8	156°37.2	04.6	116°21.9	05.4	224°38.7	20.7	342°43.4	37.7										
22	355°40.2	171°36.8	05.8	131°22.6	05.9	239°41.0	20.7	357°46.1	37.8										
23	10°42.7	186°36.4	07.0	146°23.3	06.4	254°43.2	20.6	12°48.7	37.8										
Mer.pass. 22:17				ν -0.4° d -1.2' m -3.92				ν 0.7° d -0.5' m 1.52				ν 2.2° d -0.0' m -2.21				ν 2.6° d -0.1' m 0.68			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	25°45.1	201°36.1	S00°08.2	161°24.1	S17°06.9	269°45.5	N21°20.6	27°51.3	S03°37.9										
1	40°47.6	216°35.7	09.4	176°24.8	07.4	284°47.7	20.6	42°53.9	38.0										
2	55°50.1	231°35.3	10.7	191°25.5	08.0	299°50.0	20.5	57°56.5	38.0										
3	70°52.5	246°34.9	11.9	206°26.2	08.5	314°52.2	20.5	72°59.1	38.1										
4	85°55.0	261°34.5	13.1	221°26.9	09.0	329°54.5	20.5	88°01.7	38.1										
5	100°57.5	276°34.1	14.3	236°27.7	09.5	344°56.7	20.4	103°04.3	38.2										
6	115°59.9	291°33.7	S00°15.5	251°28.4	S17°10.0	359°59.0	N21°20.4	118°07.0	S03°38.3										
7	131°02.4	306°33.3	16.8	266°29.1	10.6	15°01.2	20.4	133°09.6	38.3										
8	146°04.9	321°32.9	18.0	281°29.8	11.1	30°03.5	20.4	148°12.2	38.4										
9	161°07.3	336°32.5	19.2	296°30.6	11.6	45°05.7	20.3	163°14.8	38.4										
10	176°09.8	351°32.1	20.4	311°31.3	12.1	60°08.0	20.3	178°17.4	38.5										
11	191°12.3	6°31.7	21.6	326°32.0	12.6	75°10.2	20.3	193°20.0	38.6										
12	206°14.7	21°31.3	S00°22.9	341°32.7	S17°13.1	90°12.5	N21°20.2	208°22.6	S03°38.6										
13	221°17.2	36°31.0	24.1	356°33.4	13.7	105°14.8	20.2	223°25.2	38.7										
14	236°19.6	51°30.6	25.3	11°34.1	14.2	120°17.0	20.2	238°27.9	38.7										
15	251°22.1	66°30.2	26.5	26°34.9	14.7	135°19.3	20.1	253°30.5	38.8										
16	266°24.6	81°29.8	27.7	41°35.6	15.2	150°21.5	20.1	268°33.1	38.9										
17	281°27.0	96°29.4	29.0	56°36.3	15.7	165°23.8	20.1	283°35.7	38.9										
18	296°29.5	111°29.0	S00°30.2	71°37.0	S17°16.2	180°26.0	N21°20.1	298°38.0	S03°39.0										
19	311°32.0	126°28.6	31.4	86°37.7	16.8	195°28.3	20.0	313°40.9	39.0										
20	326°34.4	141°28.2	32.6	101°38.5	17.3	210°30.5	20.0	328°43.5	39.1										
21	341°36.9	156°27.8	33.9	116°39.2	17.8	225°32.8	20.0	343°46.1	39.2										
22	356°39.4	171°27.4	35.1	131°39.9	18.3	240°35.1	19.9	358°48.7	39.2										
23	11°41.8	186°27.0	36.3	146°40.6	18.8	255°37.3	19.9	13°51.4	39.3										
Mer.pass. 22:13				ν -0.4° d -1.2' m -3.92				ν 0.7° d -0.5' m 1.52				ν 2.3° d -0.0' m -2.22				ν 2.6° d -0.1' m 0.69			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	26°44.3	201°26.6	S00°37.5	161°41.3	S17°19.3	270°39.6	N21°19.9	28°54.0	S03°39.3
1	41°46.7	216°26.2	38.7	176°42.0	19.9	285°41.8	19.9	43°56.6	39.4
2	56°49.2	231°25.8	40.0	191°42.8	20.4	300°44.1	19.8	58°59.2	39.5
3	71°51.7	246°25.5	41.2	206°43.5	20.9	315°46.3	19.8	74°01.8	39.5
4	86°54.1	261°25.1	42.4	221°44.2	21.4	330°48.6	19.8	89°04.4	39.6
5	101°56.6	276°24.7	43.6	236°44.9	21.9	345°50.9	19.7	104°07.0	39.6
6	116°59.1	291°24.3	S00°44.8	251°45.6	S17°22.4	0°53.1	N21°19.7	119°09.6	S03°39.7
7	132°01.5	306°23.9	46.1	266°46.3	22.9	15°55.4	19.7	134°12.2	39.7
8	147°04.0	321°23.5	47.3	281°47.0	23.5	30°57.6	19.7	149°14.9	39.8
9	162°06.5	336°23.1	48.5	296°47.8	24.0	45°59.9	19.6	164°17.5	39.9
10	177°08.9	351°22.7	49.7	311°48.5	24.5	61°02.2	19.6	179°20.1	39.9
11	192°11.4	6°22.3	51.0	326°49.2	25.0	76°04.4	19.6	194°22.7	40.0
12	207°13.9	21°21.9	S00°52.2	341°49.9	S17°25.5	91°06.7	N21°19.5	209°25.3	S03°40.0
13	222°16.3	36°21.5	53.4	356°50.6	26.0	106°09.0	19.5	224°27.9	40.1
14	237°18.8	51°21.1	54.6	11°51.3	26.5	121°11.2	19.5	239°30.5	40.2
15	252°21.2	66°20.7	55.8	26°52.0	27.0	136°13.5	19.5	254°33.1	40.2
16	267°23.7	81°20.3	57.1	41°52.7	27.6	151°15.7	19.4	269°35.7	40.3
17	282°26.2	96°19.9	58.3	56°53.5	28.1	166°18.0	19.4	284°38.3	40.3
18	297°28.6	111°19.5	S00°59.5	71°54.2	S17°28.6	181°20.3	N21°19.4	299°40.9	S03°40.4
19	312°31.1	126°19.1	01°00.7	86°54.9	29.1	196°22.5	19.4	314°43.6	40.4
20	327°33.6	141°18.8	02.0	101°55.6	29.6	211°24.8	19.3	329°46.2	40.5
21	342°36.0	156°18.4	03.2	116°56.3	30.1	226°27.1	19.3	344°48.8	40.6
22	357°38.5	171°18.0	04.4	131°57.0	30.6	241°29.3	19.3	359°51.4	40.6
23	12°41.0	186°17.6	05.6	146°57.7	31.1	256°31.6	19.2	14°54.0	40.7
Mer.pass. 22:09 ν -0.4° d -1.2' m -3.92 ν 0.7° d -0.5' m 1.52 ν 2.3° d -0.0' m -2.23 ν 2.6° d -0.1' m 0.69									

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.9
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.2
Hamal	327°50.2	23°35.2
Polaris	313°16.3	89°22.3
Acamar	315°10.9	-40°11.9
Menkar	314°05.2	4°11.6
Mirfak	308°26.9	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.1
Capella	280°20.7	46°01.3
Bellatrix	278°22.0	6°22.5
Elath	278°00.9	28°37.7
Anilim	275°36.9	-1°11.0
Betelgeuse	270°51.3	7°24.8
Canopus	263°51.9	-52°42.2
Sirius	258°25.6	-16°44.8
Adhara	255°05.3	-29°00.1
Procyon	244°50.2	5°09.6
Pollux	243°16.5	27°57.8
Avior	234°14.6	-59°35.1
Suhail	222°46.0	-43°31.9
Miaplacidus	221°38.6	-69°49.0
Alphard	217°47.3	-8°46.1
Regulus	207°34.0	11°50.5
Dubhe	193°40.7	61°36.6
Denebola	182°24.6	14°25.7
Gienah	175°43.3	-17°41.0
Acrux	173°00.1	-63°14.4
Gacrux	171°51.6	-57°15.3
Alloth	166°12.9	55°49.2
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.1
Hadar	148°35.8	-60°29.8
Menkent	147°57.3	-36°29.8
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.5
Kochab	137°20.9	74°03.0
Zuben 'ul	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.3	-26°29.4
Atria	107°09.4	-69°04.6
Sabik	102°02.3	-15°45.4
Shaula	96°09.7	-37°07.4
Rasalhague	95°58.1	12°32.6
Eltanin	90°42.1	51°29.4
Kaus Aust.	83°31.8	-34°22.4
Vega	80°32.9	38°48.7
Nunki	75°47.1	-26°15.9
Altair	61°59.3	8°56.3
Peacock	53°04.6	-56°39.3
Deneb	49°25.3	45°22.6
Enif	33°38.0	9°29.8
Al Na'ir	27°31.8	-46°50.3
Fomalhaut	15°13.5	-29°29.1
Scheat	13°44.3	28°13.8
Markab	13°29.0	15°20.6
Oct 16 Thu	SHA	Mer.pas.
Venus	176°59.4	10:33
Mars	136°20.6	13:15
Jupiter	244°05.5	06:04
Saturn	2°02.5	22:09
Oct 17 Fri	SHA	Mer.pas.
Venus	175°50.9	10:34
Mars	135°38.9	13:14
Jupiter	244°00.3	06:00
Saturn	2°06.1	22:05
Oct 18 Sat	SHA	Mer.pas.
Venus	174°42.3	10:34
Mars	134°57.0	13:13
Jupiter	243°55.3	05:56
Saturn	2°09.7	22:01
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	27°43.4	201°17.2	S01°06.8	161°58.4	S17°31.6	271°33.9	N21°19.2	29°56.6	S03°40.7										
1	42°45.9	216°16.8	08.1	176°59.1	32.1	286°36.1	19.2	44°59.2	40.8										
2	57°48.3	231°16.4	09.3	191°59.8	32.7	301°38.4	19.2	60°01.8	40.8										
3	72°50.8	246°16.0	•• 10.5	207°00.5	•• 33.2	316°40.7	•• 19.1	75°04.4	•• 40.9										
4	87°53.3	261°15.6	11.7	222°01.3	33.7	331°42.9	19.1	90°07.0	41.0										
5	102°55.7	276°15.2	13.0	237°02.0	34.2	346°45.2	19.1	105°09.6	41.0										
6	117°58.2	291°14.8	S01°14.2	252°02.7	S17°34.7	1°47.5	N21°19.0	120°12.3	S03°41.1										
7	133°00.7	306°14.4	15.4	267°03.4	35.2	16°49.7	19.0	135°14.9	41.1										
8	148°03.1	321°14.0	16.6	282°04.1	35.7	31°52.0	19.0	150°17.5	41.2										
9	163°05.6	336°13.6	•• 17.8	297°04.8	•• 36.2	46°54.3	•• 19.0	165°20.1	•• 41.3										
10	178°08.1	351°13.2	19.1	312°05.5	36.7	61°56.5	18.9	180°22.7	41.3										
11	193°10.5	6°12.8	20.3	327°06.2	37.2	76°58.8	18.9	195°25.3	41.4										
12	208°13.0	21°12.4	S01°21.5	342°06.9	S17°37.7	92°01.1	N21°18.9	210°27.9	S03°41.4										
13	223°15.5	36°12.0	22.7	357°07.6	38.2	107°03.3	18.9	225°30.5	41.5										
14	238°17.9	51°11.6	24.0	12°08.3	38.8	122°05.6	18.8	240°33.1	41.5										
15	253°20.4	66°11.2	•• 25.2	27°09.0	•• 39.3	137°07.9	•• 18.8	255°35.7	•• 41.6										
16	268°22.8	81°10.8	26.4	42°09.7	39.8	152°10.2	18.8	270°38.7	41.7										
17	283°25.3	96°10.4	27.6	57°10.4	40.3	167°12.4	18.8	285°40.9	41.7										
18	298°27.8	111°10.1	S01°28.9	72°11.1	S17°40.8	182°14.7	N21°18.7	300°43.5	S03°41.8										
19	313°30.2	126°09.7	30.1	87°11.8	41.3	197°17.0	18.7	315°46.1	41.8										
20	328°32.7	141°09.3	31.3	102°12.6	41.8	212°19.2	18.7	330°48.8	41.9										
21	343°35.2	156°08.9	•• 32.5	117°13.3	•• 42.3	227°21.5	•• 18.6	345°51.4	•• 41.9										
22	358°37.6	171°08.5	33.7	132°14.0	42.8	242°23.8	18.6	0°54.0	42.0										
23	13°40.1	186°08.1	35.0	147°14.7	43.3	257°26.1	18.6	15°56.6	42.0										
Mer.pass. 22:05				ν -0.4° d -1.2° m -3.92				ν 0.7° d -0.5° m 1.51				ν 2.3° d -0.0° m -2.23				ν 2.6° d -0.1° m 0.70			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	28°42.6	201°07.7	S01°36.2	162°15.4	S17°43.8	272°28.3	N21°18.6	30°59.2	S03°42.1
1	43°45.0	216°07.3	37.4	177°16.1	44.3	287°30.6	18.5	46°01.8	42.2
2	58°47.5	231°06.9	38.6	192°16.8	44.8	302°32.9	18.5	61°04.4	42.2
3	73°50.0	246°06.5	•• 39.9	207°17.5	•• 45.3	317°35.2	•• 18.5	76°07.0	•• 42.3
4	88°52.4	261°06.1	41.1	222°18.2	45.8	332°37.4	18.5	91°09.6	42.3
5	103°54.9	276°05.7	42.3	237°18.9	46.3	347°39.7	18.4	106°12.2	42.4
6	118°57.3	291°05.3	S01°43.5	252°19.6	S17°46.8	2°42.0	N21°18.4	121°14.8	S03°42.4
7	133°59.8	306°04.9	44.7	267°20.3	47.3	17°44.3	18.4	136°17.4	42.5
8	149°02.3	321°04.5	46.0	282°21.0	47.8	32°46.5	18.4	151°20.0	42.6
9	164°04.7	336°04.1	•• 47.2	297°21.7	•• 48.3	47°48.8	•• 18.3	166°22.6	•• 42.6
10	179°07.2	351°03.7	48.4	312°22.4	48.8	62°51.1	18.3	181°25.2	42.7
11	194°09.7	6°03.3	49.6	327°23.1	49.3	77°53.4	18.3	196°27.8	42.7
12	209°12.1	21°02.9	S01°50.9	342°23.8	S17°49.8	92°55.6	N21°18.3	211°30.4	S03°42.8
13	224°14.6	36°02.5	50.1	357°24.5	50.3	107°57.9	18.2	226°33.0	42.8
14	239°17.1	51°02.1	53.3	12°25.2	50.8	123°00.2	•• 18.2	241°35.6	42.9
15	254°19.5	66°01.7	•• 54.5	27°25.9	•• 51.3	138°02.5	•• 18.2	256°38.3	•• 42.9
16	269°22.0	81°01.3	55.8	42°26.6	51.8	153°04.8	18.2	271°40.9	43.0
17	284°24.4	96°00.9	57.0	57°27.3	52.3	168°07.0	18.1	286°43.5	43.1
18	299°26.9	111°00.5	S01°58.2	72°28.0	S17°52.8	183°09.3	N21°18.1	301°46.1	S03°43.1
19	314°29.4	126°00.1	01°59.4	87°28.7	53.3	198°11.6	18.1	316°48.7	43.2
20	329°31.8	140°59.7	02°00.6	102°29.4	53.8	213°13.9	18.1	331°51.3	43.2
21	344°34.3	155°59.3	•• 01.9	117°30.1	•• 54.3	228°16.1	•• 18.0	346°53.9	•• 43.3
22	359°36.8	170°58.9	03.1	132°30.8	54.8	243°18.4	18.0	1°56.5	43.3
23	14°39.2	185°58.5	04.3	147°31.5	55.3	258°20.7	18.0	16°59.1	43.4
Mer.pass. 22:02 ν -0.4° d -1.2° m -3.92 ν 0.7° d -0.5° m 1.51 ν 2.3° d -0.0° m -2.24 ν 2.6° d -0.1° m 0.70									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	29°41.7	200°58.1	S02°05.5	162°32.2	S17°55.8	273°23.0	N21°18.0	32°01.7	S03°43.4
1	44°44.2	215°57.7	06.8	177°32.8	56.3	288°25.3	17.9	47°04.3	43.5
2	59°46.6	230°57.3	08.0	192°33.5	56.8	303°27.6	17.9	62°06.9	43.6
3	74°49.1	245°56.9	•• 09.2	207°34.2	•• 57.3	318°29.8	•• 17.9	77°09.5	•• 43.6
4	89°51.6	260°56.5	10.4	222°34.9	57.8	333°32.1	17.9	92°12.1	43.7
5	104°54.0	275°56.1	11.6	237°35.6	58.3	348°34.4	17.8	107°14.7	43.7
6	119°56.5	290°55.7	S02°12.9	252°36.3	S17°58.8	3°36.7	N21°17.8	122°17.3	S03°43.8
7	134°58.9	305°55.3	14.1	267°37.0	59.3	18°39.0	17.8	137°19.9	43.8
8	150°01.4	320°54.9	15.3	282°37.7	57°59.8	33°41.3	17.8	152°22.5	43.9
9	165°03.9	335°54.5	•• 16.5	297°38.4	18°00.3	48°43.5	•• 17.7	167°25.1	•• 43.9
10	180°06.3	350°54.1	17.8	312°39.1	00.8	63°45.8	17.7	182°27.7	44.0
11	195°08.8	5°53.7	19.0	327°39.8	01.3	78°48.1	17.7	197°30.3	44.0
12	210°11.3	20°53.3	S02°20.2	342°40.5	S18°01.8	93°50.4	N21°17.7	212°32.9	S03°44.1
13	225°13.7	35°52.9	21.4	357°41.2	02.3	108°52.7	17.6	227°35.5	44.2
14	240°16.2	50°52.5	22.6	12°41.9	02.8	123°55.0	17.6	242°38.1	44.2
15	255°18.7	65°52.1	•• 23.9	27°42.6	•• 03.3	138°57.2	•• 17.6	257°40.7	•• 44.3
16	270°21.1	80°51.7	25.1	42°43.3	03.8	153°59.5	17.6	272°43.3	44.3
17	285°23.6	95°51.3	26.3	57°43.9	04.3	169°01.8	17.5	287°45.9	44.4
18	300°26.0	110°50.9	S02°27.5	72°44.6	S18°04.8	184°04.1	N21°17.5	302°48.5	S03°44.4
19	315°28.5	125°50.5	28.8	87°45.3	05.3	199°06.4	17.5	317°51.1	44.5
20	330°31.0	140°50.1	30.0	102°46.0	05.8	214°08.7	17.5	332°53.7	44.5
21	345°33.4	155°49.7	•• 31.2	117°46.7	•• 06.3	229°11.0	•• 17.4	347°56.3	•• 44.6
22	360°35.9	170°49.3	32.4	132°47.4	06.8	244°13.3	17.4	2°58.9	44.6
23	15°38.4	185°48.9	33.6	147°48.1	07.2	259°15.5	17.4	18°01.5	44.7
Mer.pass. 21:58 ν -0.4° d -1.2° m -3.92 ν 0.7° d -0.5° m 1.50 ν 2.3° d -0.0° m -2.24 ν 2.6° d -0.1° m 0.71									

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.9
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.3
Hamal	327°50.1	23°35.2
Polaris	313°15.6	89°22.3
Acamar	315°10.9	-40°11.9
Menkar	314°05.2	4°11.6
Mirfak	308°26.9	49°57.2
Aldebaran	290°38.6	16°33.8
Rigel	281°03.1	-8°10.1
Capella	280°20.7	46°01.3
Bellatrix	278°22.0	6°22.5
Elmath	278°00.9	28°37.7
Alnilam	275°36.9	-1°11.0
Betelgeuse	270°51.2	7°24.8
Canopus	263°51.9	-52°42.2
Sirius	258°25.6	-16°44.9
Adhara	255°05.3	-29°00.1
Procyon	244°50.2	5°09.6
Pollux	243°16.5	27°57.8
Avior	234°14.6	-59°35.1
Suhail	222°46.0	-43°31.9
Miaplacidus	221°38.5	-69°49.0
Alphard	217°47.3	-8°46.1
Regulus	207°34.0	11°50.5
Dubhe	193°40.7	61°36.6
Denebola	182°24.6	14°25.7
Geniah	175°43.3	-17°41.4
Acrux	173°00.1	-63°14.0
Gacrux	171°51.5	-57°15.3
Alioth	166°12.9	55°49.2
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.1
Hadar	148°35.8	-60°29.8
Menkent	147°57.3	-36°29.7
Arcturus	145°47.7	19°03.0
Rigel Kent.	139°40.1	-60°56.5
Kochab	137°20.9	74°03.0
Zuben el	136°55.7	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.4	-26°29.4
Atria	107°14.4	-69°04.6
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	13°32.6
Eltanin	90°42.1	51°29.3
Kaus Aust.	83°31.8	-34°22.4
Vega	80°32.9	38°48.7
Nunki	75°47.1	-26°15.9
Altair	61°59.4	8°56.3
Peacock	53°04.6	-56°39.3
Deneb	49°25.3	45°22.6
Enif	33°38.0	9°59.8
Al Na'ir	27°31.9	-46°50.3
Fomalhaut	15°13.6	-29°29.1
Scheat	13°44.3	28°13.6
Markab	13°29.0	15°20.8
Oct 19 Sun	SHA	Mer.pass
Venus	173°33.8	10.35
Mars	134°15.0	13.11
Jupiter	243°50.4	05.53
Saturn	2°13.2	21.56
Oct 20 Mon	SHA	Mer.pass
Venus	172°25.1	10.36
Mars	133°32.8	13.10
Jupiter	243°45.8	05.49
Saturn	2°16.6	21.52
Oct 21 Tue	SHA	Mer.pass
Venus	171°16.4	10.36
Mars	132°50.5	13.09
Jupiter	243°41.3	05.46
Saturn	2°20.0	21.48
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	GHA	Dec	GHA	GHA	Dec	
0	30°40.8	200°48.5	S02°34.9	162°48.8	S18°07.7	274°17.8	N21°17.4	33°04.1	S03°44.8					
1	45°43.3	215°48.1	36.1	177°49.5	08.2	289°20.1	17.3	48°06.7	44.8					
2	60°45.8	230°47.7	37.3	192°50.2	08.7	304°22.4	17.3	63°09.3	44.9					
3	75°48.2	245°47.3	•• 38.5	207°50.8	•• 09.2	319°24.7	•• 17.3	78°11.9	•• 44.9					
4	90°50.7	260°46.9	39.9	222°51.5	09.7	334°27.0	17.3	93°14.5	45.0					
5	105°53.2	275°46.5	41.0	237°52.2	10.2	349°29.3	17.2	108°17.1	45.0					
6	120°55.6	290°46.1	S02°42.2	252°52.9	S18°10.7	4°31.6	N21°17.2	123°19.7	S03°45.1					
7	135°58.1	305°45.7	43.4	267°53.6	11.2	19°33.9	17.2	138°22.3	45.1					
8	151°00.5	320°45.3	44.6	282°54.3	11.7	34°36.2	17.2	153°29.9	45.2					
9	166°03.0	335°44.9	•• 45.9	297°55.0	•• 12.2	49°38.5	•• 17.2	168°27.5	•• 45.2					
10	181°05.5	350°44.5	47.1	312°55.7	12.7	64°40.7	17.1	183°30.1	45.3					
11	196°07.9	5°44.1	48.3	327°56.3	13.1	79°43.0	17.1	198°32.7	45.3					
12	211°10.4	20°43.7	S02°49.5	342°57.0	S18°13.6	94°45.3	N21°17.1	213°35.3	S03°45.4					
13	226°12.9	35°43.3	50.7	357°57.7	14.1	109°47.6	17.1	228°37.9	45.4					
14	241°15.3	50°42.9	52.0	12°58.4	14.6	124°49.9	17.0	243°40.5	45.5					
15	256°17.8	65°42.5	•• 53.2	27°59.1	•• 15.1	139°52.2	•• 17.0	258°43.1	•• 45.6					
16	271°20.3	80°42.1	54.4	42°59.8	15.6	154°54.5	17.0	273°45.7	45.6					
17	286°22.7	95°41.7	55.6	58°00.5	16.1	169°56.8	17.0	288°48.3	45.7					
18	301°25.2	110°41.2	S02°56.8	73°01.1	S18°16.6	184°59.1	N21°16.9	303°50.9	S03°45.7					
19	316°27.7	125°40.8	58.1	88°01.8	17.1	200°01.4	16.9	318°53.5	45.8					
20	331°30.1	140°40.4	02°59.3	103°02.5	17.5	215°03.7	16.9	333°56.1	45.8					
21	346°32.6	155°40.0	03°00.5	118°03.2	•• 18.0	230°06.0	•• 16.9	348°58.7	•• 45.9					
22	1°35.0	170°39.6	01.7	133°03.9	18.5	245°08.3	16.9	4°01.3	45.9					
23	16°37.5	185°39.2	02.9	148°04.6	19.0	260°10.6	16.8	19°03.9	46.0					
Mer.pass. 21:54 ν -0.4° d -1.2° m -3.92 ν 0.7° d -0.5° m 1.50 ν 2.3° d -0.0° m -2.25 ν 2.6° d -0.1° m 0.71														

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	31°40.0	200°38.8	S03°04.2	163°05.2	S18°19.5	275°12.9	N21°16.8	34°06.5	S03°46.0										
1	46°42.4	215°38.4	05.4	178°05.9	20.0	290°15.2	16.8	49°09.1	46.1										
2	61°44.9	230°38.0	06.6	193°06.6	20.5	305°17.5	16.8	64°11.7	46.1										
3	76°47.4	245°37.6	•• 07.8	208°07.3	•• 21.0	320°19.8	•• 16.7	79°14.3	•• 46.2										
4	91°49.8	260°37.2	09.0	223°08.0	21.4	335°22.1	16.7	94°16.9	46.2										
5	106°52.3	275°36.8	10.3	238°08.7	21.9	350°24.4	16.7	109°19.5	46.3										
6	121°54.8	290°36.4	S03°11.5	253°09.3	S18°22.4	5°26.7	N21°16.7	124°22.1	S03°46.3										
7	136°57.2	305°36.0	12.7	268°10.0	22.9	20°29.0	16.7	139°24.7	46.4										
8	151°59.7	320°35.6	13.9	283°10.7	23.4	35°31.3	16.6	154°27.3	46.4										
9	167°02.1	335°35.2	•• 15.1	298°11.4	•• 23.9	50°33.6	•• 16.6	169°29.9	•• 46.5										
10	182°04.6	350°34.8	16.4	313°12.1	24.4	65°35.9	16.6	184°32.5	46.5										
11	197°07.1	5°34.4	17.6	328°12.7	24.8	80°38.2	16.6	199°35.1	46.6										
12	212°09.5	20°33.9	S03°18.8	343°13.4	S18°25.3	95°40.5	N21°16.5	214°37.7	S03°46.7										
13	227°12.0	35°33.5	20.0	358°14.1	25.8	110°42.8	16.5	229°40.3	46.7										
14	242°14.5	50°33.1	21.2	13°14.8	26.3	125°45.1	•• 16.5	244°42.9	•• 46.8										
15	257°16.9	65°32.7	•• 22.5	28°15.5	•• 26.8	140°47.4	•• 16.5	259°45.5	•• 46.8										
16	272°19.4	80°32.3	23.7	43°16.1	27.3	155°49.7	16.5	274°48.1	46.9										
17	287°21.9	95°31.9	24.9	58°16.8	27.7	170°52.0	16.4	289°50.7	46.9										
18	302°24.3	110°31.5	S03°26.1	73°17.5	S18°28.2	185°54.3	N21°16.4	304°53.3	S03°47.0										
19	317°26.8	125°31.1	27.3	88°18.2	28.7	200°56.6	16.4	319°55.9	47.0										
20	332°29.3	140°30.7	28.6	103°18.8	29.2	215°58.9	16.4	334°58.5	47.1										
21	347°31.7	155°30.3	•• 29.8	118°19.5	•• 29.7	231°01.2	•• 16.3	350°01.1	•• 47.1										
22	2°34.2	170°29.9	31.0	133°20.2	30.2	246°03.5	16.3	5°03.7	47.2										
23	17°36.6	185°29.5	32.2	148°20.9	30.6	261°05.8	16.3	20°06.3	47.2										
Mer.pass. 21:50				ν -0.4° d -1.2° m -3.92				ν 0.7° d -0.5° m 1.50				ν 2.3° d -0.0° m -2.26				ν 2.6° d -0.1° m 0.72			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	32°39.1	200°29.1	S03°33.4	163°21.6	S18°31.1	276°08.1	N21°16.3	35°08.9	S03°47.3
1	47°41.6	215°28.6	34.6	178°22.2	31.6	291°10.4	16.3	50°11.5	47.3
2	62°44.0	230°28.2	35.9	193°22.9	32.1	306°12.7	16.2	65°14.0	47.4
3	77°46.5	245°27.8	•• 37.1	208°23.6	•• 32.6	321°15.0	•• 16.2	80°16.6	•• 47.4
4	92°49.0	260°27.4	38.3	223°24.3	33.0	336°17.3	16.2	95°19.2	47.5
5	107°51.4	275°27.0	39.5	238°24.9	33.5	351°19.6	16.2	110°21.8	47.5
6	122°53.9	290°26.6	S03°40.7	253°25.6	S18°34.0	6°21.9	N21°16.2	125°24.4	S03°47.6
7	137°56.4	305°26.2	42.0	268°26.3	34.5	21°24.2	16.1	140°27.0	47.6
8	152°58.8	320°25.8	43.2	283°27.0	35.0	36°26.6	16.1	155°29.6	47.7
9	168°01.3	335°25.4	•• 44.4	298°27.6	•• 35.4	51°28.9	•• 16.1	170°32.2	•• 47.7
10	183°03.8	350°25.0	45.6	313°28.3	35.9	66°31.2	16.1	185°34.8	47.8
11	198°06.2	5°24.6	46.8	328°29.0	36.4	81°33.5	16.1	200°37.4	47.8
12	213°08.7	20°24.1	S03°48.0	343°29.6	S18°36.9	96°35.8	N21°16.0	215°40.0	S03°47.9
13	228°11.1	35°23.7	49.3	358°30.3	37.3	111°38.1	16.0	230°42.6	47.9
14	243°13.6	50°23.3	50.5	13°31.0	37.8	126°40.4	16.0	245°45.2	48.0
15	258°16.1	65°22.9	•• 51.7	28°31.7	•• 38.3	141°42.7	•• 16.0	260°47.8	•• 48.0
16	273°18.5	80°22.5	52.9	43°32.3	38.8	156°45.0	16.0	275°50.4	48.1
17	288°21.0	95°22.1	54.1	58°33.0	39.3	171°47.3	15.9	290°53.0	48.1
18	303°23.5	110°21.7	S03°55.3	73°33.7	S18°39.7	186°49.7	N21°15.9	305°55.6	S03°48.2
19	318°25.9	125°21.3	56.6	88°34.4	40.2	201°52.0	15.9	320°58.1	48.2
20	333°28.4	140°20.9	57.8	103°35.0	40.7	216°54.3	15.9	336°00.7	48.3
21	348°30.9	155°20.4	03°59.0	118°35.7	•• 41.2	231°56.6	•• 15.8	351°03.3	•• 48.3
22	3°33.3	170°20.0	04°00.2	133°36.4	41.6	246°58.9	15.8	6°05.9	48.4
23	18°35.8	185°19.6	01.4	148°37.0	42.1	262°01.2	15.8	21°08.5	48.4
Mer.pass. 21:46 ν -0.4° d -1.2' m -3.92 ν 0.7° d -0.5' m 1.49 ν 2.3° d -0.0' m -2.27 ν 2.6° d -0.1' m 0.73									

SHA	Dec
Alpheratz	357°33.8 29°14.2
Ankaa	353°06.1 -42°09.9
Schedar	349°29.8 -56°40.9
Diphda	348°46.3 -17°50.6
Achernar	335°19.1 -57°06.3
Hamal	327°50.1 23°35.2
Polaris	313°14.8 89°22.3
Acamar	315°10.9 -40°11.9
Menkar	314°05.2 4°11.6
Mirafak	308°26.9 49°57.2
Aldebaran	290°38.6 16°33.7
Rigel	281°03.0 -8°10.1
Capella	280°20.6 46°01.3
Bellatrix	278°22.0 6°22.5
Elath	278°00.8 28°37.7
Alnilam	275°36.9 -1°11.0
Betelgeuse	270°51.2 7°24.8
Canopus	263°51.9 -52°42.2
Sirius	258°25.6 -16°44.9
Adhara	255°05.3 -29°00.1
Procyon	244°50.1 5°09.6
Pollux	243°16.5 27°57.8
Avior	234°14.5 -59°35.1
Suhail	222°46.0 -43°31.9
Miaplacidus	221°38.5 -69°49.0

Alphard	217°47.3 -8°46.1
Regulus	207°33.9 11°50.5
Dubhe	193°40.7 61°36.5
Denelbora	182°24.6 14°25.7
Geniah	175°43.2 -17°41.0
Acrux	173°00.1 -63°14.4
Gacrux	171°51.5 -57°15.3
Alioth	166°12.9 55°49.1
Spica	158°22.0 -11°17.7
Alkaid	152°52.0 49°11.1
Hadar	148°35.8 -60°29.8
Menkent	147°57.3 -36°29.7
Arcturus	145°47.7 19°03.0
Rigel Kent.	139°40.1 -60°56.5
Kochab	137°20.9 74°03.0
Ucub	136°55.7 -16°08.9
Zuben el	126°03.5 26°37.2
Alphecca	112°15.4 -26°29.3
Antares	107°09.4 -69°04.6
Atria	102°02.3 -15°45.4
Sabik	96°09.8 -37°07.

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	33°38.2	200°19.2	S04°02.6	163°37.7	S18°42.6	277°03.5	N21°15.8	36°11.1	S03°48.5										
1	48°40.7	215°18.8	03.9	178°38.4	43.1	292°05.8	15.8	51°13.7	48.5										
2	63°43.2	230°18.4	05.1	193°39.0	43.5	307°08.2	15.8	66°16.9	48.6										
3	78°45.6	245°18.0	•• 06.3	208°39.7	•• 44.0	322°10.5	•• 15.7	81°18.9	•• 48.6										
4	93°48.1	260°17.6	07.5	223°40.4	44.5	337°12.8	15.7	96°21.5	48.7										
5	108°50.6	275°17.1	08.7	238°41.0	45.0	352°15.1	15.7	111°24.1	48.7										
6	123°53.0	290°16.7	S04°09.9	253°41.7	S18°45.4	7°17.4	N21°15.6	126°26.7	S03°48.8										
7	138°55.5	305°16.3	11.2	268°42.4	45.9	22°19.7	15.7	141°29.3	48.8										
8	153°58.0	320°15.9	12.4	283°43.1	46.4	37°22.0	15.6	156°31.8	48.9										
9	169°00.4	335°15.5	•• 13.6	298°43.7	•• 46.9	52°24.4	•• 15.6	171°34.4	•• 48.9										
10	184°02.9	350°15.1	14.8	313°44.4	47.3	67°26.7	15.6	186°37.0	49.0										
11	199°05.4	5°14.7	16.0	328°45.1	47.8	82°29.0	15.6	201°39.6	49.0										
12	214°07.8	20°14.2	S04°17.2	343°45.7	S18°48.3	97°31.3	N21°15.6	216°42.2	S03°49.1										
13	229°10.3	35°13.8	18.4	358°46.4	48.7	112°33.6	15.5	231°44.8	49.1										
14	244°12.7	50°13.4	19.7	13°47.1	49.2	127°35.9	15.5	246°47.4	49.2										
15	259°15.2	65°13.0	•• 20.9	28°47.7	•• 49.7	142°38.3	•• 15.5	261°50.0	•• 49.2										
16	274°17.7	80°12.6	22.1	43°48.4	50.2	157°40.6	15.5	276°52.6	49.3										
17	289°20.1	95°12.2	23.3	58°49.0	50.6	172°42.9	15.5	291°55.2	49.3										
18	304°22.6	110°11.7	S04°24.5	73°49.7	S18°51.1	187°45.2	N21°15.4	306°57.8	S03°49.4										
19	319°25.1	125°11.3	25.7	88°50.4	51.6	202°47.5	15.4	322°00.4	49.4										
20	334°27.5	140°10.9	26.9	103°51.0	52.0	217°49.9	15.4	337°02.9	49.5										
21	349°30.0	155°10.5	•• 28.2	118°51.7	•• 52.5	232°52.2	•• 15.4	352°05.5	•• 49.5										
22	4°32.5	170°10.1	29.4	133°52.4	53.0	247°54.5	15.4	7°08.1	49.6										
23	19°34.9	185°09.7	30.6	148°53.0	53.4	262°56.8	15.3	22°10.7	49.6										
Mer.pass. 21:42				ν -0.4' d -1.2' m -3.92				ν 0.7' d -0.5' m 1.49				ν 2.3' d -0.0' m -2.27				ν 2.6' d -0.0' m 0.73			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	34°37.4	200°09.3	S04°31.8	163°53.7	S18°53.9	277°59.1	N21°15.3	37°13.3	S03°49.7										
1	49°39.9	215°08.8	33.0	178°54.4	54.4	293°01.5	15.3	52°15.9	49.7										
2	64°42.3	230°08.4	34.2	193°55.0	54.8	308°03.8	15.3	67°18.5	49.7										
3	79°44.8	245°08.0	•• 35.4	208°55.7	•• 55.3	323°06.1	•• 15.3	82°21.1	•• 49.8										
4	94°47.2	260°07.6	36.6	223°56.3	55.8	338°08.4	15.3	97°23.7	49.8										
5	109°49.7	275°07.2	37.9	238°57.0	56.3	353°10.8	15.2	112°26.2	49.9										
6	124°52.2	290°06.7	S04°39.1	253°57.7	S18°56.7	8°13.1	N21°15.2	127°28.8	S03°49.9										
7	139°54.6	305°06.3	40.3	268°58.3	57.2	23°15.4	15.2	142°31.4	50.0										
8	154°57.1	320°05.9	41.5	283°59.0	57.7	38°17.7	15.2	157°34.0	50.0										
9	169°59.6	335°05.5	•• 42.7	298°59.6	•• 58.1	53°20.0	•• 15.2	172°36.6	•• 50.1										
10	185°02.0	350°05.1	43.9	314°00.3	58.6	68°22.4	15.1	187°39.2	50.1										
11	200°04.5	5°04.7	45.1	329°01.0	59.1	83°24.7	15.1	202°41.8	50.2										
12	215°07.0	20°04.2	S04°46.3	344°01.6	S18°59.5	98°27.0	N21°15.1	217°44.4	S03°50.2										
13	230°09.4	35°03.8	47.6	359°02.3	19°00.0	113°29.3	15.1	232°47.0	50.3										
14	245°11.9	50°03.4	48.8	14°02.9	00.4	128°31.7	15.1	247°49.5	50.3										
15	260°14.4	65°03.0	•• 50.0	29°03.6	•• 00.9	143°34.0	•• 15.1	262°52.1	•• 50.4										
16	275°16.8	80°02.6	51.2	44°04.3	01.4	158°36.3	15.0	277°54.7	50.4										
17	290°19.3	95°02.1	52.4	59°04.9	01.8	173°38.7	15.0	292°57.3	50.5										
18	305°21.7	110°01.7	S04°53.6	74°05.6	S19°02.3	188°41.0	N21°15.0	307°59.9	S03°50.5										
19	320°24.2	125°01.3	54.8	89°06.2	02.8	203°43.3	15.0	323°02.5	50.6										
20	335°26.7	140°00.9	56.0	104°06.9	03.2	218°45.6	15.0	338°05.1	50.6										
21	350°29.1	155°00.5	•• 57.2	119°07.6	•• 03.7	233°48.0	•• 15.0	353°07.7	•• 50.7										
22	5°31.6	170°00.0	58.5	134°08.2	04.2	248°50.3	14.9	8°10.2	50.7										
23	20°34.1	184°59.6	59.7	149°08.9	04.6	263°52.6	14.9	23°12.8	50.7										
Mer.pass. 21:38				ν -0.4' d -1.2' m -3.91				ν 0.7' d -0.5' m 1.48				ν 2.3' d -0.0' m -2.28				ν 2.6' d -0.0' m 0.74			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	35°36.5	199°59.2	S05°00.9	164°09.5	S19°05.1	278°55.0	N21°14.9	38°15.4	S03°50.8										
1	50°39.0	214°58.8	02.1	179°10.2	05.5	293°57.3	14.9	53°18.0	50.8										
2	65°41.5	229°58.3	03.3	194°10.8	06.0	308°59.6	14.9	68°20.6	50.9										
3	80°43.9	244°57.9	•• 04.5	209°11.5	•• 06.5	324°01.9	•• 14.8	83°23.2	•• 50.9										
4	95°46.4	259°57.5	05.7	224°12.2	06.9	339°04.3	14.8	98°25.8	51.0										
5	110°48.9	274°57.1	06.9	239°12.8	07.4	354°06.6	14.8	113°28.4	51.0										
6	125°51.3	289°56.7	S05°08.1	254°13.5	S19°07.9	9°08.9	N21°14.8	128°30.9	S03°51.1										
7	140°53.8	304°56.2	09.3	269°14.1	08.3	24°11.3	14.8	143°33.5	51.1										
8	155°56.2	319°55.8	10.5	284°14.8	08.8	39°13.6	14.8	158°36.1	51.2										
9	170°58.7	334°55.4	•• 11.8	299°15.4	•• 09.2	54°15.9	•• 14.7	173°38.7	•• 51.2										
10	186°01.2	349°55.0	13.0	314°16.1	09.7	69°18.3	14.7	188°41.3	51.3										
11	201°03.6	4°54.5	14.2	329°16.7	10.2	84°20.6	14.7	203°43.9	51.3										
12	216°06.1	19°54.1	S05°15.4	344°17.4	S19°10.6	99°22.9	N21°14.7	218°46.5	S03°51.3										
13	231°08.6	34°53.7	16.6	359°18.0	11.1	114°25.3	14.7	233°49.0	51.4										
14	246°11.0	49°53.3	17.8	14°18.7	11.5	129°27.6	14.7	248°51.6	51.4										
15	261°13.5	64°52.8	•• 19.0	29°19.3	•• 12.0	144°29.9	•• 14.7	263°54.2	•• 51.5										
16	276°16.0	79°52.4	20.2	44°20.0	12.5	159°32.3	14.6	278°56.8	51.5										
17	291°18.4	94°52.0	21.4	59°20.6	12.9	174°34.6	14.6	293°59.4	51.6										
18	306°20.9	109°51.6	S05°22.6	74°21.3	S19°13.4	189°36.9	N21°14.6	309°02.0	S03°51.6										
19	321°23.3	124°51.1	23.8	89°21.9	13.8	204°39.3	14.6	324°04.5	51.7										
20	336°25.8	139°50.7	25.0	104°22.6	14.3	219°41.6	14.6	339°07.1	51.7										
21	351°28.3	154°50.3	•• 26.2	119°23.3	•• 14.7	234°43.9	•• 14.6	354°09.7	•• 51.8										
22	6°30.7	169°49.9	27.4	134°23.9	15.2	249°46.3	14.5	9°12.3	51.8										
23	21°33.2	184°49.4	28.7	149°24.6	15.7	264°48.6	14.5	24°14.9	51.8										
Mer.pass. 21:34				ν -0.4' d -1.2' m -3.91				ν 0.7' d -0.5' m 1.48				ν 2.3' d -0.0' m -2.29				ν 2.6' d -0.0' m 0.74			

	SHA	Dec
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.9
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.3
Hamal	327°50.1	23°35.2
Polaris	313°13.9	89°22.3
Acamar	315°10.9	-40°11.9
Menkar	314°05.2	4°11.6
Mirfak	308°26.9	49°57.2
Aldebaran	290°38.6	16°33.7
Rigel	281°03.0	-8°10.1
Capella	280°20.6	46°01.3
Bellatrix	278°22.0	6°22.5
Elath	278°00.8	28°37.7
Alnilam	275°36.9	-1°11.0
Betelgeuse	270°51.2	7°24.8
Canopus	263°51.9	-52°42.2
Sirius	258°25.5	-16°44.9
Adhara	255°05.2	-29°00.1
Procyon	244°50.1	5°09.6
Pollux	243°16.5	27°57.8
Avior	234°14.5	-59°35.1
Suhail	222°46.0	-43°31.9
Miaplacidus	221°38.4	-69°49.0
Alphard	217°47.2	-8°46.1
Regulus	207°33.9	11°50.5
Dubhe	193°40.6	61°36.5
Denebola	182°24.6	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	173°00.1	-63°14.4
Gacrux	171°51.5	-57°15.3
Althoth	166°12.9	55°49.1
Spica	158°22.0	-11°17.7
Alkaid	152°52.0	49°11.1
Hadar	148°35.8	-60°29.8
Menkent	147°57.3	-36°29.7
Arcturus	145°47.7	19°02.9
Rigel Kent.	139°40.1	-60°56.5
Kochab	137°20.9	74°02.9
Zuben'ubi	136°55.7	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.4	-26°29.3
Atria	107°09.4	-69°04.6
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	12°32.6
Eltanin	90°42.2	51°29.3
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.0	38°48.7
Nunki	75°47.1	-26°15.9
Altair	61°59.4	8°56.3
Peacock	53°04.7	-56°39.3
Deneb	49°25.3	45°22.6
Enif	33°38.1	9°59.8
Al Na'ir	27°31.9	-46°50.3
Fomalhaut	15°13.6	-29°29.1
Scheat	13°44.4	28°13.6
Markab	13°29.1	15°20.8
Oct 25 Sat	SHA	Mer.pass
Venus	166°41.0	10.39
Mars	129°59.5	13.05
Jupiter	243°25.3	05.31
Saturn	2°32.9	21.32
Oct 26 Sun	SHA	Mer.pass
Venus	165°31.9	10.40
Mars	129°16.3	13.04
Jupiter	243°21.8	05.27
Saturn	2°35.9	21.27
Oct 27 Mon	SHA	Mer.pass
Venus	164°22.7	10.40
Mars	128°33.0	13.03
Jupiter	243°18.4	05.23
Saturn	2°38.9	21.23
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	36°35.7	199°49.0	S05°29.9	164°25.2	S19°16.1	279°51.0	N21°14.5	39°17.5	S03°51.9										
1	51°38.1	214°48.6		31.1	179°25.9		16.6	294°53.3		14.5	54°20.0		51.9						
2	66°40.6	229°48.2		32.3	194°26.5		17.0	309°55.6		14.5	69°22.6		52.0						
3	81°43.1	244°47.7	•• 33.5	209°27.2	•• 17.5	324°58.0	•• 14.5	84°25.2	•• 52.0										
4	96°45.5	259°47.3		34.7	224°27.8		17.9	340°00.3		14.4	99°27.8		52.1						
5	111°48.0	274°46.9		35.9	239°28.4		18.4	355°02.7		14.4	114°30.4		52.1						
6	126°50.5	289°46.5	S05°37.1	254°29.1	S19°18.8	10°05.0	N21°14.3	129°33.0	S03°52.2										
7	141°52.9	304°46.0		38.3	269°29.7		19.3	25°07.3		14.4	144°35.5		52.2						
8	156°55.4	319°45.6		39.5	284°30.4		19.7	40°09.7		14.4	159°38.1		52.3						
9	171°57.8	334°45.2	•• 40.7	299°31.0	•• 20.2	55°12.0	•• 14.4	174°40.7	•• 52.3										
10	187°00.3	349°44.7		41.9	314°31.7		20.7	70°14.4		14.4	189°43.3		52.3						
11	202°02.8	4°44.3		43.1	329°32.3		21.1	85°16.7		14.3	204°45.9		52.4						
12	217°05.2	19°43.9	S05°44.3	344°33.0	S19°21.6	100°19.0	N21°14.3	219°48.5	S03°52.4										
13	232°07.7	34°43.4		45.5	359°33.6		22.0	115°21.4		14.3	234°51.0		52.5						
14	247°10.2	49°43.0		46.7	14°34.3		22.5	130°23.7		14.3	249°53.6		52.5						
15	262°12.6	64°42.6	•• 47.9	29°34.9	•• 22.9	145°26.1	•• 14.3	264°56.2	•• 52.6										
16	277°15.1	79°42.2		49.1	44°35.6		23.4	160°28.4		14.3	279°58.8		52.6						
17	292°17.6	94°41.7		50.3	59°36.2		23.8	175°30.7		14.2	295°01.4		52.7						
18	307°20.0	109°41.3	S05°51.5	74°36.9	S19°24.3	190°33.1	N21°14.2	310°04.0	S03°52.7										
19	322°22.5	124°40.9		52.7	89°37.5		24.5	205°35.4		14.2	325°06.5		52.7						
20	337°25.0	139°40.4		53.9	104°38.1		25.2	220°37.8		14.2	340°09.1		52.8						
21	352°27.4	154°40.9	•• 55.1	119°38.8	•• 25.6	235°40.1	•• 14.2	355°11.7	•• 52.8										
22	7°29.9	169°39.6		56.4	334°39.4		26.1	265°42.5		14.2	10°14.3		52.9						
23	22°32.3	184°39.1		57.5	149°40.1		26.5	265°44.8		14.2	25°16.9		52.9						
Mer.pass. 21:30				ν -0.4° d -1.2° m -3.91				ν 0.6° d -0.5° m 1.48				ν 2.3° d -0.0° m -2.29				ν 2.6° d -0.0° m 0.75			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	37°34.8	199°38.7	S05°58.7	164°40.7	S19°27.0	280°47.2	N21°14.1	40°19.4	S03°53.0
1	52°37.3	214°38.3	05°59.9	179°41.4	27.4	295°49.5	14.1	55°22.0	53.0
2	67°39.7	229°37.8	06°01.1	194°42.0	27.9	301°51.9	14.1	70°24.6	53.1
3	82°42.2	244°37.4	•• 02.3	209°42.6	•• 28.3	325°54.2	•• 14.1	85°27.2	•• 53.1
4	97°44.7	259°37.0	03.5	224°43.3	28.8	340°56.5	14.1	100°29.8	53.1
5	112°47.1	274°36.5	04.7	239°43.9	29.2	355°58.9	14.1	115°32.3	53.2
6	127°49.6	289°36.1	S06°06.0	254°44.6	S19°29.7	11°01.2	N21°14.1	130°34.9	S03°53.2
7	142°52.1	304°35.7	07.2	269°45.2	30.1	26°03.6	14.0	145°37.5	53.3
8	157°54.5	319°35.2	08.3	284°45.9	30.6	41°05.9	14.0	160°40.1	53.3
9	172°57.0	334°34.8	•• 09.5	299°46.5	•• 31.0	56°08.3	•• 14.0	175°42.7	•• 53.4
10	187°59.5	349°34.4	10.7	314°47.1	31.5	71°10.6	14.0	190°45.2	53.4
11	203°01.9	4°33.9	11.9	329°47.8	31.9	86°13.0	14.0	205°47.8	53.4
12	218°04.4	19°33.5	S06°13.1	344°48.4	S19°32.3	101°15.3	N21°14.0	220°50.4	S03°53.5
13	233°06.8	34°33.1	14.3	359°49.1	32.8	116°17.7	14.0	235°53.0	53.5
14	248°09.3	49°32.6	15.5	14°49.7	33.2	131°20.0	14.0	250°55.6	53.6
15	263°11.8	64°32.2	•• 16.7	29°50.3	•• 33.7	146°22.4	•• 13.9	265°58.1	•• 53.6
16	278°14.2	79°31.8	17.9	44°51.0	34.1	161°24.7	13.9	281°00.7	53.7
17	293°16.7	94°31.3	19.1	59°51.6	34.6	176°27.1	13.9	296°03.3	53.7
18	308°19.2	109°30.9	S06°20.3	74°52.3	S19°35.0	191°29.4	N21°13.9	311°05.9	S03°53.7
19	323°21.6	124°30.5	21.5	89°52.9	35.5	206°31.8	13.9	326°08.4	53.8
20	338°24.1	139°30.0	22.7	104°53.5	35.9	221°34.2	13.9	341°11.0	53.8
21	353°26.6	154°29.6	•• 23.9	119°54.2	•• 36.4	236°36.5	•• 13.9	356°13.6	•• 53.9
22	8°29.0	169°29.1	25.1	134°54.8	36.8	251°38.9	13.8	11°16.2	53.9
23	23°31.5	184°28.7	26.3	149°55.4	37.2	266°41.2	13.8	26°18.8	54.0
Mer.pass. 21:26 ν -0.4° d -1.2° m -3.91 ν 0.6° d -0.4° m 1.47 ν 2.3° d -0.0° m -2.30 ν 2.6° d -0.0° m 0.75									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	38°33.9	199°28.3	S06°27.5	164°56.1	S19°37.7	281°43.6	N21°13.8	41°21.3	S03°54.0
1	53°36.4	214°27.8	28.7	179°56.7	38.1	296°45.9	13.8	56°23.9	54.0
2	68°38.9	229°27.4	29.9	194°57.4	38.6	311°48.3	13.8	71°26.5	54.1
3	83°41.3	244°27.0	•• 31.1	209°58.0	•• 39.0	326°50.6	•• 13.8	86°29.1	•• 54.1
4	98°43.8	259°26.5	32.3	224°58.6	39.4	341°53.0	13.8	101°31.6	54.2
5	113°46.3	274°26.1	33.5	239°59.3	39.9	356°55.3	13.8	116°34.2	54.2
6	128°48.7	289°25.6	S06°34.7	254°59.9	S19°40.3	11°57.7	N21°13.7	131°36.8	S03°54.2
7	143°51.2	304°25.2	35.9	270°00.5	40.8	27°00.1	13.7	146°39.4	54.3
8	158°53.7	319°24.8	37.1	285°01.2	41.2	42°02.4	13.7	161°42.0	54.3
9	173°56.1	334°24.3	•• 38.3	300°01.8	•• 41.7	57°04.8	•• 13.7	176°44.5	•• 54.4
10	188°58.6	349°23.9	39.5	315°02.4	42.1	72°07.1	13.7	191°47.1	54.4
11	204°01.1	4°23.4	40.7	330°03.1	42.5	87°09.5	13.7	206°49.7	54.5
12	219°03.5	19°23.0	S06°41.9	345°03.7	S19°43.0	102°11.8	N21°13.7	221°52.3	S03°54.5
13	234°06.0	34°22.6	43.1	0°04.3	43.4	117°14.2	13.7	236°54.8	54.5
14	249°08.4	49°22.1	44.2	15°05.0	43.9	132°16.6	13.6	251°57.4	54.6
15	264°10.9	64°21.7	•• 45.4	30°05.6	•• 44.3	147°18.9	•• 13.6	267°00.0	•• 54.6
16	279°13.4	79°21.2	46.6	45°06.2	44.7	162°21.3	13.6	282°02.6	54.7
17	294°15.8	94°20.8	47.8	60°06.9	45.2	177°23.6	13.6	297°05.1	54.7
18	309°18.3	109°20.4	S06°49.0	75°07.5	S19°45.6	192°26.0	N21°13.6	312°07.7	S03°54.7
19	324°20.8	124°19.9	50.2	90°08.1	46.0	207°28.4	13.6	327°10.3	54.8
20	339°23.2	139°19.5	51.4	105°08.8	46.5	222°30.7	13.6	342°12.9	54.8
21	354°25.7	154°19.0	•• 52.6	120°09.4	•• 46.9	237°33.1	•• 13.6	357°15.4	•• 54.9
22	9°28.2	169°18.6	53.8	135°10.0	47.4	252°35.4	13.5	12°18.0	54.9
23	24°30.6	184°18.1	55.0	150°10.7	47.8	267°37.8	13.5	27°26.0	54.9
Mer.pass. 21:22 ν -0.4° d -1.2° m -3.91 ν 0.6° d -0.4° m 1.47 ν 2.4° d -0.0° m -2.31 ν 2.6° d -0.0° m 0.76									

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°09.9
Schedar	349°29.8	56°40.9
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.3
Hamal	327°50.1	23°35.2
Polaris	313°13.2	89°22.3
Acamar	315°10.8	-40°11.9
Menkar	314°05.1	4°11.6
Mirfak	308°26.8	49°57.2
Aldebaran	290°38.6	16°33.7
Rigel	281°03.0	-8°10.1
Capella	280°20.6	46°01.4
Bellatrix	278°21.9	6°22.5
Elath	278°00.8	28°37.7
Alnilam	275°36.8	-1°11.0
Betelgeuse	270°51.2	7°24.8
Canopus	263°51.8	-52°42.2
Sirius	258°25.5	-16°44.9
Adhara	255°05.2	-29°00.1
Procyon	244°50.1	5°09.6
Pollux	243°16.4	27°57.8
Avior	234°14.5	-59°35.1
Suhail	222°45.9	-43°31.9
Miaplacidus	221°38.4	-69°49.0
Alphard	217°47.2	-8°46.1
Regulus	207°33.9	11°50.5
Dubhe	193°40.6	61°36.5
Denebola	182°24.5	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	173°00.0	-63°14.3
Gacrux	171°51.5	-57°15.3
Althoth	166°12.9	55°49.1
Spica	158°21.9	-11°17.7
Alkaid	152°52.0	49°11.0
Hadar	148°35.8	-60°29.8
Menkent	147°57.3	-36°29.7
Arcturus	145°47.7	19°02.9
Rigel Kent.	139°40.1	-60°56.5
Kochab	137°20.9	74°02.9
Zuben 'ul	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.8
Antares	112°15.4	-26°29.3
Atria	107°09.4	-69°04.5
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	12°32.6
Eltanin	90°42.2	51°29.3
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.0	38°48.7
Nunki	75°47.1	-26°15.9
Altair	61°59.4	8°56.3
Peacock	53°04.7	-56°39.3
Deneb	49°25.4	45°22.6
Enif	33°38.1	9°59.8
Al Na'ir	27°31.9	-46°50.3
Fomalhaut	15°13.6	-29°29.1
Scheat	13°44.4	28°13.6
Markab	13°29.1	15°20.8
Oct 28 Tue	SHA	Mer.pass
Venus	163°13.3	10:41
Mars	127°49.5	13:02
Jupiter	243°15.3	05:20
Saturn	2°41.8	21:19
Oct 29 Wed	SHA	Mer.pass
Venus	162°03.9	10:42
Mars	127°05.9	13:01
Jupiter	243°12.4	05:16
Saturn	2°44.6	21:15
Oct 30 Thu	SHA	Mer.pass
Venus	160°54.3	10:42
Mars	126°22.1	13:00
Jupiter	243°09.6	05:12
Saturn	2°47.4	21:11
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	39°33.1	199°17.7	S06°56.2	165°11.3	S19°48.2	282°40.2	N21°13.5	42°23.2	S03°55.0										
1	54°35.6	214°17.2	57.4	180°11.9	48.7	297°42.5	13.5	57°25.2	55.0										
2	69°38.0	229°16.8	58.5	195°12.5	49.1	312°44.9	13.5	72°28.3	55.1										
3	84°40.5	244°16.4	06°59.7	210°13.2	.. 49.5	327°47.3	.. 13.5	87°30.9	.. 55.1										
4	99°42.9	259°15.9	07°00.9	225°13.4	50.0	342°49.6	13.5	102°33.5	55.2										
5	114°45.4	274°15.5	02.1	240°14.4	50.4	357°52.0	13.5	117°36.0	55.2										
6	129°47.9	289°15.0	S07°03.3	255°15.1	S19°50.8	12°54.4	N21°13.5	132°38.6	S03°55.2										
7	144°50.3	304°14.6	04.5	270°15.7	51.3	27°56.7	13.4	147°41.2	55.3										
8	159°52.8	319°14.1	05.7	285°16.3	51.7	42°59.1	13.4	162°43.7	55.3										
9	174°55.3	334°13.7	.. 06.9	300°16.9	.. 52.1	58°01.4	.. 13.4	177°46.3	.. 55.4										
10	189°57.7	349°13.2	08.1	315°17.6	52.6	73°03.8	13.4	192°48.9	55.4										
11	205°00.2	4°12.8	09.2	330°18.2	53.0	88°06.2	13.4	207°51.5	55.4										
12	220°02.7	19°12.3	S07°10.4	345°18.8	S19°53.4	103°08.5	N21°13.4	222°54.0	S03°55.5										
13	235°05.1	34°11.9	11.6	0°19.5	53.9	118°10.9	13.4	237°56.6	55.5										
14	250°07.6	49°11.4	12.8	15°20.1	54.3	133°13.3	13.4	252°59.2	55.6										
15	265°10.0	64°11.0	.. 14.0	30°20.7	.. 54.7	148°15.6	.. 13.4	268°01.8	.. 55.6										
16	280°12.5	79°10.6	15.2	45°21.3	55.2	163°18.0	13.4	283°04.3	55.6										
17	295°15.0	94°10.1	16.4	60°22.0	55.6	178°20.4	13.3	298°06.9	55.7										
18	310°17.4	109°09.7	S07°17.6	75°22.6	S19°56.0	193°22.8	N21°13.3	313°09.5	S03°55.7										
19	325°19.9	124°09.2	18.7	90°23.2	56.5	208°25.1	13.3	328°12.0	55.8										
20	340°22.4	139°08.8	19.9	105°23.8	56.6	223°27.5	13.3	343°14.6	55.8										
21	355°24.8	154°08.3	.. 21.1	120°24.5	.. 57.3	238°29.9	.. 13.3	358°17.2	.. 55.8										
22	10°27.3	169°07.9	22.3	135°25.1	57.7	253°32.2	13.3	13°19.8	55.9										
23	25°29.8	184°07.4	23.5	150°25.7	58.2	268°34.6	13.3	28°22.3	55.9										
Mer.pass. 21:18				ν -0.4' d -1.2' m -3.91				ν 0.6' d -0.4' m 1.46				ν 2.4' d -0.0' m -2.31				ν 2.6' d -0.0' m 0.76			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	40°32.2	199°07.0	S07°24.7	165°26.3	S19°58.6	283°37.0	N21°13.3	43°24.9	S03°55.9				
1	55°34.7	214°06.5	25.9	180°27.0	59.0	298°39.3	13.3	58°27.5	56.0				
2	70°37.2	229°06.1	27.0	195°27.6	59.5	313°41.7	13.2	73°30.0	56.0				
3	85°39.6	244°05.6	.. 28.2	210°28.2	19°59.9	328°44.1	.. 13.2	88°32.6	.. 56.1				
4	100°42.1	259°05.1	29.4	225°28.8	20°00.3	343°46.5	13.2	103°35.2	56.1				
5	115°44.5	274°04.7	30.6	240°29.4	00.7	358°48.8	13.2	118°37.8	56.1				
6	130°47.0	289°04.2	S07°31.8	255°30.1	S20°01.2	13°51.2	N21°13.2	133°40.3	S03°56.2				
7	145°49.5	304°03.8	33.0	270°30.7	01.6	28°53.6	13.2	148°42.9	56.2				
8	160°51.9	319°03.3	34.1	285°31.3	02.0	43°56.0	13.2	163°45.5	56.3				
9	175°54.4	334°02.9	.. 35.3	300°31.9	.. 02.5	58°58.3	.. 13.2	178°48.0	.. 56.3				
10	190°56.9	349°02.4	36.5	315°32.6	02.9	74°00.7	13.2	193°50.6	56.3				
11	205°59.3	4°02.0	37.7	330°33.2	03.3	89°03.1	13.2	208°53.2	56.4				
12	221°01.8	19°01.5	S07°38.9	345°33.8	S20°03.7	104°05.5	N21°13.2	223°55.7	S03°56.4				
13	236°04.3	34°01.1	40.0	0°34.4	04.2	119°07.8	13.1	238°58.3	56.5				
14	251°06.7	49°00.6	41.2	15°35.0	04.6	134°10.2	13.1	254°00.9	56.5				
15	266°09.2	64°00.2	.. 42.4	30°35.7	.. 05.0	149°12.6	.. 13.1	269°03.5	.. 56.5				
16	281°11.7	78°59.7	43.6	45°36.3	05.4	164°15.0	13.1	284°06.0	56.6				
17	296°14.1	93°59.3	44.8	60°36.9	05.9	179°17.3	13.1	299°08.6	56.6				
18	311°16.6	108°58.8	S07°45.9	75°37.5	S20°06.3	194°19.7	N21°13.1	314°11.2	S03°56.6				
19	326°19.0	123°58.3	47.1	90°38.1	06.7	209°22.1	13.1	329°13.7	56.7				
20	341°21.5	138°57.9	48.3	105°38.8	07.1	224°24.5	13.1	344°16.3	56.7				
21	356°24.0	153°57.4	.. 49.5	120°39.4	.. 07.5	239°26.8	.. 13.1	359°18.9	.. 56.8				
22	11°26.4	168°57.0	50.7	135°40.0	08.0	254°29.2	13.1	14°21.4	56.8				
23	26°28.9	183°56.5	51.8	150°40.6	08.4	269°31.6	13.1	29°24.0	56.8				
Mer.pass. 21:14		ν -0.5' d -1.2' m -3.91			ν 0.6' d -0.4' m 1.46			ν 2.4' d -0.0' m -2.32			ν 2.6' d -0.0' m 0.77		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	41°31.4	198°56.1	S07°53.0	165°41.2	S20°08.8	284°34.0	N21°13.0	44°26.6	S03°56.9										
1	56°33.8	213°55.6	54.2	180°41.8	09.2	299°36.4	13.0	59°29.1	56.9										
2	71°36.3	228°55.1	55.4	195°42.5	09.7	314°38.7	13.0	74°31.7	56.9										
3	86°38.8	243°54.7	.. 56.6	210°43.1	.. 10.1	329°41.1	.. 13.0	89°34.3	.. 57.0										
4	101°41.2	258°54.2	57.7	225°43.7	10.5	344°43.5	13.0	104°36.8	57.0										
5	116°43.7	273°53.8	07°58.9	240°44.3	10.9	359°45.9	13.0	119°39.4	57.1										
6	131°46.1	288°53.3	S08°00.1	255°44.9	S20°11.3	14°48.3	N21°13.0	134°42.0	S03°57.1										
7	146°48.6	303°52.8	01.3	270°45.5	11.8	29°50.6	13.0	149°44.5	57.1										
8	161°51.1	318°52.4	02.4	285°46.2	12.2	44°53.0	13.0	164°47.1	57.2										
9	176°53.5	333°51.9	.. 03.6	300°46.8	.. 12.6	59°55.4	.. 13.0	179°49.7	.. 57.2										
10	191°56.0	348°51.5	04.8	315°47.4	13.0	74°57.8	13.0	194°52.2	57.2										
11	206°58.5	3°51.0	06.0	330°48.0	13.4	90°00.2	13.0	209°54.8	57.3										
12	222°00.9	18°50.5	S08°07.1	345°48.6	S20°13.9	105°02.6	N21°12.9	224°57.4	S03°57.3										
13	237°03.4	33°50.1	08.3	0°49.2	14.3	120°04.9	12.9	239°59.9	57.4										
14	252°05.9	48°49.6	09.5	15°49.8	14.7	135°07.3	12.9	255°02.5	57.4										
15	267°08.3	63°49.2	.. 10.7	30°50.4	.. 15.1	150°09.7	.. 12.9	270°05.1	.. 57.4										
16	282°10.8	78°48.7	11.8	45°51.1	15.5	165°12.1	12.9	285°07.6	57.5										
17	297°13.3	93°48.2	13.0	60°51.7	15.9	180°14.5	12.9	300°10.2	57.5										
18	312°15.7	108°47.8	S08°14.2	75°52.3	S20°16.4	195°16.9	N21°12.9	315°12.8	S03°57.5										
19	327°18.2	123°47.3	15.3	90°52.9	16.8	210°19.3	12.9	330°15.3	57.6										
20	342°20.6	138°46.8	16.5	105°53.5	17.2	225°21.6	12.9	345°17.9	57.6										
21	357°23.1	153°46.4	.. 17.7	120°54.1	.. 17.6	240°24.0	.. 12.9	0°20.5	.. 57.6										
22	12°25.6	168°45.9	18.9	135°54.7	18.0	255°26.4	12.9	15°23.0	57.7										
23	27°28.0	183°45.4	20.0	150°55.3	18.4	270°28.8	12.9	30°25.6	57.7										
Mer.pass. 21:10				ν -0.5' d -1.2' m -3.91				ν 0.6' d -0.4' m 1.45				ν 2.4' d -0.0' m -2.33				ν 2.6' d -0.0' m 0.77			

Stars		SHA	Dec
Alpheratz	357°33.8	29°14.2	
Ankaa	353°06.1	-42°10.0	
Schedar	349°29.8	56°41.0	
Diphda	348°46.3	-17°50.6	
Achernar	335°19.1	-57°06.3	
Hamal	327°50.1	23°35.2	
Polaris	313°12.8	89°22.3	
Acamar	315°10.8	-40°11.9	
Menkar	314°05.1	4°11.6	
Mirfak	308°26.8	49°57.2	
Aldebaran	290°38.6	16°33.8	
Rigel	281°03.0	-8°10.1	
Capella	280°20.6	46°01.4	
Bellatrix	278°21.9	6°22.5	
Elath	278°00.8	28°37.7	
Anilam	275°36.8	-1°11.0	
Betelgeuse	270°51.2	7°24.8	
Canopus	263°51.8	-52°42.2	
Sirius	258°25.5	-16°44.9	
Adhara	255°05.2	-29°00.2	
Procyon	244°50.1	5°09.6	
Pollux	243°16.4	27°57.8	
Avior	234°14.4	-59°35.1	
Suhail	222°45.9	-43°31.9	
Miaplacidus	221°38.3	-69°49.0	
Alphard	217°47.2	-8°46.1	
Regulus	207°33.9	11°50.5	
Dubhe	193°40.6	61°36.5	
Denebola	182°24.5	14°25.7	
Gienah	175°43.2	-17°41.0	
Acruz	173°00.0	-63°14.3	
Gacrux	171°51.5	-57°15.3	
Alloth	166°12.9	55°49.1	
Spica	158°21.9	-11°17.7	
Alkaid	152°52.0	49°11.0	
Hadar	148°35.8	-60°29.8	
Menkent	147°57.3	-36°29.7	
Arcturus	145°47.7	19°02.9	
Rigel Kent.	139°40.1	-60°56.5	
Kochab	137°20.9	74°02.9	
Zuben'ubi	136°55.6	-16°08.9	
Alphecca	126°03.5	26°37.7	
Antares	112°15.4	-26°29.3	
Atria	107°09.5	-69°04.5	
Sabik	102°02.3	-15°45.4	
Shaula	96°09.9	-37°07.4	
Rasalhague	95°58.2	12°32.6	
Eltanin	90°42.2	51°29.3	
Kaus Aust.	83°31.9	-34°22.4	
Vega	80°33.0	38°48.7	
Nunki	75°47.1	-26°15.9	
Altair	61°59.4	8°56.3	
Peacock	53°04.7	-56°39.3	
Deneb	49°25.4	45°22.6	
Enif	33°38.1	9°9.8	
Al Na'ir	27°31.9	-46°50.3	
Fomalhaut	15°13.6	-29°29.2	
Scheat	13°44.4	28°13.6	
Markab	13°29.1	15°20.8	
Oct 31 Fri	SHA	Mer-pass	
Venus	159°44.6	10:43	
Mars	125°38.2	12:59	
Jupiter	243°07.1	05:09	
Saturn	2°50.1	21:07	
Nov 01 Sat	SHA	Mer-pass	
Venus	158°34.7	10:44	
Mars	124°54.1	12:58	
Jupiter	243°04.7	05:05	
Saturn	2°52.7	21:03	
Nov 02 Sun	SHA	Mer-pass	
Venus	157°24.7	10:45	
Mars	124°09.9	12:57	
Jupiter	243°02.6	05:01	
Saturn	2°55.2	20:59	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	42°30.5	198°45.0	S08°21.2	165°56.0	S20°18.9	285°31.2	N21°12.9	45°28.2	S03°57.7										
1	57°33.0	213°44.5	22.4	180°56.6	19.3	300°33.6	12.8	60°30.7	57.8										
2	72°35.4	228°44.1	23.5	195°57.2	19.7	315°36.0	12.8	75°33.3	57.8										
3	87°37.9	243°43.6	· · 24.7	210°57.8	· · 20.1	330°38.4	· · 12.8	90°35.8	· · 57.9										
4	102°40.4	258°43.1	25.9	225°58.4	20.5	345°40.7	12.8	105°38.8	57.9										
5	117°42.8	273°42.7	27.1	240°59.0	20.9	· 0°43.1	12.8	120°41.0	57.9										
6	132°45.3	288°42.2	S08°28.2	255°59.6	S20°21.3	15°45.5	N21°12.8	135°43.5	S03°58.6										
7	147°47.7	303°41.7	29.4	271°00.2	21.8	30°47.9	12.8	150°46.1	58.0										
8	162°50.2	318°41.3	30.6	286°00.8	22.5	45°50.3	12.8	165°48.7	58.0										
9	177°52.7	333°40.8	· · 31.7	301°01.4	· · 22.6	60°52.7	· · 12.8	180°51.2	· · 58.1										
10	192°55.1	348°40.3	32.9	316°02.1	23.0	75°55.1	12.8	195°53.8	58.1										
11	207°57.6	· 3°39.8	34.1	331°02.7	23.4	90°57.5	12.8	210°56.4	58.1										
12	223°00.1	18°39.4	S08°35.2	346°03.3	S20°23.8	105°59.9	N21°12.8	225°58.9	S03°58.2										
13	238°02.5	33°38.9	36.4	1°03.9	24.2	121°02.3	12.8	241°01.5	58.2										
14	253°05.0	48°38.4	37.6	16°04.5	24.6	136°04.7	12.8	256°04.0	58.2										
15	268°07.5	63°38.0	· · 38.7	31°05.1	· · 25.0	151°07.0	· · 12.8	271°06.6	· · 58.3										
16	283°09.7	78°37.5	39.9	46°05.7	25.5	166°09.4	12.8	286°09.2	58.3										
17	298°12.4	93°37.0	41.1	61°06.3	25.9	181°11.8	12.7	301°11.7	58.4										
18	313°14.9	108°36.6	S08°42.2	76°06.9	S20°26.3	196°14.2	N21°12.7	316°14.3	S03°58.4										
19	328°17.3	123°36.1	43.4	91°07.5	26.7	211°16.6	12.7	331°16.8	58.4										
20	343°19.8	138°35.6	44.6	106°08.1	27.1	226°19.0	12.7	346°19.4	58.5										
21	358°22.2	153°35.1	· · 45.7	121°08.7	· · 27.5	241°21.4	· · 12.7	1°22.0	· · 58.5										
22	13°24.7	168°34.7	46.9	136°09.3	27.9	256°23.8	12.7	16°24.5	58.5										
23	28°27.2	183°34.2	48.1	151°09.9	28.3	271°26.2	12.7	31°27.1	58.6										
Mer.pass. 21:06				ν -0.5° d -1.2° m -3.91				ν 0.6° d -0.4° m 1.45				ν 2.4° d -0.0° m -2.34				ν 2.6° d -0.0° m 0.78			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	43°29.6	198°33.7	S08°49.2	166°10.5	S20°28.7	286°28.6	N21°12.7	46°29.7	S03°58.6
1	58°32.1	213°33.3	50.4	181°11.1	29.1	301°31.0	12.7	61°32.2	58.6
2	73°34.6	228°32.8	51.5	196°11.7	29.5	316°33.4	12.7	76°34.8	58.7
3	88°37.0	243°32.3	· · 52.7	211°12.3	· · 29.9	331°35.8	· · 12.7	91°37.3	· · 58.7
4	103°39.5	258°31.8	53.9	226°13.0	30.4	346°38.2	12.7	106°39.9	58.7
5	118°42.0	273°31.4	55.0	241°13.6	30.8	1°40.6	12.7	121°42.5	58.8
6	133°44.4	288°30.9	S08°56.3	256°14.2	S20°31.2	16°43.0	N21°12.7	136°45.0	S03°58.8
7	148°46.9	303°30.4	57.3	271°14.8	31.6	31°45.4	12.7	151°47.6	58.8
8	163°49.3	318°29.9	58.5	286°15.4	32.0	46°47.8	12.7	166°50.1	58.9
9	178°51.8	333°29.5	08°59.8	301°16.6	· · 32.4	61°50.2	· · 12.7	181°52.7	· · 58.9
10	193°54.3	348°29.0	09°00.8	316°16.6	32.8	76°52.6	12.6	196°55.3	58.9
11	208°56.7	· 3°28.5	02.0	331°17.2	33.2	91°55.0	12.6	211°57.8	59.0
12	223°59.2	18°28.0	S09°03.1	346°17.8	S20°33.6	106°57.4	N21°12.6	227°00.4	S03°59.0
13	239°01.7	33°27.6	04.3	1°18.4	34.0	121°59.8	12.6	242°02.9	59.0
14	254°04.1	48°27.1	05.5	16°19.0	34.4	137°02.2	12.6	257°05.5	59.1
15	269°06.6	63°26.6	· · 06.6	31°19.6	· · 34.8	152°04.6	· · 12.6	272°08.1	· · 59.1
16	284°09.1	78°26.1	07.8	46°20.2	35.2	167°07.0	12.6	287°10.6	59.1
17	299°11.5	93°25.6	08.9	61°20.8	35.6	182°09.4	12.6	302°13.2	59.2
18	314°14.0	108°25.2	S09°10.1	76°21.4	S20°36.0	197°11.8	N21°12.6	317°15.7	S03°59.2
19	329°16.5	123°24.7	11.3	91°22.0	36.4	212°14.2	12.6	332°18.3	59.2
20	344°18.9	138°24.2	12.4	106°22.6	36.8	227°16.6	12.6	347°20.8	59.3
21	359°21.4	153°23.7	· · 13.6	121°23.2	· · 37.2	242°19.0	· · 12.6	2°23.4	· · 59.3
22	14°23.8	168°23.2	14.7	136°23.8	37.6	257°21.4	12.6	17°26.0	59.3
23	29°26.3	183°22.8	15.9	151°24.4	38.0	272°23.8	12.6	32°28.5	59.4
Mer.pass. 21:03 ν -0.5° d -1.2° m -3.91 ν 0.6° d -0.4° m 1.44 ν 2.4° d -0.0° m -2.34 ν 2.6° d -0.0° m 0.78									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	44°28.8	198°22.3	S09°17.0	166°25.0	S20°38.4	287°26.2	N21°12.6	47°31.1	S03°59.4										
1	59°31.2	213°21.8	18.2	181°25.6	38.8	302°28.6	12.6	62°33.6	59.4										
2	74°33.7	228°21.3	19.3	196°26.2	39.2	317°31.0	12.6	77°36.2	59.5										
3	89°36.2	243°20.8	· · 20.5	211°26.8	· · 39.6	332°33.4	· · 12.6	92°38.7	· · 59.5										
4	104°38.6	258°20.4	21.7	226°27.3	40.0	347°35.8	12.6	107°41.3	59.5										
5	119°41.1	273°19.9	22.8	241°27.9	40.4	2°38.2	12.6	122°43.9	59.6										
6	134°43.6	288°19.4	S09°24.0	256°28.5	S20°40.8	17°40.7	N21°12.6	137°46.4	S03°59.6										
7	149°46.0	303°18.9	25.1	271°29.1	41.2	32°43.1	12.6	152°49.0	59.6										
8	164°48.5	318°18.4	26.3	286°29.7	41.6	47°45.5	12.6	167°51.5	59.7										
9	179°51.0	333°17.9	· · 27.4	301°30.3	· · 42.0	62°47.9	· · 12.5	182°54.1	· · 59.7										
10	194°53.4	348°17.5	28.6	316°30.9	42.4	77°50.3	12.5	197°56.6	59.7										
11	209°55.9	· 3°17.0	29.7	331°31.5	42.8	92°52.7	12.5	212°59.2	59.8										
12	224°58.3	18°16.5	S09°30.9	346°32.1	S20°43.2	107°55.1	N21°12.5	228°01.8	S03°59.8										
13	240°00.8	33°16.0	32.0	1°32.7	43.6	122°57.5	12.5	243°04.3	59.8										
14	255°03.3	48°15.5	33.2	16°33.3	44.0	137°59.9	12.5	258°06.9	59.8										
15	270°05.7	63°15.0	· · 34.3	31°33.9	· · 44.4	153°02.3	· · 12.5	273°09.4	· · 59.9										
16	285°08.2	78°14.5	35.5	46°34.5	44.8	168°04.7	12.5	288°12.0	59.9										
17	300°10.7	93°14.1	36.6	61°35.1	45.2	183°07.2	12.5	303°14.5	03°59.9										
18	315°13.1	108°13.6	S09°37.8	76°35.7	S20°45.6	198°09.6	N21°12.5	318°17.1	S04°00.0										
19	330°15.6	123°13.1	38.9	91°36.3	46.0	213°12.0	12.5	333°19.6	00.0										
20	345°18.1	138°12.6	40.1	106°36.9	46.4	228°14.4	12.5	348°22.2	00.0										
21	0°20.5	153°12.1	· · 41.2	121°37.5	· · 46.7	243°16.8	· · 12.5	3°24.8	· · 00.1										
22	15°23.0	168°11.6	42.4	136°38.0	47.1	258°19.2	12.5	18°27.3	00.1										
23	30°25.5	183°11.1	43.5	151°38.6	47.5	273°21.6	12.5	33°29.9	00.1										
Mer.pass. 20:59				ν -0.5° d -1.2° m -3.91				ν 0.6° d -0.4° m 1.44				ν 2.4° d -0.0° m -2.35				ν 2.6° d -0.0° m 0.79			

Stars	SHA	Dec
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°10.0
Schedar	349°29.8	56°41.0
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.3
Hamal	327°50.1	23°35.2
Polaris	313°12.5	89°22.4
Acamar	315°10.8	-40°11.9
Menkar	314°05.1	4°11.6
Mirafak	308°26.8	49°57.2
Aldebaran	290°38.6	16°33.8
Rigel	281°03.0	-8°10.1
Capella	280°20.5	46°01.4
Bellatrix	278°21.9	6°22.5
Elnath	278°00.7	28°37.8
Alnilam	275°36.8	-1°11.0
Betelgeuse	270°51.1	7°24.8
Canopus	263°51.8	-52°42.2
Sirius	258°25.5	-16°44.9
Adhara	255°05.2	-29°00.2
Procyon	244°50.0	5°09.6
Pollux	243°16.4	27°57.8
Avior	234°14.4	-59°35.2
Suhail	222°45.9	-43°31.9
Miaplacidus	221°38.3	-69°49.0
Alphard	217°47.2	-8°46.1
Regulus	207°33.9	11°50.5
Dubhe	193°40.5	61°36.5
Denebola	182°24.5	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	173°00.0	-63°14.3
Gacrux	171°51.4	-57°15.3
Alloth	166°12.9	55°49.1
Spica	158°21.9	-11°17.7
Alkaid	152°51.9	49°11.0
Merak	148°35.8	-60°29.8
Kenk	147°57.3	-36°29.7
Arcturus	145°47.7	19°02.9
Rigel Kent.	139°40.1	-60°56.5
Kochab	137°21.0	74°02.9
Zuben el	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.7
Antares	112°15.4	-26°29.3
Atria	107°09.5	-69°04.5

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	45°27.9	198°10.6	S09°44.7	166°39.2	S20°47.9	288°24.0	N21°12.5	48°32.4	S04°00.2					
1	60°30.4	213°10.2	45.8	181°39.8	48.3	303°26.5	12.5	63°35.0	00.2					
2	75°32.8	228°09.7	46.9	196°40.4	48.7	318°28.9	12.5	78°37.5	00.2					
3	90°35.3	243°09.2	•• 48.1	211°41.0	•• 49.1	333°31.3	•• 12.5	93°40.1	•• 00.3					
4	105°37.8	258°08.7	49.2	226°41.6	49.5	348°33.7	12.5	108°42.6	00.3					
5	120°40.2	273°08.2	50.4	241°42.2	49.9	3•36.1	12.5	123°45.2	00.3					
6	135°42.7	288°07.7	S09°51.5	256°42.8	S20°50.3	18°38.5	N21°12.5	138°47.7	S04°00.3					
7	150°45.2	303°07.2	52.7	271°43.4	50.7	33°40.9	12.5	153°50.3	00.4					
8	165°47.6	318°06.7	53.8	286°43.9	51.1	48°43.4	12.5	168°52.8	00.4					
9	180°50.1	333°06.2	•• 55.0	301°44.5	•• 51.4	63°45.8	•• 12.5	183°55.4	•• 00.4					
10	195°52.6	348°05.7	56.1	316°45.1	51.8	78°48.2	12.5	198°57.9	00.5					
11	210°55.0	3•05.2	57.2	331°45.7	52.2	93°50.6	12.5	214°00.5	00.5					
12	225°57.5	18°04.7	S09°58.4	346°46.3	S20°52.6	108°53.0	N21°12.5	229°03.1	S04°00.5					
13	240°59.9	33°04.2	09°59.5	1°46.9	53.0	123°55.4	12.5	244°05.6	00.6					
14	256°02.4	48°03.8	10°00.7	16°47.5	53.4	138°57.9	12.5	259°08.2	00.6					
15	271°04.9	63°03.3	•• 01.8	31°48.1	•• 53.8	154°00.3	•• 12.5	274°10.7	•• 00.6					
16	286°07.3	78°02.8	02.9	46°48.7	54.2	169°02.7	12.5	289°13.3	00.6					
17	301°09.8	93°02.3	04.1	61°49.2	54.6	184°05.1	12.5	304°15.8	00.7					
18	316°12.3	108°01.8	S10°05.2	76°49.8	S20°54.9	199°07.5	N21°12.5	319°18.4	S04°00.7					
19	331°14.7	123°01.3	06.4	91°50.4	55.3	214°10.0	12.5	334°20.9	00.7					
20	346°17.2	138°00.8	07.5	106°51.0	55.7	229°12.4	12.5	349°23.5	00.8					
21	1°19.7	153°00.3	•• 08.6	121°51.6	•• 56.1	244°14.8	•• 12.5	4°26.0	•• 00.8					
22	16°22.1	167°59.8	09.8	136°52.2	56.5	259°17.2	12.5	19°28.6	00.8					
23	31°24.6	182°59.3	10.9	151°52.8	56.9	274°19.6	12.5	34°31.1	00.9					
Mer.pass. 20:55			ν -0.5° d -1.1° m -3.91			ν 0.6° d -0.4° m 1.43			ν 2.4° d -0.0° m -2.36			ν 2.6° d -0.0° m 0.79		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	46°27.1	197°58.8	S10°12.1	166°53.3	S20°57.3	289°22.1	N21°12.5	49°33.7	S04°00.9
1	61°29.5	212°58.3	13.2	181°53.9	57.6	304°24.5	12.5	64°36.2	00.9
2	76°32.0	227°57.8	14.3	196°54.5	58.0	319°26.9	12.4	79°38.0	00.9
3	91°34.4	242°57.3	•• 15.5	211°55.1	•• 58.4	334°29.3	•• 12.4	94°41.3	•• 01.0
4	106°36.9	257°56.8	16.6	226°55.7	58.8	349°31.8	12.4	109°43.9	01.0
5	121°39.4	272°56.3	17.7	241°56.3	59.2	4°34.2	12.4	124°46.4	01.0
6	136°41.8	287°55.8	S10°18.9	256°56.8	S20°59.6	19°36.6	N21°12.4	139°49.0	S04°01.1
7	151°44.3	302°55.3	20.0	271°57.4	20°59.3	34°39.0	12.4	154°51.5	01.1
8	166°46.8	317°54.8	21.1	286°58.0	21°00.3	49°41.5	12.4	169°54.1	01.1
9	181°49.2	332°54.3	•• 22.3	301°58.6	•• 00.7	64°43.9	•• 12.4	184°56.6	•• 01.1
10	196°51.7	347°53.8	23.4	316°59.2	01.1	79°46.3	12.4	199°59.2	01.2
11	211°54.2	2°53.3	24.5	331°59.8	01.5	94°48.7	12.4	215°01.7	01.2
12	226°56.6	17°52.8	S10°25.7	347°00.3	S21°01.9	109°51.2	N21°12.4	230°03.4	S04°01.2
13	241°59.1	32°52.3	26.8	2°09.0	02.2	124°53.6	12.4	245°06.8	01.3
14	257°01.6	47°51.8	27.9	17°01.5	02.6	139°56.0	12.4	260°09.4	01.3
15	272°04.0	62°51.3	•• 29.1	32°02.1	•• 03.0	154°58.4	•• 12.4	275°11.9	•• 01.3
16	287°06.5	77°50.8	30.2	47°02.7	03.4	170°00.9	12.4	290°14.5	01.3
17	302°08.9	92°50.3	31.3	62°03.2	03.8	185°03.3	12.4	305°17.0	01.4
18	317°11.4	107°49.8	S10°32.5	77°03.8	S21°04.1	200°05.7	N21°12.4	320°19.6	S04°01.4
19	332°13.9	122°49.2	33.6	92°04.4	04.5	215°08.2	12.4	335°22.1	01.4
20	347°16.3	137°48.7	34.7	107°05.0	04.9	230°10.6	12.4	350°24.7	01.5
21	2°18.8	152°48.2	•• 35.8	122°05.6	•• 05.3	245°13.0	•• 12.4	5°27.2	•• 01.5
22	17°21.3	167°47.7	37.0	137°06.1	05.7	260°15.4	12.4	20°29.7	01.5
23	32°23.7	182°47.2	38.1	152°06.7	06.0	275°17.9	12.4	35°32.3	01.5
Mer.pass. 20:51 ν -0.5° d -1.1° m -3.91 ν 0.6° d -0.4° m 1.43 ν 2.4° d -0.0° m -2.36 ν 2.6° d -0.0° m 0.80									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	47°26.2	197°46.7	S10°39.2	167°07.3	S21°06.4	290°20.3	N21°12.4	50°34.8	S04°01.6					
1	62°28.7	212°46.2	40.4	182°07.9	06.8	305°22.7	12.4	65°37.4	01.6					
2	77°31.1	227°45.7	41.5	197°08.5	07.2	320°25.2	12.4	80°39.9	01.6					
3	92°33.6	242°45.2	.. 42.6	212°09.0	.. 07.5	335°27.6	.. 12.4	95°42.5	.. 01.7					
4	107°36.1	257°44.7	43.7	227°09.6	07.9	350°30.0	12.4	110°45.0	01.7					
5	122°38.5	272°44.2	44.9	242°10.2	08.3	5°32.5	12.4	125°47.6	01.7					
6	137°41.0	287°43.7	S10°46.0	257°10.8	S21°08.7	20°34.9	N21°12.4	140°50.1	S04°01.7					
7	152°43.4	302°43.2	47.1	272°11.3	09.0	35°37.3	12.4	155°52.7	01.8					
8	167°45.9	317°42.6	48.2	287°11.9	09.4	50°39.8	12.4	170°55.2	01.8					
9	182°48.4	332°42.1	.. 49.4	302°12.5	.. 09.8	65°42.2	.. 12.4	185°57.8	.. 01.8					
10	197°50.8	347°41.6	50.5	317°13.1	10.2	80°44.6	12.4	201°00.3	01.8					
11	212°53.3	2°41.1	51.6	332°13.6	10.5	95°47.1	12.4	216°02.8	01.9					
12	227°55.8	17°40.6	S10°52.7	347°14.2	S21°10.9	110°49.5	N21°12.4	231°05.4	S04°01.9					
13	242°58.2	32°40.1	53.8	2°14.8	11.3	125°51.9	12.4	246°07.9	01.9					
14	258°00.7	47°39.6	55.0	17°15.4	11.7	140°54.4	12.4	261°10.5	02.0					
15	273°03.2	62°39.1	.. 56.1	32°15.9	.. 12.0	155°56.8	.. 12.5	276°13.0	.. 02.0					
16	288°05.6	77°38.5	57.2	47°16.5	12.4	170°59.2	12.5	291°15.6	02.0					
17	303°08.1	92°38.0	58.3	62°17.1	12.8	186°01.7	12.5	306°18.1	02.0					
18	318°10.6	107°37.5	S10°59.4	77°17.7	S21°13.2	201°04.1	N21°12.5	321°20.7	S04°02.1					
19	333°13.0	122°37.0	11°00.6	92°18.2	13.5	216°06.5	12.5	336°23.2	02.1					
20	348°15.5	137°36.5	01.7	107°18.8	13.9	231°09.0	12.5	351°25.7	02.1					
21	3°17.9	152°36.0	.. 02.8	122°19.4	.. 14.3	246°11.4	.. 12.5	6°28.3	.. 02.1					
22	18°20.4	167°35.5	03.9	137°20.0	14.6	261°13.9	12.5	21°30.8	02.2					
23	33°22.9	182°34.9	05.0	152°20.5	15.0	276°16.3	12.5	36°33.4	02.2					
Mer.pass. 20:47			ν -0.5° d -1.1° m -3.91			ν 0.6° d -0.4° m 1.43			ν 2.4° d 0.0° m -2.37			ν 2.5° d -0.0° m 0.80		

SHA	Dec
Alpheratz	357°33.8 29°14.2
Ankaa	353°06.1 -42°10.0
Schedar	349°29.8 56°41.0
Diphda	348°46.4 -17°50.6
Achernar	335°19.1 -57°06.4
Hamal	327°50.1 23°35.2
Polaris	313°11.8 89°22.4
Acamar	315°10.8 -40°12.0
Menkar	314°05.1 4°11.6
Mirafak	308°26.8 49°57.2
Aldebaran	290°38.5 16°33.7
Rigel	281°02.9 -8°10.2
Capella	280°20.5 46°01.4
Bellatrix	278°21.9 6°22.5
Elath	278°00.7 28°37.7
Alnilam	275°36.8 -1°11.0
Betelgeuse	270°51.1 7°24.8
Canopus	263°51.7 -52°42.2
Sirius	258°25.5 -16°44.9
Adhara	255°05.1 -29°00.2
Procyon	244°50.0 5°09.6
Pollux	243°16.4 27°57.8
Avior	234°14.4 -59°35.2
Suhail	222°45.8 -43°31.9
Miaplacidus	221°38.2 -69°46.0
Alphard	217°47.1 -8°46.1
Regulus	207°33.8 11°50.5
Dubhe	193°40.5 61°36.5
Denebola	182°24.5 14°25.7
Gienah	175°43.2 -17°41.0
Acrux	173°00.0 -63°14.3
Gacrux	171°61.4 -57°15.3
Alloth	166°12.9 55°49.0
Spica	158°21.9 -11°17.7
Alkaid	152°51.9 49°11.0
Hadar	148°35.7 -60°29.7
Menkent	147°57.2 -36°29.7
Arcturus	145°47.6 19°46.4
Rigil Kent.	139°40.1 -60°56.4
Kochab	137°21.0 74°02.9
Zuben'ubi	126°05.6 -16°08.9
Alphecca	126°03.5 26°37.7
Antares	112°15.4 -26°29.3
Atria	107°09.5 69°04.5
Sabik	102°02.3 -15°45.4
Shaula	96°09.8 37°07.4
Rasalhague	95°58.2 12°32.6
Eltanin	90°42.3 51°29.3
Kaus Aust.	83°31.9 -34°22.4
Vega	80°33.0 38°08.6
Nunki	75°47.1 -26°15.9
Altair	61°59.4 8°56.3
Peacock	53°04.8 -56°39.3
Deneb	49°25.4 45°22.6
Enif	33°38.1 9°59.8
Al Na'ir	27°32.0 -46°50.3
Fomalhaut	15°13.6 -29°29.2
Scheat	13°44.4 28°13.6
Markab	13°29.1 15°20.8

Dubhe	193°40.5	61°36.5
Denebola	182°24.5	14°25.7
Gienah	175°43.2	-17°41.0
Acrux	173°00.0	-63°14.3
Gacrux	171°51.4	-57°15.3
Alioth	166°12.9	55°49.0
Spica	158°21.9	-11°17.7
Alkaid	152°51.9	49°11.0
Hadar	148°35.7	-60°29.7
Menkent	147°57.2	-36°29.7
Arcturus	145°47.6	19°02.9
Rigel Kent.	139°40.1	-60°56.4
Kochab	137°21.0	74°02.9
Zuben'ubi	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.7
Antares	112°15.4	-26°29.3
Sabik	107°09.5	-69°04.5
Ataria	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	12°32.6
Eltanin	90°42.3	51°29.3
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.0	38°48.6
Nunki	75°47.1	-26°15.9
Altair	61°59.4	8°56.3
Peacock	53°04.8	-56°39.3
Deneb	49°25.4	45°22.6
Enif	33°38.1	9°59.8
Al Na'ir	27°32.0	-46°50.3
Fomalhaut	15°13.6	-29°29.2
Scheat	13°44.4	28°13.6
Makab	13°29.1	15°20.8

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	48°25.3	197°34.4	S11°06.2	167°21.1	S21°15.4	291°18.7	N21°12.5	51°35.9	S04°02.2										
1	63°27.8	212°33.9	07.3	182°21.7	15.7	306°21.2	12.5	66°38.5	02.2										
2	78°30.3	227°33.4	08.4	197°22.2	16.1	321°23.6	12.5	81°41.0	02.3										
3	93°32.7	242°32.9	· · 09.5	212°22.8	· · 16.5	336°26.1	· · 12.5	96°43.6	· · 02.3										
4	108°35.2	257°32.3	10.6	227°23.4	16.8	351°28.5	12.5	111°46.1	02.3										
5	123°37.7	272°31.8	11.7	242°24.0	17.2	6°30.9	12.5	126°48.6	02.3										
6	138°40.1	287°31.3	S11°12.8	257°24.5	S21°17.6	21°33.4	N21°12.5	141°51.2	S04°02.4										
7	153°42.6	302°30.8	14.0	272°25.1	18.0	36°35.8	12.5	156°53.7	02.4										
8	168°45.1	317°30.3	15.1	287°25.7	18.3	51°38.3	12.5	171°56.3	02.4										
9	183°47.5	332°29.7	· · 16.2	302°26.2	· · 18.7	66°40.7	· · 12.5	186°58.8	· · 02.4										
10	198°50.6	347°29.2	17.3	317°26.8	19.1	81°43.2	12.5	202°01.3	02.5										
11	213°52.4	2°28.7	18.4	332°27.4	19.4	96°45.6	12.5	217°03.9	02.5										
12	228°54.9	17°28.2	S11°19.5	347°27.9	S21°19.8	111°48.0	N21°12.5	232°06.4	S04°02.5										
13	243°57.4	32°27.7	20.6	2°28.5	20.2	126°50.5	12.5	247°09.0	02.5										
14	258°59.8	47°27.1	21.7	17°29.1	20.5	141°52.9	12.5	262°11.5	02.6										
15	274°02.3	62°26.6	· · 22.9	32°29.7	· · 20.9	156°55.4	· · 12.5	277°14.1	· · 02.6										
16	289°04.8	77°26.1	24.0	47°30.2	21.2	171°57.8	12.5	292°16.6	02.6										
17	304°07.2	92°25.6	25.1	62°30.8	21.6	187°00.3	12.5	307°19.1	02.6										
18	319°09.7	107°25.0	S11°26.2	77°31.4	S21°22.0	202°02.7	N21°12.5	322°21.7	S04°02.7										
19	334°12.2	122°24.5	27.3	92°31.9	22.3	217°05.2	12.5	337°24.2	02.7										
20	349°14.6	137°24.0	28.4	107°32.5	22.7	232°07.6	12.5	352°26.8	02.7										
21	4°17.1	152°23.5	· · 29.5	122°33.1	· · 23.1	247°10.0	· · 12.5	7°29.3	· · 02.7										
22	19°19.6	167°22.9	30.6	137°33.6	23.4	262°12.5	12.5	22°31.8	02.8										
23	34°22.0	182°22.4	31.7	152°34.2	23.8	277°14.9	12.5	37°34.4	02.8										
Mer.pass. 20:43				ν -0.5° d -1.1° m -3.91				ν 0.6° d -0.4° m 1.42				ν 2.4° d 0.0° m -2.38				ν 2.5° d -0.0° m 0.81			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	49°24.5	197°21.9	S11°32.8	167°34.8	S21°24.1	292°17.4	N21°12.5	52°36.9	S04°02.8										
1	64°26.9	212°21.4	33.9	182°35.3	24.5	307°19.8	12.5	67°39.5	02.8										
2	79°29.4	227°20.8	35.0	197°35.9	24.9	322°22.3	12.5	82°42.0	02.9										
3	94°31.9	242°20.3	· · 36.1	212°36.4	· · 25.2	337°24.7	· · 12.5	97°44.5	· · 02.9										
4	109°34.3	257°19.8	37.2	227°37.0	25.6	352°27.2	12.5	112°47.1	02.9										
5	124°36.8	272°19.2	38.4	242°37.6	26.0	7°29.6	12.5	127°49.6	02.9										
6	139°39.3	287°18.7	S11°39.5	257°38.1	S21°26.3	22°32.1	N21°12.5	142°52.2	S04°03.0										
7	154°41.7	302°18.2	40.6	272°38.7	26.7	37°34.5	12.6	157°54.7	03.0										
8	169°44.2	317°17.7	41.7	287°39.3	27.0	52°37.0	12.6	172°57.2	03.0										
9	184°46.7	332°17.1	· · 42.8	302°39.8	· · 27.4	67°39.4	· · 12.6	187°59.8	· · 03.0										
10	199°49.1	347°16.6	43.9	317°40.4	27.7	82°41.9	12.6	203°02.3	03.1										
11	214°51.6	2°16.1	45.0	332°41.0	28.1	97°44.3	12.6	218°04.8	03.1										
12	229°54.1	17°15.5	S11°46.1	347°41.5	S21°28.5	112°46.8	N21°12.6	233°07.4	S04°03.1										
13	244°56.5	32°15.0	47.2	2°42.1	28.8	127°49.2	12.6	248°09.9	03.1										
14	259°59.0	47°14.5	48.3	17°42.6	29.2	142°51.7	12.6	263°12.5	03.2										
15	275°01.4	62°13.9	· · 49.4	32°43.2	· · 29.5	157°54.2	· · 12.6	278°15.0	· · 03.2										
16	290°03.9	77°13.4	50.5	47°43.8	29.9	172°56.6	12.6	293°17.5	03.2										
17	305°06.4	92°12.9	51.6	62°44.3	30.2	187°59.1	12.6	308°20.1	03.2										
18	320°08.8	107°12.3	S11°52.7	77°44.9	S21°30.6	203°01.5	N21°12.6	323°22.6	S04°03.2										
19	335°11.3	122°11.8	53.8	92°45.4	31.0	218°04.0	12.6	338°25.1	03.3										
20	350°13.8	137°11.3	54.9	107°46.0	31.3	233°06.4	12.6	353°27.7	03.3										
21	5°16.2	152°10.7	· · 55.9	122°46.6	· · 31.7	248°08.9	· · 12.6	8°30.2	· · 03.3										
22	20°18.7	167°10.2	57.0	137°47.1	32.0	263°11.3	12.6	23°32.8	03.3										
23	35°21.2	182°09.7	58.1	152°47.7	32.4	278°13.8	12.6	38°35.3	03.4										
Mer.pass. 20:39				ν -0.5° d -1.1° m -3.91				ν 0.6° d -0.4° m 1.42				ν 2.4° d 0.0° m -2.39				ν 2.5° d -0.0° m 0.81			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	50°23.6	197°09.1	S11°59.2	167°48.2	S21°32.7	293°16.2	N21°12.6	53°37.8	S04°03.4
1	65°26.1	212°08.6	12°00.3	182°48.8	33.1	308°18.7	12.6	68°40.4	03.4
2	80°28.5	227°08.0	01.4	197°49.4	33.4	323°21.2	12.6	83°42.9	03.4
3	95°31.0	242°07.5	· · 02.5	212°49.9	· · 33.8	338°23.6	· · 12.6	98°45.4	· · 03.4
4	110°33.5	257°07.0	03.6	227°50.5	34.1	353°26.1	12.6	113°48.0	03.5
5	125°35.9	272°06.4	04.7	242°51.0	34.5	8°28.5	12.6	128°50.5	03.5
6	140°38.4	287°05.9	S12°05.8	257°51.6	S21°34.8	23°31.0	N21°12.7	143°53.0	S04°03.5
7	155°40.9	302°05.3	06.9	272°52.2	35.2	38°33.5	12.7	158°55.6	03.5
8	170°43.3	317°04.8	08.0	287°52.7	35.6	53°35.9	12.7	173°58.1	03.6
9	185°45.8	332°04.3	· · 09.1	302°53.3	· · 35.9	68°38.4	· · 12.7	189°06.6	· · 03.6
10	200°48.3	347°03.7	10.2	317°53.8	36.3	83°40.8	12.7	204°03.2	03.6
11	215°50.7	2°03.2	11.2	332°54.4	36.6	98°43.3	12.7	219°05.7	03.6
12	230°53.2	17°02.6	S12°12.3	347°54.9	S21°37.0	113°45.8	N21°12.7	234°08.2	S04°03.6
13	245°55.7	32°02.1	13.4	2°55.5	37.3	128°48.2	12.7	249°10.8	03.7
14	260°58.1	47°01.6	14.5	17°56.0	37.7	143°50.7	12.7	264°13.3	03.7
15	276°00.6	62°01.0	· · 15.6	32°56.6	· · 38.0	158°53.1	· · 12.7	279°15.8	· · 03.7
16	291°03.0	77°00.5	16.7	47°57.2	38.3	173°55.6	12.7	294°18.4	03.7
17	306°05.5	91°59.9	17.8	62°57.7	38.7	188°58.1	12.7	309°20.9	03.8
18	321°08.0	106°59.4	S12°18.9	77°58.3	S21°39.0	204°00.5	N21°12.7	324°23.4	S04°03.8
19	336°10.4	121°58.8	19.9	92°58.8	39.4	219°03.0	12.7	339°26.0	03.8
20	351°12.9	136°58.3	21.0	107°59.4	39.7	234°05.5	12.7	354°28.5	03.8
21	6°15.4	151°57.7	· · 22.1	122°59.9	· · 40.1	249°07.9	· · 12.7	9°31.0	· · 03.8
22	21°17.8	166°57.2	23.2	138°00.5	40.4	264°10.4	12.7	24°33.6	03.9
23	36°20.3	181°56.6	24.3	153°01.0	40.8	279°12.9	12.8	39°36.1	03.9
Mer.pass. 20:35 ν -0.5° d -1.1° m -3.91 ν 0.6° d -0.4° m 1.41 ν 2.5° d 0.0° m -2.39 ν 2.5° d -0.0° m 0.82									

Stars		
SHA	Dec	
Alpheratz	357°33.8	29°14.2
Ankaa	353°06.1	-42°10.0
Schedar	349°29.8	56°41.0
Diphda	348°46.3	-17°50.6
Achernar	335°19.1	-57°06.4
Hamal	327°50.1	23°35.2
Polaris	313°11.2	89°22.4
Acamar	315°10.8	-40°12.0
Menkar	314°05.1	4°11.6
Mirafak	308°26.8	49°57.2
Aldebaran	290°38.5	16°33.7
Rigel	281°02.9	-8°10.2
Capella	280°20.5	46°01.4
Bellatrix	278°21.9	6°22.5
Elnath	278°00.7	28°37.8
Alnilam	275°36.8	-1°11.0
Betelgeuse	270°51.1	7°24.8
Canopus	263°51.7	-52°42.3
Sirius	258°25.4	-16°44.9
Adhara	255°05.1	-29°00.2
Procyon	244°50.0	5°09.6
Pollux	243°16.3	27°57.8
Avior	234°14.3	-59°35.5
Suhail	222°45.8	-43°31.9
Miaplacidus	221°38.1	-69°49.0
Alphard	217°47.1	-8°46.1
Regulus	207°33.8	11°50.5
Dubhe	193°40.5	61°36.5
Denebola	182°24.5	14°25.7
Gienah	175°43.1	-17°41.0
Acrux	172°59.9	-63°14.3
Gacrux	171°51.4	-57°15.3
Alloth	166°12.8	55°49.0
Spica	158°21.9	-11°17.7
Alkaid	152°51.9	49°11.0
Headar	148°35.7	-60°29.7
Menkent	147°57.2	-36°29.1
Arcturus	145°47.6	19°02.9
Rigel Kent.	139°40.1	-60°56.4
Kochab	137°21.0	74°02.9
Zuben el	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.2
Antares	112°15.4	-26°29.3
Atria	107°09.5	-

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	51°22.8	196°56.1	S12°25.4	168°01.6	S21°41.1	294°15.3	N21°12.8	54°38.6	S04°03.9										
1	66°25.2	211°55.5	26.4	183°02.1	41.5	309°17.8	12.8	69°41.2	03.9										
2	81°27.7	226°55.0	27.5	198°02.7	41.8	324°20.3	12.8	84°43.7	03.9										
3	96°30.2	241°54.5	28.6	213°03.2	42.2	339°22.7	12.8	99°46.2	04.0										
4	111°32.6	256°53.9	29.7	228°03.8	42.5	354°25.2	12.8	114°48.8	04.0										
5	126°35.1	271°53.4	30.8	243°04.4	42.8	369°27.7	12.8	129°51.3	04.0										
6	141°37.5	286°52.8	S12°31.8	258°04.9	S21°43.2	24°30.1	N21°12.8	144°53.8	S04°04.0										
7	156°40.0	301°52.3	32.9	273°05.5	43.5	39°32.6	12.8	159°56.4	04.0										
8	171°42.5	316°51.7	34.0	288°06.0	43.9	54°35.1	12.8	174°58.9	04.1										
9	186°44.9	331°51.1	35.1	303°06.6	44.2	69°37.5	12.8	190°01.4	04.1										
10	201°47.0	346°50.6	36.2	318°07.1	44.6	84°40.0	12.8	205°04.0	04.1										
11	216°49.9	1°50.0	37.2	333°07.7	44.9	99°42.5	12.8	220°06.5	04.1										
12	231°52.3	16°49.5	S12°38.3	348°08.2	S21°45.2	114°44.9	N21°12.8	235°09.0	S04°04.1										
13	246°54.8	31°48.9	39.4	3°08.8	45.6	129°47.4	12.8	250°11.5	04.2										
14	261°57.3	46°48.4	40.5	18°09.3	45.9	144°49.9	12.9	265°14.1	04.2										
15	276°59.7	61°47.8	41.5	33°09.9	46.3	159°52.3	12.9	280°16.6	04.2										
16	292°02.2	76°47.3	42.6	48°10.4	46.6	174°54.8	12.9	295°19.1	04.2										
17	307°04.6	91°46.7	43.7	63°10.9	46.9	189°57.3	12.9	310°21.7	04.2										
18	322°07.1	106°46.2	S12°44.8	78°11.5	S21°47.3	204°59.8	N21°12.9	325°24.2	S04°04.3										
19	337°09.6	121°45.6	45.8	93°12.0	47.6	220°02.2	12.9	340°26.7	04.3										
20	352°12.0	136°45.1	46.9	108°12.6	48.0	235°04.7	12.9	355°29.3	04.3										
21	7°14.5	151°44.5	48.0	123°13.1	48.3	250°07.2	12.9	10°31.8	04.3										
22	22°17.0	166°43.9	49.0	138°13.7	48.6	265°09.7	12.9	25°34.3	04.3										
23	37°19.4	181°43.4	50.1	153°14.2	49.0	280°12.1	12.9	40°36.8	04.4										
Mer.pass. 20:31				ν -0.5° d -1.1° m -3.91				ν 0.6° d -0.3° m 1.41				ν 2.5° d 0.0° m -2.40				ν 2.5° d -0.0° m 0.82			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	52°21.9	196°42.8	S12°51.2	168°14.8	S21°49.3	295°14.6	N21°12.9	55°39.4	S04°04.4										
1	67°24.4	211°42.3	52.3	183°15.3	49.7	310°17.1	12.9	70°41.9	04.4										
2	82°26.8	226°41.7	53.3	198°15.9	50.0	325°19.6	12.9	85°44.4	04.4										
3	97°29.3	241°41.1	54.4	213°16.4	50.3	340°22.0	13.0	100°47.0	04.4										
4	112°31.8	256°40.6	55.5	228°17.0	50.7	355°24.5	13.0	115°49.5	04.5										
5	127°34.2	271°40.0	56.5	243°17.5	51.0	10°27.0	13.0	130°52.0	04.5										
6	142°36.7	286°39.5	S12°57.6	258°18.1	S21°51.3	25°29.5	N21°13.0	145°54.5	S04°04.5										
7	157°39.1	301°38.9	58.7	273°18.6	51.7	40°31.9	13.0	160°57.1	04.5										
8	172°41.6	316°38.3	59.7	288°19.1	52.0	55°34.4	13.0	175°59.6	04.5										
9	187°44.1	331°37.8	13°00.8	303°19.7	52.3	70°36.9	13.0	191°02.1	04.6										
10	202°46.5	346°37.2	01.9	318°20.2	52.7	85°39.4	13.0	206°04.6	04.6										
11	217°49.0	1°36.6	02.9	333°20.8	53.0	100°41.8	13.0	221°07.2	04.6										
12	232°51.5	16°36.1	S13°04.0	348°21.3	S21°53.3	115°44.3	N21°13.0	236°09.7	S04°04.6										
13	247°53.9	31°35.5	05.0	3°21.9	53.7	130°46.8	13.0	251°12.2	04.6										
14	262°56.4	46°35.0	06.1	18°22.4	54.0	145°49.3	13.1	266°14.8	04.6										
15	277°58.9	61°34.4	07.2	33°22.9	54.3	160°51.8	13.1	281°17.3	04.7										
16	293°01.3	76°33.8	08.2	48°23.5	54.7	175°54.2	13.1	296°19.8	04.7										
17	308°03.8	91°33.3	09.3	63°24.0	55.0	190°56.7	13.1	311°22.3	04.7										
18	323°06.3	106°32.7	S13°10.4	78°24.6	S21°55.3	205°59.2	N21°13.1	326°24.9	S04°04.7										
19	338°08.7	121°32.1	11.4	93°25.1	55.7	221°01.7	13.1	341°27.4	04.7										
20	353°11.2	136°31.6	12.5	108°25.7	56.0	236°04.2	13.1	356°29.9	04.8										
21	8°13.6	151°31.0	13.5	123°26.2	56.3	251°06.6	13.1	11°32.4	04.8										
22	23°16.1	166°30.4	14.6	138°26.7	56.6	266°09.1	13.1	26°35.0	04.8										
23	38°18.6	181°29.9	15.6	153°27.3	57.0	281°11.6	13.1	41°37.5	04.8										
Mer.pass. 20:27				ν -0.6° d -1.1° m -3.91				ν 0.5° d -0.3° m 1.40				ν 2.5° d 0.0° m -2.41				ν 2.5° d -0.0° m 0.83			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	53°21.0	196°29.3	S13°16.7	168°27.8	S21°57.3	296°14.1	N21°13.1	56°40.0	S04°04.8										
1	68°23.5	211°28.7	17.8	183°28.4	57.6	311°16.6	13.2	71°42.5	04.8										
2	83°26.0	226°28.1	18.8	198°28.9	58.0	326°19.1	13.2	86°45.1	04.9										
3	98°28.4	241°27.6	19.9	213°29.4	58.3	341°21.5	13.2	101°47.6	04.9										
4	113°30.9	256°27.0	20.9	228°30.0	58.6	356°24.0	13.2	116°50.1	04.9										
5	128°33.4	271°26.4	22.0	243°30.5	58.9	11°26.5	13.2	131°52.6	04.9										
6	143°35.8	286°25.9	S13°23.0	258°31.1	S21°59.3	26°29.0	N21°13.2	146°55.2	S04°04.9										
7	158°38.3	301°25.3	24.1	273°31.6	59.6	41°31.5	13.2	161°57.7	04.9										
8	173°40.7	316°24.7	25.1	288°32.1	21°59.9	56°34.0	13.2	177°00.2	05.0										
9	188°43.2	331°24.1	26.2	303°32.7	22°00.3	71°36.5	13.2	192°02.7	05.0										
10	203°45.7	346°23.6	27.2	318°33.2	00.6	86°38.9	13.2	207°05.2	05.0										
11	218°48.1	1°23.0	28.3	333°33.7	00.9	101°41.4	13.3	222°07.8	05.0										
12	233°50.6	16°22.4	S13°29.3	348°34.3	S22°01.2	116°43.9	N21°13.3	237°10.3	S04°05.0										
13	248°53.1	31°21.8	30.4	3°34.8	01.6	131°46.4	13.3	252°12.8	05.0										
14	263°55.5	46°21.3	31.4	18°35.4	01.9	146°48.9	13.3	267°15.3	05.1										
15	278°58.0	61°20.7	32.5	33°35.9	02.2	161°51.4	13.3	282°17.9	05.1										
16	294°00.5	76°20.1	33.5	48°36.4	02.5	176°53.9	13.3	297°20.4	05.1										
17	309°02.9	91°19.5	34.6	63°37.0	02.8	191°56.4	13.3	312°22.9	05.1										
18	324°05.4	106°19.0	S13°35.6	78°37.5	S22°03.2	206°58.9	N21°13.3	327°25.4	S04°05.1										
19	339°07.9	121°18.4	36.7	93°38.0	03.5	222°01.3	13.3	342°27.9	05.1										
20	354°10.3	136°17.8	37.7	108°38.6	03.8	237°03.8	13.3	357°30.5	05.2										
21	9°12.8	151°17.2	38.8	123°39.1	04.1	252°06.3	13.4	12°33.0	05.2										
22	24°15.2	166°16.6	39.8	138°39.6	04.5	267°08.8	13.4	27°35.5	05.2										
23	39°17.7	181°16.1	40.9	153°40.2	04.8	282°11.3	13.4	42°38.0	05.2										
Mer.pass. 20:23				ν -0.6° d -1.1° m -3.91				ν 0.5° d -0.3° m 1.40				ν 2.5° d 0.0° m -2.42				ν 2.5° d -0.0° m 0.83			

SHA	Dec
Alpheratz	357°33.8 29°14.2
Ankaa	353°06.2 -42°10.0
Schedar	349°29.8 56°41.0
Diphda	348°46.3 -17°50.6
Achernar	335°19.1 -57°06.4
Hamal	327°50.1 23°35.2
Polaris	313°11.1 89°22.4
Acamar	315°10.8 -40°12.0
Menkar	314°05.1 4°11.6
Mirafak	308°26.8 49°57.3
Aldebaran	290°38.5 16°33.7
Rigel	281°02.9 -8°10.2
Capella	280°20.5 46°01.4
Bellatrix	278°21.9 6°22.5
Elinath	278°00.7 28°37.8
Alnilam	275°36.8 -1°11.0
Betelgeuse	270°51.1 7°24.8
Canopus	263°51.7 -52°42.3
Sirius	258°25.4 -16°44.9
Adhara	255°05.1 -29°00.2
Procyon	244°50.0 5°09.6
Pollux	243°16.3 27°57.7
Avior	234°14.3 -59°35.2
Suhail	222°45.8 -43°31.9
Miaplacidus	221°38.1 -69°49.0
Alphard	217°47.1 -8°46.1
Regulus	207°33.8 11°50.5
Dubhe	193°40.4 61°36.4
Denebola	182°24.4 14°25.6
Gienah	175°43.1 -17°41.0
Acrux	172°59.9 -63°14.3
Gacrux	171°51.3 -57°15.3
Alloth	166°12.8 55°49.0
Spica	158°21.9 -11°17.7
Alkaid	152°51.9 49°10.9
Hadar	148°35.7 -60°29.7
Menkent	147°57.2 -36°29.7
Arcturus	145°47.6 19°02.9
Rigel Kent.	139°40.0 -60°56.4
Kochab	137°21.0 74°02.8
Zuben el	136°55.6 -16°08.9
Alphecca	126°03.5 26°37.7
Antares	112°15.4 -26°29.3
Atria	107°09.5 69°00.8
Shaula	102°02.3 -15°45.4
Sabik	96°09.8 -37°07.4
Rasalhague	95°58.2 12°32.6
Eltanin	90°42.3 51°29.3
Kaus Aust.	83°31.9 -34°22.4
Vega	80°33.1 38°48.6
Nunki	75°47.1 -26°15.9
Altair	61°59.4 8°5

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	54°20.2	196°15.5	S13°41.9	168°40.7	S22°05.1	297°13.8	N21°13.4	57°40.6	S04°05.2										
1	69°22.6	211°14.9	42.9	183°41.2	05.4			72°43.1	05.2										
2	84°25.1	226°14.3	44.0	198°41.8	05.7			87°45.6	05.3										
3	99°27.6	241°13.7	45.0	213°42.3	06.1			102°48.1	05.3										
4	114°30.0	256°13.2	46.0	228°42.8	06.4			117°50.6	05.3										
5	129°32.5	271°12.6	47.1	243°43.4	06.7			132°53.2	05.3										
6	144°35.0	286°12.0	S13°48.1	258°43.9	S22°07.0	27°28.8	N21°13.5	147°55.7	S04°05.3										
7	159°37.4	301°11.4	49.2	273°44.4	07.3			162°58.2	05.3										
8	174°39.9	316°10.8	50.2	288°45.0	07.6			178°00.7	05.3										
9	189°42.4	331°10.2	51.3	303°45.5	08.0			193°03.2	05.4										
10	204°44.8	346°09.7	52.3	318°46.0	08.3			208°05.8	05.4										
11	219°47.3	1°09.1	53.3	333°46.6	08.6			223°08.3	05.4										
12	234°49.7	16°08.5	S13°54.4	348°47.1	S22°08.9	117°43.7	N21°13.5	238°10.8	S04°05.4										
13	249°52.2	31°07.9	55.4	3°47.6	09.2			253°13.3	05.4										
14	264°54.7	46°07.3	56.4	18°48.2	09.5			268°15.8	05.4										
15	279°57.1	61°06.7	57.5	33°48.7	09.9			283°18.3	05.4										
16	294°59.6	76°06.1	58.5	48°49.2	10.2			298°20.9	05.5										
17	310°02.1	91°05.5	S13°59.5	63°49.8	10.5			313°23.4	05.5										
18	325°04.5	106°05.0	S14°06.0	78°50.3	S22°10.8	207°58.7	N21°13.6	328°25.9	S04°05.5										
19	340°07.0	121°04.4	01.6	93°50.8	11.1			343°28.4	05.5										
20	355°09.5	136°03.8	02.6	108°51.3	11.4			358°30.9	05.5										
21	10°11.9	151°03.2	03.7	123°51.9	11.7			373°33.5	05.5										
22	25°14.4	166°02.6	04.7	138°52.4	12.1			28°36.0	05.5										
23	40°16.8	181°02.0	05.7	153°52.9	12.4			43°38.5	05.6										
Mer.pass. 20:19				ν -0.6' d -1.0' m -3.91				ν 0.5' d -0.3' m 1.39				ν 2.5' d 0.0' m -2.42				ν 2.5' d -0.0' m 0.84			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	55°19.3	196°01.4	S14°06.8	168°53.5	S22°12.7	298°13.7	N21°13.7	58°41.0	S04°05.6
1	70°21.8	211°00.8	07.8	183°54.0	13.0	313°16.2	13.7	73°43.5	05.6
2	85°24.2	226°00.2	08.8	198°54.5	13.3	328°18.7	13.7	88°46.0	05.6
3	100°26.7	240°59.6	09.8	213°55.0	13.6	343°21.2	13.7	103°48.6	05.6
4	115°29.2	255°59.0	10.9	228°55.6	13.9	358°23.7	13.7	118°51.1	05.6
5	130°31.6	270°58.4	11.9	243°56.1	14.2	13°26.2	13.7	133°53.6	05.6
6	145°34.1	285°57.8	S14°12.9	258°56.6	S22°14.5	28°28.7	N21°13.7	148°56.1	S04°05.7
7	160°36.6	300°57.3	13.9	273°57.1	14.9	43°31.2	13.8	163°58.6	05.7
8	175°39.0	315°56.7	15.0	288°57.7	15.2	58°33.7	13.8	179°01.1	05.7
9	190°41.5	330°56.1	16.0	303°58.2	15.5	73°36.2	13.8	194°03.6	05.7
10	205°44.0	345°55.5	17.0	318°58.7	15.8	88°38.7	13.8	209°06.2	05.7
11	220°46.4	0°54.9	18.0	333°59.3	16.1	103°41.2	13.8	224°08.7	05.7
12	235°48.9	15°54.3	S14°19.1	348°59.8	S22°16.4	118°43.8	N21°13.8	239°11.2	S04°05.7
13	250°51.3	30°53.7	20.1	4°00.3	16.7	133°46.3	13.8	254°13.7	05.8
14	265°53.8	45°53.1	21.1	19°00.8	17.0	148°48.8	13.9	269°16.2	05.8
15	280°56.3	60°52.5	22.1	34°01.4	17.3	163°51.3	13.9	284°18.7	05.8
16	295°58.7	75°51.9	23.1	49°01.9	17.6	178°53.8	13.9	299°21.3	05.8
17	311°01.2	90°51.3	24.2	64°02.4	17.9	193°56.3	13.9	314°23.8	05.8
18	326°03.7	105°50.7	S14°25.2	79°02.9	S22°18.2	208°58.8	N21°13.9	329°26.3	S04°05.8
19	341°06.1	120°50.1	26.2	94°03.4	18.5	224°01.3	13.9	344°28.8	05.8
20	356°08.6	135°49.5	27.2	109°04.0	18.8	239°03.8	13.9	359°31.3	05.8
21	11°11.1	150°48.9	28.2	124°04.5	19.1	254°06.3	14.0	44°33.8	05.9
22	26°13.5	165°48.3	29.2	139°05.0	19.4	269°08.8	14.0	29°36.3	05.9
23	41°16.0	180°47.7	30.3	154°05.5	19.8	284°11.3	14.0	44°38.8	05.9
Mer.pass. 20:15 ν -0.6' d -1.0' m -3.91 ν 0.5' d -0.3' m 1.39 ν 2.5' d 0.0' m -2.43 ν 2.5' d -0.0' m 0.85									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	56°18.4	195°47.1	S14°31.3	169°06.1	S22°20.1	299°13.8	N21°14.0	59°41.4	S04°05.9										
1	71°20.9	210°46.5	32.3	184°06.6	20.4	314°16.4	14.0	74°43.9	05.9										
2	86°23.4	225°45.8	33.3	199°07.1	20.7	329°18.9	14.0	89°46.4	05.9										
3	101°25.8	240°45.2	34.3	214°07.6	21.0	344°21.4	14.0	104°48.9	05.9										
4	116°28.3	255°44.6	35.3	229°08.1	21.3	359°23.9	14.0	119°51.4	05.9										
5	131°30.8	270°44.0	36.3	244°08.7	21.6	14°26.4	14.1	134°53.9	05.9										
6	146°33.2	285°43.4	S14°37.3	259°09.2	S22°21.9	29°28.9	N21°14.1	149°56.4	S04°06.0										
7	161°35.7	300°42.8	38.4	274°09.7	22.2	44°31.4	14.1	164°58.9	06.0										
8	176°38.2	315°42.2	39.4	289°10.2	22.5	59°33.9	14.1	180°01.5	06.0										
9	191°40.6	330°41.6	40.4	304°10.7	22.8	74°36.4	14.1	195°04.0	06.0										
10	206°43.1	345°41.0	41.4	319°11.3	23.1	89°39.0	14.1	210°06.5	06.0										
11	221°45.6	0°40.4	42.4	334°11.8	23.4	104°41.5	14.2	225°09.0	06.0										
12	236°48.0	15°39.8	S14°43.4	349°12.3	S22°23.7	119°44.0	N21°14.2	240°11.5	S04°06.0										
13	251°50.5	30°39.2	44.4	4°12.8	24.0	134°46.5	14.2	255°14.0	06.0										
14	266°52.9	45°38.6	45.4	19°13.3	24.3	149°49.0	14.2	270°16.5	06.1										
15	281°55.4	60°37.9	46.4	34°13.9	24.6	164°51.5	14.2	285°19.0	06.1										
16	296°57.9	75°37.3	47.4	49°14.4	24.9	179°54.0	14.2	300°21.5	06.1										
17	312°00.3	90°36.7	48.4	64°14.9	25.2	194°56.6	14.2	315°24.1	06.1										
18	327°02.8	105°36.1	S14°49.4	79°15.4	S22°25.4	209°59.1	N21°14.3	330°26.6	S04°06.1										
19	342°05.3	120°35.5	50.4	94°15.9	25.7	225°01.6	14.3	345°29.1	06.1										
20	357°07.7	135°34.9	51.4	109°16.4	26.0	240°04.1	14.3	0°31.6	06.1										
21	12°10.2	150°34.3	52.4	124°17.0	26.3	255°06.6	14.3	15°34.1	06.1										
22	27°12.7	165°33.7	53.4	139°17.5	26.6	270°09.1	14.3	30°36.6	06.1										
23	42°15.1	180°33.0	54.4	154°18.0	26.9	285°11.7	14.3	45°39.1	06.1										
Mer.pass. 20:11				ν -0.6' d -1.0' m -3.91				ν 0.5' d -0.3' m 1.38				ν 2.5' d 0.0' m -2.44				ν 2.5' d -0.0' m 0.85			

SHA	Dec
Alpheratz	357°33.8 29°14.2
Ankaa	353°06.2 -42°10.0
Schedar	349°29.9 56°41.0
Diphda	348°46.4 -17°50.7
Achernar	335°19.1 -57°06.4
Hamal	327°50.1 23°35.2
Polaris	313°11.1 89°22.1
Acamar	315°10.8 -4°12.0
Alkaid	314°05.1 4°11.6
Mirafaz	308°26.8 49°57.3
Aldebaran	290°38.5 16°33.7
Rigel	281°02.9 -8°10.2
Capella	280°20.4 46°01.4
Bellatrix	278°21.8 6°22.5
Elnath	278°00.7 28°37.0
Alnilam	275°36.7 -1°11.0
Betelgeuse	270°51.1 7°24.8
Canopus	263°51.7 -52°42.3
Sirius	258°25.4 -16°44.9
Adhara	255°05.1 -29°00.2
Procyon	244°49.9 5°09.6
Pollux	243°16.3 27°57.7
Avior	234°14.2 -59°35.2
Suhail	222°45.8 -43°31.9
Miaplacidus	221°38.0 -69°49.0
Alghol	217°47.1 -8°46.1
Regulus	207°33.7 11°50.4
Dubhe	193°40.4 61°36.4
Denebola	182°24.4 14°25.6
Gienah	175°43.1 -17°41.0
Acrux	172°59.9 -63°14.3
Gacrux	171°51.3 -57°15.3
Alloth	166°12.8 55°49.0
Spica	158°21.9 -11°17.7
Alkaid	152°51.9 49°10.9
Hadar	148°35.7 -60°29.7
Menkert	147°57.2 -36°29.2
Arcturus	145°47.6 19°02.9
Rigel Kent.	139°40.0 -60°56.4
Kochab	137°21.0 74°02.8
Zuben el	136°55.6 -16°08.7
Alphecca	126°03.5 26°38.7
Antares	112°15.4 -26°29.3
Atria	107°09.5 69°04.5
Sabik	102°02.3 -15°45.4
Shaula	96°09.8 -37°07.4
Rasalhague	95°58.2 12°32.5
Eltanin	90°42.3 51°29.3
Kaus Aus.	83°31.9 -34°22.4
Vega	80°33.1 38°48.6
Nunki	75°47.2 -26°15.5
Altair	61°59.5 8°56.3
Peacock	53°04.8 -56°39.3
Deneb	49°25.5 45°22.6
Enif	33°38.1 9°59.8
Al Na'ir	27°32.0 -46°50.3
Fomalhaut	15°13.6 -29°29.2
Scheat	13°44.4 28°13.6
Markab	13°29.1 15°20.8

Nov 15 Sat	SHA	Mer.pass
Venus	141°55.3	10:55
Mars	114°20.5	12:45
Jupiter	242°53.6	04:10
Saturn	3°20.4	20:06

Nov 16 Sun	SHA	Mer.pass
Venus	140°42.1	10:56
Mars	113°34.1	12:44
Jupiter	242°54.4	04:06
Saturn	3°21.7	20:02

Nov 17 Mon	SHA	Mer.pass
Venus	139°28.6	10:57
Mars	112°47.6	12:43
Jupiter	242°55.4	04:02
Saturn	3°22.9	19:58

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	57°17.6	195°32.4	S14°55.4	169°18.5	S22°27.2	300°14.2	N21°14.3	60°41.6	S04°06.2										
1	72°20.1	210°31.8	56.4	184°19.0	27.5	315°16.7	14.4	75°44.1	06.2										
2	87°22.5	225°31.2	57.4	199°19.5	27.8	330°19.2	14.4	90°46.6	06.2										
3	102°25.0	240°30.6	58.4	214°20.1	28.1	345°21.7	14.4	105°49.2	06.2										
4	117°27.4	255°30.0	59.4	229°20.6	28.4	0°24.3	14.4	120°51.7	06.2										
5	132°29.9	270°29.3	60.4	244°21.1	28.7	15°26.8	14.4	135°54.2	06.2										
6	147°32.4	285°28.7	S15°01.4	259°21.6	S22°29.0	30°29.3	N21°14.4	150°56.7	S04°06.2										
7	162°34.8	300°28.1	02.4	274°22.1	29.3	45°31.8	14.5	165°59.2	06.2										
8	177°37.3	315°27.5	03.4	289°22.6	29.6	60°34.3	14.5	181°01.7	06.2										
9	192°39.8	330°26.9	04.4	304°23.1	29.9	75°36.9	14.5	196°04.2	06.2										
10	207°42.2	345°26.2	05.4	319°23.7	30.1	90°39.4	14.5	211°06.7	06.3										
11	222°44.7	0°25.6	06.4	334°24.2	30.4	105°41.9	14.5	226°09.2	06.3										
12	237°47.2	15°25.0	S15°07.3	349°24.7	S22°30.7	120°44.4	N21°14.5	241°11.7	S04°06.3										
13	252°49.6	30°24.4	08.3	4°25.2	31.0	135°47.0	14.6	256°14.2	06.3										
14	267°52.1	45°23.8	09.3	19°25.7	31.3	150°49.5	14.6	271°16.7	06.3										
15	282°54.5	60°23.1	10.3	34°26.2	31.6	165°52.0	14.6	286°19.2	06.3										
16	297°57.0	75°22.5	11.3	49°26.7	31.9	180°54.5	14.6	301°21.7	06.3										
17	312°59.5	90°21.9	12.3	64°27.2	32.2	195°57.1	14.6	316°24.3	06.3										
18	328°01.9	105°21.3	S15°13.3	79°27.8	S22°32.5	210°59.6	N21°14.6	331°26.8	S04°06.3										
19	343°04.4	120°20.6	14.3	94°28.3	32.7	226°02.1	14.7	346°29.3	06.3										
20	358°06.9	135°20.0	15.2	109°28.8	33.0	241°04.6	14.7	1°31.8	06.3										
21	13°09.3	150°19.4	16.2	124°29.3	33.3	256°07.2	14.7	16°34.3	06.4										
22	28°11.8	165°18.8	17.2	139°29.8	33.6	271°09.7	14.7	31°36.8	06.4										
23	43°14.3	180°18.1	18.2	154°30.3	33.9	286°12.2	14.7	46°39.3	06.4										
Mer.pass. 20:08				ν -0.6' d -1.0' m -3.91				ν 0.5' d -0.3' m 1.38				ν 2.5' d 0.0' m -2.45				ν 2.5' d -0.0' m 0.85			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	58°16.7	195°17.5	S15°19.2	169°30.8	S22°34.2	301°14.7	N21°14.7	61°41.8	S04°06.4
1	73°19.2	210°16.9	20.2	184°31.3	34.5	316°17.3	14.8	76°44.3	06.4
2	88°21.7	225°16.3	21.1	199°31.8	34.7	331°19.8	14.8	91°46.8	06.4
3	103°24.1	240°15.6	22.1	214°32.4	35.0	346°22.3	14.8	106°49.3	06.4
4	118°26.6	255°15.0	23.1	229°32.9	35.3	1°24.8	14.8	121°51.8	06.4
5	133°29.0	270°14.4	24.1	244°33.4	35.6	16°27.4	14.8	136°54.3	06.4
6	148°31.5	285°13.7	S15°25.1	259°33.9	S22°35.9	31°29.9	N21°14.8	151°56.8	S04°06.4
7	163°34.0	300°13.1	26.0	274°34.4	36.2	46°32.4	14.9	166°59.3	06.4
8	178°36.4	315°12.5	27.0	289°34.9	36.4	61°35.0	14.9	182°01.8	06.4
9	193°38.9	330°11.8	28.0	304°35.4	36.7	76°37.5	14.9	197°04.3	06.5
10	208°41.4	345°11.2	29.0	319°35.9	37.0	91°40.0	14.9	212°06.8	06.5
11	223°43.8	0°10.6	29.9	334°36.4	37.3	106°42.6	14.9	227°09.3	06.5
12	238°46.3	15°09.9	S15°30.9	349°36.9	S22°37.6	121°45.1	N21°15.0	242°11.8	S04°06.5
13	253°48.8	30°09.3	31.9	4°37.4	37.8	136°47.6	15.0	257°14.3	06.5
14	268°51.2	45°08.7	32.9	19°37.9	38.1	151°50.2	15.0	272°16.8	06.5
15	283°53.7	60°08.0	33.8	34°38.5	38.4	166°52.7	15.0	287°19.3	06.5
16	298°56.2	75°07.4	34.8	49°39.0	38.7	181°55.2	15.0	302°21.9	06.5
17	313°58.6	90°06.8	35.8	64°39.5	39.0	196°57.8	15.0	317°24.4	06.5
18	329°01.1	105°06.1	S15°36.8	79°40.0	S22°39.2	212°00.3	N21°15.1	332°26.9	S04°06.5
19	344°03.5	120°05.5	37.7	94°40.5	39.5	227°02.8	15.1	347°29.4	06.5
20	359°06.0	135°04.9	38.7	109°41.0	39.8	242°05.4	15.1	2°31.9	06.5
21	14°08.5	150°04.2	39.7	124°41.5	40.1	257°07.9	15.1	17°34.4	06.5
22	29°10.9	165°03.6	40.6	139°42.0	40.4	272°10.4	15.1	32°36.9	06.6
23	44°13.4	180°02.9	41.6	154°42.5	40.6	287°13.0	15.2	47°39.4	06.6
Mer.pass. 20:04		ν -0.6' d -1.0' m -3.91		ν 0.5' d -0.3' m 1.37		ν 2.5' d 0.0' m -2.45		ν 2.5' d -0.0' m 0.86	

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	59°15.9	195°02.3	S15°42.6	169°43.0	S22°40.9	302°15.5	N21°15.2	62°41.9	S04°06.6										
1	74°18.3	210°01.7	43.5	184°43.5	41.2	317°18.0	15.2	77°44.4	06.6										
2	89°20.8	225°01.0	44.5	199°44.0	41.5	332°20.6	15.2	92°46.9	06.6										
3	104°23.3	240°00.4	45.5	214°44.5	41.7	347°23.1	15.2	107°49.4	06.6										
4	119°25.7	254°59.7	46.4	229°45.0	42.0	2°25.6	15.2	122°51.9	06.6										
5	134°28.2	269°59.1	47.4	244°45.5	42.3	17°28.2	15.3	137°54.4	06.6										
6	149°30.7	284°58.5	S15°48.3	259°46.0	S22°42.6	32°30.7	N21°15.3	152°56.9	S04°06.6										
7	164°33.1	299°57.8	49.3	274°46.5	42.8	47°33.3	15.3	167°59.4	06.6										
8	179°35.6	314°57.2	50.3	289°47.0	43.1	62°35.8	15.3	183°01.9	06.6										
9	194°38.0	329°56.5	51.2	304°47.5	43.4	77°38.3	15.3	198°04.4	06.6										
10	209°40.5	344°55.9	52.2	319°48.0	43.7	92°40.9	15.4	213°06.9	06.6										
11	224°43.0	359°55.2	53.1	334°48.5	43.9	107°43.4	15.4	228°09.4	06.6										
12	239°45.4	14°54.6	S15°54.1	349°49.0	S22°44.2	122°46.0	N21°15.4	243°11.9	S04°06.6										
13	254°47.9	29°53.9	55.1	4°49.5	44.5	137°48.5	15.4	258°14.4	06.6										
14	269°50.4	44°53.3	56.0	19°50.0	44.7	152°51.0	15.4	273°16.9	06.7										
15	284°52.8	59°52.6	57.0	34°50.5	45.0	167°53.6	15.4	288°19.4	06.7										
16	299°55.3	74°52.0	57.9	49°51.0	45.3	182°56.1	15.5	303°21.9	06.7										
17	314°57.8	89°51.4	58.9	64°51.5	45.5	197°58.7	15.5	318°24.4	06.7										
18	330°00.2	104°50.7	S15°59.8	79°52.0	S22°45.8	213°01.2	N21°15.5	333°26.9	S04°06.7										
19	345°02.7	119°50.1	16°00.8	94°52.5	46.1	228°03.8	15.5	348°29.4	06.7										
20	0°05.1	134°49.4	01.7	109°53.0	46.4	243°06.3	15.6	3°31.9	06.7										
21	15°07.6	149°48.8	02.7	124°53.5	46.6	258°08.8	15.6	18°34.3	06.7										
22	30°10.1	164°48.1	03.6	139°54.0	46.9	273°11.4	15.6	33°36.8	06.7										
23	45°12.5	179°47.5	04.6	154°54.5	47.2	288°13.9	15.6	48°39.3	06.7										
Mer.pass. 20:00				ν -0.6' d -1.0' m -3.91				ν 0.5' d -0.3' m 1.37				ν 2.5' d 0.0' m -2.46				ν 2.5' d -0.0' m 0.86			

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.0
Schedar	349°29.9	56°41.0
Diphda	348°46.4	-17°50.7
Achernar	335°19.1	-07°06.4
Hamal	327°50.1	23°35.2
Polaris	313°10.9	89°25.5
Acamar	315°10.8	-40°12.0
Menkar	311°05.1	4°11.6
Miraf	308°26.8	49°57.3
Aldebaran	290°38.5	16°33.7
Rigel	281°02.9	-8°10.2
Capella	280°20.4	46°01.4
Bellatrix	278°21.8	6°22.5
Elnath	278°00.6	28°37.6
Alnilam	275°36.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	263°51.6	-52°42.3
Sirius	258°25.4	-16°44.9
Adhara	255°05.1	-29°00.2
Procyon	244°49.9	5°09.6
Pollux	243°16.3	27°57.7
Avior	234°14.2	-59°35.2
Suhail	222°45.7	-43°31.9
Miaplacidus	221°38.0	-69°49.0
Alphard	217°47.0	-8°46.1
Regulus	207°33.7	11°50.4
Dubhe	193°40.4	61°36.4
Denebola	182°24.4	14°25.6
Gienah	175°43.1	-17°41.0
Acrux	172°59.8	-63°14.3
Gacrux	171°51.3	-57°15.2
Alloth	166°12.8	55°49.0
Spica	158°21.8	-11°17.7
Alkaid	152°51.9	49°10.9
Hadar	148°35.6	-60°29.7
Menkent	147°57.2	-36°29.7
Arcturus	145°47.6	19°02.8
Rigel Kent.	139°40.0	-60°56.4
Kochab	137°21.0	74°02.8
Zuben el	136°55.6	-16°08.9
Alphecca	126°03.5	26°37.7
Antares	112°15.4	-26°29.3
Atria	107°09.5	-69°04.5
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	12°32.5
Eltanin	90°42.3	51°29.2
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.1	38°48.6
Nunki	75°47.2	-26°15.9
Altair	61°59.5	-8°56.3
Peacock	53°04.9	-56°39.3
Deneb	49°25.5	45°22.6
Enif	33°38.1	9°59.8
Al Na'ir	27°32.0	-46°50.3
Fomalhaut	15°13.7	-29°29.2
Scheat	13°44.4	28°13.6
Markab	13°29.1	15°20.8

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	60°15.0	194°46.8	S16°05.5	169°55.0	S22°47.4	303°16.5	N21°15.6	63°41.8	S04°06.7					
1	75°17.5	209°46.2	06.5	184°55.5	47.7	318°19.0	15.7	78°44.3	06.7					
2	90°19.9	224°45.5	07.4	199°56.0	48.0	333°21.6	15.7	93°46.8	06.7					
3	105°22.4	239°44.8	· · 08.4	214°56.5	· · 48.2	348°24.1	· · 15.7	108°49.3	· · 06.7					
4	120°24.9	254°44.2	09.3	229°57.0	48.5	3°26.7	15.7	123°51.8	06.7					
5	135°27.3	269°43.5	10.3	244°57.5	48.8	18°29.2	15.7	138°54.3	06.7					
6	150°29.8	284°42.9	S16°11.2	259°58.0	S22°49.0	33°31.7	N21°15.8	153°56.8	S04°06.7					
7	165°32.3	299°42.2	12.2	274°58.5	49.3	48°34.3	15.8	168°59.3	06.7					
8	180°34.7	314°41.6	13.1	289°59.0	49.6	63°36.8	15.8	184°01.8	06.7					
9	195°37.2	329°40.9	· · 14.0	304°59.5	· · 49.8	78°39.4	· · 15.8	199°04.3	· · 06.7					
10	210°39.6	344°40.3	15.0	320°00.0	50.1	93°41.9	15.8	214°06.8	06.7					
11	225°42.1	359°39.6	15.9	335°00.5	50.3	108°44.5	15.9	229°09.3	06.8					
12	240°44.6	14°38.9	S16°16.9	350°01.0	S22°50.6	123°47.0	N21°15.9	244°11.8	S04°06.8					
13	255°47.0	29°38.3	17.8	5°01.5	50.9	138°49.6	15.9	259°14.3	06.8					
14	270°49.5	44°37.6	18.7	20°02.0	51.1	153°52.1	15.9	274°16.8	06.8					
15	285°52.0	59°37.0	· · 19.7	35°02.5	· · 51.4	168°54.7	· · 15.9	289°19.3	· · 06.8					
16	300°54.4	74°36.3	20.6	50°03.0	51.6	183°57.2	16.0	304°21.8	06.8					
17	315°56.9	89°35.6	21.6	65°03.5	51.9	198°59.8	16.0	319°24.3	06.8					
18	330°59.4	104°35.0	S16°22.5	80°04.0	S22°52.2	214°02.3	N21°16.0	334°26.8	S04°06.8					
19	346°01.8	119°34.3	23.4	95°04.5	52.4	229°04.9	16.0	349°29.3	06.8					
20	1°04.3	134°33.7	24.4	110°05.0	52.7	244°07.4	16.1	4°31.7	06.8					
21	16°06.8	149°33.0	· · 25.3	125°05.5	· · 52.9	259°10.0	· · 16.1	19°34.2	· · 06.8					
22	31°09.2	164°32.3	26.2	140°06.0	53.2	274°12.5	16.1	34°36.7	06.8					
23	46°11.7	179°31.7	27.2	155°06.4	53.5	289°15.1	16.1	49°39.2	06.8					
Mer.pass. 19:56			ν -0.7° d -0.9' m -3.90			ν 0.5° d -0.3' m 1.36			ν 2.5° d 0.0' m -2.47			ν 2.5° d -0.0' m 0.87		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	61°14.1	194°31.0	S16°28.1	170°06.9	S22°53.7	304°17.7	N21°16.1	64°41.7	S04°06.8					
1	76°16.6	209°30.3	29.0	185°07.4	54.0	319°20.2	16.2	79°44.2	06.8					
2	91°19.1	224°29.7	30.0	200°07.9	54.2	334°22.8	16.2	94°46.7	06.8					
3	106°21.5	239°29.0	· · 30.9	215°08.4	· · 54.5	349°25.3	· · 16.2	109°49.2	· · 06.8					
4	121°24.0	254°28.4	31.8	230°08.9	54.8	4°27.9	16.2	124°51.7	06.8					
5	136°26.5	269°27.7	32.7	245°09.4	55.0	19°30.4	16.3	139°54.2	06.8					
6	151°28.9	284°27.0	S16°33.7	260°09.9	S22°55.3	34°33.0	N21°16.3	154°56.7	S04°06.8					
7	166°31.4	299°26.3	34.5	275°10.4	55.5	49°35.5	16.3	169°59.2	06.8					
8	181°33.9	314°25.7	35.5	290°10.9	55.8	64°38.1	16.3	185°01.7	06.8					
9	196°36.3	329°25.0	· · 36.4	305°11.4	· · 56.0	79°40.7	· · 16.3	200°04.1	· · 06.8					
10	211°38.8	344°24.3	37.4	320°11.9	56.3	94°43.2	16.4	215°06.6	06.8					
11	226°41.3	359°23.7	38.3	335°12.4	56.5	109°45.8	16.4	230°09.1	06.8					
12	241°43.7	14°23.0	S16°39.2	350°12.8	S22°56.8	124°48.3	N21°16.4	245°11.6	S04°06.8					
13	256°46.2	29°22.3	40.1	5°13.3	57.0	139°50.9	16.4	260°14.1	06.8					
14	271°48.6	44°21.7	41.1	20°13.8	57.3	154°53.4	16.5	275°16.6	06.8					
15	286°51.1	59°21.0	· · 42.0	35°14.3	· · 57.5	169°56.0	· · 16.5	290°19.1	· · 06.8					
16	301°53.6	74°20.3	42.9	50°14.8	57.8	184°58.6	16.5	305°21.6	06.8					
17	316°56.0	89°19.6	43.8	65°15.3	58.0	200°01.1	16.5	320°24.1	06.8					
18	331°58.5	104°19.0	S16°44.7	80°15.8	S22°58.3	215°03.7	N21°16.5	335°26.6	S04°06.8					
19	347°01.0	119°18.3	45.6	95°16.3	58.6	230°06.2	16.6	350°29.1	06.8					
20	2°03.4	134°17.6	46.6	110°16.8	58.8	245°08.8	16.6	5°31.5	06.8					
21	17°05.9	149°17.0	· · 47.5	125°17.2	· · 59.1	260°11.4	· · 16.6	20°34.0	· · 06.8					
22	32°08.4	164°16.3	48.4	140°17.7	59.3	275°13.9	16.6	35°36.5	06.8					
23	47°10.8	179°15.6	49.3	155°18.2	59.5	290°16.5	16.7	50°39.0	06.8					
Mer.pass. 19:52			ν -0.7° d -0.9' m -3.90			ν 0.5° d -0.3' m 1.36			ν 2.6° d 0.0' m -2.47			ν 2.5° d -0.0' m 0.87		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	62°13.3	194°14.9	S16°50.2	170°18.7	S22°59.8	305°19.0	N21°16.7	65°41.5	S04°06.8
1	77°15.8	209°14.2	51.1	185°19.2	23°00.0	320°21.6	16.7	80°44.0	06.8
2	92°18.2	224°13.6	52.0	200°19.7	00.3	335°24.2	16.7	95°46.5	06.8
3	107°20.7	239°12.9	· · 53.0	215°20.2	· · 00.5	350°26.7	· · 16.7	110°49.0	· · 06.9
4	122°23.1	254°12.2	53.9	230°20.7	00.8	5°29.3	16.8	125°51.5	06.9
5	137°25.6	269°11.5	54.8	245°21.1	01.0	20°31.9	16.8	140°53.9	06.9
6	152°28.1	284°10.9	S16°55.7	260°21.6	S23°01.3	35°34.4	N21°16.8	155°56.4	S04°06.9
7	167°30.5	299°10.2	56.6	275°22.1	01.5	50°37.0	16.8	170°58.9	06.9
8	182°33.0	314°09.5	57.5	290°22.6	01.8	65°39.6	16.9	186°01.4	06.9
9	197°35.5	329°08.8	· · 58.4	305°23.1	· · 02.0	80°42.1	· · 16.9	201°03.9	· · 06.9
10	212°37.9	344°08.1	16°59.3	320°23.6	02.3	95°44.7	16.9	216°06.4	06.9
11	227°40.4	359°07.4	17°00.2	335°24.1	02.5	110°47.3	16.9	231°08.9	06.9
12	242°42.9	14°06.8	S17°01.1	350°24.5	S23°02.8	125°49.8	N21°17.0	246°11.4	S04°06.9
13	257°45.3	29°06.1	02.0	5°25.0	03.0	140°52.4	17.0	261°13.8	06.9
14	272°47.8	44°05.4	02.9	20°25.5	03.2	155°55.0	17.0	276°16.3	06.9
15	287°50.2	59°04.7	· · 03.8	35°26.0	· · 03.5	170°57.5	· · 17.0	291°18.8	· · 06.9
16	302°52.7	74°04.0	04.7	50°26.5	03.7	186°00.1	17.1	306°21.3	06.9
17	317°55.2	89°03.3	05.6	65°27.0	04.0	201°02.7	17.1	321°23.8	06.9
18	332°57.6	104°02.7	S17°06.5	80°27.5	S23°04.2	216°05.2	N21°17.1	336°26.3	S04°06.9
19	348°00.1	119°02.0	07.4	95°27.9	04.4	231°07.8	17.1	351°28.8	06.9
20	3°02.6	134°01.3	08.3	110°28.4	04.7	246°10.4	17.2	6°31.2	06.9
21	18°05.0	149°00.6	· · 09.2	125°28.9	· · 04.9	261°12.9	· · 17.2	21°33.7	· · 06.9
22	33°07.5	163°59.9	10.1	140°29.4	05.2	276°15.5	17.2	36°36.2	06.9
23	48°10.0	178°59.2	11.0	155°29.9	05.4	291°18.1	17.2	51°38.7	06.9
Mer.pass. 19:48 ν -0.7° d -0.9' m -3.90 ν 0.5° d -0.2' m 1.35 ν 2.6° d 0.0' m -2.48 ν 2.5° d -0.0' m 0.88									

Stars	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.0
Schedar	349°29.9	56°41.0
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.4
Hamal	327°50.1	23°35.2
Polaris	313°10.7	89°22.5
Acamar	315°10.8	-40°12.0
Menkar	314°05.1	4°11.6
Mirfak	308°26.7	49°57.3
Aldebaran	290°38.5	16°33.7
Rigel	281°02.9	-8°10.2
Capella	280°20.4	46°01.4
Bellatrix	278°21.8	6°22.5
Elath	278°00.6	28°37.8
Anilnif	275°36.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	263°51.6	-52°42.3
Sirius	258°25.3	-16°45.0
Adhara	255°05.0	-59°00.2
Procyon	244°49.9	5°29.6
Pollux	234°16.2	27°57.7
Avior	234°14.2	-59°35.2
Suhail	222°45.7	-43°31.9
Miaplacidus	221°37.9	-69°49.0
Alphard	217°47.0	-8°46.1
Regulus	207°33.7	11°50.4
Dubhe	193°40.3	61°36.4
Denebola	182°24.4	14°25.6
Gienah	175°43.1	-17°41.0
Acruz	172°59.8	-63°14.3
Gacrux	171°51.2	-57°15.2
Alloth	166°42.7	55°49.0
Spica	152°51.9	49°10.9
Alkaid	148°35.6	-60°29.7
Hadar	145°57.2	-36°29.7
Menkent	147°57.2	19°02.8
Arcturus	139°40.6	-60°56.4
Rigil Kent.	137°20.9	74°02.8
Kochab	136°55.6	-16°08.9
Zuben'ubi	126°03.5	26°37.6
Alphecca	112°15.4	-26°29.3
Antares	107°09.5	-69°04.4
Atria	102°02.3	-15°45.4
Sabik	96°09.8	37°07.4
Shaula	95°58.2	12°32.5
Rasalhague	90°42.3	51°29.2
Eltanin	83°31.9	-34°22.4
Kaus Aust.	80°33.1	38°48.6
Vega	80°33.1	38°48.6
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.3
Peacock	53°04.9	-56°39.9
Deneb	49°25.5	45°22.6
Enif	33°38.1	9°59.8
Al Na'ir	27°32.0	-46°50.3
Fomalhaut	15°13.7	-29°29.2
Scheat	13°44.4	28°13.6
Markab	13°29.1	15°20.8

Nov 21 Fri	SHA	Mer.pass
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Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	63°12.4	193°58.5	S17°11.9	170°30.4	S23°05.6	306°20.6	N21°17.3	66°41.2	S04°06.9										
1	78°14.9	208°57.8	12.8	185°30.8	05.9	321°23.2	17.3	81°43.7	06.9										
2	93°17.4	223°57.2	13.7	200°31.3	06.1	336°25.8	17.3	96°46.2	06.9										
3	108°19.8	238°56.5	•• 14.6	215°31.8	•• 06.4	351°28.4	•• 17.3	111°48.6	•• 06.9										
4	123°22.3	253°55.8	15.5	230°32.3	06.6	6°30.9	17.4	126°51.1	06.9										
5	138°24.7	268°55.1	16.4	245°32.8	06.8	21°33.5	17.4	141°53.6	06.9										
6	153°27.2	283°54.4	S17°17.2	260°33.2	S23°07.1	36°36.1	N21°17.6	156°56.1	S04°06.8										
7	168°29.7	298°53.7	18.1	275°33.7	07.3	51°38.7	17.4	171°58.6	06.8										
8	183°32.1	313°53.0	19.0	290°34.2	07.5	66°41.2	17.5	187°01.1	06.8										
9	198°34.6	328°52.3	•• 19.9	305°34.7	•• 07.8	81°43.8	•• 17.5	202°03.5	•• 06.8										
10	213°37.1	343°51.6	20.8	320°35.2	08.0	96°46.4	17.5	217°06.0	06.8										
11	228°39.5	358°50.9	21.7	335°35.6	08.3	111°48.9	17.5	232°08.5	06.8										
12	243°42.0	13°50.2	S17°22.6	350°36.1	S23°08.5	126°51.5	N21°17.6	247°11.0	S04°06.8										
13	258°44.5	28°49.5	23.5	5°36.6	08.7	141°54.1	17.6	262°13.5	06.8										
14	273°46.9	43°48.8	24.3	20°37.1	09.0	156°56.7	17.6	277°16.0	06.8										
15	288°49.4	58°48.1	•• 25.2	35°37.6	•• 09.2	171°59.3	•• 17.6	292°18.4	•• 06.8										
16	303°51.9	73°47.4	26.1	50°38.0	09.4	187°01.8	17.7	307°20.9	06.8										
17	318°54.3	88°46.7	27.0	65°38.5	09.7	202°04.4	17.7	322°23.4	06.8										
18	333°56.8	103°46.1	S17°27.9	80°39.0	S23°09.9	217°07.0	N21°17.7	337°25.9	S04°06.8										
19	348°59.2	118°45.4	28.7	95°39.5	10.1	232°09.6	17.7	352°28.4	06.8										
20	4°01.7	133°44.7	29.6	110°40.0	10.3	247°12.1	17.8	7°30.8	06.8										
21	19°04.2	148°44.0	•• 30.5	125°40.4	•• 10.6	262°14.7	•• 17.8	22°33.3	•• 06.8										
22	34°06.6	163°43.3	31.4	140°40.9	10.8	277°17.3	17.8	37°35.8	06.8										
23	49°09.1	178°42.6	32.2	155°41.4	11.0	292°19.9	17.8	52°38.3	06.8										
Mer.pass. 19:44				ν -0.7' d -0.9' m -3.90				ν 0.5' d -0.2' m 1.34				ν 2.6' d 0.0' m -2.49				ν 2.5' d 0.0' m 0.88			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	64°11.6	193°41.9	S17°33.1	170°41.9	S23°11.3	307°22.5	N21°17.9	67°40.8	S04°06.8
1	79°14.0	208°41.1	34.0	185°42.3	11.5	322°25.0	17.9	82°43.2	06.8
2	94°16.5	223°40.4	34.9	200°42.8	11.7	337°27.6	17.9	97°45.7	06.8
3	109°19.0	238°39.7	•• 35.7	215°43.3	•• 12.0	352°30.2	•• 17.9	112°48.2	•• 06.8
4	124°21.4	253°39.0	36.6	230°43.8	12.2	7°32.8	18.0	127°50.7	06.8
5	139°23.9	268°38.3	37.5	245°44.3	12.4	22°35.4	18.0	142°53.2	06.8
6	154°26.4	283°37.6	S17°38.4	260°44.7	S23°12.6	37°37.9	N21°18.0	157°55.6	S04°06.8
7	169°28.8	298°36.9	39.2	275°45.2	12.9	52°40.5	18.0	172°58.1	06.8
8	184°31.3	313°36.2	40.1	290°45.7	13.1	67°43.1	18.1	188°00.6	06.8
9	199°33.7	328°35.5	•• 41.0	305°46.2	•• 13.3	82°45.7	•• 18.1	203°03.1	•• 06.8
10	214°36.2	343°34.8	41.8	320°46.6	13.5	97°48.3	18.1	218°05.6	06.8
11	229°38.7	358°34.1	42.7	335°47.1	13.8	112°50.9	18.2	233°08.0	06.8
12	244°41.1	13°33.4	S17°43.6	350°47.6	S23°14.0	127°53.4	N21°18.2	248°10.5	S04°06.8
13	259°43.6	28°32.7	44.6	5°48.1	14.2	142°56.0	18.2	263°13.0	06.8
14	274°46.1	43°32.0	45.3	20°48.5	14.4	157°58.6	18.2	278°15.5	06.8
15	289°48.5	58°31.3	•• 46.2	35°49.0	•• 14.7	173°01.2	•• 18.3	293°18.0	•• 06.8
16	304°51.0	73°30.6	47.0	50°49.5	14.9	188°03.8	18.3	308°20.4	06.8
17	319°53.5	88°29.9	47.9	65°49.9	15.1	203°06.4	18.3	323°22.9	06.8
18	334°55.9	103°29.1	S17°48.7	80°50.4	S23°15.3	218°08.9	N21°18.3	338°25.4	S04°06.8
19	349°58.4	118°28.4	49.6	95°50.9	15.6	233°11.5	18.4	353°27.9	06.8
20	5°00.9	133°27.7	50.5	110°51.4	15.8	248°14.1	18.4	8°30.3	06.8
21	20°03.3	148°27.0	•• 51.3	125°51.8	•• 16.0	263°16.7	•• 18.4	23°32.8	•• 06.7
22	35°05.8	163°26.3	52.2	140°52.3	16.2	278°19.3	18.5	38°35.3	06.7
23	50°08.2	178°25.6	53.0	155°52.8	16.4	293°21.9	18.5	53°37.8	06.7
Mer.pass. 19:40 ν -0.7' d -0.9' m -3.90 ν 0.5' d -0.2' m 1.34 ν 2.6' d 0.0' m -2.49 ν 2.5' d 0.0' m 0.89									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	65°10.7	193°24.9	S17°53.9	170°53.3	S23°16.7	308°24.5	N21°18.5	68°40.3	S04°06.7
1	80°13.2	208°24.2	54.7	185°53.7	16.9	323°27.1	18.5	83°42.7	06.7
2	95°15.6	223°23.4	55.6	200°54.2	17.1	338°29.6	18.6	98°45.2	06.7
3	110°18.1	238°22.7	•• 56.4	215°54.7	•• 17.3	353°32.2	•• 18.6	113°47.7	•• 06.7
4	125°20.6	253°22.0	57.3	230°55.1	17.5	8°34.8	18.6	128°50.2	06.7
5	140°23.0	268°21.3	58.1	245°55.6	17.8	23°37.4	18.6	143°52.6	06.7
6	155°25.5	283°20.6	S17°59.0	260°56.1	S23°18.0	38°40.0	N21°18.7	158°55.1	S04°06.7
7	170°28.0	298°19.9	17°59.8	275°56.6	18.2	53°42.6	18.7	173°57.6	06.7
8	185°30.4	313°19.1	18°00.7	290°57.0	18.4	68°45.2	18.7	189°00.1	06.7
9	200°32.9	328°18.4	•• 01.5	305°57.5	•• 18.6	83°47.8	•• 18.8	204°02.5	•• 06.7
10	215°35.3	343°17.7	02.4	320°58.0	18.8	98°50.4	18.8	219°05.0	06.7
11	230°37.8	358°17.0	03.2	335°58.4	19.1	113°53.0	18.8	234°07.5	06.7
12	245°40.3	13°16.3	S18°04.1	350°58.9	S23°19.3	128°55.5	N21°18.8	249°10.0	S04°06.7
13	260°42.7	28°15.5	04.9	5°59.4	19.5	143°58.1	18.9	264°12.4	06.7
14	275°45.2	43°14.8	05.8	20°59.8	19.7	159°00.7	18.9	279°14.9	06.7
15	290°47.7	58°14.1	•• 06.6	36°00.3	•• 19.9	174°03.3	•• 18.9	294°17.4	•• 06.7
16	305°50.1	73°13.4	07.4	51°00.8	20.1	189°05.9	19.0	309°19.9	06.7
17	320°52.6	88°12.7	08.3	66°01.3	20.3	204°08.5	19.0	324°22.3	06.7
18	335°55.1	103°11.9	S18°09.1	81°01.7	S23°20.5	219°11.1	N21°19.0	339°24.8	S04°06.6
19	350°57.5	118°11.2	10.0	96°02.2	20.8	234°13.7	19.0	354°27.3	06.6
20	6°00.0	133°10.5	10.8	111°02.7	21.0	249°16.3	19.1	9°29.7	06.6
21	21°02.5	148°09.8	•• 11.6	126°03.1	•• 21.2	264°18.9	•• 19.1	24°32.2	•• 06.6
22	36°04.9	163°09.0	12.5	141°03.6	21.4	279°21.5	19.1	39°34.7	06.6
23	51°07.4	178°08.3	13.3	156°04.1	21.6	294°24.1	19.2	54°37.2	06.6
Mer.pass. 19:36 ν -0.7' d -0.9' m -3.90 ν 0.5' d -0.2' m 1.33 ν 2.6' d 0.0' m -2.50 ν 2.5' d 0.0' m 0.89									

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.0
Schedar	349°29.9	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.4
Hamal	327°50.1	23°35.2
Polaris	313°10.7	89°22.5
Acamar	315°10.8	-40°12.0
Menkar	314°05.1	4°11.6
Mirafak	308°26.7	49°57.3
Aldebaran	299°38.5	16°33.7
Rigel	281°02.9	-8°10.2
Capella	280°20.4	46°01.4
Bellatrix	278°21.8	6°22.5
Elnath	278°00.6	28°37.8
Alnilam	275°36.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	263°51.6	-52°42.3
Sirius	258°25.3	-16°45.0
Adhara	255°05.0	-29°00.2
Procyon	244°49.9	5°09.6
Pollux	243°16.2	27°57.7
Avior	234°14.1	-59°35.5
Suhail	222°45.7	-43°31.9
Miaplacidus	221°37.9	-69°49.0
Alphard	217°47.0	-8°46.1

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	66°09.8	193°07.6	S18°14.1	171°04.5	S23°21.8	309°26.7	N21°19.2	69°39.6	S04°06.6										
1	81°12.3	208°06.9	15.0	186°05.0	22.0	324°29.3	19.2	84°42.1	06.6										
2	96°14.8	223°06.1	15.8	201°05.5	22.2	339°31.9	19.2	99°44.6	06.6										
3	111°17.2	238°05.4	•• 16.6	216°05.9	•• 22.4	354°34.5	•• 19.3	114°47.1	•• 06.6										
4	126°19.7	253°04.7	17.5	231°06.4	22.7	9°37.1	19.3	129°49.5	06.6										
5	141°22.2	268°03.9	18.3	246°06.9	22.9	24°39.7	19.3	144°52.0	06.6										
6	156°24.6	283°03.2	S18°19.1	261°07.3	S23°31.1	39°42.3	N21°19.4	159°54.5	S04°06.6										
7	171°27.1	298°02.5	20.0	276°07.8	23.3	54°44.9	19.4	174°56.9	06.6										
8	186°29.6	313°01.8	20.8	291°08.3	23.5	69°47.5	19.4	189°59.9	06.6										
9	201°32.0	328°01.0	•• 21.6	306°08.7	•• 23.7	84°50.1	•• 19.4	205°01.9	•• 06.6										
10	216°34.5	343°00.3	22.4	321°09.2	23.9	99°52.7	19.5	220°04.4	06.5										
11	231°37.0	357°59.6	23.3	336°09.7	24.1	114°55.3	19.5	235°06.8	06.5										
12	246°39.4	12°58.8	S18°24.1	351°10.1	S23°24.3	129°57.9	N21°19.5	250°09.3	S04°06.5										
13	261°41.9	27°58.1	24.9	6°10.6	24.5	145°00.5	19.6	265°11.8	06.5										
14	276°44.3	42°57.4	25.7	21°11.0	24.7	160°03.1	19.6	280°14.2	06.5										
15	291°46.8	57°56.6	•• 26.6	36°11.5	•• 24.9	175°05.7	•• 19.6	295°16.7	•• 06.5										
16	306°49.3	72°55.9	27.4	51°12.0	25.1	190°08.3	19.7	310°19.2	06.5										
17	321°51.7	87°55.2	28.2	66°12.4	25.3	205°10.9	19.7	325°21.6	06.5										
18	336°54.2	102°54.4	S18°29.0	81°12.9	S23°25.5	220°13.5	N21°19.7	340°24.1	S04°06.5										
19	351°56.7	117°53.7	29.8	96°13.4	25.9	235°16.1	19.7	355°26.6	06.5										
20	6°59.1	132°53.0	30.7	111°13.8	25.7	250°18.7	19.8	10°19.1	06.5										
21	22°01.6	147°52.2	•• 31.5	126°14.3	•• 26.1	265°21.3	•• 19.8	25°31.5	•• 06.5										
22	37°04.1	162°51.5	32.3	141°14.8	26.3	280°23.9	19.8	40°34.0	06.5										
23	52°06.5	177°50.7	33.1	156°15.2	26.5	295°26.5	19.9	55°36.5	06.5										
Mer.pass. 19:32				ν -0.7° d -0.8' m -3.90				ν 0.5° d -0.2' m 1.33				ν 2.6° d 0.0' m -2.51				ν 2.5° d 0.0' m 0.90			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	67°09.0	192°50.0	S18°33.9	171°15.7	S23°26.7	310°29.1	N21°19.9	70°38.9	S04°06.4										
1	82°11.5	207°49.3	34.7	186°16.1	26.9	325°31.7	19.9	85°41.4	06.4										
2	97°13.9	222°48.5	35.5	201°16.6	27.1	340°34.3	20.0	100°43.9	06.4										
3	112°16.4	237°47.8	•• 36.4	216°17.1	•• 27.3	355°36.9	•• 20.0	115°46.3	•• 06.4										
4	127°18.8	252°47.0	37.2	231°17.5	27.5	10°39.5	20.0	130°48.8	06.4										
5	142°21.3	267°46.3	38.0	246°18.0	27.7	25°42.1	20.1	145°51.3	06.4										
6	157°23.8	282°45.6	S18°38.8	261°18.5	S23°27.9	40°44.7	N21°20.1	160°53.7	S04°06.4										
7	172°26.2	297°44.8	39.6	276°18.9	28.1	55°47.3	20.1	175°56.2	06.4										
8	187°28.7	312°44.1	40.4	291°19.4	28.3	70°50.0	20.1	190°58.7	06.4										
9	202°31.2	327°43.3	•• 41.2	306°19.8	•• 28.5	85°52.6	•• 20.2	206°01.1	•• 06.4										
10	217°33.6	342°42.6	42.0	321°20.3	28.7	100°55.2	20.2	221°03.6	06.4										
11	232°36.1	357°41.8	42.8	336°20.8	28.9	115°57.8	20.2	236°06.1	06.4										
12	247°38.6	12°41.1	S18°43.6	351°21.2	S23°29.1	131°00.4	N21°20.3	251°08.5	S04°06.3										
13	262°41.0	27°40.4	44.4	6°21.7	29.3	146°03.0	20.3	266°11.0	06.3										
14	277°43.5	42°39.6	45.2	21°22.1	29.5	161°05.6	20.3	281°13.5	06.3										
15	292°45.9	57°38.9	•• 46.0	36°22.6	•• 29.7	176°08.2	•• 20.4	296°15.9	•• 06.3										
16	307°48.4	72°38.1	46.8	51°23.1	29.9	191°10.8	20.4	311°18.4	06.3										
17	322°50.9	87°37.4	47.6	66°23.5	30.1	206°13.4	20.4	326°20.9	06.3										
18	337°53.3	102°36.6	S18°48.4	81°24.0	S23°30.3	221°16.0	N21°20.5	341°23.3	S04°06.3										
19	352°55.8	117°35.9	49.2	96°24.4	30.5	236°18.7	20.5	356°25.8	06.3										
20	7°58.3	132°35.1	50.0	111°24.9	30.7	251°21.3	20.5	11°28.3	06.3										
21	23°00.7	147°34.4	•• 50.8	126°25.3	•• 30.9	266°23.9	•• 20.5	26°30.7	•• 06.3										
22	38°03.2	162°33.6	51.6	141°25.8	31.0	281°26.5	20.6	41°33.2	06.3										
23	53°05.7	177°32.9	52.4	156°26.3	31.2	296°29.1	20.6	56°35.7	06.2										
Mer.pass. 19:28				ν -0.7° d -0.8' m -3.90				ν 0.5° d -0.2' m 1.32				ν 2.6° d 0.0' m -2.52				ν 2.5° d 0.0' m 0.90			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	68°08.1	192°32.1	S18°53.2	171°26.7	S23°31.4	311°31.7	N21°20.6	71°38.1	S04°06.2										
1	83°10.6	207°31.4	54.0	186°27.2	31.6	326°34.3	20.7	86°40.6	06.2										
2	98°13.1	222°30.6	54.8	201°27.6	31.8	341°36.9	20.7	101°43.0	06.2										
3	113°15.5	237°29.9	55.6	216°28.1	32.0	356°39.6	20.7	116°45.5	06.2										
4	128°18.0	252°29.1	56.4	231°28.5	32.2	11°42.2	20.8	131°48.0	06.2										
5	143°20.4	267°28.4	57.1	246°29.0	32.4	26°44.8	20.8	146°50.4	06.2										
6	158°22.9	282°27.6	S18°57.9	261°29.5	S23°32.6	41°47.4	N21°20.8	161°52.9	S04°06.2										
7	173°25.4	297°26.8	58.7	276°29.9	32.7	56°50.0	20.9	176°55.4	06.2										
8	188°27.8	312°26.1	18°59.5	291°30.4	32.9	71°52.6	20.9	191°57.8	06.2										
9	203°30.3	327°25.3	19°00.3	306°30.8	33.1	86°55.3	20.9	207°00.3	06.1										
10	218°32.8	342°24.6	01.1	321°31.3	33.3	101°57.9	21.0	222°02.8	06.1										
11	233°35.2	357°23.8	01.8	336°31.7	33.5	117°00.5	21.0	237°05.2	06.1										
12	248°37.7	12°23.1	S19°02.6	351°32.2	S23°33.7	132°03.1	N21°21.0	252°07.7	S04°06.1										
13	263°40.2	27°22.3	03.4	6°32.7	33.9	147°05.7	21.1	267°10.1	06.1										
14	278°42.6	42°21.6	04.2	21°33.1	34.0	162°08.3	21.1	282°12.6	06.1										
15	293°45.1	57°20.8	05.0	36°33.6	34.2	177°11.0	21.1	297°15.1	06.1										
16	308°47.5	72°20.0	05.7	51°34.0	34.4	192°13.6	21.2	312°17.5	06.1										
17	323°50.0	87°19.3	06.5	66°34.5	34.6	207°16.2	21.2	327°20.0	06.1										
18	338°52.5	102°18.5	S19°07.3	81°34.9	S23°34.8	222°18.8	N21°21.2	342°22.4	S04°06.0										
19	353°54.9	117°17.8	08.1	96°35.4	35.0	237°21.4	21.3	357°24.9	06.0										
20	8°57.4	132°17.0	08.8	111°35.8	35.1	252°24.1	21.3	12°27.4	06.0										
21	23°59.9	147°16.2	09.6	126°36.3	35.3	267°26.7	21.3	27°29.8	06.0										
22	39°02.3	162°15.5	10.4	141°36.7	35.5	282°29.3	21.4	42°32.3	06.0										
23	54°04.8	177°14.7	11.2	156°37.2	35.7	297°31.9	21.4	57°34.7	06.0										
Mer.pass. 19:24				ν -0.8° d -0.8' m -3.90				ν 0.5° d -0.2' m 1.32				ν 2.6° d 0.0' m -2.52				ν 2.5° d 0.0' m 0.91			

Stars	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.0
Schedar	349°29.9	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.4
Hamal	327°50.1	23°35.2
Polaris	313°10.9	89°22.5
Acamar	315°10.8	-40°12.0
Menkar	314°05.1	4°11.6
Mirafak	308°26.7	49°57.3
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.2
Capella	280°20.3	46°01.4
Bellatrix	278°21.8	6°22.5
Elath	278°00.6	28°37.8
Alnilam	275°36.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	263°51.6	-52°42.3
Sirius	258°25.3	-16°45.0
Adhara	255°05.0	-29°00.3
Procyon	244°49.9	5°09.5
Pollux	234°16.2	27°57.7
Avior	234°14.1	-59°35.2
Suhail	222°45.6	-43°32.0
Miaplacidus	221°37.8	-69°49.1
Alphard	217°47.0	-8°46.2
Regulus	207°33.6	11°50.4
Dubhe	193°40.2	61°36.4
Denebola	182°24.3	14°25.6
Gienah	175°43.0	-17°41.0
Acrux	172°59.7	-63°14.3
Gacrux	171°51.2	-57°15.2
Alloth	166°12.7	55°48.9
Spica	158°21.8	-11°17.7
Alkaid	152°51.8	49°10.9
Hadar	148°35.6	-60°29.7
Menkent	147°57.1	-36°29.7
Arcturus	145°47.6	19°02.8
Rigil Kent.	139°39.9	-60°56.4
Kochab	137°20.9	74°02.7
Zuben'ubi	136°55.5	-16°08.9
Alphecca	126°03.5	26°37.6
Antares	112°15.3	-26°29.3
Atria	107°09.5	-69°04.4
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.4
Rasalhague	95°58.2	12°32.5
Eltanin	90°42.4	51°29.2
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.1	38°48.6
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.3
Peacock	53°04.9	-56°39.3
Deneb	49°25.5	45°22.6
Enif	33°38.2	9°29.7
Al Na'ir	27°32.1	-46°50.3
Fomalhaut	15°13.7	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.1	15°20.2

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	69°07.3	192°13.9	S19°11.9	171°37.6	S23°35.9	312°34.5	N21°21.4	72°37.2	S04°06.0					
1	84°09.7	207°13.2	12.7	186°38.1	36.1	327°37.2	21.5	87°39.7	06.0					
2	99°12.2	222°12.4	13.5	201°38.6	36.2	342°39.8	21.5	102°40.2	06.0					
3	114°14.7	237°11.6	14.2	216°39.0	36.4	357°42.4	21.5	117°44.6	05.9					
4	129°17.1	252°10.9	15.0	231°39.5	36.6	372°45.0	21.6	132°47.0	05.9					
5	144°19.6	267°10.1	15.8	246°39.9	36.8	387°47.7	21.6	147°49.5	05.9					
6	159°22.0	282°09.4	S19°16.5	261°40.4	S23°36.9	42°50.3	N21°21.6	162°52.0	S04°05.9					
7	174°24.5	297°08.6	17.3	276°40.8	37.1	57°52.9	21.7	177°54.4	05.9					
8	189°27.0	312°07.8	18.1	291°41.3	37.3	72°55.5	21.7	192°56.9	05.9					
9	204°29.4	327°07.0	18.8	306°41.7	37.5	87°58.1	21.7	207°59.3	05.9					
10	219°31.9	342°06.3	19.6	321°42.2	37.7	103°00.8	21.8	223°01.8	05.9					
11	234°34.4	357°05.5	20.4	336°42.6	37.8	118°03.4	21.8	238°04.3	05.9					
12	249°36.8	372°04.7	S19°21.1	351°43.1	S23°38.0	133°06.0	N21°21.8	253°06.7	S04°05.8					
13	264°39.3	387°04.0	21.9	363°45.5	38.2	148°08.6	21.9	268°09.2	05.8					
14	279°41.8	402°03.2	22.6	378°46.0	38.4	163°11.3	21.9	283°11.6	05.8					
15	294°44.2	417°02.4	23.4	393°44.4	38.5	178°13.9	21.9	298°14.1	05.8					
16	309°46.7	432°01.7	24.1	408°45.9	38.7	193°16.5	22.0	313°16.5	05.8					
17	324°49.2	447°00.9	24.9	423°46.3	38.9	208°19.2	22.0	328°19.0	05.8					
18	339°51.6	462°00.1	S19°25.6	438°45.8	S23°39.0	223°21.8	N21°22.0	343°21.5	S04°05.8					
19	354°54.1	477°00.3	26.4	453°46.2	39.2	238°24.4	22.1	358°23.9	05.8					
20	369°56.5	492°00.3	27.2	468°46.7	39.4	253°27.0	22.1	373°26.4	05.7					
21	384°58.9	507°00.3	27.9	483°47.1	39.6	268°29.7	22.1	388°28.8	05.7					
22	400°01.5	522°00.3	28.7	498°47.6	39.7	283°32.3	22.2	403°31.3	05.7					
23	415°03.9	537°00.3	29.4	513°48.0	39.9	298°34.9	22.2	418°33.7	05.7					
Mer.pass. 19:20			ν -0.8' d -0.8' m -3.90	ν 0.5' d -0.2' m 1.31	ν 2.6' d 0.0' m -2.53	ν 2.5' d 0.0' m 0.91								

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	70°06.4	191°55.5	S19°30.1	171°48.5	S23°40.1	313°37.6	N21°22.2	73°36.2	S04°05.7
1	85°08.9	206°54.7	30.9	186°49.9	40.2	328°40.2	22.3	88°38.7	05.7
2	100°11.3	221°53.9	31.6	201°49.4	40.4	343°42.8	22.3	103°41.1	05.7
3	115°13.8	236°53.1	32.4	216°49.8	40.6	358°45.4	22.3	118°43.6	05.6
4	130°16.3	251°52.4	33.1	231°50.3	40.8	373°48.1	22.4	133°46.0	05.6
5	145°18.7	266°51.6	33.9	246°50.7	40.9	388°50.7	22.4	148°48.5	05.6
6	160°21.2	281°50.8	S19°34.6	261°51.1	S23°41.1	43°53.3	N21°22.4	163°50.9	S04°05.6
7	175°23.6	296°50.0	35.4	276°51.6	41.3	58°56.0	22.5	178°53.4	05.6
8	190°26.1	311°49.2	36.1	291°52.0	41.6	73°58.6	22.5	193°55.8	05.6
9	205°28.6	326°48.5	36.8	306°52.5	41.8	88°01.2	22.5	208°58.3	05.6
10	220°31.0	341°47.7	37.6	321°52.9	41.8	103°03.9	22.6	223°00.8	05.5
11	235°33.5	356°46.9	38.3	336°53.4	41.9	118°06.5	22.6	238°03.2	05.5
12	250°36.0	371°46.1	S19°39.1	351°53.8	S23°42.1	134°09.1	N21°22.6	254°05.7	S04°05.5
13	265°38.4	386°45.3	39.8	366°54.3	42.3	149°11.8	22.7	269°08.1	05.5
14	280°40.9	401°44.6	40.5	381°55.7	42.4	164°14.4	22.8	284°10.6	05.5
15	295°43.4	416°43.8	41.2	396°57.1	42.5	179°17.0	22.8	299°13.0	05.5
16	310°45.8	431°43.0	42.0	411°58.5	42.7	194°19.7	22.8	314°15.5	05.5
17	325°48.3	446°42.2	42.7	426°59.9	42.9	209°22.3	22.8	329°17.9	05.4
18	340°50.8	461°41.4	S19°43.5	441°56.5	S23°43.1	224°24.9	N21°22.9	344°20.4	S04°05.4
19	355°53.2	476°40.6	44.2	456°57.9	43.2	239°27.6	22.9	359°22.8	05.4
20	370°55.7	491°39.9	44.9	471°59.4	43.4	254°30.2	22.9	374°25.3	05.4
21	385°58.1	506°39.1	45.6	486°60.8	43.6	269°32.9	22.9	389°27.7	05.4
22	400°60.6	521°38.3	46.4	501°62.2	43.7	284°35.5	23.0	404°30.2	05.4
23	415°03.1	536°37.5	47.1	516°63.7	43.9	299°38.1	23.0	419°32.6	05.4
Mer.pass. 19:16			ν -0.8' d -0.7' m -3.90	ν 0.4' d -0.2' m 1.31	ν 2.6' d 0.0' m -2.54	ν 2.5' d 0.0' m 0.91			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	71°05.5	191°36.7	S19°47.8	171°59.2	S23°44.0	314°40.8	N21°23.1	74°35.1	S04°05.3
1	86°08.0	206°35.9	48.5	186°59.6	44.2	329°43.4	23.1	89°37.5	05.3
2	101°10.5	221°35.1	49.3	202°00.1	44.4	344°46.0	23.1	104°40.0	05.3
3	116°12.9	236°34.3	50.0	217°00.5	44.5	359°48.7	23.1	119°42.4	05.3
4	131°15.4	251°33.5	50.7	232°00.9	44.7	374°51.3	23.2	134°44.9	05.3
5	146°17.9	266°32.8	51.4	247°01.4	44.8	389°54.0	23.2	149°47.4	05.3
6	161°20.3	281°32.0	S19°52.1	262°01.8	S23°45.0	44°56.6	N21°23.3	164°49.8	S04°05.3
7	176°22.8	296°31.2	52.9	277°02.3	45.2	59°59.2	23.3	179°52.3	05.3
8	191°25.3	311°30.4	53.6	292°02.7	45.3	75°01.9	23.4	194°54.7	05.2
9	206°27.7	326°29.6	54.3	307°03.2	45.5	90°04.5	23.4	209°57.2	05.2
10	221°30.2	341°28.8	55.0	322°03.6	45.6	105°07.2	23.4	224°59.6	05.2
11	236°32.6	356°28.0	55.7	337°04.0	45.8	120°09.8	23.5	240°02.1	05.2
12	251°35.1	371°27.2	S19°56.4	352°04.5	S23°45.9	135°12.4	N21°23.5	255°04.5	S04°05.2
13	266°37.6	386°26.4	57.2	367°04.9	46.1	150°15.1	23.5	270°07.0	05.1
14	281°40.0	401°25.6	57.9	382°05.4	46.2	165°17.7	23.6	285°09.4	05.1
15	296°42.5	416°24.8	58.6	397°05.8	46.4	180°20.4	23.6	300°11.9	05.1
16	311°45.0	431°24.0	59.3	412°06.3	46.5	195°23.0	23.6	315°14.3	05.1
17	326°47.4	446°23.2	60.0	427°06.7	46.7	210°25.7	23.7	330°16.8	05.1
18	341°49.9	461°22.4	S20°00.7	442°07.1	S23°46.9	225°28.3	N21°23.7	345°19.2	S04°05.1
19	356°52.4	476°21.6	60.4	457°07.6	47.0	240°30.9	23.8	360°21.6	05.0
20	371°54.8	491°20.8	61.2	472°08.0	47.2	255°33.6	23.8	375°24.1	05.0
21	386°57.3	506°20.0	62.0	487°08.5	47.3	270°36.2	23.8	390°26.5	05.0
22	401°59.7	521°19.3	62.8	502°08.9	47.5	285°38.9	23.9	405°29.0	05.0
23	417°02.2	536°18.5	63.6	517°09.3	47.6	300°41.5	23.9	420°31.4	05.0
Mer.pass. 19:12			ν -0.8' d -0.7' m -3.90	ν 0.4' d -0.2' m 1.30	ν 2.6' d 0.0' m -2.54	ν 2.5' d 0.0' m 0.92			

Stars		
SHA	Dec	
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.0
Schedar	349°29.9	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.5
Hamal	327°50.1	23°35.2
Polaris	313°11.3	89°23.8
Acamar	315°10.8	-40°12.1
Menkar	314°05.1	4°11.6
Mirafak	308°26.7	49°57.3
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.2
Capella	280°20.3	46°01.4
Bellatrix	278°21.8	6°22.4
Elath	278°00.6	28°37.8
Alnilam	275°36.7	-1°11.1
Betelgeuse	270°51.0	7°24.8
Canopus	263°51.6	-52°42.4
Sirius	258°25.3	-16°45.0
Adhara	255°05.0	-29°00.3
Procyon	244°49.8	5°09.5
Pollux	243°16.2	27°57.7
Avior	234°14.1	-59°35.2
Suhail	222°45.6	-43°32.0
Miaplacidus	221°37.8	-69°49.1
Alphard	217°46.9	-8°46.2
Regulus	207°33.6	11°50.4
Dubhe	193°40.2	61°36.4
Denelbore	182°24.3	14°25.6
Gienah	175°43.0	-17°41.0
Acrux	172°59.7	-63°14.3
Gacrux	171°51.1	-57°15.2
Alathor	166°12.7	55°48.9
Spica	158°21.8	-11°17.7
Alkaid	152°51.8	49°10.8
Henkar	148°35.5	-60°29.7
Mekut	147°57.1	-36°29.7
Arcturus	145°47.5	19°02.8
Rigel Kent.	139°39.9	-60°56.4
Kochab	137°20.9	74°02.7
Zuben el	136°55.5	-16°08.9
Alphecca	126°03.5	26°37.6
Antares	112°15.3	-26°29.3
Atria	107°09.5	-69°04.4
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.0
Rasalhague	95°58.2	12°32.5
Eltanin	90°42.4	51°29.5
Kaus Aus.	83°31.9	-34°22.4
Vega	80°33.1	38°48.6
Nunki	75°47.2	-26°15.5
Altair	61°59.5	8°56.3
Peacock	53°04.9	-56°39.3
Deneb	49°25.6	45°22.6
Enif	33°38.2	9°59.7
Al Na'ir	27°32.1	-46°50.3
Fomalhaut	15°13.7	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.1	15°20.8

Nov 30 Sun		SHA	Mer-pass
Venus	123°06.7		11:12
Mars	102°30.4		12:33
Jupiter	243°27.3		03:09
Saturn	3°29.9		19:06
Dec 01 Mon		SHA	Mer-pass
Venus	121°49.1		11:13
Mars	101°42.1		12:32
Jupiter	243°31.2		03:05
Saturn	3°29.8		19:02
Dec 02 Tue		SHA	Mer-pass
Venus	120°31.2		11:14
Mars	100°53.6		12:32
Jupiter	243°35.2		03:01
Saturn	3°29.6		18:59
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	72°04.7	191°17.7	S20°04.9	172°09.8	S23°47.8	315°44.2	N21°23.9	75°33.9	S04°05.0										
1	87°07.1	206°16.9	05.6	187°10.2	47.9	330°46.8	24.0	90°36.3	04.9										
2	102°09.6	221°16.1	06.3	202°10.7	48.1	345°49.5	24.0	105°38.0	04.9										
3	117°12.1	236°15.3	•• 07.0	217°11.1	•• 48.2	0°52.1	•• 24.1	120°41.2	•• 04.9										
4	132°14.5	251°14.4	07.7	232°11.5	48.4	15°54.8	24.1	135°43.7	04.9										
5	147°17.0	266°13.6	08.4	247°12.0	48.5	30°57.4	24.1	150°46.1	04.9										
6	162°19.5	281°12.8	S20°09.1	262°12.4	S23°48.6	46°00.0	N21°24.2	165°48.6	S04°04.9										
7	177°21.9	296°12.0	09.8	277°12.9	48.8	61°02.7	24.2	180°51.0	04.8										
8	192°24.4	311°11.2	10.5	292°13.3	49.8	76°05.3	24.2	195°53.5	04.8										
9	207°26.9	326°10.4	•• 11.2	307°13.7	•• 49.1	91°08.0	•• 24.3	210°55.9	•• 04.8										
10	222°29.3	341°09.6	11.9	322°14.2	49.2	106°10.6	24.3	225°58.4	04.8										
11	237°31.8	356°08.8	12.6	337°14.6	49.4	121°13.3	24.3	241°00.8	04.8										
12	252°34.2	11°08.0	S20°13.3	352°15.0	S23°49.5	136°15.9	N21°24.4	256°03.2	S04°04.8										
13	267°36.7	26°07.2	14.0	7°15.5	49.7	151°18.6	24.4	271°05.7	04.7										
14	282°39.2	41°06.4	14.6	22°15.9	49.8	166°21.2	24.5	286°08.1	04.7										
15	297°41.6	56°05.6	•• 15.3	37°16.4	•• 50.0	181°23.9	•• 24.5	301°10.6	•• 04.7										
16	312°44.1	71°04.8	16.0	52°16.8	50.1	196°26.5	24.5	316°13.0	04.7										
17	327°46.6	86°04.0	16.7	67°17.2	50.2	211°29.2	24.6	331°15.5	04.7										
18	342°49.0	101°03.2	S20°17.4	82°17.7	S23°50.4	226°31.8	N21°24.6	346°17.9	S04°04.6										
19	357°51.5	116°02.4	18.1	97°18.1	50.5	241°34.5	24.7	1°20.4	04.6										
20	12°54.0	131°01.6	18.8	112°18.5	50.7	256°37.1	24.7	16°22.8	04.6										
21	27°56.4	146°00.7	•• 19.4	127°19.0	•• 50.8	271°39.8	•• 24.7	31°25.3	•• 04.6										
22	42°58.9	160°59.9	20.1	142°19.4	51.0	286°42.4	24.8	46°27.7	04.6										
23	58°01.4	175°59.1	20.8	157°19.8	51.1	301°45.1	24.8	61°30.1	04.6										
Mer.pass. 19:09				ν -0.8° d -0.7' m -3.90				ν 0.4° d -0.1' m 1.29				ν 2.6° d 0.0' m -2.55				ν 2.4° d 0.0' m 0.92			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	73°03.8	190°58.3	S20°21.5	172°20.3	S23°51.2	316°47.8	N21°24.8	76°32.6	S04°04.5										
1	88°06.3	205°57.5	22.1	187°20.7	51.4	331°50.4	24.9	91°35.0	04.5										
2	103°08.7	220°56.7	22.8	202°21.2	51.5	346°53.1	24.9	106°37.5	04.5										
3	118°11.2	235°55.9	•• 23.5	217°21.6	•• 51.6	1°55.7	•• 25.0	121°39.9	•• 04.5										
4	133°13.7	250°55.1	24.2	232°22.0	51.8	16°58.4	25.0	136°42.4	04.5										
5	148°16.1	265°54.2	24.8	247°22.5	51.9	32°01.0	25.0	151°44.8	04.4										
6	163°18.6	280°53.4	S20°25.2	262°22.9	S23°52.1	47°03.7	N21°25.1	166°47.2	S04°04.4										
7	178°21.1	295°52.6	26.5	277°23.3	52.2	62°06.3	25.1	181°49.7	04.4										
8	193°23.5	310°51.8	26.9	292°23.8	52.3	77°09.0	25.1	196°52.1	04.4										
9	208°26.0	325°51.0	•• 27.5	307°24.2	•• 52.5	92°11.7	•• 25.2	211°54.6	•• 04.4										
10	223°28.5	340°50.2	28.2	322°24.6	52.6	107°14.3	25.2	226°57.0	04.3										
11	238°30.9	355°49.4	28.9	337°25.1	52.7	122°17.0	25.3	241°59.5	04.3										
12	253°33.4	10°48.5	S20°29.5	352°25.5	S23°52.9	137°19.6	N21°25.3	257°01.9	S04°04.3										
13	268°35.9	25°47.7	30.2	7°25.9	53.0	152°22.3	25.3	272°04.3	04.3										
14	283°38.3	40°46.9	30.9	22°26.4	53.1	167°24.9	25.4	287°06.8	04.3										
15	298°40.8	55°46.1	•• 31.5	37°26.8	•• 53.3	182°27.6	•• 25.4	302°09.2	•• 04.2										
16	313°43.2	70°45.3	32.2	52°27.2	53.4	197°30.3	25.5	317°11.7	04.2										
17	328°45.7	85°44.4	32.8	67°27.7	53.5	212°32.9	25.5	332°14.1	04.2										
18	343°48.2	100°43.6	S20°33.5	82°28.1	S23°53.7	227°35.6	N21°25.5	347°16.5	S04°04.2										
19	358°50.6	115°42.8	34.2	97°28.5	53.8	242°38.2	25.6	2°19.0	04.2										
20	13°53.1	130°42.0	34.8	112°29.0	53.9	257°40.9	25.6	17°21.4	04.1										
21	28°55.6	145°41.2	•• 35.5	127°29.4	•• 54.1	272°43.6	•• 25.7	32°23.9	•• 04.1										
22	43°58.0	160°40.3	36.1	142°29.8	54.2	287°46.2	25.7	47°26.3	04.1										
23	59°00.5	175°39.5	36.8	157°30.3	54.3	302°48.9	25.7	62°28.7	04.1										
Mer.pass. 19:05				ν -0.8° d -0.7' m -3.90				ν 0.4° d -0.1' m 1.29				ν 2.7° d 0.0' m -2.55				ν 2.4° d 0.0' m 0.93			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	74°03.0	190°38.7	S20°37.4	172°30.7	S23°54.5	317°51.5	N21°25.8	77°31.2	S04°04.1
1	89°05.4	205°37.9	38.1	187°31.1	54.6	332°54.2	25.8	92°33.6	04.0
2	104°07.9	220°37.0	38.7	202°31.6	54.7	347°56.9	25.8	107°36.1	04.0
3	119°10.4	235°36.2	•• 39.4	217°32.0	•• 54.8	2°59.5	•• 25.9	122°38.5	•• 04.0
4	134°12.8	250°35.4	40.0	232°32.4	55.0	18°02.2	25.9	137°40.9	04.0
5	149°15.3	265°34.6	40.7	247°32.8	55.1	33°04.8	26.0	152°43.4	04.0
6	164°17.7	280°33.7	S20°41.3	262°33.3	S23°55.2	48°07.5	N21°26.0	167°45.8	S04°03.9
7	179°20.2	295°32.9	42.0	277°33.7	55.3	63°10.2	26.0	182°48.3	03.9
8	194°22.7	310°32.1	42.6	292°34.1	55.5	78°12.8	26.1	197°50.7	03.9
9	209°25.1	325°31.3	•• 43.3	307°34.6	•• 55.6	93°15.5	•• 26.1	212°53.1	•• 03.9
10	224°27.6	340°30.4	43.9	322°35.0	55.7	108°18.2	26.2	227°55.6	03.9
11	239°30.1	355°29.6	44.6	337°35.4	55.8	123°20.8	26.2	242°58.0	03.8
12	254°32.5	10°28.8	S20°45.2	352°35.9	S23°56.0	138°23.5	N21°26.2	258°00.4	S04°03.8
13	269°35.0	25°27.9	45.8	7°36.3	56.1	153°26.2	26.3	273°02.9	03.8
14	284°37.5	40°27.1	46.5	22°36.7	56.2	168°28.8	26.3	288°05.3	03.8
15	299°39.9	55°26.3	•• 47.1	37°37.1	•• 56.3	183°31.5	•• 26.4	303°07.8	•• 03.7
16	314°42.4	70°25.5	47.8	52°37.6	56.5	198°34.2	26.4	318°10.2	03.7
17	329°44.9	85°24.6	48.4	67°38.0	56.6	213°36.8	26.4	333°12.6	03.7
18	344°47.3	100°23.8	S20°49.0	82°38.4	S23°56.7	228°39.5	N21°26.5	348°15.1	S04°03.7
19	359°49.8	115°23.0	49.7	97°38.9	56.8	243°42.2	26.5	3°17.5	03.7
20	14°52.2	130°22.1	50.3	112°39.3	57.0	258°44.8	26.6	18°19.9	03.6
21	29°54.7	145°21.3	•• 50.9	127°39.7	•• 57.1	273°47.5	•• 26.6	33°22.4	•• 03.6
22	44°57.2	160°20.5	51.6	142°40.1	57.2	288°50.2	26.6	48°24.8	03.6
23	59°59.6	175°19.6	52.2	157°40.6	57.3	303°52.8	26.7	63°27.2	03.6
Mer.pass.	19:01	m -0.8° d -0.7° m -3.90		m 0.4° d -0.1° m 1.28		m 2.7° d 0.0° m -2.56		m 2.4° d 0.0° m 0.93	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	75°02.1	190°18.8	S20°52.8	172°41.0	S23°57.4	318°55.5	N21°26.7	78°29.7	S04°03.5										
1	90°04.6	205°18.0	53.4	187°41.4	57.5	333°58.2	26.8	93°32.1	03.5										
2	105°07.0	220°17.1	54.1	202°41.9	57.4	349°00.8	26.8	108°34.6	03.5										
3	120°09.5	235°16.3	•• 54.7	217°42.3	•• 57.8	4°03.5	•• 26.8	123°37.0	•• 03.5										
4	135°12.0	250°15.5	55.3	232°42.7	57.9	19°06.2	26.9	138°39.4	03.5										
5	150°14.4	265°14.6	55.9	247°43.1	58.0	34°08.8	26.9	153°41.9	03.4										
6	165°16.6	280°13.8	S20°56.6	262°43.6	S23°58.8	149°11.5	N21°27.0	168°44.3	S04°03.4										
7	180°19.4	295°12.9	57.2	277°44.0	58.3	64°14.2	27.0	183°46.7	03.4										
8	195°21.8	310°12.1	58.4	292°44.4	58.4	79°16.9	27.1	198°49.2	03.4										
9	210°24.3	325°11.3	•• 58.4	307°44.8	•• 58.5	94°19.5	•• 27.1	213°51.6	•• 03.3										
10	225°26.7	340°10.4	59.0	322°45.3	58.6	109°22.2	27.1	228°54.0	03.3										
11	240°29.2	355°09.6	20°59.7	337°45.7	58.7	124°24.9	27.2	243°56.5	03.3										
12	255°31.7	10°08.7	S21°00.3	352°46.1	S23°58.8	139°27.6	N21°27.2	258°58.9	S04°03.3										
13	270°34.1	25°07.9	00.9	7°46.5	58.9	154°30.2	27.3	274°01.3	03.2										
14	285°36.6	40°07.1	01.5	22°47.0	59.1	169°32.9	27.3	289°03.8	03.2										
15	300°39.1	55°06.2	•• 02.1	37°47.4	•• 59.2	184°35.6	•• 27.3	304°06.2	•• 03.2										
16	315°41.5	70°05.4	02.7	52°47.8	59.3	199°38.2	27.4	319°08.6	03.2										
17	330°44.0	85°04.5	03.3	67°48.2	59.4	214°40.9	27.4	334°11.1	03.2										
18	345°46.5	100°03.7	S21°04.0	82°48.7	S23°59.5	229°43.6	N21°27.5	349°13.5	S04°03.1										
19	0°48.9	115°02.8	04.6	97°49.1	59.6	244°46.3	27.5	4°15.9	03.1										
20	15°51.4	130°02.0	05.2	112°49.5	59.7	259°48.9	27.5	19°18.4	03.1										
21	30°53.9	145°01.2	•• 05.8	127°49.9	•• 59.8	274°51.6	•• 27.6	34°20.8	•• 03.1										
22	45°56.3	160°00.3	06.4	142°50.4	23°59.9	289°54.3	27.6	49°23.2	03.0										
23	60°58.8	174°59.5	07.0	157°50.8	24°00.0	304°57.0	27.7	64°25.6	03.0										
Mer.pass. 18:57				ν -0.8° d -0.6' m -3.90				ν 0.4° d -0.1' m 1.28				ν 2.7° d 0.0' m -2.57				ν 2.4° d 0.0' m 0.93			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	76°01.2	189°58.6	S21°07.6	172°51.2	S24°00.2	319°59.6	N21°27.7	79°28.1	S04°03.0
1	91°03.7	204°57.8	08.2	187°51.6	00.3	335°02.3	27.8	94°30.5	03.0
2	106°06.2	219°56.9	08.8	202°52.1	00.6	350°05.0	27.8	109°32.9	02.9
3	121°08.6	234°56.1	•• 09.4	217°52.5	•• 00.5	5°07.7	•• 27.8	124°35.4	•• 02.9
4	136°11.1	249°55.2	10.0	232°52.9	00.6	20°10.4	27.9	139°37.8	02.9
5	151°13.6	264°54.4	10.6	247°53.3	00.7	35°13.0	27.9	154°40.2	02.9
6	166°16.0	279°53.5	S21°11.2	262°53.8	S24°00.8	50°15.7	N21°28.0	169°42.7	S04°02.8
7	181°18.5	294°52.7	11.8	277°54.2	00.9	65°18.4	28.0	184°45.1	02.8
8	196°21.0	309°51.8	12.4	292°54.6	01.0	80°21.1	28.0	199°47.5	02.8
9	211°23.4	324°51.0	•• 13.0	307°55.0	•• 01.1	95°23.7	•• 28.1	214°50.0	•• 02.8
10	226°25.9	339°50.1	13.6	322°55.4	01.2	110°26.4	28.1	229°52.4	02.7
11	241°28.4	354°49.3	14.2	337°55.9	01.3	125°29.1	28.2	244°54.8	02.7
12	256°30.8	9°48.4	S21°14.7	352°56.3	S24°01.4	140°31.8	N21°28.2	259°57.2	S04°02.7
13	271°33.3	24°47.6	15.3	7°56.7	01.5	155°34.5	28.3	274°59.2	02.7
14	286°35.7	39°46.7	15.9	22°57.1	01.6	170°37.2	28.3	290°02.1	02.6
15	301°38.2	54°45.9	•• 16.5	37°57.6	•• 01.7	185°39.8	•• 28.3	305°04.5	•• 02.6
16	316°40.7	69°45.0	17.1	52°58.0	01.8	200°42.5	28.4	320°07.0	02.6
17	331°43.1	84°44.2	17.7	67°58.4	01.9	215°45.2	28.4	335°09.4	02.6
18	346°45.6	99°43.3	S21°18.3	82°58.8	S24°02.0	230°47.9	N21°28.5	350°11.8	S04°02.5
19	1°48.1	114°42.5	18.9	97°59.2	02.1	245°50.6	28.5	5°14.2	02.5
20	16°50.5	129°41.6	19.4	112°59.7	02.2	260°53.2	28.6	20°16.7	02.5
21	31°53.0	144°40.8	•• 20.0	128°00.1	•• 02.3	275°55.9	•• 28.6	35°19.1	•• 02.5
22	46°55.5	159°39.9	20.6	143°00.5	02.4	290°58.6	28.6	50°21.5	02.4
23	61°57.9	174°39.0	21.2	158°00.9	02.5	306°01.3	28.7	65°24.0	02.4
Mer.pass. 18:53 ν -0.8° d -0.6' m -3.90 ν 0.4° d -0.1' m 1.27 ν 2.7° d 0.0' m -2.57 ν 2.4° d 0.0' m 0.94									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	77°00.4	189°38.2	S21°21.8	173°01.3	S24°02.6	321°04.0	N21°28.7	80°26.4	S04°02.4										
1	92°02.9	204°37.3	22.3	188°01.8	02.7	336°06.7	28.8	95°28.8	02.4										
2	107°05.3	219°36.5	22.9	203°02.2	02.8	351°09.3	28.8	110°31.2	02.3										
3	122°07.8	234°35.6	•• 23.5	218°02.6	•• 02.9	6°12.0	•• 28.9	125°33.7	•• 02.3										
4	137°10.2	249°34.8	24.1	233°03.0	03.0	21°14.7	28.9	140°36.1	02.3										
5	152°12.7	264°33.9	24.6	248°03.4	03.1	36°17.4	28.9	155°38.5	02.3										
6	167°15.2	279°33.0	S21°25.2	263°03.9	S24°03.2	51°20.1	N21°29.0	170°40.9	S04°02.2										
7	182°17.6	294°32.2	25.8	278°04.3	03.3	66°22.8	29.0	185°43.4	02.2										
8	197°20.1	309°31.3	26.3	293°04.7	03.4	81°25.5	29.1	200°45.8	02.2										
9	212°22.6	324°30.5	•• 26.9	308°05.1	•• 03.5	96°28.1	•• 29.1	215°48.2	•• 02.2										
10	227°25.0	339°29.6	27.5	323°05.5	03.6	111°30.8	29.2	230°50.6	02.1										
11	242°27.5	354°28.7	28.0	338°06.0	03.7	126°33.5	29.2	245°53.1	02.1										
12	257°30.0	9°27.9	S21°28.6	353°06.4	S24°03.8	141°36.2	N21°29.2	260°55.5	S04°02.1										
13	272°32.4	24°27.0	29.3	8°06.8	03.9	156°38.9	29.3	275°57.9	02.0										
14	287°34.9	39°26.2	29.7	23°07.2	04.0	171°41.6	29.3	291°00.3	02.0										
15	302°37.3	54°25.3	•• 30.3	38°07.6	•• 04.0	186°44.3	•• 29.4	306°02.8	•• 02.0										
16	317°39.8	69°24.4	30.9	53°08.0	04.1	201°47.0	29.4	321°05.2	02.0										
17	332°42.3	84°23.6	31.4	68°08.5	04.2	216°49.7	29.5	336°07.6	01.9										
18	347°44.7	99°22.7	S21°32.0	83°08.9	S24°04.3	231°52.3	N21°29.5	351°10.0	S04°01.9										
19	2°47.2	114°21.8	32.5	98°09.3	04.4	246°55.0	29.5	6°12.5	01.9										
20	17°49.7	129°20.1	33.1	113°09.7	04.5	261°57.7	29.6	21°14.9	01.9										
21	32°52.1	144°20.1	•• 33.6	128°10.1	•• 04.6	277°00.4	•• 29.6	36°17.3	•• 01.8										
22	47°54.6	159°19.2	34.2	143°10.6	04.7	292°03.1	29.7	51°19.7	01.8										
23	62°57.1	174°18.4	34.7	158°11.0	04.8	307°05.8	29.7	66°22.2	01.8										
Mer.pass. 18:49				ν -0.9° d -0.6' m -3.90				ν 0.4° d -0.1' m 1.27				ν 2.7° d 0.0' m -2.58				ν 2.4° d 0.0' m 0.94			

	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.2	-42°10.1
Schedar	349°29.9	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°11.5	89°22.6
Acamar	315°10.8	-40°12.1
Menkar	314°05.1	4°11.6
Mirfak	308°26.7	49°57.3
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.2
Capella	280°20.3	46°01.4
Bellatrix	278°21.7	6°22.4
Elnath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.5	-52°42.4
Sirius	258°25.3	-16°45.0
Adhara	255°04.9	-29°00.3
Procyon	244°49.8	5°09.5
Pollux	243°16.1	27°57.7
Avior	234°14.0	-59°35.3
Suhail	222°45.5	-43°32.0
Miaplacidus	221°37.7	-69°49.1
Alphard	217°46.9	-8°46.2

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	77°59.5	189°17.5	S21°35.3	173°11.4	S24°04.8	322°08.5	N21°29.8	81°24.6	S04°01.8										
1	93°02.0	204°16.6		35.8	188°11.8	04.9	337°11.2	29.8	96°27.0	01.7									
2	108°04.0	219°15.8		36.4	203°12.2	05.0	352°13.9	29.9	111°29.4	01.7									
3	123°06.9	234°14.9		•• 36.9	218°12.6	•• 05.1	7°16.6	•• 29.9	126°31.9	•• 01.7									
4	138°09.4	249°14.0		37.5	233°13.1	05.2	22°19.3	29.9	141°34.3	01.6									
5	153°11.8	264°13.2		38.0	248°13.5	05.3	37°21.9	30.0	156°36.7	01.6									
6	168°14.3	279°12.3	S21°38.6	263°13.9	S24°05.9	52°24.6	N21°30.0	171°39.1	S04°01.6										
7	183°16.8	294°11.4		39.1	278°14.3	05.4	67°27.3	30.1	186°41.5	01.6									
8	198°19.2	309°10.5		39.7	293°14.7	05.5	82°30.0	30.1	201°44.0	01.5									
9	213°21.7	324°09.7		•• 40.2	308°15.1	•• 05.6	97°32.7	•• 30.2	216°46.4	•• 01.5									
10	228°24.2	339°08.8		40.8	323°15.5	05.7	112°35.4	30.2	231°48.8	01.5									
11	243°26.6	354°07.9		41.3	338°16.0	05.8	127°38.1	30.3	246°51.2	01.4									
12	258°29.1	9°07.1	S21°41.8	353°16.4	S24°05.9	142°40.8	N21°30.3	261°53.7	S04°01.4										
13	273°31.6	24°06.2		42.4	8°16.8	05.9	157°43.5	30.3	276°56.1	01.4									
14	288°34.0	39°05.3		42.9	23°17.2	06.0	172°46.2	30.4	291°58.5	01.4									
15	303°36.5	54°04.4		•• 43.4	38°17.6	•• 06.1	187°48.9	•• 30.4	307°00.9	•• 01.3									
16	318°39.0	69°03.6		44.0	53°18.0	06.2	202°51.6	30.5	323°03.3	01.3									
17	333°41.4	84°02.7		44.5	68°18.4	06.3	217°54.3	30.5	337°05.8	01.3									
18	348°43.9	99°01.8	S21°45.0	83°18.9	S24°06.3	232°57.0	N21°30.6	352°08.2	S04°01.2										
19	3°46.3	114°00.9		45.6	98°19.3	06.4	247°59.7	30.6	7°10.6	01.2									
20	18°48.8	129°00.1		46.1	113°19.7	06.5	263°02.4	30.7	22°13.0	01.2									
21	33°51.3	143°59.2		•• 46.6	128°20.1	•• 06.6	278°05.1	•• 30.7	37°15.4	•• 01.2									
22	48°53.7	158°58.3		47.2	143°20.5	06.7	293°07.8	30.7	52°17.9	01.1									
23	63°56.2	173°57.4		47.7	158°20.9	06.7	308°10.5	30.8	67°20.3	01.1									
Mer.pass. 18:45				ν -0.9° d -0.6' m -3.90				ν 0.4° d -0.1' m 1.26				ν 2.7° d 0.0' m -2.58				ν 2.4° d 0.0' m 0.94			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	78°58.7	188°56.6	S21°48.2	173°21.3	S24°06.8	323°13.2	N21°30.8	82°22.7	S04°01.1
1	94°01.1	203°55.7	48.7	188°21.8	06.9	338°15.9	30.9	97°25.1	01.0
2	109°03.6	218°54.8	49.3	203°22.2	07.0	353°18.6	30.9	112°27.5	01.0
3	124°06.1	233°53.9	•• 49.8	218°22.6	•• 07.0	8°21.3	•• 31.0	127°29.9	•• 01.0
4	139°08.5	248°53.0	50.3	233°23.0	07.1	23°24.0	31.0	142°32.4	01.0
5	154°11.0	263°52.2	50.8	248°23.4	07.2	38°26.7	31.1	157°34.8	00.9
6	169°13.5	278°51.3	S21°51.3	263°23.8	S24°07.3	53°29.4	N21°31.1	172°37.2	S04°00.9
7	184°15.9	293°50.4	51.9	278°24.2	07.3	68°32.1	31.1	187°39.6	00.9
8	199°18.4	308°49.5	52.4	293°24.6	07.4	83°34.8	31.2	202°42.0	00.8
9	214°20.8	323°48.6	•• 52.9	308°25.1	•• 07.5	98°37.5	•• 31.2	217°44.5	•• 00.8
10	229°23.3	338°47.8	53.4	323°25.5	07.5	113°40.2	31.3	232°46.9	00.8
11	244°25.8	353°46.9	53.9	338°25.9	07.6	128°42.9	31.3	247°49.3	00.7
12	259°28.2	8°46.0	S21°54.4	353°26.3	S24°07.7	143°45.6	N21°31.4	262°51.7	S04°00.7
13	274°30.7	23°45.1	54.9	8°26.7	07.8	158°48.3	31.4	277°54.1	00.7
14	289°33.2	38°44.2	55.4	23°27.1	07.8	173°51.0	31.5	292°56.5	00.7
15	304°35.6	53°43.3	•• 56.0	38°27.5	•• 07.9	188°53.7	•• 31.5	307°59.0	•• 00.6
16	319°38.1	68°42.5	56.5	53°27.9	08.0	203°56.4	31.6	323°01.4	00.6
17	334°40.6	83°41.6	57.0	68°28.3	08.0	218°59.1	31.6	338°03.8	00.6
18	349°43.0	98°40.7	S21°57.5	83°28.8	S24°08.1	234°01.8	N21°31.6	353°06.2	S04°00.5
19	4°45.5	113°39.8	58.0	98°29.2	08.2	249°04.5	31.7	8°08.6	00.5
20	19°47.9	128°38.9	58.5	113°29.6	08.2	264°07.2	31.7	23°11.0	00.5
21	34°50.4	143°38.0	•• 59.0	128°30.0	•• 08.3	279°09.9	•• 31.8	38°13.5	•• 00.4
22	49°52.9	158°37.1	21°59.5	143°30.4	08.4	294°12.6	31.8	53°15.9	00.4
23	64°55.3	173°36.3	22°00.0	158°30.8	08.4	309°15.3	31.9	68°18.3	00.4
Mer.pass. 18:41 ν -0.9° d -0.5' m -3.90 ν 0.4° d -0.1' m 1.25 ν 2.7° d 0.0' m -2.59 ν 2.4° d 0.0' m 0.95									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	79°57.8	188°35.4	S22°00.5	173°31.2	S24°08.5	324°18.0	N21°31.9	83°20.7	S04°00.3
1	95°00.3	203°34.5	01.0	188°31.6	08.6	339°20.7	32.0	98°23.1	00.3
2	110°02.7	218°33.6	01.5	203°32.0	08.6	354°23.4	32.0	113°25.5	00.3
3	125°05.2	233°32.7	•• 02.0	218°32.4	•• 08.7	9°26.1	•• 32.1	128°27.9	•• 00.3
4	140°07.7	248°31.8	02.5	233°32.9	08.8	24°28.8	32.1	143°30.4	00.2
5	155°10.1	263°30.9	02.9	248°33.3	08.8	39°31.6	32.2	158°32.8	00.2
6	170°12.6	278°30.0	S22°03.4	263°33.7	S24°08.9	54°34.3	N21°32.2	173°35.2	S04°00.2
7	185°15.1	293°29.1	03.9	278°34.1	09.0	69°37.0	32.2	188°37.6	00.1
8	200°17.5	308°28.3	04.4	293°34.5	09.0	84°39.7	32.3	203°40.0	00.1
9	215°20.0	323°27.4	•• 04.9	308°34.9	•• 09.1	99°42.4	•• 32.3	218°42.4	•• 00.1
10	230°22.4	338°26.5	05.4	323°35.3	09.1	114°45.1	32.4	233°44.8	00.0
11	245°24.9	353°25.6	05.9	338°35.7	09.2	129°47.8	32.4	248°47.3	00.0
12	260°27.4	8°24.7	S22°06.4	353°36.1	S24°09.3	144°50.5	N21°32.5	263°49.7	S04°00.0
13	275°29.8	23°23.8	06.8	8°36.5	09.3	159°53.2	32.5	278°52.1	03°59.9
14	290°32.3	38°22.9	07.3	23°36.9	09.4	174°55.9	32.6	293°54.5	59.9
15	305°34.8	53°22.0	•• 07.8	38°37.4	•• 09.4	189°58.6	•• 32.6	308°56.9	•• 59.9
16	320°37.2	68°21.1	08.3	53°37.8	09.5	205°01.4	32.7	323°59.3	59.8
17	335°39.7	83°20.2	08.8	68°38.2	09.6	220°04.1	32.7	339°01.7	59.8
18	350°42.2	98°19.3	S22°09.3	83°38.6	S24°09.6	235°06.8	N21°32.8	354°04.1	S03°59.8
19	5°44.6	113°18.4	09.7	98°39.0	09.7	250°09.5	32.8	9°06.6	59.7
20	20°47.1	128°17.5	10.2	113°29.4	09.7	265°12.2	32.9	24°09.0	59.7
21	35°49.6	143°16.6	•• 10.7	128°39.8	•• 09.8	280°14.9	•• 32.9	39°11.4	•• 59.7
22	50°52.0	158°15.7	11.1	143°40.2	09.8	295°17.6	32.9	54°13.8	59.6
23	65°54.5	173°14.8	11.6	158°40.6	09.9	310°20.3	33.0	69°16.2	59.6
Mer.pass. 18:37 ν -0.9° d -0.5' m -3.90 ν 0.4° d -0.1' m 1.25 ν 2.7° d 0.0' m -2.60 ν 2.4° d 0.0' m 0.95									

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.3	-42°10.1
Schedar	349°30.0	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.2	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°12.0	89°22.6
Acamar	315°10.8	-40°12.1
Menkar	314°05.1	4°11.6
Mirafak	308°26.7	49°57.3
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.2
Capella	280°20.3	46°01.4
Bellatrix	278°21.7	6°22.4
Elnath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.5	-52°42.4
Sirius	258°25.2	-16°45.0
Adhara	255°04.9	-29°00.3
Procyon	244°49.8	5°09.5
Pollux	243°16.1	27°57.7
Avior	234°15.0	-59°35.3
Suhail	222°45.5	-43°32.0
Miaplacidus	221°37.6	-69°49.1
Alphard	217°46.9	-8°46.2
Regulus	207°33.5	11°50.4
Dubhe	193°40.0	61°36.3
Denebola	182°24.2	14°25.5
Gienah	175°42.9	-17°41.1
Acrux	172°59.5	-63°14.3
Gacrux	171°51.0	-57°15.2
Alloth	166°12.5	55°48.9
Spica	158°21.7	-11°17.8
Alkaid	152°51.7	49°10.8
Hadar	148°35.4	-60°29.7
Menkent	147°57.0	-36°29.7
Arcturus	145°47.5	19°02.7
Rigel Kent.	139°39.8	-60°56.4
Kochab	137°20.8	74°02.7
Zuben 'ul	136°55.5	-16°08.9
Alphecca	126°03.4	26°37.6
Antares	112°15.3	-26°29.3
Atria	107°09.4	-69°04.4
Sabik	102°02.3	-15°45.4
Shaula	96°09.8	-37°07.3
Rasalhague	95°58.2	12°32.5
Eltanin	90°42.4	51°29.1
Kaus Aust.	83°31.9	-34°22.4
Vega	80°33.1	38°48.5
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.3
Peacock	53°05.0	-56°39.3
Deneb	49°25.6	45°22.6
Enif	33°38.2	9°59.7
Al Na'ir	27°32.1	-46°50.3
Fomalhaut	15°13.7	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.2	15°20.8

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	80°56.9	188°13.9	S22°12.1	173°41.0	S24°10.0	325°23.0	N21°33.0	84°18.6	S03°59.6										
1	95°59.4	203°13.1	12.6	188°41.4	10.0	340°25.8	33.1	99°21.0	59.5										
2	111°01.9	218°12.2	13.0	203°41.8	10.0	355°28.5	33.1	114°23.0	59.5										
3	126°04.3	233°11.3	13.5	218°42.2	10.1	10°31.2	33.2	129°25.8	59.5										
4	141°06.8	248°10.4	14.0	233°42.6	10.2	25°33.9	33.2	144°28.3	59.4										
5	156°09.3	263°09.5	14.4	248°43.0	10.2	40°36.6	33.3	159°30.7	59.4										
6	171°11.7	278°08.6	S22°14.4	263°43.5	S24°10.3	55°39.3	N21°33.6	174°33.1	S03°59.4										
7	186°14.7	293°07.7	15.4	278°43.9	10.3	70°42.0	33.4	189°35.5	59.3										
8	201°16.2	308°06.8	15.8	293°44.3	10.4	85°44.8	33.4	204°37.9	59.3										
9	216°19.1	323°05.9	16.3	308°44.7	10.4	100°47.5	33.5	219°40.3	59.3										
10	231°21.6	338°05.0	16.7	323°45.1	10.5	115°50.2	33.5	234°42.7	59.2										
11	246°24.0	353°04.1	17.2	338°45.5	10.5	130°52.9	33.6	249°45.1	59.2										
12	261°26.5	8°03.2	S22°17.7	353°45.9	S24°10.6	145°55.6	N21°33.6	264°47.5	S03°59.2										
13	276°29.0	23°02.3	18.1	8°46.3	10.6	160°58.3	33.7	279°49.9	59.1										
14	291°31.4	38°01.4	18.6	23°46.7	10.7	176°01.1	33.7	294°52.3	59.1										
15	306°33.9	53°00.4	19.0	38°47.1	10.7	191°03.8	33.7	309°54.8	59.1										
16	321°36.4	67°59.5	19.5	53°47.5	10.8	206°06.5	33.8	324°57.2	59.0										
17	336°38.8	82°58.6	19.9	68°47.9	10.8	221°09.2	33.8	339°59.6	59.0										
18	351°41.3	97°57.7	S22°20.4	83°48.3	S24°10.9	236°11.9	N21°33.9	355°02.0	S03°59.0										
19	6°43.8	112°56.8	20.8	98°48.7	10.9	251°14.6	33.9	10°04.4	58.9										
20	21°46.2	127°55.9	21.3	113°49.1	11.0	266°17.4	34.0	25°06.8	58.9										
21	36°48.7	142°55.0	21.7	128°49.5	11.0	281°20.1	34.0	40°09.2	58.9										
22	51°51.2	157°54.1	22.2	143°49.9	11.1	296°22.8	34.1	55°11.6	58.8										
23	66°53.6	172°53.2	22.6	158°50.3	11.1	311°25.5	34.1	70°14.0	58.8										
Mer.pass. 18:33				ν -0.9° d -0.5' m -3.90				ν 0.4° d -0.1' m 1.24				ν 2.7° d 0.0' m -2.60				ν 2.4° d 0.0' m 0.95			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	81°56.1	187°52.3	S22°23.0	173°50.7	S24°11.1	326°28.2	N21°34.2	85°16.4	S03°58.8										
1	96°58.5	202°51.4	23.5	188°51.1	11.2	341°31.0	34.2	100°18.8	58.7										
2	112°01.0	217°50.5	23.9	203°51.5	11.2	356°33.7	34.3	115°21.2	58.7										
3	127°03.5	232°49.6	24.4	218°52.0	11.3	11°36.4	34.3	130°23.6	58.7										
4	142°05.9	247°48.7	24.8	233°52.4	11.3	26°39.1	34.4	145°26.1	58.6										
5	157°08.4	262°47.8	25.2	248°52.8	11.4	41°41.8	34.4	160°28.5	58.6										
6	172°10.9	277°46.9	S22°25.7	263°53.2	S24°11.4	56°44.6	N21°34.5	175°30.9	S03°58.5										
7	187°13.3	292°46.0	26.1	278°53.6	11.4	71°47.3	34.5	190°33.3	58.5										
8	202°15.8	307°45.0	26.6	293°54.0	11.5	86°50.0	34.6	205°35.7	58.5										
9	217°18.3	322°44.1	27.0	308°54.4	11.5	101°52.7	34.6	220°38.1	58.5										
10	232°20.7	337°43.2	27.4	323°54.8	11.6	116°55.4	34.7	235°40.5	58.4										
11	247°23.2	352°42.3	27.8	338°55.2	11.6	131°58.2	34.7	250°42.9	58.4										
12	262°25.6	7°41.4	S22°28.1	353°55.6	S24°11.6	147°00.9	N21°34.8	265°45.3	S03°58.4										
13	277°28.1	22°40.5	28.7	8°56.0	11.7	162°03.6	34.8	280°47.7	58.3										
14	292°30.6	37°39.6	29.1	23°56.4	11.7	177°06.3	34.8	295°50.1	58.3										
15	307°33.0	52°38.7	29.6	38°56.8	11.8	192°09.1	34.9	310°52.5	58.2										
16	322°35.5	67°37.8	30.0	53°57.2	11.8	207°11.8	34.9	325°54.9	58.2										
17	337°38.0	82°36.8	30.4	68°57.6	11.8	222°14.5	35.0	340°57.3	58.2										
18	352°40.4	97°35.9	S22°30.8	83°58.0	S24°11.9	237°17.2	N21°35.0	355°59.7	S03°58.1										
19	7°42.9	112°35.0	31.3	98°58.4	11.9	252°20.0	35.1	11°02.1	58.1										
20	22°45.4	127°34.1	31.7	113°58.8	11.9	267°22.7	35.1	26°04.5	58.1										
21	37°47.8	142°33.2	32.1	128°59.2	12.0	282°24.4	35.2	41°06.9	58.0										
22	52°50.3	157°32.3	32.5	143°59.6	12.0	297°28.1	35.2	56°09.3	58.0										
23	67°52.8	172°31.4	32.9	159°00.0	12.0	312°30.9	35.3	71°11.7	58.0										
Mer.pass. 18:29				ν -0.9° d -0.4' m -3.90				ν 0.4° d -0.0' m 1.24				ν 2.7° d 0.0' m -2.61				ν 2.4° d 0.0' m 0.96			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	82°55.2	187°30.5	S22°33.3	174°00.4	S24°12.1	327°33.6	N21°35.3	86°14.1	S03°57.9
1	97°57.7	202°29.5	33.8	189°00.8	12.1	342°36.3	35.4	101°16.5	57.9
2	113°00.1	217°28.6	34.2	204°01.2	12.1	357°39.0	35.4	116°18.9	57.8
3	128°02.6	232°27.7	34.6	219°01.6	12.2	12°41.8	35.5	131°21.3	57.8
4	143°05.1	247°26.8	35.0	234°02.0	12.2	27°44.5	35.5	146°23.7	57.8
5	158°07.5	262°25.9	35.4	249°02.4	12.2	42°47.2	35.6	161°26.2	57.7
6	173°10.0	277°25.0	S22°35.8	264°02.8	S24°12.3	57°49.9	N21°35.6	176°28.6	S03°57.7
7	188°12.5	292°24.0	36.2	279°03.2	12.3	72°52.7	35.7	191°31.0	57.7
8	203°14.9	307°23.1	36.6	294°03.6	12.3	87°55.4	35.7	206°33.4	57.6
9	218°17.4	322°22.2	37.0	309°04.0	12.3	102°58.1	35.8	221°35.8	57.6
10	233°19.9	337°21.3	37.4	324°04.4	12.4	118°00.9	35.8	236°38.2	57.6
11	248°22.3	352°20.4	37.8	339°04.8	12.4	133°03.6	35.9	251°40.6	57.5
12	263°24.8	7°19.5	S22°38.2	354°05.2	S24°12.4	148°06.3	N21°35.9	266°43.0	S03°57.5
13	278°27.3	22°18.5	38.6	9°05.6	12.5	163°09.1	36.0	281°45.4	57.4
14	293°29.7	37°17.6	39.0	24°06.0	12.5	178°11.8	36.0	296°47.8	57.4
15	308°32.2	52°16.7	39.4	39°06.4	12.5	193°14.5	36.1	311°50.2	57.4
16	323°34.6	67°15.8	39.8	54°06.8	12.5	208°17.2	36.1	326°52.6	57.3
17	338°37.1	82°14.9	40.2	69°07.2	12.6	223°20.0	36.2	341°55.0	57.3
18	353°39.6	97°13.9	S22°40.6	84°07.6	S24°12.6	238°22.7	N21°36.2	356°57.4	S03°57.3
19	8°42.0	112°13.0	41.0	99°08.0	12.6	253°25.4	36.3	11°59.8	57.2
20	23°44.5	127°12.1	41.4	114°08.4	12.6	268°28.2	36.3	27°02.2	57.2
21	38°47.0	142°11.2	41.8	129°08.8	12.7	283°30.9	36.4	42°04.6	57.1
22	53°49.4	157°10.2	42.2	144°09.2	12.7	298°33.6	36.4	57°07.0	57.1
23	68°51.9	172°09.3	42.6	159°09.6	12.7	313°36.4	36.5	72°09.4	57.1
Mer.pass. 18:25 ν -0.9° d -0.4' m -3.90 ν 0.4' d -0.0' m 1.23 ν 2.7° d 0.0' m -2.61 ν 2.4° d 0.0' m 0.96									

Stars			
	SHA	Dec	
Alpheratz	357°33.9	29°14.2	
Ankaa	353°06.3	-42°10.1	
Schedar	349°30.0	56°41.1	
Diphda	348°46.4	-17°50.7	
Achernar	335°19.3	-57°06.5	
Hamal	327°50.1	23°35.3	
Polaris	313°12.7	89°22.6	
Acamar	315°10.8	-40°12.1	
Menkar	314°05.1	4°11.6	
Mirfak	308°26.7	49°57.4	
Aldebaran	290°38.4	16°33.7	
Rigel	281°02.8	-8°10.3	
Capella	280°20.3	46°01.5	
Bellatrix	278°21.7	6°22.4	
Elath	278°00.5	28°37.8	
Anilam	275°36.6	-1°11.1	
Betelgeuse	270°50.9	7°24.7	
Canopus	263°51.5	-52°42.4	
Sirius	258°25.2	-16°45.0	
Adhara	255°04.9	-29°00.3	
Procyon	244°49.8	5°09.5	
Pollux	243°16.1	27°57.7	
Avior	234°14.0	-59°35.3	
Suhail	222°45.5	-43°32.0	
Miaplacidus	221°37.6	-69°49.1	
Alphard	217°46.8	-8°46.2	
Regulus	207°33.5	11°50.4	
Dubhe	193°40.0	61°36.3	
Denebola	182°24.2	14°25.5	
Gienah	175°42.9	-17°41.1	
Acrux	172°59.5	-63°14.3	
Gacrux	171°51.0	-57°15.2	
Alloth	166°12.5	55°48.8	
Spica	158°21.7	-11°17.8	
Alkaid	152°51.7	49°10.8	
Hadar	148°35.4	-60°29.7	
Menkent	147°57.0	-36°29.7	
Arcturus	145°47.5	19°02.7	
Rigel Kent.	139°39.8	-60°56.4	
Kochab	137°20.8	74°02.6	
Zuben'ubi	136°55.5	-16°08.9	
Alphecca	126°03.4	26°37.3	
Antares	112°15.3	-26°29.5	
Atria	107°09.4	-69°04.4	
Sabik	102°02.3	-15°45.4	
Shaula	96°09.8	-37°07.3	
Rasalhague	95°58.2	12°32.5	
Eltanin	90°42.4	51°29.1	
Kaus Aust.	83°31.9	-34°22.4	
Vega	80°33.1	38°48.5	
Nunki	75°47.2	-26°15.9	
Altair	61°59.5	8°56.3	
Peacock	53°05.0	-56°39.3	
Deneb	49°25.6	45°22.6	
Enif	33°38.2	9°59.7	
Al Na'ir	27°32.1	-46°50.3	
Fomalhaut	15°13.7	-29°29.2	
Scheat	13°44.5	28°13.6	
Makrab	13°29.2	15°20.8	
Dec 12 Fri	SHA	Mer. pass.	
Venus	107°17.0	11:28	
Mars	92°44.1	12:25	
Jupiter	244°26.1	02:18	
Saturn	3°21.7	18:20	
Dec 13 Sat	SHA	Mer. pass.	
Venus	105°56.2	11:29	
Mars	91°54.7	12:24	
Jupiter	244°32.2	02:14	
Saturn	3°20.3	18:16	
Dec 14 Sun	SHA	Mer. pass.	
Venus	104°35.2	11:31	
Mars	91°05.2	12:24	
Jupiter	244°38.4	02:09	
Saturn	3°18.9	18:12	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	83°54.4	187°08.4	S22°42.9	174°10.0	S24°12.7	328°39.1	N21°36.5	87°11.8	S03°57.0										
1	98°56.8	202°07.5	43.3	189°10.4	12.8	343°41.8	36.6	102°14.2	57.0										
2	113°59.3	217°06.6	43.7	204°10.8	12.8	358°44.6	36.6	117°16.6	57.0										
3	129°01.7	232°05.6	· · 44.1	219°11.2	· · 12.8	31°47.3	· · 36.7	132°19.0	· · 56.9										
4	144°04.2	247°04.7	44.5	234°11.6	12.8	28°50.0	36.7	147°21.4	56.9										
5	159°06.7	262°03.8	44.9	249°12.0	12.8	43°52.8	36.8	162°23.7	56.8										
6	174°09.1	277°02.9	S22°45.2	264°12.4	S24°12.9	58°55.5	N21°36.8	177°26.1	S03°56.8										
7	189°11.6	292°01.9	45.6	279°12.8	12.9	73°58.2	36.9	192°28.5	56.8										
8	204°14.1	307°01.0	46.0	294°13.2	12.9	89°01.0	36.9	207°30.9	56.7										
9	219°16.5	322°00.1	· · 46.4	309°13.6	· · 12.9	104°03.7	· · 37.0	222°33.3	· · 56.7										
10	234°19.0	336°59.2	46.8	324°14.0	12.9	119°06.4	37.0	237°35.7	56.6										
11	249°21.5	351°58.2	47.1	339°14.4	12.9	134°09.2	37.1	252°38.1	56.6										
12	264°23.9	6°57.3	S22°47.5	354°14.8	S24°13.0	149°11.9	N21°37.1	267°40.5	S03°56.6										
13	279°26.4	21°56.4	47.9	9°15.2	13.0	164°14.6	37.2	282°42.9	56.5										
14	294°28.9	36°55.4	48.2	24°15.6	13.0	179°17.4	37.2	297°45.3	56.5										
15	309°31.3	51°54.5	· · 48.6	39°15.9	· · 13.0	194°20.1	· · 37.3	312°47.7	· · 56.5										
16	324°33.8	66°53.6	49.0	54°16.3	13.0	209°22.9	37.3	327°50.1	56.4										
17	339°36.2	81°52.7	49.3	69°16.7	13.0	224°25.6	37.4	342°52.5	56.4										
18	354°38.7	96°51.7	S22°49.7	84°17.1	S24°13.1	239°28.3	N21°37.4	357°54.9	S03°56.3										
19	9°41.2	111°50.8	50.1	99°17.5	13.1	254°31.1	37.5	12°57.3	56.3										
20	24°43.6	126°49.9	50.4	114°17.9	13.1	269°33.8	37.5	27°59.7	56.3										
21	39°46.1	141°48.9	· · 50.8	129°18.3	· · 13.1	284°36.5	· · 37.6	43°02.1	· · 56.2										
22	54°48.6	156°48.0	51.2	144°18.7	13.1	299°39.3	37.6	58°05.5	56.2										
23	69°51.0	171°47.1	51.5	159°19.1	13.1	314°42.0	37.7	73°06.9	56.1										
Mer.pass. 18:21				ν -0.9° d -0.4' m -3.90				ν 0.4' d -0.0' m 1.23				ν 2.7' d 0.0' m -2.62				ν 2.4' d 0.0' m 0.96			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	84°53.5	186°46.2	S22°51.9	174°19.5	S24°13.1	329°44.8	N21°37.7	88°09.3	S03°56.1
1	99°56.0	201°45.2	52.2	189°19.9	13.1	344°47.5	37.8	103°11.7	56.1
2	114°58.4	216°44.3	52.6	204°20.3	13.1	359°50.2	37.8	118°14.1	56.0
3	130°00.9	231°43.4	· · 52.9	219°20.7	· · 13.2	14°53.0	· · 37.9	133°16.5	· · 56.0
4	145°03.4	246°42.4	53.3	234°21.1	13.2	29°55.7	37.9	148°18.9	55.9
5	160°05.8	261°41.5	53.6	249°21.5	13.2	44°58.5	38.0	163°21.3	55.9
6	175°08.3	276°40.6	S22°54.0	264°21.9	S24°13.2	60°01.2	N21°38.0	178°23.6	S03°55.9
7	190°10.7	291°39.6	54.3	279°22.3	13.2	75°03.9	38.1	193°26.0	55.8
8	205°13.2	306°38.7	54.7	294°22.7	13.2	90°06.7	38.1	208°28.4	55.8
9	220°15.7	321°37.8	· · 55.0	309°23.1	· · 13.2	105°09.4	· · 38.2	223°30.8	· · 55.7
10	235°18.1	336°36.8	55.4	324°23.5	13.2	120°12.2	38.2	238°33.2	55.7
11	250°20.6	351°35.9	55.7	339°23.9	13.2	135°14.9	38.3	253°35.6	55.7
12	265°23.1	6°35.0	S22°56.1	354°24.3	S24°13.2	150°17.6	N21°38.3	268°38.0	S03°55.6
13	280°25.5	21°34.0	56.4	9°24.6	13.2	165°20.4	38.4	283°40.4	55.6
14	295°28.0	36°33.1	56.8	24°25.0	13.2	180°23.1	38.4	298°42.8	55.5
15	310°30.5	51°32.2	· · 57.1	39°25.4	· · 13.2	195°25.9	· · 38.5	313°45.2	· · 55.5
16	325°32.9	66°31.2	57.4	54°25.8	13.2	210°28.6	38.5	328°47.6	55.5
17	340°35.4	81°30.3	57.8	69°26.2	13.2	225°31.4	38.6	343°50.0	55.4
18	355°37.9	96°29.4	S22°58.1	84°26.6	S24°13.3	240°34.1	N21°38.6	358°52.4	S03°55.4
19	10°40.3	111°28.4	58.5	99°27.0	13.3	255°36.9	38.7	13°54.7	55.3
20	25°42.8	126°27.5	58.8	114°27.4	13.3	270°39.6	38.7	28°57.1	55.3
21	40°45.2	141°26.6	· · 59.1	129°27.8	· · 13.3	285°42.3	· · 38.8	43°59.5	· · 55.2
22	55°47.7	156°25.6	59.5	144°28.2	13.3	300°45.1	38.8	59°01.9	55.2
23	70°50.2	171°24.7	59.8	159°28.6	13.3	315°47.8	38.9	74°04.3	55.2
Mer.pass. 18:17 ν -0.9° d -0.4' m -3.90 ν 0.4' d -0.0' m 1.22 ν 2.7' d 0.1' m -2.62 ν 2.4' d 0.0' m 0.97									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	85°52.6	186°23.7	S23°00.1	174°29.0	S24°13.3	330°50.6	N21°38.9	89°06.7	S03°55.1										
1	100°55.1	201°22.8	00.4	189°29.4	13.3	345°53.3	39.0	104°09.1	55.1										
2	115°57.6	216°21.9	00.8	204°29.8	13.3	0°56.1	39.0	119°11.5	55.0										
3	131°00.0	231°20.9	· · 01.1	219°30.2	· · 13.3	15°58.8	· · 39.1	134°13.9	· · 55.0										
4	146°02.5	246°20.0	01.4	234°30.6	13.3	31°01.6	39.1	149°16.3	55.0										
5	161°05.0	261°19.0	01.7	249°30.9	13.3	46°04.3	39.2	164°18.7	54.9										
6	176°07.4	276°18.1	S23°02.1	264°31.3	S24°13.3	61°07.1	N21°39.2	179°21.0	S03°54.9										
7	191°09.9	291°17.2	02.4	279°31.7	13.3	76°09.8	39.3	194°23.4	54.8										
8	206°12.3	306°16.2	02.7	294°32.1	13.2	91°12.5	39.3	209°25.8	54.8										
9	221°14.8	321°15.3	· · 03.0	309°32.5	· · 13.2	106°15.3	· · 39.4	224°28.2	· · 54.7										
10	236°17.3	336°14.3	03.3	324°32.9	13.2	121°18.0	39.4	239°30.6	54.7										
11	251°19.7	351°13.4	03.7	339°33.3	13.2	136°20.8	39.5	254°33.0	54.7										
12	266°22.2	6°12.5	S23°04.0	354°33.7	S24°13.2	151°23.5	N21°39.5	269°35.4	S03°54.6										
13	281°24.7	21°11.5	04.3	9°34.1	13.2	166°26.3	39.6	284°37.8	54.6										
14	296°27.1	36°10.6	04.6	24°34.5	13.2	181°29.0	39.7	299°40.2	54.5										
15	311°29.6	51°09.6	· · 04.9	39°34.9	· · 13.2	196°31.8	· · 39.7	314°42.5	· · 54.5										
16	326°32.1	66°08.7	05.2	54°35.3	13.2	211°34.5	39.8	329°44.9	54.5										
17	341°34.5	81°07.8	05.5	69°35.7	13.2	226°37.3	39.8	344°47.3	54.4										
18	356°37.9	96°06.8	S23°05.8	84°36.0	S24°13.2	241°40.0	N21°39.9	359°49.7	S03°54.4										
19	11°39.5	111°05.9	06.1	99°36.4	13.2	256°42.8	39.9	14°52.1	54.3										
20	26°41.9	126°04.9	06.4	114°36.8	13.2	271°45.5	40.0	29°54.5	54.3										
21	41°44.4	141°04.0	· · 06.7	129°37.2	· · 13.2	286°48.3	· · 40.0	44°56.9	· · 54.2										
22	56°46.8	156°03.0	07.0	144°37.6	13.2	301°51.0	40.1	59°59.3	54.2										
23	71°49.3	171°02.1	07.3	159°38.0	13.1	316°53.8	40.1	75°01.6	54.2										
Mer.pass. 18:13				ν -0.9° d -0.3' m -3.90				ν 0.4' d 0.0' m 1.21				ν 2.7' d 0.1' m -2.63				ν 2.4' d 0.0' m 0.97			

SHA	Dec
Alpheratz	357°33.9 29°14.2
Ankaa	353°06.3 -42°10.1
Schedar	349°30.0 56°41.1
Diphda	348°46.4 -17°50.7
Achernar	335°19.3 -57°06.5
Hamal	327°50.1 23°35.3
Polaris	313°13.3 89°22.6
Acamar	315°10.8 -40°12.1
Menkar	314°05.1 4°11.5
Mirafak	308°26.7 49°57.4
Aldebaran	290°38.4 16°33.7
Rigel	281°02.8 -8°10.3
Capella	280°20.3 46°01.5
Bellatrix	278°21.7 6°22.4
Elnath	278°00.5 28°37.8
Alnilam	275°36.6 -1°11.1
Betelgeuse	270°50.9 7°24.7
Canopus	263°51.5 -52°42.5
Sirius	258°25.2 -16°45.0
Adhara	255°04.9 -29°00.3
Procyon	244°49.7 5°09.5
Pollux	243°16.0 27°57.7
Avior	234°13.9 -59°35.3
Suhail	222°45.5 -43°32.0
Miaplacidus	221°37.6 -69°49.1
Alphard	217°46.8 -8°46.2
Regulus	207°33.5 11°50.3
Dubhe	193°40.0 61°36.3
Denelbora	182°24.2 14°25.5
Geniah	175°42.9 18°44.1
Acrux	172°59.4 -63°14.1
Gacrux	171°50.9 -57°15.2
Alloth	166°12.5 55°48.8
Spica	158°21.7 -11°17.8
Alkaid	152°51.7 49°10.8
Henkar	148°35.3 -60°29.7
Merid	147°57.0 -36°29.7
Arcturus	145°47.4 19°02.7
Rigel Kent.	139°39.7 -60°56.3
Kochab	137°20.7 74°02.6
Uchiab	136°55.4 -16°08.9
Zuben el	126°03.4 26°37.5
Alphecca	112°15.3 -26°29.3
Antares	107°09.4 69°04.3
Atria	102°02.3 -15°45.4
Sabik	96°09.8 -37°07.3
Rasalhague	95°58.2 12°32.5
Eltanin	90°42.4 51°29.1
Kaus Aust.	83°31.9 -34°22.3
Vega	80°33.1 38°48.5
Nunki	75°4

	Aries			Venus			Mars			Jupiter			Saturn			
Thu	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	Dec	
0	86°51.8	186°01.2	S23°07.6	174°38.4	S24°13.1	331°56.5	N21°40.2	90°04.0	S03°54.1							
1	101°54.2	201°00.2	07.9	189°38.8	13.1	346°59.3	40.2	105°06.4	54.1							
2	116°56.7	215°59.3	08.2	204°39.2	13.1	2°02.0	40.3	120°08.8	54.1							
3	131°59.2	230°58.3	•• 08.5	219°39.6	•• 13.1	17°04.8	•• 40.4	135°11.2	•• 54.0							
4	147°01.6	245°57.4	08.8	234°40.0	13.1	32°07.5	40.4	150°13.6	53.9							
5	162°04.1	260°56.4	09.1	249°40.4	13.1	47°10.3	40.4	165°16.0	53.9							
6	177°06.6	275°55.5	S23°09.4	264°40.7	S24°13.1	62°13.0	N21°40.5	180°18.4	S03°53.8							
7	192°09.0	290°54.5	09.7	279°41.1	13.0	77°15.8	40.5	195°20.7	53.8							
8	207°11.5	305°53.6	10.0	294°41.5	13.0	92°18.5	40.6	210°23.1	53.8							
9	222°14.0	320°52.7	•• 10.3	309°41.9	•• 13.0	107°21.3	•• 40.6	225°25.5	•• 53.7							
10	237°16.4	335°51.7	10.6	324°42.3	13.0	122°24.1	40.7	240°27.9	53.7							
11	252°18.9	350°50.8	10.9	339°42.7	13.0	137°26.8	40.7	255°30.3	53.6							
12	267°21.3	5°49.8	S23°11.2	354°43.1	S24°13.0	152°29.6	N21°40.8	270°32.7	S03°53.6							
13	282°23.8	20°48.9	11.4	9°43.5	12.9	167°32.3	40.8	285°35.0	53.5							
14	297°26.3	35°47.9	11.7	24°43.9	12.9	182°35.1	40.9	300°37.4	53.5							
15	312°28.7	50°47.0	•• 12.0	39°44.3	•• 12.9	197°37.8	•• 41.0	315°39.8	•• 53.5							
16	327°31.2	65°46.0	12.3	54°44.6	12.9	212°40.6	41.0	330°42.2	53.4							
17	342°33.7	80°45.1	12.6	69°45.0	12.9	227°43.3	41.1	345°44.6	53.4							
18	357°36.1	95°44.1	S23°12.8	84°45.4	S24°12.9	242°46.1	N21°41.1	0°47.0	S03°53.3							
19	12°38.6	110°43.2	13.1	99°45.8	12.8	257°48.8	41.2	15°49.4	53.3							
20	27°41.1	125°42.2	13.4	114°46.2	12.8	272°51.6	41.2	30°51.7	53.2							
21	42°43.5	140°41.3	•• 13.7	129°46.6	•• 12.8	287°54.4	•• 41.3	45°54.1	•• 53.2							
22	57°46.0	155°40.3	13.9	144°47.0	12.8	302°57.1	41.3	60°56.5	53.1							
23	72°48.5	170°39.4	14.2	159°47.4	12.8	317°59.9	41.4	75°58.9	53.1							
Mer.pass. 18:10			ν -0.9° d -0.3' m -3.90			ν 0.4° d 0.0' m 1.21			ν 2.8° d 0.1' m -2.63			ν 2.4° d 0.0' m 0.97				

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	87°50.9	185°38.4	S23°14.5	174°47.8	S24°12.7	333°02.6	N21°41.4	91°01.3	S03°53.1					
1	102°53.4	200°37.5	14.7	189°48.1	12.7	348°05.4	41.5	106°03.7	53.0					
2	117°55.8	215°36.5	15.0	204°48.5	12.7	3°08.1	41.5	121°06.0	53.0					
3	132°58.3	230°35.6	•• 15.3	219°48.9	•• 12.7	18°10.9	•• 41.6	136°08.4	•• 52.9					
4	148°00.8	245°34.6	15.5	234°49.3	12.6	33°13.7	41.6	151°10.8	52.9					
5	163°03.2	260°33.7	15.8	249°49.7	12.6	48°16.4	41.7	166°13.2	52.8					
6	178°05.2	275°32.7	S23°16.1	264°50.1	S24°12.6	63°19.2	N21°41.7	181°15.6	S03°52.8					
7	193°08.2	290°31.8	16.3	279°50.5	12.6	78°21.9	41.8	196°17.9	52.7					
8	208°10.6	305°30.8	16.6	294°50.9	12.5	93°24.7	41.8	211°20.3	52.7					
9	223°13.1	320°29.9	•• 16.9	309°51.3	•• 12.5	108°27.5	•• 41.9	226°22.7	•• 52.6					
10	238°15.6	335°28.9	17.1	324°51.6	12.5	123°30.2	42.0	241°25.1	52.6					
11	253°18.0	350°28.0	17.4	339°52.0	12.5	138°33.0	42.0	256°27.5	52.6					
12	268°20.5	5°27.0	S23°17.6	354°52.4	S24°12.4	153°35.7	N21°42.1	271°29.8	S03°52.5					
13	283°23.0	20°26.1	17.9	9°52.8	12.4	168°38.5	42.1	286°32.2	52.5					
14	298°25.4	35°25.1	18.1	24°53.2	12.4	183°41.3	42.2	301°34.6	52.4					
15	313°27.9	50°24.2	•• 18.4	39°53.6	•• 12.3	198°44.0	•• 42.2	316°37.0	•• 52.4					
16	328°30.3	65°23.2	18.6	54°54.0	12.3	213°46.8	42.3	331°39.4	52.3					
17	343°32.8	80°22.2	18.9	69°54.4	12.3	228°49.5	42.3	346°41.8	52.3					
18	358°35.3	95°21.3	S23°19.1	84°54.8	S24°12.3	243°52.3	N21°42.4	1°44.1	S03°52.2					
19	13°37.7	110°20.3	19.4	99°55.1	12.2	258°55.1	42.4	16°46.5	52.2					
20	28°40.2	125°19.4	19.6	114°55.5	12.2	273°57.8	42.5	31°48.9	52.1					
21	43°42.7	140°18.4	•• 19.9	129°55.9	•• 12.2	289°00.6	•• 42.5	46°51.3	•• 52.1					
22	58°45.1	155°17.5	20.1	144°56.3	12.1	304°03.3	42.6	61°53.6	52.0					
23	73°47.6	170°16.5	20.4	159°56.7	12.1	319°06.1	42.6	76°56.0	52.0					
Mer.pass. 18:06			ν -1.0° d -0.3' m -3.90			ν 0.4° d 0.0' m 1.20			ν 2.8° d 0.1' m -2.63			ν 2.4° d 0.0' m 0.98		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	88°50.1	185°15.6	S23°20.6	174°57.1	S24°12.1	334°08.9	N21°42.7	91°58.4	S03°52.0					
1	103°52.5	200°14.6	20.8	189°57.5	12.0	349°11.6	42.7	107°00.8	51.9					
2	118°55.0	215°13.7	21.1	204°57.9	12.0	4°14.4	42.8	122°03.2	51.9					
3	133°57.5	230°12.7	•• 21.3	219°58.2	•• 12.0	19°17.2	•• 42.9	137°05.5	•• 51.8					
4	148°59.9	245°11.7	21.6	234°58.6	11.9	34°19.9	42.9	152°07.9	51.8					
5	164°02.4	260°10.8	21.8	249°59.0	11.9	49°22.7	43.0	167°10.3	51.7					
6	179°04.8	275°09.8	S23°22.0	264°59.4	S24°11.9	64°25.4	N21°43.0	182°12.7	S03°51.7					
7	194°07.3	290°08.9	22.3	279°59.8	11.8	79°28.2	43.1	197°15.1	51.6					
8	209°09.8	305°07.9	22.5	295°00.2	11.8	94°31.0	43.1	212°17.4	51.6					
9	224°12.2	320°07.0	•• 22.7	310°00.6	•• 11.8	109°33.7	•• 43.2	227°19.8	•• 51.5					
10	239°14.7	335°06.0	22.9	325°01.0	11.7	124°36.5	43.2	242°22.2	51.5					
11	254°17.2	350°05.0	23.2	340°01.3	11.7	139°39.3	43.3	257°24.6	51.4					
12	269°19.6	5°04.1	S23°23.4	355°01.7	S24°11.6	154°42.0	N21°43.3	272°26.9	S03°51.4					
13	284°22.1	20°03.1	23.6	10°02.1	11.6	169°44.8	43.4	287°29.3	51.3					
14	299°24.6	35°02.2	23.8	25°02.5	11.6	184°47.6	43.4	302°31.7	51.3					
15	314°27.0	50°01.2	•• 24.1	40°02.9	•• 11.5	199°50.3	•• 43.5	317°34.1	•• 51.2					
16	329°29.5	65°00.3	24.3	55°03.3	11.5	214°53.1	43.5	332°36.4	51.2					
17	344°31.9	79°59.3	24.5	70°03.7	11.4	229°55.9	43.6	347°38.8	51.2					
18	359°34.4	94°58.3	S23°24.7	85°04.0	S24°11.4	244°58.6	N21°43.7	2°41.2	S03°51.1					
19	14°36.9	109°57.4	24.9	100°04.4	11.4	260°01.4	43.7	17°43.6	51.1					
20	29°39.3	124°56.4	25.2	115°04.8	11.3	275°04.2	43.8	32°46.0	51.0					
21	44°41.8	139°55.5	•• 25.4	130°05.2	•• 11.3	290°06.9	•• 43.8	47°48.3	•• 51.0					
22	59°44.3	154°54.5	25.6	145°05.6	11.2	305°09.7	43.9	62°50.7	50.9					
23	74°46.7	169°53.5	25.8	160°06.0	11.2	320°12.5	43.9	77°53.1	50.9					
Mer.pass. 18:02			ν -1.0° d -0.2' m -3.90			ν 0.4° d 0.0' m 1.20			ν 2.8° d 0.1' m -2.64			ν 2.4° d 0.0' m 0.98		

Stars		
	SHA	Dec
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.3	-42°10.1
Schedar	349°30.0	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.3	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°13.9	89°22.6
Acamar	315°08.5	-40°12.1
Menkar	314°05.1	4°11.5
Mirfak	308°26.7	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elnath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.5	-52°42.5
Sirius	258°25.2	-16°45.1
Adhara	255°04.9	-29°00.4
Procyon	244°49.7	5°09.5
Pollux	243°16.0	27°57.7
Avior	234°13.9	-59°35.3
Suhail	222°45.4	-43°32.0
Miaplacidus	221°37.5	-69°49.1
Alphard	217°46.8	-8°46.2
Regulus	207°33.5	11°50.3
Dubhe	193°39.9	61°36.3
Denebola	182°24.2	14°25.5
Gienah	175°42.8	-17°41.1
Acrux	172°59.4	-63°14.3
Gacrux	171°50.9	-57°15.3
Alloth	166°12.5	55°48.8
Spica	158°21.6	-11°17.8
Alkaid	152°51.6	49°10.7
Hadar	148°35.3	-60°29.7
Menkent	147°56.9	-38°29.7
Arcturus	145°47.4	19°02.7
Rigel Kent.	139°39.7	-60°56.3
Kochab	137°20.7	74°02.6
Zuben'ubi	136°55.4	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.2	-26°29.3
Atria	107°09.3	69°04.3
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.3
Rasalhague	95°58.2	12°32.4
Eltanin	90°42.4	51°29.1
Kaus Aust.	83°31.9	-34°22.3
Vega	80°33.1	38°48.5
Nunki	75°47.2	-26°15.9
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.2
Deneb	49°25.6	45°22.5
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.2	15°20.8
Dec 18 Thu	SHA	Mer-pass
Venus	99°09.4	11:37
Mars	87°46.6	12:21
Jupiter	245°04.8	01:52
Saturn	3°12.3	17:57
Dec 19 Fri	SHA	Mer-pass
Venus	97°47.5	11:38
Mars	86°56.8	12:20
Jupiter	245°11.7	01:47
Saturn	3°10.4	17:53
Dec 20 Sat	SHA	Mer-pass
Venus	96°25.5	11:40
Mars	86°07.0	12:20
Jupiter	245°18.8	01:43
Saturn	3°08.3	17:49
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	89°49.2	184°52.6	S23°26.0	175°06.4	S24°11.1	335°15.2	N21°44.0	92°55.5	S03°50.8
1	104°51.7	199°51.6	26.2	190°06.7	11.1	350°18.0	44.0	107°57.8	50.8
2	119°54.1	214°50.7	26.4	205°07.1	11.0	5°20.8	44.1	123°00.2	50.7
3	134°56.6	229°49.7	•• 26.6	220°07.5	•• 11.0	20°23.5	•• 44.1	138°02.6	•• 50.7
4	149°59.1	244°48.7	26.8	235°07.9	11.0	35°26.3	44.2	153°04.9	50.6
5	165°01.5	259°47.8	27.0	250°08.3	10.9	50°29.1	44.2	168°07.3	50.6
6	180°04.0	274°46.8	S23°27.2	265°08.7	S24°10.9	65°31.8	N21°44.3	183°09.7	S03°50.5
7	195°06.4	289°45.9	27.4	280°09.1	10.8	80°34.6	44.4	198°12.1	50.5
8	210°08.9	304°44.9	27.6	295°09.4	10.8	95°37.4	44.4	213°14.4	50.4
9	225°11.4	319°43.9	•• 27.8	310°09.8	•• 10.7	110°40.1	•• 44.5	228°16.8	•• 50.4
10	240°13.8	334°43.0	28.0	325°10.2	10.7	125°42.9	44.5	243°19.2	50.3
11	255°16.3	349°42.0	28.2	340°10.6	10.6	140°45.7	44.6	258°21.6	50.3
12	270°18.8	4°41.0	S23°28.4	355°11.0	S24°10.6	155°48.5	N21°44.6	273°23.9	S03°50.2
13	285°21.2	19°40.1	28.6	10°11.4	10.5	170°51.2	44.7	288°26.3	50.2
14	300°23.7	34°39.1	28.8	25°11.8	10.5	185°54.0	44.7	303°28.7	50.1
15	315°26.2	49°38.2	•• 29.0	40°12.1	•• 10.4	200°56.8	•• 44.8	318°31.1	•• 50.1
16	330°28.6	64°37.2	29.2	55°12.5	10.4	215°59.5	44.8	333°33.4	50.0
17	345°31.1	79°36.2	29.4	70°12.9	10.3	231°02.3	44.9	348°35.8	50.0
18	0°33.6	94°35.3	S23°29.6	85°13.3	S24°10.3	246°05.1	N21°45.0	3°38.2	S03°49.9
19	15°36.0	109°34.3	29.8	100°13.7	10.2	261°07.9	45.0	18°40.5	49.9
20	30°38.5	124°33.3	30.0	115°14.1	10.2	276°10.6	45.1	33°42.9	49.8
21	45°40.9	139°32.4	•• 30.1	130°14.4	•• 10.1	291°13.4	•• 45.1	48°45.3	•• 49.8
22	60°43.4	154°31.4	30.3	145°14.8	10.1	306°16.2	45.2	63°47.7	49.7
23	75°45.9	169°30.5	30.5	160°15.2	10.0	321°18.9	45.2	78°50.0	49.7
Mer.pass. 17:58 ν -1.0' d -0.2' m -3.90 ν 0.4' d 0.0' m 1.19 ν 2.8' d 0.1' m -2.64 ν 2.4' d 0.0' m 0.98									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	90°48.3	184°29.5	S23°30.7	175°15.6	S24°09.9	336°21.7	N21°45.3	93°52.4	S03°49.6
1	105°50.8	199°28.5	30.9	190°16.0	09.9	351°24.5	45.3	108°54.8	49.6
2	120°53.3	214°27.6	31.0	205°16.4	09.8	6°27.3	45.4	123°57.1	49.5
3	135°55.7	229°26.6	•• 31.2	220°16.8	•• 09.8	21°30.0	•• 45.4	138°59.5	•• 49.5
4	150°58.2	244°25.6	31.4	235°17.1	09.7	36°32.8	45.5	153°01.9	49.4
5	166°00.7	259°24.7	31.6	250°17.5	09.7	51°35.6	45.5	169°04.3	49.4
6	181°03.1	274°23.7	S23°31.8	265°17.9	S24°09.6	66°38.4	N21°45.6	184°06.6	S03°49.3
7	196°05.6	289°22.7	31.8	280°18.3	09.5	81°41.1	45.7	199°09.0	49.3
8	211°08.5	304°21.8	32.1	295°18.7	09.5	96°43.9	45.7	214°11.4	49.2
9	226°10.5	319°20.8	•• 32.3	310°19.1	•• 09.4	111°46.7	•• 45.8	229°13.7	•• 49.2
10	241°13.0	334°19.8	32.4	325°19.4	09.4	126°49.5	45.8	244°16.1	49.1
11	256°15.4	349°18.9	32.6	340°19.8	09.3	141°52.2	45.9	259°18.5	49.1
12	271°17.9	4°17.9	S23°32.8	355°20.2	S24°09.2	156°55.0	N21°45.9	274°20.8	S03°49.0
13	286°20.4	19°16.9	32.8	10°20.6	09.2	171°57.8	46.0	289°23.2	49.0
14	301°22.8	34°16.0	33.1	25°21.0	09.1	187°00.6	46.0	304°25.6	48.9
15	316°25.3	49°15.0	•• 33.3	40°21.4	•• 09.1	202°03.3	•• 46.1	319°27.9	•• 48.9
16	331°27.8	64°14.1	33.4	55°21.7	09.0	217°06.1	46.2	334°30.3	48.8
17	346°30.2	79°13.1	33.6	70°22.1	08.9	232°08.9	46.2	349°32.7	48.8
18	1°32.7	94°12.1	S23°33.7	85°22.5	S24°08.9	247°11.7	N21°46.3	4°35.1	S03°48.7
19	16°35.2	109°11.2	33.9	100°22.9	08.8	262°14.4	46.3	19°37.4	48.7
20	31°37.6	124°10.2	34.0	115°23.3	08.7	277°17.2	46.4	34°39.8	48.6
21	46°40.1	139°09.2	•• 34.2	130°23.7	•• 08.7	292°20.0	•• 46.4	49°42.2	•• 48.6
22	61°42.6	154°08.3	34.4	145°24.0	08.6	307°22.8	46.5	64°44.5	48.5
23	76°45.0	169°07.3	34.5	160°24.4	08.5	322°25.6	46.5	79°46.9	48.5
Mer.pass. 17:54 ν -1.0' d -0.2' m -3.90 ν 0.4' d 0.1' m 1.18 ν 2.8' d 0.1' m -2.65 ν 2.4' d 0.0' m 0.98									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	91°47.5	184°06.3	S23°34.7	175°24.8	S24°08.5	337°28.3	N21°46.6	94°49.3	S03°48.4
1	106°49.9	199°05.3	34.8	190°25.2	08.4	352°31.1	46.6	109°51.6	48.4
2	121°52.4	214°04.4	35.0	205°25.6	08.3	7°33.9	46.7	124°54.0	48.3
3	136°54.9	229°03.4	•• 35.1	220°26.0	•• 08.3	22°36.7	•• 46.8	139°56.4	•• 48.3
4	151°57.3	244°02.4	35.2	235°26.3	08.2	37°39.4	46.8	154°58.7	48.2
5	166°59.8	259°01.5	35.4	250°26.7	08.1	52°42.2	46.9	170°01.1	48.2
6	182°02.3	274°00.5	S23°35.5	265°27.1	S24°08.1	67°45.0	N21°46.9	185°03.5	S03°48.1
7	197°04.7	288°59.5	35.7	280°27.5	08.0	82°47.8	47.0	200°05.8	48.1
8	212°07.2	303°58.6	35.8	295°27.9	07.9	97°50.6	47.0	215°08.2	48.0
9	227°09.7	318°57.6	•• 36.0	310°28.3	•• 07.9	112°53.3	•• 47.1	230°10.6	•• 48.0
10	242°12.1	333°56.6	36.1	325°28.6	07.8	127°56.1	47.1	245°12.9	47.9
11	257°14.6	348°55.7	36.2	340°29.0	07.7	142°58.9	47.2	260°15.3	47.9
12	272°17.1	3°54.7	S23°36.4	355°29.4	S24°07.6	158°01.7	N21°47.2	275°17.7	S03°47.8
13	287°19.5	18°53.7	36.5	10°29.8	07.6	173°04.5	47.3	290°20.0	47.8
14	302°22.0	33°52.8	36.6	25°30.2	07.5	188°07.2	47.4	305°22.4	47.7
15	317°24.4	48°51.8	•• 36.8	40°30.6	•• 07.4	203°10.0	•• 47.4	320°24.7	•• 47.6
16	332°26.9	63°50.8	36.9	55°30.9	07.3	218°12.8	47.5	335°27.1	47.6
17	347°29.4	78°49.9	37.0	70°31.3	07.3	233°15.6	47.5	350°29.5	47.5
18	2°31.8	93°48.9	S23°37.1	85°31.7	S24°07.2	248°18.4	N21°47.6	5°31.8	S03°47.5
19	17°34.3	108°47.9	37.3	100°32.1	07.1	263°21.1	47.6	20°34.2	47.4
20	32°36.8	123°46.9	37.4	115°32.5	07.0	278°23.9	47.7	35°36.6	47.4
21	47°39.2	138°46.0	•• 37.5	130°32.8	•• 07.0	293°26.7	•• 47.7	50°38.9	•• 47.3
22	62°41.7	153°45.0	37.6	145°33.2	06.9	308°29.5	47.8	65°41.3	47.3
23	77°44.2	168°44.0	37.8	160°33.6	06.8	323°32.3	47.9	80°43.7	47.2
Mer.pass. 17:50 ν -1.0' d -0.1' m -3.90 ν 0.4' d 0.1' m 1.18 ν 2.8' d 0.1' m -2.65 ν 2.4' d 0.1' m 0.99									

Stars		
SHA	Dec	
Alpheratz	357°33.9	29°14.2
Ankaa	353°06.3	-42°10.1
Schedar	349°30.0	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.3	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°14.5	89°22.6
Acamar	315°10.9	-40°12.1
Menkar	314°05.1	4°11.5
Mirafak	308°26.7	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elinath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.5	-52°42.2
Sirius	258°25.2	-16°45.1
Adhara	255°04.9	-29°00.4
Procyon	244°49.7	5°09.5
Pollux	243°16.0	27°57.7
Avior	234°13.9	-59°35.4
Suhail	222°45.4	-43°32.1
Miaplacidus	221°37.5	-69°49.2
Alphard	217°46.8	-8°46.2
Regulus	207°33.4	11°50.3
Dubhe	193°39.9	61°36.3
Denebola	182°24.1	14°25.5
Gienah	175°42.8	-17°41.1
Acrux	172°59.3	-63°14.3
Gacrux	171°50.9	-57°15.3
Alloth	166°12.4	55°48.8
Spica	158°21.6	-11°17.8
Alkaid	152°51.6	49°10.7
Hadar	148°35.2	-60°29.7
Menkar	147°56.9	-36°29.7
Arcturus	145°47.4	19°02.7
Rigel Kent.	139°39.6	-60°56.3
Kochab	137°20.6	74°02.6
Uchiab	136°55.4	-16°08.9
Alphecca	126°03.4	26°37.5
Antares	112°15.2	-26°29.3
Atria	107°09.3	69°04.3
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.3
Rasalhague	95°58.2	12°32.4
Eltanin	90°42.4	51°29.1
Kaus Aust.	83°31.9	-34°22.3
Vega	80°33.1	38°48.5
Nunki	75°47.2	-26°15.5
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.2
Deneb	49°25.6	45°22.5
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.2	15°20.8
Dec 21 Sun SHA Mer.pass		
Venus	95°03.4	11°41.1
Mars	85°17.2	12.19
Jupiter	245°26.0	01.39
Saturn	3°06.3	17.45
Dec 22 Mon SHA Mer.pass		
Venus	93°41.2	11.43
Mars	84°27.3	12.19
Jupiter	245°33.4	01.34
Saturn	3°04.1	17.42

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	92°46.6	183°43.1	S23°37.9	175°34.0	S24°06.7	338°35.1	N21°47.9	95°46.0	S03°47.2					
1	107°49.1	198°42.1	38.0	190°34.4	06.7	353°37.8	48.0	110°48.4	47.1					
2	122°51.5	213°41.1	38.1	205°34.8	06.6	8°40.6	48.0	125°50.7	47.1					
3	137°54.0	228°40.2	•• 38.2	220°35.1	•• 06.5	23°43.4	•• 48.1	140°53.1	•• 47.0					
4	152°56.5	243°39.2	38.4	235°35.5	06.4	38°46.2	48.1	155°55.5	47.0					
5	167°58.9	258°38.2	38.5	250°35.9	06.3	53°49.0	48.2	170°57.8	46.9					
6	183°01.4	273°37.2	S23°38.6	265°36.3	S24°06.3	68°51.8	N21°48.2	186°00.2	S03°46.9					
7	198°03.9	288°36.3	38.7	280°36.7	06.2	83°54.5	48.3	201°02.6	46.8					
8	213°06.3	303°35.3	38.8	295°37.0	06.1	98°57.3	48.4	216°09.9	46.7					
9	228°08.8	318°34.3	•• 38.9	310°37.4	•• 06.0	114°00.1	•• 48.4	231°07.3	•• 46.7					
10	243°11.3	333°33.4	39.0	325°37.8	05.9	129°02.9	48.5	246°09.6	46.6					
11	258°13.7	348°32.4	39.1	340°38.2	05.9	144°05.7	48.5	261°12.0	46.6					
12	273°16.2	3°31.4	S23°39.2	355°38.6	S24°05.8	159°08.5	N21°48.6	276°14.4	S03°46.5					
13	288°18.7	18°30.4	39.3	10°39.0	05.7	174°11.2	48.6	291°16.7	46.5					
14	303°21.1	33°29.5	39.4	25°39.3	05.6	189°14.0	48.7	306°19.1	46.4					
15	318°23.6	48°28.5	•• 39.5	40°39.7	•• 05.5	204°16.8	•• 48.7	321°21.5	•• 46.4					
16	333°26.0	63°27.5	39.6	55°40.1	05.4	219°19.6	48.8	336°23.8	46.3					
17	348°28.8	78°26.6	39.7	70°40.5	05.4	234°22.4	48.9	351°26.2	46.3					
18	3°31.0	93°25.6	S23°39.8	85°40.9	S24°05.3	249°25.2	N21°48.9	6°28.5	S03°46.2					
19	18°33.4	108°24.6	39.9	100°41.2	05.2	264°28.0	49.0	21°30.9	46.2					
20	33°35.9	123°23.6	40.0	115°41.6	05.1	279°30.7	49.0	36°33.3	46.1					
21	48°38.4	138°22.7	•• 40.1	130°42.0	•• 05.0	294°33.5	•• 49.1	51°35.6	•• 46.0					
22	63°40.8	153°21.7	40.2	145°42.4	04.9	309°36.3	49.1	66°38.0	46.0					
23	78°43.3	168°20.7	40.3	160°42.8	04.8	324°39.1	49.2	81°40.3	45.9					
Mer.pass. 17:46			ν -1.0° d -0.1° m -3.90			ν 0.4° d 0.1° m 1.17			ν 2.8° d 0.1° m -2.65			ν 2.4° d 0.1° m 0.99		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	93°45.8	183°19.8	S23°40.4	175°43.2	S24°04.7	339°41.9	N21°49.2	96°42.7	S03°45.9					
1	108°48.2	198°18.8	40.5	190°43.5	04.6	354°44.7	49.3	111°45.1	45.8					
2	123°50.7	213°17.8	40.6	205°43.9	04.6	9°47.5	49.4	126°47.4	45.8					
3	138°53.2	228°16.8	•• 40.7	220°44.3	•• 04.5	24°50.2	•• 49.4	141°49.8	•• 45.7					
4	153°55.6	243°15.9	40.7	235°44.7	04.4	39°53.0	49.5	156°52.1	45.7					
5	168°58.1	258°14.9	40.8	250°45.1	04.3	54°55.8	49.5	171°54.5	45.6					
6	184°00.5	273°13.9	S23°40.9	265°45.4	S24°04.2	69°58.6	N21°49.6	186°56.8	S03°45.6					
7	199°03.0	288°13.0	41.0	280°45.8	04.1	85°01.4	49.6	201°59.2	45.5					
8	214°05.5	303°12.0	41.1	295°46.2	04.0	100°04.2	49.7	217°01.6	45.4					
9	229°07.9	318°11.0	•• 41.1	310°46.6	•• 03.9	115°07.0	•• 49.7	232°03.9	•• 45.4					
10	244°10.4	333°10.0	41.2	325°47.0	03.8	130°09.8	49.8	247°06.3	45.3					
11	259°12.9	348°09.1	41.3	340°47.3	03.7	145°12.6	49.9	262°08.6	45.3					
12	274°15.3	3°08.1	S23°41.4	355°47.7	S24°03.6	160°15.3	N21°49.9	277°11.0	S03°45.2					
13	289°17.8	18°07.1	41.4	10°48.1	03.5	175°18.1	50.0	292°13.4	45.2					
14	304°20.3	33°06.1	41.5	25°48.5	03.4	190°20.9	50.0	307°15.7	45.1					
15	319°22.7	48°05.2	•• 41.6	40°48.9	•• 03.4	205°23.7	•• 50.1	322°18.1	•• 45.1					
16	334°25.2	63°04.2	41.7	55°49.2	03.3	220°26.5	50.1	337°20.4	45.0					
17	349°27.6	78°03.2	41.7	70°49.6	03.2	235°29.3	50.2	352°22.8	44.9					
18	4°30.1	93°02.3	S23°41.8	85°50.0	S24°03.1	250°32.1	N21°50.3	7°25.1	S03°44.9					
19	19°32.6	108°01.3	41.9	100°50.4	03.0	265°34.9	50.3	22°27.5	44.8					
20	34°35.0	123°00.3	41.9	115°50.8	02.9	280°37.7	50.4	37°29.8	44.8					
21	49°37.5	137°59.3	•• 42.0	130°51.1	•• 02.8	295°40.5	•• 50.4	52°32.2	•• 44.7					
22	64°40.0	152°58.4	42.0	145°51.5	02.7	310°43.2	50.5	67°34.6	44.7					
23	79°42.4	167°57.4	42.1	160°51.9	02.6	325°46.0	50.5	82°36.9	44.6					
Mer.pass. 17:42			ν -1.0° d -0.1° m -3.90			ν 0.4° d 0.1° m 1.17			ν 2.8° d 0.1° m -2.66			ν 2.4° d 0.1° m 0.99		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	94°44.9	182°56.4	S23°42.2	175°52.3	S24°02.5	340°48.8	N21°50.6	97°39.3	S03°44.5					
1	109°47.4	197°55.4	42.2	190°52.7	02.4	355°51.6	50.6	112°41.6	44.5					
2	124°49.8	212°54.5	42.3	205°53.1	02.3	10°54.4	50.7	127°44.0	44.4					
3	139°52.3	227°53.5	•• 42.3	220°53.4	•• 02.2	25°57.2	•• 50.8	142°46.3	•• 44.4					
4	154°54.8	242°52.5	42.4	235°53.8	02.1	41°00.0	50.8	157°48.7	44.3					
5	169°57.2	257°51.5	42.4	250°54.2	02.0	56°02.8	50.9	172°51.0	44.3					
6	184°59.7	272°50.6	S23°42.5	265°54.6	S24°01.9	71°05.6	N21°50.9	187°53.4	S03°44.2					
7	200°02.1	287°49.6	42.5	280°55.0	01.8	86°08.4	51.0	202°55.8	44.2					
8	215°04.6	302°48.6	42.6	295°55.3	01.7	101°11.2	51.0	217°58.1	44.1					
9	230°07.1	317°47.6	•• 42.6	310°55.7	•• 01.5	116°14.0	•• 51.1	233°00.5	•• 44.0					
10	245°09.5	332°46.7	42.7	325°56.1	01.4	131°16.7	51.1	248°02.8	44.0					
11	260°12.0	347°45.7	42.7	340°56.5	01.3	146°19.5	51.2	263°05.2	43.9					
12	275°14.5	2°44.7	S23°42.8	355°56.9	S24°01.2	161°22.3	N21°51.3	278°07.5	S03°43.9					
13	290°16.9	17°43.8	42.8	10°57.2	01.1	176°25.1	51.3	293°09.9	43.8					
14	305°19.4	32°42.8	42.9	25°57.6	01.0	191°27.9	51.4	308°12.2	43.8					
15	320°21.9	47°41.8	•• 42.9	40°58.0	•• 00.9	206°30.7	•• 51.4	323°14.6	•• 43.7					
16	335°24.3	62°40.8	42.9	55°58.4	00.8	221°33.5	51.5	338°16.9	43.6					
17	350°26.8	77°39.9	43.0	70°58.8	00.7	236°36.3	51.5	353°19.3	43.6					
18	5°29.3	92°38.9	S23°43.0	85°59.1	S24°00.6	251°39.1	N21°51.6	8°21.6	S03°43.5					
19	20°31.7	107°37.9	43.0	100°59.5	00.5	266°41.9	51.7	23°24.0	43.5					
20	35°34.2	122°36.9	43.1	115°59.9	00.4	281°44.7	51.7	38°26.4	43.4					
21	50°36.6	137°36.0	•• 43.1	131°00.3	•• 00.3	296°47.5	•• 51.8	53°28.7	•• 43.4					
22	65°39.1	152°35.0	43.1	146°00.7	00.1	311°50.3	51.8	68°31.1	43.3					
23	80°41.6	167°34.0	43.2	161°01.0	00.0	326°53.1	51.9	83°33.4	43.2					
Mer.pass. 17:38			ν -1.0° d -0.1° m -3.90			ν 0.4° d 0.1° m 1.16			ν 2.8° d 0.1° m -2.66			ν 2.4° d 0.1° m 0.99		

Stars		
SHA	Dec	
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.3	-42°10.1
Schedar	349°30.1	56°41.1
Diphda	348°46.4	-17°50.7
Achernar	335°19.4	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°15.5	89°22.7
Acamar	315°10.9	-40°11.2
Menkar	314°05.1	4°12.5
Mirafak	308°26.7	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.5	-52°42.5
Sirius	258°25.2	-16°45.1
Adhara	255°04.9	-29°00.4
Procyon	244°49.7	5°09.5
Pollux	243°16.0	27°57.7
Avior	234°13.9	-59°35.4
Suhail	222°45.4	-43°32.1
Miaplacidus	221°37.4	-69°49.2
Alphard	217°46.7	-8°46.3
Regulus	207°33.4	11°50.3
Dubhe	193°39.8	61°36.3
Denebola	182°24.1	14°25.5
Geniah	175°42.8	-17°41.1
Acrux	172°59.3	-63°14.3
Gacrux	171°50.8	-57°15.3
Alloth	166°12.4	55°48.8
Spica	158°21.6	-11°17.8
Alkaid	152°51.6	49°10.7
Hadar	148°35.2	-60°29.7
Menkent	147°56.9	-36°29.7
Arcturus	145°47.4	19°02.3
Rigel Kent.	139°39.6	-60°56.3
Kochab	137°20.6	74°02.6
Ucubab	136°55.4	-16°39.5
Zuben el	126°03.4	26°37.5
Alphecca	112°15.2	-26°29.3
Antares	107°09.3	69°04.3
Atria	102°02.2	-15°45.4
Sabik	102°02.2	-15°45.4
Shaula	96°09.7	-37°07.3
Rasalhague	95°58.2	12°32.4
Eltanin	90°42.4	51°29.0
Kaus Aus.	83°31.9	-34°22.3
Vega	80°33.1	38°48.4
Nunki	75°47.1	-26°15.9
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.2
Deneb	49°25.7	45°22.5
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.5	28°13.6
Markab	13°29.2	15°20.8

Dec 24 Wed	SHA	Mer.pass
Venus	90°56.4	11:46
Mars	82°47.4	12:17
Jupiter	245°48.4	01:25
Saturn	2°59.4	17:34

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	95°44.0	182°33.0	S23°43.2	176°01.4	S23°59.9	341°55.9	N21°51.9	98°35.8	S03°43.2	176°01.4	S23°59.9	341°55.9	N21°51.9	98°35.8	S03°43.2	176°01.4	S23°59.9	341°55.9	N21°51.9
1	110°46.5	197°32.1	43.2	191°01.8	59.8	356°58.7	52.0	113°38.1	43.1	191°01.8	59.8	356°58.7	52.0	113°38.1	43.1	191°01.8	59.8	356°58.7	52.0
2	125°49.0	212°31.1	43.3	206°02.2	59.7	120°02.2	50.2	128°40.5	43.1	206°02.2	59.7	120°02.2	50.2	128°40.5	43.1	206°02.2	59.7	120°02.2	50.2
3	140°51.4	227°30.1	43.3	221°02.6	59.6	27°04.2	52.1	143°42.8	43.0	221°02.6	59.6	27°04.2	52.1	143°42.8	43.0	221°02.6	59.6	27°04.2	52.1
4	155°53.9	242°29.1	43.3	236°02.9	59.5	42°07.0	52.2	158°45.2	43.0	236°02.9	59.5	42°07.0	52.2	158°45.2	43.0	236°02.9	59.5	42°07.0	52.2
5	170°56.4	257°28.2	43.3	251°03.3	59.4	57°09.8	52.2	173°47.5	42.9	251°03.3	59.4	57°09.8	52.2	173°47.5	42.9	251°03.3	59.4	57°09.8	52.2
6	185°58.8	272°27.2	S23°43.2	266°03.7	S23°59.9	72°12.6	N21°52.6	188°49.9	S03°42.8	266°03.7	S23°59.9	72°12.6	N21°52.6	188°49.9	S03°42.8	266°03.7	S23°59.9	72°12.6	N21°52.6
7	201°01.3	287°26.2	43.4	281°04.1	59.1	87°15.4	52.3	203°52.2	42.8	281°04.1	59.1	87°15.4	52.3	203°52.2	42.8	281°04.1	59.1	87°15.4	52.3
8	216°03.7	302°25.2	43.4	296°04.5	59.0	102°18.2	52.4	218°56.2	42.7	296°04.5	59.0	102°18.2	52.4	218°56.2	42.7	296°04.5	59.0	102°18.2	52.4
9	231°06.2	317°24.3	43.4	311°04.8	58.9	117°21.0	52.4	233°56.9	42.7	311°04.8	58.9	117°21.0	52.4	233°56.9	42.7	311°04.8	58.9	117°21.0	52.4
10	246°08.7	332°23.3	43.4	326°05.2	58.8	132°23.8	52.5	248°59.3	42.6	326°05.2	58.8	132°23.8	52.5	248°59.3	42.6	326°05.2	58.8	132°23.8	52.5
11	261°11.1	347°22.3	43.4	341°05.6	58.7	147°26.6	52.6	264°01.6	42.5	341°05.6	58.7	147°26.6	52.6	264°01.6	42.5	341°05.6	58.7	147°26.6	52.6
12	276°13.6	2°21.3	S23°43.2	356°06.0	S23°58.6	162°29.4	N21°52.6	279°04.0	S03°42.5	356°06.0	S23°58.6	162°29.4	N21°52.6	279°04.0	S03°42.5	356°06.0	S23°58.6	162°29.4	N21°52.6
13	291°16.1	17°20.4	43.5	11°06.4	58.4	177°32.2	52.7	294°06.3	42.4	11°06.4	58.4	177°32.2	52.7	294°06.3	42.4	11°06.4	58.4	177°32.2	52.7
14	306°18.5	32°19.4	43.5	26°06.7	58.3	192°35.0	52.7	309°08.7	42.4	26°06.7	58.3	192°35.0	52.7	309°08.7	42.4	26°06.7	58.3	192°35.0	52.7
15	321°21.0	47°18.4	43.5	41°07.1	58.2	207°37.8	52.8	324°11.0	42.3	41°07.1	58.2	207°37.8	52.8	324°11.0	42.3	41°07.1	58.2	207°37.8	52.8
16	336°23.5	62°17.4	43.5	56°07.5	58.1	222°40.6	52.8	338°13.4	42.2	56°07.5	58.1	222°40.6	52.8	338°13.4	42.2	56°07.5	58.1	222°40.6	52.8
17	351°25.9	77°16.5	43.5	71°07.9	58.0	237°43.4	52.9	354°15.7	42.2	71°07.9	58.0	237°43.4	52.9	354°15.7	42.2	71°07.9	58.0	237°43.4	52.9
18	6°28.4	92°15.5	S23°43.5	86°08.3	S23°57.8	252°46.2	N21°53.0	9°18.1	S03°42.1	86°08.3	S23°57.8	252°46.2	N21°53.0	9°18.1	S03°42.1	86°08.3	S23°57.8	252°46.2	N21°53.0
19	21°30.9	107°14.5	43.5	101°08.6	57.7	267°49.0	53.0	24°20.4	42.1	101°08.6	57.7	267°49.0	53.0	24°20.4	42.1	101°08.6	57.7	267°49.0	53.0
20	36°33.3	122°13.5	43.5	116°09.0	57.6	282°51.8	53.1	39°22.8	42.0	116°09.0	57.6	282°51.8	53.1	39°22.8	42.0	116°09.0	57.6	282°51.8	53.1
21	51°35.8	137°12.6	43.5	131°09.4	57.5	297°54.6	53.1	54°25.1	42.0	131°09.4	57.5	297°54.6	53.1	54°25.1	42.0	131°09.4	57.5	297°54.6	53.1
22	66°38.2	152°11.6	43.5	146°09.8	57.4	312°57.4	53.2	69°27.5	41.9	146°09.8	57.4	312°57.4	53.2	69°27.5	41.9	146°09.8	57.4	312°57.4	53.2
23	81°40.7	167°10.6	43.5	161°10.1	57.2	328°00.2	53.2	84°29.8	41.8	161°10.1	57.2	328°00.2	53.2	84°29.8	41.8	161°10.1	57.2	328°00.2	53.2
Mer.pass. 17:34				ν -1.0° d -0.0° m -3.90				ν 0.4° d 0.1° m 1.15				ν 2.8° d 0.1° m -2.66				ν 2.4° d 0.1° m 1.00			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	96°43.2	182°09.7	S23°43.5	176°10.5	S23°57.1	343°03.0	N21°53.3	99°32.2	S03°41.8				
1	111°45.6	197°08.7	43.5	191°10.9	57.0	358°05.8	53.3	114°34.5	41.7				
2	126°48.1	212°07.7	43.5	206°11.3	56.9	13°08.6	53.4	129°36.9	41.7				
3	141°50.6	227°06.7	43.5	221°11.7	56.7	28°11.4	53.5	144°39.2	41.6				
4	156°53.0	242°05.8	43.5	236°12.0	56.6	43°14.2	53.5	159°41.6	41.5				
5	171°55.5	257°04.8	43.5	251°12.4	56.5	58°17.0	53.6	174°43.9	41.5				
6	186°58.0	272°03.8	S23°43.5	266°12.8	S23°56.4	73°19.8	N21°53.6	189°46.2	S03°41.4				
7	202°00.4	287°02.8	43.5	281°13.2	56.2	88°22.6	53.7	204°48.6	41.4				
8	217°02.9	302°01.9	43.4	296°13.6	56.1	103°25.4	53.7	219°50.9	41.3				
9	232°05.4	317°00.9	43.4	311°13.9	56.0	118°28.2	53.8	234°53.3	41.2				
10	247°07.8	331°59.9	43.4	326°14.3	55.9	133°31.0	53.9	249°55.6	41.2				
11	262°10.3	346°58.9	43.4	341°14.7	55.7	148°33.8	53.9	264°58.0	41.1				
12	277°12.7	1°58.0	S23°43.4	356°15.1	S23°55.6	163°36.6	N21°54.0	280°00.3	S03°41.1				
13	292°15.2	16°57.0	43.4	11°15.5	55.5	178°39.4	54.0	295°02.7	41.0				
14	307°17.1	31°56.0	43.3	26°15.8	55.4	193°42.2	54.1	310°05.0	40.9				
15	322°20.1	46°55.0	43.3	41°16.2	55.2	208°45.0	54.1	325°07.4	40.9				
16	337°22.6	61°54.1	43.3	56°16.6	55.1	223°47.8	54.2	340°09.7	40.8				
17	352°25.1	76°53.1	43.3	71°17.0	55.0	238°50.6	54.3	355°12.1	40.8				
18	7°27.5	91°52.1	S23°43.2	86°17.4	S23°54.8	253°53.4	N21°54.3	10°14.4	S03°40.7				
19	22°30.0	106°51.1	43.2	101°17.7	54.7	268°56.2	54.4	25°16.7	40.6				
20	37°32.5	121°50.2	43.2	116°18.1	54.6	283°59.0	54.4	40°19.1	40.6				
21	52°34.9	136°49.2	43.2	131°18.5	54.4	299°01.8	54.5	55°21.4	40.5				
22	67°37.4	151°48.2	43.1	146°18.9	54.3	314°04.6	54.5	70°23.8	40.5				
23	82°39.8	166°47.3	43.1	161°19.3	54.2	329°07.4	54.6	85°26.1	40.4				
Mer.pass. 17:30		ν -1.0° d 0.0° m -3.90			ν 0.4° d 0.1° m 1.15			ν 2.8° d 0.1° m -2.66			ν 2.3° d 0.1° m 1.00		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	97°42.3	181°46.3	S23°43.1	176°19.6	S23°54.0	344°10.2	N21°54.7	100°28.5	S03°40.3
1	112°44.8	196°45.3	43.0	191°20.0	53.9	359°13.0	54.7	115°30.8	40.3
2	127°47.2	211°44.3	43.0	206°20.4	53.8	14°15.8	54.8	130°33.2	40.2
3	142°49.7	226°43.4	43.0	221°20.8	53.6	29°18.6	54.8	145°35.5	40.2
4	157°52.2	241°42.4	42.9	236°21.2	53.5	44°21.4	54.9	160°37.8	40.1
5	172°54.6	256°41.4	42.9	251°21.5	53.4	59°24.2	54.9	175°40.2	40.0
6	187°57.1	271°40.4	S23°42.8	266°21.9	S23°53.2	74°27.0	N21°55.0	190°42.5	S03°40.0
7	202°59.6	286°39.5	42.8	281°22.3	53.1	89°29.8	55.0	205°44.9	39.9
8	218°02.0	301°38.5	42.8	296°22.7	53.0	104°32.6	55.1	220°47.2	39.8
9	233°04.5	316°37.5	42.7	311°23.1	52.8	119°35.4	55.2	235°49.6	39.8
10	248°07.0	331°36.5	42.7	326°23.4	52.7	134°38.2	55.2	250°51.9	39.7
11	263°09.4	346°35.6	42.6	341°23.8	52.5	149°41.0	55.3	265°54.2	39.7
12	278°11.9	1°34.6	S23°42.6	356°24.2	S23°52.4	164°43.8	N21°55.3	280°56.6	S03°39.6
13	293°14.3	16°33.6	42.5	11°24.6	52.3	179°46.6	55.4	295°58.9	39.5
14	308°16.8	31°32.6	42.5	26°24.9	52.1	194°49.4	55.4	311°01.3	39.5
15	323°19.3	46°31.7	42.4	41°25.3	52.0	209°52.2	55.5	326°03.6	39.4
16	338°21.7	61°30.7	42.4	56°25.7	51.8	224°55.0	55.6	341°06.0	39.4
17	353°24.6	76°29.7	42.3	71°26.1	51.7	239°57.8	55.6	356°08.3	39.3
18	8°26.7	91°28.8	S23°42.3	86°26.5	S23°51.6	255°00.7	N21°55.7	11°10.6	S03°39.2
19	23°29.1	106°27.8	42.2	101°26.8	51.4	270°03.5	55.7	26°13.0	39.2
20	38°31.6	121°26.8	42.1	116°27.2	51.3	285°06.3	55.8	41°15.3	39.1
21	53°34.1	136°25.8	42.1	131°27.6	51.1	300°09.1	55.8	56°17.7	39.0
22	68°36.5	151°24.9	42.0	146°28.0	51.0	315°11.9	55.9	71°20.0	39.0
23	83°39.0	166°23.9	42.0	161°28.4	50.8	330°14.7	56.0	86°22.4	38.9
Mer.pass. 17:26 ν -1.0° d 0.0° m -3.90 ν 0.4° d 0.1° m 1.14 ν 2.8° d 0.1° m -2.67 ν 2.3° d 0.1° m 1.00									

SHA	Dec
Alpheratz	357°34.0 29°14.2
Ankaa	

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	98°41.5	181°22.9	S23°41.9	176°28.7	S23°50.7	345°17.5	N21°56.0	101°24.7	S03°38.9										
1	113°43.9	196°22.0	41.8	191°29.1	50.6	0°20.3	56.1	116°27.0	38.8										
2	128°46.4	211°21.0	41.8	206°29.5	50.4	15°23.1	56.1	131°29.4	38.7										
3	143°48.8	226°20.0	· · 41.7	221°29.9	· · 50.3	30°25.9	· · 56.2	146°31.7	· · 38.7										
4	158°51.3	241°19.0	41.6	236°30.3	50.1	45°28.7	56.2	161°34.1	38.6										
5	173°53.8	256°18.1	41.6	251°30.6	50.0	60°31.5	56.3	176°34.4	38.5										
6	188°56.2	271°17.1	S23°41.5	266°31.0	S23°49.8	75°34.3	N21°56.4	191°38.7	S03°38.5										
7	203°58.7	286°16.1	41.4	281°31.4	49.7	90°37.1	56.4	206°41.1	38.4										
8	219°01.2	301°15.1	41.3	296°31.8	49.5	105°39.9	56.5	221°43.4	38.4										
9	234°03.6	316°14.2	· · 41.3	311°32.2	· · 49.4	120°42.7	· · 56.5	236°45.8	· · 38.3										
10	249°06.1	331°13.2	41.2	326°32.5	49.2	135°45.5	56.6	251°48.1	38.2										
11	264°08.6	346°12.2	41.1	341°32.9	49.1	150°48.3	56.6	266°50.4	38.2										
12	279°11.0	1°11.3	S23°41.0	356°33.3	S23°48.9	165°51.2	N21°56.7	281°52.8	S03°38.1										
13	294°13.5	16°10.3	41.0	11°33.7	48.8	180°54.0	56.8	296°55.1	38.0										
14	309°16.0	31°09.3	40.9	26°34.1	48.6	195°56.8	56.8	311°57.4	38.0										
15	324°18.4	46°08.3	· · 40.8	41°34.4	· · 48.5	210°59.6	· · 56.9	326°59.8	· · 37.9										
16	339°20.9	61°07.4	40.7	56°34.8	48.3	226°02.4	56.9	342°02.1	37.8										
17	354°23.3	76°06.4	40.6	71°35.2	48.2	241°05.2	57.0	357°04.5	37.8										
18	9°25.8	91°05.4	S23°40.5	86°35.6	S23°48.0	256°08.0	N21°57.0	12°06.8	S03°37.7										
19	24°28.3	106°04.5	40.4	101°35.9	47.9	271°10.8	57.1	27°09.1	37.7										
20	39°30.7	121°03.5	40.4	116°36.3	47.7	286°13.6	57.2	42°11.5	37.6										
21	54°33.2	136°02.5	· · 40.3	131°36.7	· · 47.5	301°16.4	· · 57.2	57°13.8	· · 37.5										
22	69°35.7	151°01.5	40.2	146°37.1	47.4	316°19.2	57.3	72°16.2	37.5										
23	84°38.1	166°00.6	40.1	161°37.5	47.2	331°22.0	57.3	87°18.5	37.4										
Mer.pass. 17:22				ν -1.0° d 0.1' m -3.90				ν 0.4° d 0.1' m 1.14				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.00			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	99°40.6	180°59.6	S23°40.0	176°37.8	S23°47.1	346°24.8	N21°57.4	102°20.8	S03°37.3						
1	114°43.1	195°58.6	39.9	191°38.2	46.9	1°27.7	57.4	117°23.2	37.3						
2	129°45.5	210°57.7	39.8	206°38.6	46.8	16°30.5	57.5	132°25.5	37.2						
3	144°48.0	225°56.7	· · 39.7	221°39.0	· · 46.6	31°33.3	· · 57.6	147°27.8	· · 37.1						
4	159°50.4	240°55.7	39.6	236°39.4	46.5	46°36.1	57.6	162°30.2	37.1						
5	174°52.9	255°54.8	39.5	251°39.7	46.3	61°38.9	57.7	177°32.5	37.0						
6	189°55.4	270°53.8	S23°39.4	266°40.1	S23°46.1	76°41.7	N21°57.7	192°34.8	S03°37.0						
7	204°57.8	285°52.8	39.3	281°40.5	46.0	91°44.5	57.8	207°37.2	36.9						
8	220°00.3	300°51.8	39.2	296°40.9	45.8	106°47.3	57.8	222°39.5	36.8						
9	235°02.8	315°50.9	· · 39.1	311°41.3	· · 45.7	121°50.1	· · 57.9	237°41.9	· · 36.8						
10	250°05.2	330°49.9	39.0	326°41.6	45.5	136°52.9	58.0	252°44.2	36.7						
11	265°07.7	345°48.9	38.9	341°42.0	45.3	151°55.7	58.0	267°46.5	36.6						
12	280°10.2	0°48.0	S23°38.8	356°42.4	S23°45.2	166°58.6	N21°58.1	282°48.9	S03°36.6						
13	295°12.6	15°47.0	38.8	11°42.8	45.0	182°01.4	58.1	297°51.2	36.5						
14	310°15.1	30°46.0	38.5	26°43.2	44.9	197°04.2	58.2	312°53.5	36.4						
15	325°17.6	45°45.1	· · 38.4	41°43.5	· · 44.7	212°07.0	· · 58.2	327°55.9	· · 36.4						
16	340°20.0	60°44.1	38.3	56°43.9	44.5	227°09.8	58.3	342°58.2	36.3						
17	355°22.5	75°43.1	38.2	71°44.3	44.4	242°12.6	58.3	358°00.5	36.2						
18	10°24.9	90°42.2	S23°38.1	86°44.7	S23°44.2	257°15.4	N21°58.4	13°02.9	S03°36.2						
19	25°27.4	105°41.2	38.0	101°45.1	44.0	272°18.2	58.5	28°05.2	36.1						
20	40°29.9	120°40.2	37.8	116°45.4	43.9	287°21.0	58.5	43°07.5	36.0						
21	55°32.3	135°39.2	· · 37.7	131°45.8	· · 43.7	302°23.8	· · 58.6	58°09.9	· · 36.0						
22	70°34.8	150°38.3	37.6	146°46.2	43.5	317°26.7	58.6	73°12.2	35.9						
23	85°37.3	165°37.3	37.5	161°46.6	43.4	332°29.5	58.7	88°14.5	35.8						
Mer.pass. 17:18				ν -1.0° d 0.1' m -3.90				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.00			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	100°39.7	180°36.3	S23°37.3	176°47.0	S23°43.2	347°32.3	N21°58.7	103°16.9	S03°35.8						
1	115°42.2	195°35.4	37.2	191°47.3	43.0	2°35.1	58.8	118°19.2	35.7						
2	130°44.7	210°34.4	37.1	206°47.7	42.9	17°37.9	58.9	133°21.5	35.7						
3	145°47.1	225°33.4	· · 37.0	221°48.1	· · 42.7	32°40.7	· · 58.9	148°23.9	· · 35.6						
4	160°49.6	240°32.5	36.8	236°48.5	42.5	47°43.5	59.0	163°26.2	35.5						
5	175°52.1	255°31.5	36.7	251°48.9	42.4	62°46.3	59.0	178°28.5	35.5						
6	190°54.5	270°30.5	S23°36.6	266°49.2	S23°42.2	77°49.1	N21°59.1	193°30.9	S03°35.4						
7	205°57.0	285°29.6	36.4	281°49.6	42.0	92°52.0	59.1	208°33.2	35.3						
8	220°59.4	300°28.6	36.3	296°50.0	41.8	107°54.8	59.2	223°35.5	35.3						
9	236°01.9	315°27.6	· · 36.2	311°50.4	· · 41.7	122°57.6	· · 59.3	238°37.9	· · 35.2						
10	251°04.3	330°26.7	36.0	326°50.8	41.5	138°00.4	59.3	253°40.2	35.1						
11	266°06.8	345°25.7	35.9	341°51.1	41.3	153°03.2	59.4	268°42.5	35.1						
12	281°09.3	0°24.7	S23°35.7	356°51.5	S23°41.2	168°06.0	N21°59.4	283°44.9	S03°35.0						
13	296°11.8	15°23.8	35.6	11°51.9	41.0	183°08.8	59.5	298°47.2	34.9						
14	311°14.2	30°22.8	35.5	26°52.3	40.8	198°11.6	59.6	313°49.5	34.9						
15	326°16.7	45°21.8	· · 35.3	41°52.7	· · 40.6	213°14.4	· · 59.5	328°51.9	· · 34.8						
16	341°19.2	60°20.9	35.2	56°53.0	40.5	228°17.3	59.7	343°54.2	34.7						
17	356°21.6	75°19.9	35.0	71°53.4	40.3	243°20.1	59.7	358°56.5	34.7						
18	11°24.1	90°18.9	S23°34.9	86°53.8	S23°40.1	258°22.9	N21°59.8	13°58.9	S03°34.6						
19	26°26.6	105°18.0	34.7	101°54.2	39.9	273°25.7	59.8	29°51.2	34.5						
20	41°29.0	120°17.0	34.6	116°54.6	39.8	288°28.5	59.9	44°03.5	34.5						
21	56°31.5	135°16.0	· · 34.4	131°54.9	· · 39.6	303°31.3	21°59.9	59°05.8	· · 34.4						
22	71°33.9	150°15.1	34.4	146°55.3	39.4	318°34.1	22°00.0	74°08.2	34.3						
23	86°36.4	165°14.1	34.1	161°55.7	39.2	333°37.0	00.1	89°10.5	34.3						
Mer.pass. 17:15				ν -1.0° d 0.1' m -3.90				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.01			

Stars			
	SHA	Dec	
Alpheratz	357°34.0	29°14.2	
Ankaa	353°06.4	-42°10.1	
Schedar	349°30.1	56°41.1	
Diphda	348°46.5	-17°50.7	
Achernar	335°19.4	-57°06.5	
Hamal	327°50.1	23°35.3	
Polaris	313°17.4	89°22.7	
Acamar	315°10.9	-40°12.2	
Menkar	314°05.1	4°11.5	
Mirafak	308°26.7	49°57.4	
Aldebaran	290°38.4	16°33.7	
Rigel	281°02.8	-8°10.3	
Capella	280°20.2	46°01.5	
Bellatrix	278°21.7	6°22.4	
Elnath	278°00.5	28°37.8	
Alnilam	275°36.6	-1°11.1	
Betelgeuse	270°50.9	7°24.7	
Canopus	263°51.5	-52°42.5	
Sirius	258°25.2	-16°45.1	
Adhara	255°04.8	-29°00.4	
Procyon	244°49.7	5°09.5	
Pollux	243°16.0	27°57.7	
Avior	234°13.8	-59°35.4	
Suhail	222°45.4	-43°32.1	
Miaplacidus	221°37.4	-69°49.2	
Alphard	217°46.7	-8°46.3	
Regulus	207°33.4	11°50.3	
Dubhe	193°39.7	61°36.3	
Denebola	182°24.1	14°25.5	
Gienah	175°42.7	-17°41.1	
Acrux	172°59.2	-63°14.3	
Gacrux	171°50.7	-57°15.3	
Alloth	166°12.3	55°48.8	
Spica	158°21.5	-11°17.8	
Alkaid	152°51.5	49°10.7	
Hadar	148°35.1	-60°29.7	
Menkent	147°56.8	-36°29.7	
Arcturus	145°47.3	19°02.7	
Rigel Kent.	139°39.5	-60°56.3	
Kochab	137°20.5	74°02.6	
Zuben'ubi	136°55.3	-16°09.9	
Alphecca	126°03.3	26°37.5	
Antares	112°15.2	-26°29.3	
Atria	107°09.2	-69°04.3	
Sabik	102°02.2	-15°45.4	
Shaula	96°09.9	-37°07.3	
Rasalhague	95°58.1	12°32.4	
Eltanin	90°42.3	51°29.0	
Kaus Aust.	83°31.9	-34°22.3	
Vega	80°33.1	38°48.4	
Nunki	75°47.1	-26°15.9	
Altair	61°59.5	8°56.2	
Peacock	53°05.0	-56°39.2	
Deneb	49°25.7	45°22.5	
Enif	33°38.2	9°59.7	
Al Na'ir	27°32.2	-46°50.3	
Fomalhaut	15°13.8	-29°29.2	
Scheat	13°44.6	28°13.6	
Markab	13°29.2	15°20.8	
Dec 30 Tue	SHA	Mer-pass	
Venus	82°41.5	11:55	
Mars	77°47.3	12:14	
Jupiter	246°36.0	00:59	
Saturn	2°43.2	17:12	
Dec 31 Wed	SHA	Mer-pass	
Venus	81°19.0	11:57	
Mars	76°57.3	12:13	
Jupiter	246°44.3	00:54	
Saturn	2°40.2	17:08	
Jan 01 Thu	SHA	Mer-pass	
Venus	79°56.6	11:58	
Mars	76°07.2	12:13	
Jupiter	246°52.5	00:50	
Saturn	2°37.1	17:04	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Conversion of Arc to Time

0° - 59°			60° - 119°			120° - 179°			180° - 239°			240° - 299°			300° - 360°			0' - 59'			0" - 59"	
°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	'	m	s	"	s
0	0	00	60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	0	0	00	0	0.00
1	0	04	61	4	04	121	8	04	181	12	04	241	16	04	301	20	04	1	0	04	1	0.07
2	0	08	62	4	08	122	8	08	182	12	08	242	16	08	302	20	08	2	0	08	2	0.13
3	0	12	63	4	12	123	8	12	183	12	12	243	16	12	303	20	12	3	0	12	3	0.20
4	0	16	64	4	16	124	8	16	184	12	16	244	16	16	304	20	16	4	0	16	4	0.27
5	0	20	65	4	20	125	8	20	185	12	20	245	16	20	305	20	20	5	0	20	5	0.33
6	0	24	66	4	24	126	8	24	186	12	24	246	16	24	306	20	24	6	0	24	6	0.40
7	0	28	67	4	28	127	8	28	187	12	28	247	16	28	307	20	28	7	0	28	7	0.47
8	0	32	68	4	32	128	8	32	188	12	32	248	16	32	308	20	32	8	0	32	8	0.53
9	0	36	69	4	36	129	8	36	189	12	36	249	16	36	309	20	36	9	0	36	9	0.60
10	0	40	70	4	40	130	8	40	190	12	40	250	16	40	310	20	40	10	0	40	10	0.67
11	0	44	71	4	44	131	8	44	191	12	44	251	16	44	311	20	44	11	0	44	11	0.73
12	0	48	72	4	48	132	8	48	192	12	48	252	16	48	312	20	48	12	0	48	12	0.80
13	0	52	73	4	52	133	8	52	193	12	52	253	16	52	313	20	52	13	0	52	13	0.87
14	0	56	74	4	56	134	8	56	194	12	56	254	16	56	314	20	56	14	0	56	14	0.93
15	1	00	75	5	00	135	9	00	195	13	00	255	17	00	315	21	00	15	1	00	15	1.00
16	1	04	76	5	04	136	9	04	196	13	04	256	17	04	316	21	04	16	1	04	16	1.07
17	1	08	77	5	08	137	9	08	197	13	08	257	17	08	317	21	08	17	1	08	17	1.13
18	1	12	78	5	12	138	9	12	198	13	12	258	17	12	318	21	12	18	1	12	18	1.20
19	1	16	79	5	16	139	9	16	199	13	16	259	17	16	319	21	16	19	1	16	19	1.27
20	1	20	80	5	20	140	9	20	200	13	20	260	17	20	320	21	20	20	1	20	20	1.33
21	1	24	81	5	24	141	9	24	201	13	24	261	17	24	321	21	24	21	1	24	21	1.40
22	1	28	82	5	28	142	9	28	202	13	28	262	17	28	322	21	28	22	1	28	22	1.47
23	1	32	83	5	32	143	9	32	203	13	32	263	17	32	323	21	32	23	1	32	23	1.53
24	1	36	84	5	36	144	9	36	204	13	36	264	17	36	324	21	36	24	1	36	24	1.60
25	1	40	85	5	40	145	9	40	205	13	40	265	17	40	325	21	40	25	1	40	25	1.67
26	1	44	86	5	44	146	9	44	206	13	44	266	17	44	326	21	44	26	1	44	26	1.73
27	1	48	87	5	48	147	9	48	207	13	48	267	17	48	327	21	48	27	1	48	27	1.80
28	1	52	88	5	52	148	9	52	208	13	52	268	17	52	328	21	52	28	1	52	28	1.87
29	1	56	89	5	56	149	9	56	209	13	56	269	17	56	329	21	56	29	1	56	29	1.93
30	2	00	90	6	00	150	10	00	210	14	00	270	18	00	330	22	00	30	2	00	30	2.00
31	2	04	91	6	04	151	10	04	211	14	04	271	18	04	331	22	04	31	2	04	31	2.07
32	2	08	92	6	08	152	10	08	212	14	08	272	18	08	332	22	08	32	2	08	32	2.13
33	2	12	93	6	12	153	10	12	213	14	12	273	18	12	333	22	12	33	2	12	33	2.20
34	2	16	94	6	16	154	10	16	214	14	16	274	18	16	334	22	16	34	2	16	34	2.27
35	2	20	95	6	20	155	10	20	215	14	20	275	18	20	335	22	20	35	2	20	35	2.33
36	2	24	96	6	24	156	10	24	216	14	24	276	18	24	336	22	24	36	2	24	36	2.40
37	2	28	97	6	28	157	10	28	217	14	28	277	18	28	337	22	28	37	2	28	37	2.47
38	2	32	98	6	32	158	10	32	218	14	32	278	18	32	338	22	32	38	2	32	38	2.53
39	2	36	99	6	36	159	10	36	219	14	36	279	18	36	339	22	36	39	2	36	39	2.60
40	2	40	100	6	40	160	10	40	220	14	40	280	18	40	340	22	40	40	2	40	40	2.67
41	2	44	101	6	44	161	10	44	221	14	44	281	18	44	341	22	44	41	2	44	41	2.73
42	2	48	102	6	48	162	10	48	222	14	48	282	18	48	342	22	48	42	2	48	42	2.80
43	2	52	103	6	52	163	10	52	223	14	52	283	18	52	343	22	52	43	2	52	43	2.87
44	2	56	104	6	56	164	10	56	224	14	56	284	18	56	344	22	56	44	2	56	44	2.93
45	3	00	105	7	00	165	11	00	225	15	00	285	19	00	345	23	00	45	3	00	45	3.00
46	3	04	106	7	04	166	11	04	226	15	04	286	19	04	346	23	04	46	3	04	46	3.07
47	3	08	107	7	08	167	11	08	227	15	08	287	19	08	347	23	08	47	3	08	47	3.13
48	3	12	108	7	12	168	11	12	228	15	12	288	19	12	348	23	12	48	3	12	48	3.20
49	3	16	109	7	16	169	11	16	229	15	16	289	19	16	349	23	16	49	3	16	49	3.27
50	3	20	110	7	20	170	11	20	230	15	20	290	19	20	350	23	20	50	3	20	50	3.33
51	3	24	111	7	24	171	11	24	231	15	24	291	19	24	351	23	24	51	3	24	51	3.40
52	3	28	112	7	28	172	11	28	232	15	28	292	19	28	352	23	28	52	3	28	52	3.47
53	3	32	113	7	32	173	11	32	233	15	32	293	19	32	353	23	32	53	3	32	53	3.53
54	3	36	114	7	36	174	11	36	234	15	36	294	19	36	354	23	36	54	3	36	54	3.60
55	3	40	115	7	40	175	11	40	235	15	40	295	19	40	355	23	40	55	3	40	55	3.67
56	3	44	116	7	44	176	11	44	236	15	44	296	19	44	356	23	44	56	3	44	56	3.73
57	3	48	117	7	48	177	11	48	237	15	48	297	19	48	357	23	48	57	3	48	57	3.80
58	3	52	118	7	52	178	11	52	238	15	52	298	19	52	358	23	52	58	3	52	58	3.87
59	3	56	119	7	56	179	11	56	239	15	56	299	19	56	359	23	56	59	3	56	59	3.93
60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	360	24	00	60	4	00	60	4.00

h= hours of time m= minutes of time s = seconds of time ' = minutes of arc " = seconds of arc

Increments and Corrections

m 0	Sun Plan.	Aries	Moon	v and d corr			m 1	Sun Plan.	Aries	Moon	v and d corr			m 2	Sun Plan.	Aries	Moon	v and d corr		
0	0°00.0	0°00.0	0°00.0	0.0 - 0.0	6.0 - 0.1	12.0 - 0.1	0	0°15.0	0°15.0	0°14.3	0.0 - 0.0	6.0 - 0.2	12.0 - 0.3	0	0°30.0	0°30.1	0°28.6	0.0 - 0.0	6.0 - 0.3	12.0 - 0.5
1	0°00.3	0°00.3	0°00.2	0.1 - 0.0	6.1 - 0.1	12.1 - 0.1	1	0°15.3	0°15.3	0°14.6	0.1 - 0.0	6.1 - 0.2	12.1 - 0.3	1	0°30.3	0°30.3	0°28.9	0.1 - 0.0	6.1 - 0.3	12.1 - 0.5
2	0°00.5	0°00.5	0°00.5	0.2 - 0.0	6.2 - 0.1	12.2 - 0.1	2	0°15.5	0°15.5	0°14.8	0.2 - 0.0	6.2 - 0.2	12.2 - 0.3	2	0°30.5	0°30.6	0°29.1	0.2 - 0.0	6.2 - 0.3	12.2 - 0.5
3	0°00.8	0°00.8	0°00.7	0.3 - 0.0	6.3 - 0.1	12.3 - 0.1	3	0°15.8	0°15.8	0°15.0	0.3 - 0.0	6.3 - 0.2	12.3 - 0.3	3	0°30.7	0°30.8	0°29.3	0.3 - 0.0	6.3 - 0.3	12.3 - 0.5
4	0°01.0	0°01.0	0°01.0	0.4 - 0.0	6.4 - 0.1	12.4 - 0.1	4	0°16.0	0°16.0	0°15.3	0.4 - 0.0	6.4 - 0.2	12.4 - 0.3	4	0°31.0	0°31.1	0°29.6	0.4 - 0.0	6.4 - 0.3	12.4 - 0.5
5	0°01.3	0°01.3	0°01.2	0.5 - 0.0	6.5 - 0.1	12.5 - 0.1	5	0°16.3	0°16.3	0°15.5	0.5 - 0.0	6.5 - 0.2	12.5 - 0.3	5	0°31.3	0°31.3	0°29.8	0.5 - 0.0	6.5 - 0.3	12.5 - 0.5
6	0°01.5	0°01.5	0°01.4	0.6 - 0.0	6.6 - 0.1	12.6 - 0.1	6	0°16.5	0°16.5	0°15.7	0.6 - 0.0	6.6 - 0.2	12.6 - 0.3	6	0°31.5	0°31.6	0°30.1	0.6 - 0.0	6.6 - 0.3	12.6 - 0.5
7	0°01.8	0°01.8	0°01.7	0.7 - 0.0	6.7 - 0.1	12.7 - 0.1	7	0°16.8	0°16.8	0°16.0	0.7 - 0.0	6.7 - 0.2	12.7 - 0.3	7	0°31.8	0°31.8	0°30.3	0.7 - 0.0	6.7 - 0.3	12.7 - 0.5
8	0°02.0	0°02.0	0°01.9	0.8 - 0.0	6.8 - 0.1	12.8 - 0.1	8	0°17.0	0°17.0	0°16.2	0.8 - 0.0	6.8 - 0.2	12.8 - 0.3	8	0°32.0	0°32.1	0°30.5	0.8 - 0.0	6.8 - 0.3	12.8 - 0.5
9	0°02.3	0°02.3	0°02.1	0.9 - 0.0	6.9 - 0.1	12.9 - 0.1	9	0°17.3	0°17.3	0°16.5	0.9 - 0.0	6.9 - 0.2	12.9 - 0.3	9	0°32.3	0°32.3	0°30.8	0.9 - 0.0	6.9 - 0.3	12.9 - 0.5
10	0°02.5	0°02.5	0°02.4	1.0 - 0.0	7.0 - 0.1	13.0 - 0.1	10	0°17.5	0°17.5	0°16.7	1.0 - 0.0	7.0 - 0.2	13.0 - 0.3	10	0°32.5	0°32.6	0°31.0	1.0 - 0.0	7.0 - 0.3	13.0 - 0.5
11	0°02.8	0°02.8	0°02.6	1.1 - 0.0	7.1 - 0.1	13.1 - 0.1	11	0°17.8	0°17.8	0°16.9	1.1 - 0.0	7.1 - 0.2	13.1 - 0.3	11	0°32.8	0°32.8	0°31.3	1.1 - 0.0	7.1 - 0.3	13.1 - 0.5
12	0°03.0	0°03.0	0°02.9	1.2 - 0.0	7.2 - 0.1	13.2 - 0.1	12	0°18.0	0°18.0	0°17.2	1.2 - 0.0	7.2 - 0.2	13.2 - 0.3	12	0°33.0	0°33.1	0°31.5	1.2 - 0.1	7.2 - 0.3	13.2 - 0.5
13	0°03.3	0°03.3	0°03.1	1.3 - 0.0	7.3 - 0.1	13.3 - 0.1	13	0°18.3	0°18.3	0°17.4	1.3 - 0.0	7.3 - 0.2	13.3 - 0.3	13	0°33.3	0°33.3	0°31.7	1.3 - 0.1	7.3 - 0.3	13.3 - 0.6
14	0°03.5	0°03.5	0°03.3	1.4 - 0.0	7.4 - 0.1	13.4 - 0.1	14	0°18.5	0°18.6	0°17.7	1.4 - 0.0	7.4 - 0.2	13.4 - 0.3	14	0°33.5	0°33.6	0°32.0	1.4 - 0.1	7.4 - 0.3	13.4 - 0.6
15	0°03.8	0°03.8	0°03.6	1.5 - 0.0	7.5 - 0.1	13.5 - 0.1	15	0°18.8	0°18.8	0°17.9	1.5 - 0.0	7.5 - 0.2	13.5 - 0.3	15	0°33.8	0°33.8	0°32.2	1.5 - 0.1	7.5 - 0.3	13.5 - 0.6
16	0°04.0	0°04.0	0°03.8	1.6 - 0.0	7.6 - 0.1	13.6 - 0.1	16	0°19.0	0°19.1	0°18.1	1.6 - 0.0	7.6 - 0.2	13.6 - 0.3	16	0°34.0	0°34.1	0°32.5	1.6 - 0.1	7.6 - 0.3	13.6 - 0.6
17	0°04.3	0°04.3	0°04.1	1.7 - 0.0	7.7 - 0.1	13.7 - 0.1	17	0°19.3	0°19.3	0°18.4	1.7 - 0.0	7.7 - 0.2	13.7 - 0.3	17	0°34.3	0°34.3	0°32.7	1.7 - 0.1	7.7 - 0.3	13.7 - 0.6
18	0°04.5	0°04.5	0°04.3	1.8 - 0.0	7.8 - 0.1	13.8 - 0.1	18	0°19.5	0°19.6	0°18.6	1.8 - 0.0	7.8 - 0.2	13.8 - 0.3	18	0°34.5	0°34.6	0°32.9	1.8 - 0.1	7.8 - 0.3	13.8 - 0.6
19	0°04.8	0°04.8	0°04.5	1.9 - 0.0	7.9 - 0.1	13.9 - 0.1	19	0°19.8	0°19.8	0°18.9	1.9 - 0.0	7.9 - 0.2	13.9 - 0.3	19	0°34.8	0°34.8	0°33.2	1.9 - 0.1	7.9 - 0.3	13.9 - 0.6
20	0°05.0	0°05.0	0°04.8	2.0 - 0.0	8.0 - 0.1	14.0 - 0.1	20	0°20.0	0°20.1	0°19.1	2.0 - 0.1	8.0 - 0.2	14.0 - 0.4	20	0°35.0	0°35.1	0°33.4	2.0 - 0.1	8.0 - 0.3	14.0 - 0.6
21	0°05.3	0°05.3	0°05.0	2.1 - 0.0	8.1 - 0.1	14.1 - 0.1	21	0°20.3	0°20.3	0°19.3	2.1 - 0.1	8.1 - 0.2	14.1 - 0.4	21	0°35.3	0°35.3	0°33.6	2.1 - 0.1	8.1 - 0.3	14.1 - 0.6
22	0°05.5	0°05.5	0°05.2	2.2 - 0.0	8.2 - 0.1	14.2 - 0.1	22	0°20.5	0°20.6	0°19.6	2.2 - 0.1	8.2 - 0.2	14.2 - 0.4	22	0°35.5	0°35.6	0°33.9	2.2 - 0.1	8.2 - 0.3	14.2 - 0.6
23	0°05.8	0°05.8	0°05.5	2.3 - 0.0	8.3 - 0.1	14.3 - 0.1	23	0°20.8	0°20.8	0°19.8	2.3 - 0.1	8.3 - 0.2	14.3 - 0.4	23	0°35.8	0°35.8	0°34.1	2.3 - 0.1	8.3 - 0.3	14.3 - 0.6
24	0°06.0	0°06.0	0°05.7	2.4 - 0.0	8.4 - 0.1	14.4 - 0.1	24	0°21.0	0°21.1	0°20.0	2.4 - 0.1	8.4 - 0.2	14.4 - 0.4	24	0°36.0	0°36.1	0°34.4	2.4 - 0.1	8.4 - 0.3	14.4 - 0.6
25	0°06.3	0°06.3	0°06.0	2.5 - 0.0	8.5 - 0.1	14.5 - 0.1	25	0°21.3	0°21.3	0°20.3	2.5 - 0.1	8.5 - 0.2	14.5 - 0.4	25	0°36.3	0°36.3	0°34.6	2.5 - 0.1	8.5 - 0.4	14.5 - 0.6
26	0°06.5	0°06.5	0°06.2	2.6 - 0.0	8.6 - 0.1	14.6 - 0.1	26	0°21.5	0°21.6	0°20.5	2.6 - 0.1	8.6 - 0.2	14.6 - 0.4	26	0°36.5	0°36.6	0°34.8	2.6 - 0.1	8.6 - 0.4	14.6 - 0.6
27	0°06.8	0°06.8	0°06.4	2.7 - 0.0	8.7 - 0.1	14.7 - 0.1	27	0°21.8	0°21.8	0°20.8	2.7 - 0.1	8.7 - 0.2	14.7 - 0.4	27	0°36.8	0°36.9	0°35.1	2.7 - 0.1	8.7 - 0.4	14.7 - 0.6
28	0°07.0	0°07.0	0°06.7	2.8 - 0.0	8.8 - 0.1	14.8 - 0.1	28	0°22.0	0°22.1	0°21.0	2.8 - 0.1	8.8 - 0.2	14.8 - 0.4	28	0°37.0	0°37.1	0°35.3	2.8 - 0.1	8.8 - 0.4	14.8 - 0.6
29	0°07.3	0°07.3	0°06.9	2.9 - 0.0	8.9 - 0.1	14.9 - 0.1	29	0°22.3	0°22.3	0°21.2	2.9 - 0.1	8.9 - 0.2	14.9 - 0.4	29	0°37.3	0°37.4	0°35.6	2.9 - 0.1	8.9 - 0.4	14.9 - 0.6
30	0°07.5	0°07.5	0°07.2	3.0 - 0.0	9.0 - 0.1	15.0 - 0.1	30	0°22.5	0°22.6	0°21.5	3.0 - 0.1	9.0 - 0.2	15.0 - 0.4	30	0°37.5	0°37.6	0°35.8	3.0 - 0.1	9.0 - 0.4	15.0 - 0.6
31	0°07.8	0°07.8	0°07.4	3.1 - 0.0	9.1 - 0.1	15.1 - 0.1	31	0°22.8	0°22.8	0°21.7	3.1 - 0.1	9.1 - 0.2	15.1 - 0.4	31	0°37.8	0°37.9	0°36.0	3.1 - 0.1	9.1 - 0.4	15.1 - 0.6
32	0°08.0	0°08.0	0°07.6	3.2 - 0.0	9.2 - 0.1	15.2 - 0.1	32	0°23.0	0°23.1	0°22.0	3.2 - 0.1	9.2 - 0.2	15.2 - 0.4	32	0°38.0	0°38.1	0°36.3	3.2 - 0.1	9.2 - 0.4	15.2 - 0.6
33	0°08.3	0°08.3	0°07.9	3.3 - 0.0	9.3 - 0.1	15.3 - 0.1	33	0°23.3	0°23.3	0°22.2	3.3 - 0.1	9.3 - 0.2	15.3 - 0.4	33	0°38.3	0°38.4	0°36.5	3.3 - 0.1	9.3 - 0.4	15.3 - 0.6
34	0°08.5	0°08.5	0°08.1	3.4 - 0.0	9.4 - 0.1	15.4 - 0.1	34	0°23.5	0°23.6	0°22.4	3.4 - 0.1	9.4 - 0.2	15.4 - 0.4	34	0°38.5	0°38.6	0°36.7	3.4 - 0.1	9.4 - 0.4	15.4 - 0.6
35	0°08.8	0°08.8	0°08.4	3.5 - 0.0	9.5 - 0.1	15.5 - 0.1	35	0°23.8	0°23.8	0°22.7	3.5 - 0.1	9.5 - 0.2	15.5 - 0.4	35	0°38.8	0°38.9	0°37.0	3.5 - 0.1	9.5 - 0.4	15.5 - 0.6
36	0°09.0	0°09.0	0°08.6	3.6 - 0.0	9.6 - 0.1	15.6 - 0.1	36	0°24.0	0°24.1	0°22.9	3.6 - 0.1	9.6 - 0.2	15.6 - 0.4	36	0°39.0	0°39.1	0°37.2	3.6 - 0.1	9.6 - 0.4	15.6 - 0.6
37	0°09.3	0°09.3	0°08.8	3.7 - 0.0	9.7 - 0.1	15.7 - 0.1	37	0°24.3	0°24.3	0°23.1	3.7 - 0.1	9.7 - 0.2	15.7 - 0.4	37	0°39.3	0°39.4	0°37.5	3.7 - 0.2	9.7 - 0.4	15.7 - 0.7
38	0°09.5	0°09.5	0°09.1	3.8 - 0.0	9.8 - 0.1	15.8 - 0.1	38	0°24.5	0°24.6	0°23.4	3.8 - 0.1	9.8 - 0.2	15.8 - 0.4	38	0°39.5	0°39.6	0°37.7	3.8 - 0.2	9.8 - 0.4	15.8 - 0.7
39	0°09.8	0°09.8	0°09.3	3.9 - 0.0	9.9 - 0.1	15.9 - 0.1	39	0°24.8	0°24.8	0°23.6	3.9 - 0.1	9.9 - 0.2	15.9 - 0.4	39	0°39.8	0°39.9	0°37.9	3.9 - 0.2	9.9 - 0.4	15.9 - 0.7
40	0°10.0	0°10.0	0°09.5	4.0 - 0.0	10.0 - 0.1	16.0 - 0.1	40	0°25.0	0°25.1	0°23.9	4.0 - 0.1	10.0 - 0.3	16.0 - 0.4	40	0°40.0	0°40.1	0°38.2	4.0 - 0.2	10.0 - 0.4	16.0 - 0.7
41	0°10.3	0°10.3	0°09.8	4.1 - 0.0	10.1 - 0.1	16.1 - 0.1	41	0°25.3	0°25.3	0°24.1	4.1 - 0.1	10.1 - 0.3	16.1 - 0.4	41	0°40.3	0°40.4	0°38.4	4.1 - 0.2	10.1 - 0.4	16.1 - 0.7
42	0°10.5	0°10.5	0°10.0	4.2 - 0.0	10.2 - 0.1	16.2 - 0.1	42	0°25.5	0°25.6	0°24.3	4.2 - 0.1	10.2 - 0.3	16.2 - 0.4	42	0°40.5	0°40.6	0°38.7	4.2 - 0.2	10.2 - 0.4	16.2 - 0.7
43	0°10.8	0°10.8	0°10.3	4.3 - 0.0	10.3 - 0.1	16.3 - 0.1	43	0°25.8	0°25.8	0°24.6	4.3 - 0.1	10.3 - 0.3	16.3 - 0.4	43	0°40.8	0°40.9	0°38.9	4.3 - 0.2	10.3 - 0.4	16.3 - 0.7
44	0°11.0	0°11.0	0°10.5	4.4 - 0.0	10.4 - 0.1	16.4 - 0.1	44	0°26.0	0°26.1	0°24.8	4.4 - 0.1	10.4 - 0.3	16.4 - 0.4	44	0°41.0	0°41.1	0°39.1	4.4 - 0.2	10.4 - 0.4	16.4 - 0.7
45	0°11.3	0°11.3	0°10.7	4.5 - 0.0	10.5 - 0.1	16.5 - 0.1	45	0°26.3	0°26.3	0°25.1	4.5 - 0.1	10.5 - 0.3	16.5 - 0.4	45	0°41.3	0°41.4	0°39.4	4.5 - 0.2	10.5 - 0.4	16.5 - 0.7
46	0°11.5	0°11.5	0°11.0	4.6 - 0.0	10.6 - 0.1	16.6 - 0.1	46	0°26.5	0°26.6	0°25.3	4.6 - 0.1	10.6 - 0.3	16.6 - 0.4	46	0°41.5	0°41.6	0°39.6	4.6 - 0.2	10.6 - 0.4	16.6 - 0.7
47	0°11.8	0°11.8	0°11.2	4.7 - 0.0	10.7 - 0.1	16.7 - 0.1	47	0°26.8	0°26.8	0°25.5	4.7 - 0.1	10.7 - 0.3	16.7 - 0.4	47	0°41.8	0°41.9	0°39.8	4.7 - 0.2	10.7 - 0.4	16.7 - 0.7
48	0°12.0	0°12.0	0°11.5	4.8 - 0.0	10.8 - 0.1	16.8 - 0.1	48	0°27.0	0°27.1	0°25.8	4.8 - 0.1	10.8 - 0.3	16.8 - 0.4	48	0°42.0	0°42.1	0°40.1	4.8 - 0.2	10.8 - 0.5	16.8 - 0.7
49	0°12.3	0°12.3	0°11.7	4.9 - 0.0	10.9 - 0.1	16.9 - 0.1	49	0°27.3	0°27.3											

Increments and Corrections

m 3	Sun Plan.	Aries	Moon	v and d corr		
0	0°45.0	0°45.1	0°43.0	0.0 - 0.0	6.0 - 0.3	12.0 - 0.7
1	0°45.3	0°45.4	0°43.2	0.1 - 0.0	6.1 - 0.4	12.1 - 0.7
2	0°45.5	0°45.6	0°43.4	0.2 - 0.0	6.2 - 0.4	12.2 - 0.7
3	0°45.8	0°45.9	0°43.7	0.3 - 0.0	6.3 - 0.4	12.3 - 0.7
4	0°46.0	0°46.1	0°43.9	0.4 - 0.0	6.4 - 0.4	12.4 - 0.7
5	0°46.3	0°46.4	0°44.1	0.5 - 0.0	6.5 - 0.4	12.5 - 0.7
6	0°46.5	0°46.6	0°44.4	0.6 - 0.0	6.6 - 0.4	12.6 - 0.7
7	0°46.8	0°46.9	0°44.6	0.7 - 0.0	6.7 - 0.4	12.7 - 0.7
8	0°47.0	0°47.1	0°44.9	0.8 - 0.0	6.8 - 0.4	12.8 - 0.7
9	0°47.3	0°47.4	0°45.1	0.9 - 0.1	6.9 - 0.4	12.9 - 0.8
10	0°47.5	0°47.6	0°45.3	1.0 - 0.1	7.0 - 0.4	13.0 - 0.8
11	0°47.8	0°47.9	0°45.6	1.1 - 0.1	7.1 - 0.4	13.1 - 0.8
12	0°48.0	0°48.1	0°45.8	1.2 - 0.1	7.2 - 0.4	13.2 - 0.8
13	0°48.3	0°48.4	0°46.1	1.3 - 0.1	7.3 - 0.4	13.3 - 0.8
14	0°48.5	0°48.6	0°46.3	1.4 - 0.1	7.4 - 0.4	13.4 - 0.8
15	0°48.8	0°48.9	0°46.5	1.5 - 0.1	7.5 - 0.4	13.5 - 0.8
16	0°49.0	0°49.1	0°46.8	1.6 - 0.1	7.6 - 0.4	13.6 - 0.8
17	0°49.3	0°49.4	0°47.0	1.7 - 0.1	7.7 - 0.4	13.7 - 0.8
18	0°49.5	0°49.6	0°47.2	1.8 - 0.1	7.8 - 0.5	13.8 - 0.8
19	0°49.8	0°49.9	0°47.5	1.9 - 0.1	7.9 - 0.5	13.9 - 0.8
20	0°50.0	0°50.1	0°47.7	2.0 - 0.1	8.0 - 0.5	14.0 - 0.8
21	0°50.3	0°50.4	0°48.0	2.1 - 0.1	8.1 - 0.5	14.1 - 0.8
22	0°50.5	0°50.6	0°48.2	2.2 - 0.1	8.2 - 0.5	14.2 - 0.8
23	0°50.8	0°50.9	0°48.4	2.3 - 0.1	8.3 - 0.5	14.3 - 0.8
24	0°51.0	0°51.1	0°48.7	2.4 - 0.1	8.4 - 0.5	14.4 - 0.8
25	0°51.3	0°51.4	0°48.9	2.5 - 0.1	8.5 - 0.5	14.5 - 0.8
26	0°51.5	0°51.6	0°49.2	2.6 - 0.2	8.6 - 0.5	14.6 - 0.9
27	0°51.8	0°51.9	0°49.4	2.7 - 0.2	8.7 - 0.5	14.7 - 0.9
28	0°52.0	0°52.1	0°49.6	2.8 - 0.2	8.8 - 0.5	14.8 - 0.9
29	0°52.3	0°52.4	0°49.9	2.9 - 0.2	8.9 - 0.5	14.9 - 0.9
30	0°52.5	0°52.6	0°50.1	3.0 - 0.2	9.0 - 0.5	15.0 - 0.9
31	0°52.8	0°52.9	0°50.3	3.1 - 0.2	9.1 - 0.5	15.1 - 0.9
32	0°53.0	0°53.1	0°50.6	3.2 - 0.2	9.2 - 0.5	15.2 - 0.9
33	0°53.3	0°53.4	0°50.8	3.3 - 0.2	9.3 - 0.5	15.3 - 0.9
34	0°53.5	0°53.6	0°51.1	3.4 - 0.2	9.4 - 0.5	15.4 - 0.9
35	0°53.8	0°53.9	0°51.3	3.5 - 0.2	9.5 - 0.6	15.5 - 0.9
36	0°54.0	0°54.1	0°51.5	3.6 - 0.2	9.6 - 0.6	15.6 - 0.9
37	0°54.3	0°54.4	0°51.8	3.7 - 0.2	9.7 - 0.6	15.7 - 0.9
38	0°54.5	0°54.6	0°52.0	3.8 - 0.2	9.8 - 0.6	15.8 - 0.9
39	0°54.8	0°54.9	0°52.3	3.9 - 0.2	9.9 - 0.6	15.9 - 0.9
40	0°55.0	0°55.2	0°52.5	4.0 - 0.2	10.0 - 0.6	16.0 - 0.9
41	0°55.3	0°55.4	0°52.7	4.1 - 0.2	10.1 - 0.6	16.1 - 0.9
42	0°55.5	0°55.7	0°53.0	4.2 - 0.2	10.2 - 0.6	16.2 - 0.9
43	0°55.8	0°55.9	0°53.2	4.3 - 0.3	10.3 - 0.6	16.3 - 1.0
44	0°56.0	0°56.2	0°53.4	4.4 - 0.3	10.4 - 0.6	16.4 - 1.0
45	0°56.3	0°56.4	0°53.7	4.5 - 0.3	10.5 - 0.6	16.5 - 1.0
46	0°56.5	0°56.7	0°53.9	4.6 - 0.3	10.6 - 0.6	16.6 - 1.0
47	0°56.8	0°56.9	0°54.2	4.7 - 0.3	10.7 - 0.6	16.7 - 1.0
48	0°57.0	0°57.2	0°54.4	4.8 - 0.3	10.8 - 0.6	16.8 - 1.0
49	0°57.3	0°57.4	0°54.6	4.9 - 0.3	10.9 - 0.6	16.9 - 1.0
50	0°57.5	0°57.7	0°54.9	5.0 - 0.3	11.0 - 0.6	17.0 - 1.0
51	0°57.7	0°57.9	0°55.1	5.1 - 0.3	11.1 - 0.6	17.1 - 1.0
52	0°58.0	0°58.2	0°55.4	5.2 - 0.3	11.2 - 0.7	17.2 - 1.0
53	0°58.3	0°58.4	0°55.6	5.3 - 0.3	11.3 - 0.7	17.3 - 1.0
54	0°58.5	0°58.7	0°55.8	5.4 - 0.3	11.4 - 0.7	17.4 - 1.0
55	0°58.8	0°58.9	0°56.1	5.5 - 0.3	11.5 - 0.7	17.5 - 1.0
56	0°59.0	0°59.2	0°56.3	5.6 - 0.3	11.6 - 0.7	17.6 - 1.0
57	0°59.3	0°59.4	0°56.6	5.7 - 0.3	11.7 - 0.7	17.7 - 1.0
58	0°59.5	0°59.7	0°56.8	5.8 - 0.3	11.8 - 0.7	17.8 - 1.0
59	0°59.8	0°59.9	0°57.0	5.9 - 0.3	11.9 - 0.7	17.9 - 1.0

m 4	Sun Plan.	Aries	Moon	v and d corr		
0	1°00.0	1°00.2	0°57.3	0.0 - 0.0	6.0 - 0.4	12.0 - 0.9
1	1°00.2	1°00.4	0°57.5	0.1 - 0.0	6.1 - 0.5	12.1 - 0.9
2	1°00.5	1°00.7	0°57.7	0.2 - 0.0	6.2 - 0.5	12.2 - 0.9
3	1°00.7	1°00.9	0°58.0	0.3 - 0.0	6.3 - 0.5	12.3 - 0.9
4	1°01.0	1°01.2	0°58.2	0.4 - 0.0	6.4 - 0.5	12.4 - 0.9
5	1°01.2	1°01.4	0°58.5	0.5 - 0.0	6.5 - 0.5	12.5 - 0.9
6	1°01.5	1°01.7	0°58.7	0.6 - 0.0	6.6 - 0.5	12.6 - 0.9
7	1°01.7	1°01.9	0°58.9	0.7 - 0.1	6.7 - 0.5	12.7 - 1.0
8	1°02.0	1°02.2	0°59.2	0.8 - 0.1	6.8 - 0.5	12.8 - 1.0
9	1°02.3	1°02.4	0°59.4	0.9 - 0.1	6.9 - 0.5	12.9 - 1.0
10	1°02.5	1°02.7	0°59.7	1.0 - 0.1	7.0 - 0.5	13.0 - 1.0
11	1°02.8	1°02.9	0°59.9	1.1 - 0.1	7.1 - 0.5	13.1 - 1.0
12	1°03.0	1°03.2	1°00.1	1.2 - 0.1	7.2 - 0.5	13.2 - 1.0
13	1°03.3	1°03.4	1°00.4	1.3 - 0.1	7.3 - 0.5	13.3 - 1.0
14	1°03.5	1°03.7	1°00.6	1.4 - 0.1	7.4 - 0.6	13.4 - 1.0
15	1°03.8	1°03.9	1°00.8	1.5 - 0.1	7.5 - 0.6	13.5 - 1.0
16	1°04.0	1°04.2	1°01.1	1.6 - 0.1	7.6 - 0.6	13.6 - 1.0
17	1°04.2	1°04.4	1°01.3	1.7 - 0.1	7.7 - 0.6	13.7 - 1.0
18	1°04.5	1°04.7	1°01.6	1.8 - 0.1	7.8 - 0.6	13.8 - 1.0
19	1°04.7	1°04.9	1°01.8	1.9 - 0.1	7.9 - 0.6	13.9 - 1.0
20	1°05.0	1°05.2	1°02.0	2.0 - 0.1	8.0 - 0.6	14.0 - 1.1
21	1°05.2	1°05.4	1°02.3	2.1 - 0.2	8.1 - 0.6	14.1 - 1.1
22	1°05.5	1°05.7	1°02.5	2.2 - 0.2	8.2 - 0.6	14.2 - 1.1
23	1°05.8	1°05.9	1°02.8	2.3 - 0.2	8.3 - 0.6	14.3 - 1.1
24	1°06.0	1°06.2	1°03.0	2.4 - 0.2	8.4 - 0.6	14.4 - 1.1
25	1°06.3	1°06.4	1°03.2	2.5 - 0.2	8.5 - 0.6	14.5 - 1.1
26	1°06.5	1°06.7	1°03.5	2.6 - 0.2	8.6 - 0.6	14.6 - 1.1
27	1°06.8	1°06.9	1°03.7	2.7 - 0.2	8.7 - 0.7	14.7 - 1.1
28	1°07.0	1°07.2	1°03.9	2.8 - 0.2	8.8 - 0.7	14.8 - 1.1
29	1°07.3	1°07.4	1°04.2	2.9 - 0.2	8.9 - 0.7	14.9 - 1.1
30	1°07.5	1°07.7	1°04.4	3.0 - 0.2	9.0 - 0.7	15.0 - 1.1
31	1°07.7	1°07.9	1°04.7	3.1 - 0.2	9.1 - 0.7	15.1 - 1.1
32	1°08.0	1°08.2	1°04.9	3.2 - 0.2	9.2 - 0.7	15.2 - 1.1
33	1°08.2	1°08.4	1°05.1	3.3 - 0.2	9.3 - 0.7	15.3 - 1.1
34	1°08.5	1°08.7	1°05.4	3.4 - 0.3	9.4 - 0.7	15.4 - 1.2
35	1°08.7	1°08.9	1°05.6	3.5 - 0.3	9.5 - 0.7	15.5 - 1.2
36	1°09.0	1°09.2	1°05.9	3.6 - 0.3	9.6 - 0.7	15.6 - 1.2
37	1°09.3	1°09.4	1°06.1	3.7 - 0.3	9.7 - 0.7	15.7 - 1.2
38	1°09.5	1°09.7	1°06.3	3.8 - 0.3	9.8 - 0.7	15.8 - 1.2
39	1°09.8	1°09.9	1°06.6	3.9 - 0.3	9.9 - 0.7	15.9 - 1.2
40	1°10.0	1°10.2	1°06.8	4.0 - 0.3	10.0 - 0.8	16.0 - 1.2
41	1°10.3	1°10.4	1°07.0	4.1 - 0.3	10.1 - 0.8	16.1 - 1.2
42	1°10.5	1°10.7	1°07.3	4.2 - 0.3	10.2 - 0.8	16.2 - 1.2
43	1°10.8	1°10.9	1°07.5	4.3 - 0.3	10.3 - 0.8	16.3 - 1.2
44	1°11.0	1°11.2	1°07.8	4.4 - 0.3	10.4 - 0.8	16.4 - 1.2
45	1°11.3	1°11.4	1°08.0	4.5 - 0.3	10.5 - 0.8	16.5 - 1.2
46	1°11.5	1°11.7	1°08.2	4.6 - 0.3	10.6 - 0.8	16.6 - 1.2
47	1°11.7	1°11.9	1°08.5	4.7 - 0.4	10.7 - 0.8	16.7 - 1.3
48	1°12.0	1°12.2	1°08.7	4.8 - 0.4	10.8 - 0.8	16.8 - 1.3
49	1°12.2	1°12.4	1°09.0	4.9 - 0.4	10.9 - 0.8	16.9 - 1.3
50	1°12.5	1°12.7	1°09.2	5.0 - 0.4	11.0 - 0.8	17.0 - 1.3
51	1°12.7	1°12.9	1°09.4	5.1 - 0.4	11.1 - 0.8	17.1 - 1.3
52	1°13.0	1°13.2	1°09.7	5.2 - 0.4	11.2 - 0.8	17.2 - 1.3
53	1°13.2	1°13.5	1°09.9	5.3 - 0.4	11.3 - 0.8	17.3 - 1.3
54	1°13.5	1°13.7	1°10.2	5.4 - 0.4	11.4 - 0.9	17.4 - 1.3
55	1°13.8	1°14.0	1°10.4	5.5 - 0.4	11.5 - 0.9	17.5 - 1.3
56	1°14.0	1°14.2	1°10.6	5.6 - 0.4	11.6 - 0.9	17.6 - 1.3
57	1°14.3	1°14.5	1°10.9	5.7 - 0.4	11.7 - 0.9	17.7 - 1.3
58	1°14.5	1°14.7	1°11.1	5.8 - 0.4	11.8 - 0.9	17.8 - 1.3
59	1°14.8	1°15.0	1°11.3	5.9 - 0.4	11.9 - 0.9	17.9 - 1.3

m 5	Sun Plan.	Aries	Moon	v and d corr		
0	1°15.0	1°15.2	1°11.6	0.0 - 0.0	6.0 - 0.5	12.0 - 1.1
1	1°15.3	1°15.5	1°11.8	0.1 - 0.0	6.1 - 0.6	12.1 - 1.1
2	1°15.5	1°15.7	1°12.1	0.2 - 0.0	6.2 - 0.6	12.2 - 1.1
3	1°15.7	1°16.0	1°12.3	0.3 - 0.0	6.3 - 0.6	12.3 - 1.1
4	1°16.0	1°16.2	1°12.5	0.4 - 0.0	6.4 - 0.6	12.4 - 1.1
5	1°16.2	1°16.5	1°12.8	0.5 - 0.0	6.5 - 0.6	12.5 - 1.1
6	1°16.5	1°16.7	1°13.0	0.6 - 0.1	6.6 - 0.6	12.6 - 1.2
7	1°16.7	1°17.0	1°13.3	0.7 - 0.1	6.7 - 0.6	12.7 - 1.2
8	1°17.0	1°17.2	1°13.5	0.8 - 0.1	6.8 - 0.6	12.8 - 1.2
9	1°17.3	1°17.5	1°13.7	0.9 - 0.1	6.9 - 0.6	12.9 - 1.2
10	1°17.5	1°17.7	1°14.0	1.0 - 0.1	7.0 - 0.6	13.0 - 1.2
11	1°17.8	1°18.0	1°14.2	1.1 - 0.1	7.1 - 0.7	13.1 - 1.2
12	1°18.0	1°18.2	1°14.4	1.2 - 0.1	7.2 - 0.7	13.2 - 1.2
13	1°18.3	1°18.5	1°14.7	1.3 - 0.1	7.3 - 0.7	13.3 - 1.2
14	1°18.5	1°18.7	1°14.9	1.4 - 0.1	7.4 - 0.7	13.4 - 1.2
15	1°18.8	1°19.0	1°15.2	1.5 - 0.1	7.5 - 0.7	13.5 - 1.2
16	1°19.0	1°19.2	1°15.4	1.6 - 0.1	7.6 - 0.7	13.6 - 1.2
17	1°19.3	1°19.5	1°15.6	1.7 - 0.2	7.7 - 0.7	13.7 - 1.3
18	1°19.5	1°19.7	1°15.9	1.8 - 0.2	7.8 - 0.7	13.8 - 1.3
19	1°19.7	1°20.0	1°16.1	1.9 - 0.2	7.9 - 0.7	13.9 - 1.3
20	1°20.0	1°20.2	1°16.4	2.0 - 0.2	8.0 - 0.7	14.0 - 1.3
21	1°20.2	1°20.5	1°16.6	2.1 - 0.2	8.1 - 0.7	14.1 - 1.3
22	1°20.5	1°20.7	1°16.8	2.2 - 0.2	8.2 - 0.8	14.2 - 1.3
23	1°20.8	1°21.0	1°17.1	2.3 - 0.2	8.3 - 0.8	14.3 - 1.3
24	1°21.0	1°21.2	1°17.3	2.4 - 0.2	8.4 - 0.8	14.4 - 1.3
25	1°21.3	1°21.5	1°17.5	2.5 - 0.2	8.5 - 0.8	14.5 - 1.3
26	1°21.5	1°21.7	1°17.8	2.6 - 0.2	8.6 - 0.8	14.6 - 1.3
27	1°21.8	1°22.0	1°18.0	2.7 - 0.2	8.7 - 0.8	14.7 - 1.3
28	1°22.0	1°22.2	1°18.3	2.8 - 0.3	8.8 - 0.8	14.8 - 1.4
29	1°22.3	1°22.5	1°18.5	2.9 - 0.3	8.9 - 0.8	14.9 - 1.4
30	1°22.5	1°22.7	1°18.7	3.0 - 0.3	9.0 - 0.8	15.0 - 1.4
31	1°22.8	1°23.0	1°19.0	3.1 - 0.3	9.1 - 0.8	15.1 - 1.4
32	1°23.0	1°23.2	1°19.2	3.2 - 0.3	9.2 - 0.8	15.2 - 1.4
33	1°23.2	1°23.5	1°19.5	3.3 - 0.3	9.3 - 0.9	15.3 - 1.4
34	1°23.5	1°23.7	1°19.7	3.4 - 0.3	9.4 - 0.9	15.4 - 1.4
35	1°23.7	1°24.0	1°19.9	3.5 - 0.3	9.5 - 0.9	15.5 - 1.4
36	1°24.0	1°24.2	1°20.2	3.6 - 0.3	9.6 - 0.9	15.6 - 1.4
37	1°24.3	1°24.5	1°20.4	3.7 - 0.3	9.7 - 0.9	15.7 - 1.4
38	1°24.5	1°24.7	1°20.7	3.8 - 0.3	9.8 - 0.9	15.8 - 1.4
39	1°24.8	1°25.0	1°20.9	3.9 - 0.4	9.9 - 0.9	15.9 - 1.5
40	1°25.0	1°25.2	1°21.1	4.0 - 0.4	10.0 - 0.9	16.0 - 1.5
41	1°25.3	1°25.5	1°21.4	4.1 - 0.4	10.1 - 0.9	16.1 - 1.5
42	1°25.5	1°25.7	1°21.6	4.2 - 0.4	10.2 - 0.9	16.2 - 1.5
43	1°25.8	1°26.0	1°21.8	4.3 - 0.4	10.3 - 0.9	16.3 - 1.5
44	1°26.0	1°26.2	1°22.1	4.4 - 0.4	10.4 - 1.0	16.4 - 1.5
45	1°26.3	1°26.5	1°22.3	4.5 - 0.4	10.5 - 1.0	16.5 - 1.5
46	1°26.5	1°26.7	1°22.6	4.6 - 0.4	10.6 - 1.0	16.6 - 1.5
47	1°26.8	1°27.0	1°22.8	4.7 - 0.4	10.7 - 1.0	16.7 - 1.5
48	1°27.0	1°27.2	1°23.0	4.8 - 0.4	10.8 - 1.0	16.8 - 1.5
49	1°27.2	1°27.5	1°23.3	4.9 - 0.4	10.9 - 1.0	16.9 - 1.5
50	1°27.5	1°27.7	1°23.5	5.0 - 0.5	11.0 - 1.0	17.0 - 1.6
51	1°27.7	1°28.0	1°23.8	5.1 - 0.5	11.1 - 1.0	17.1 - 1.6
52	1°28.0	1°28.2	1°24.0	5.2 - 0.5	11.2 - 1.0	17.2 - 1.6
53	1°28.2	1°28.5	1°24.2	5.3 - 0.5	11.3 - 1.0	17.3 - 1.6
54	1°28.5	1°28.7	1°24.5	5.4 - 0.5	11.4 - 1.0	17.4 - 1.6
55	1°28.8	1°29.0	1°24.7	5.5 - 0.5	11.5 - 1.1	17.5 - 1.6
56	1°29.0	1°29.2	1°24.9	5.6 - 0.5	11.6 - 1.1	17.6 - 1.6
57	1°29.3	1°29.5	1°25.2	5.7 - 0.5	11.7 - 1.1	17.7 - 1.6
58	1°29.5	1°29.7	1°25.4	5.8 - 0.5	11.8 - 1.1	17.8 - 1.6
59	1°29.8	1°30.0	1°25.7	5.9 - 0.5	11.9 - 1.1	17.9 - 1.6

Increments and Corrections

m 6	Sun Plan.	Aries	Moon	v and d corr			m 7	Sun Plan.	Aries	Moon	v and d corr			m 8	Sun Plan.	Aries	Moon	v and d corr		
0	1°30.0	1°30.2	1°25.9	0.0 - 0.0	6.0 - 0.7	12.0 - 1.3	0	1°45.0	1°45.3	1°40.2	0.0 - 0.0	6.0 - 0.8	12.0 - 1.5	0	2°00.0	2°00.3	1°54.5	0.0 - 0.0	6.0 - 0.8	12.0 - 1.7
1	1°30.3	1°30.5	1°26.1	0.1 - 0.0	6.1 - 0.7	12.1 - 1.3	1	1°45.3	1°45.5	1°40.5	0.1 - 0.0	6.1 - 0.8	12.1 - 1.5	1	2°00.3	2°00.6	1°54.8	0.1 - 0.0	6.1 - 0.9	12.1 - 1.7
2	1°30.5	1°30.7	1°26.4	0.2 - 0.0	6.2 - 0.7	12.2 - 1.3	2	1°45.5	1°45.8	1°40.7	0.2 - 0.0	6.2 - 0.8	12.2 - 1.5	2	2°00.5	2°00.8	1°55.0	0.2 - 0.0	6.2 - 0.9	12.2 - 1.7
3	1°30.7	1°31.0	1°26.6	0.3 - 0.0	6.3 - 0.7	12.3 - 1.3	3	1°45.8	1°46.0	1°40.9	0.3 - 0.0	6.3 - 0.8	12.3 - 1.5	3	2°00.8	2°01.1	1°55.2	0.3 - 0.0	6.3 - 0.9	12.3 - 1.7
4	1°31.0	1°31.2	1°26.9	0.4 - 0.0	6.4 - 0.7	12.4 - 1.3	4	1°46.0	1°46.3	1°41.2	0.4 - 0.1	6.4 - 0.8	12.4 - 1.6	4	2°01.0	2°01.3	1°55.5	0.4 - 0.1	6.4 - 0.9	12.4 - 1.8
5	1°31.2	1°31.5	1°27.1	0.5 - 0.1	6.5 - 0.7	12.5 - 1.4	5	1°46.2	1°46.5	1°41.4	0.5 - 0.1	6.5 - 0.8	12.5 - 1.6	5	2°01.3	2°01.6	1°55.7	0.5 - 0.1	6.5 - 0.9	12.5 - 1.8
6	1°31.5	1°31.8	1°27.3	0.6 - 0.1	6.6 - 0.7	12.6 - 1.4	6	1°46.5	1°46.8	1°41.6	0.6 - 0.1	6.6 - 0.8	12.6 - 1.6	6	2°01.5	2°01.8	1°56.0	0.6 - 0.1	6.6 - 0.9	12.6 - 1.8
7	1°31.7	1°32.0	1°27.6	0.7 - 0.1	6.7 - 0.7	12.7 - 1.4	7	1°46.7	1°47.0	1°41.9	0.7 - 0.1	6.7 - 0.8	12.7 - 1.6	7	2°01.8	2°02.1	1°56.2	0.7 - 0.1	6.7 - 0.9	12.7 - 1.8
8	1°32.0	1°32.3	1°27.8	0.8 - 0.1	6.8 - 0.7	12.8 - 1.4	8	1°47.0	1°47.3	1°42.1	0.8 - 0.1	6.8 - 0.8	12.8 - 1.6	8	2°02.0	2°02.3	1°56.4	0.8 - 0.1	6.8 - 1.0	12.8 - 1.8
9	1°32.3	1°32.5	1°28.0	0.9 - 0.1	6.9 - 0.7	12.9 - 1.4	9	1°47.3	1°47.5	1°42.4	0.9 - 0.1	6.9 - 0.9	12.9 - 1.6	9	2°02.3	2°02.6	1°56.7	0.9 - 0.1	6.9 - 1.0	12.9 - 1.8
10	1°32.5	1°32.8	1°28.3	1.0 - 0.1	7.0 - 0.8	13.0 - 1.4	10	1°47.5	1°47.8	1°42.6	1.0 - 0.1	7.0 - 0.9	13.0 - 1.6	10	2°02.5	2°02.8	1°56.9	1.0 - 0.1	7.0 - 1.0	13.0 - 1.8
11	1°32.8	1°33.0	1°28.5	1.1 - 0.1	7.1 - 0.8	13.1 - 1.4	11	1°47.8	1°48.0	1°42.8	1.1 - 0.1	7.1 - 0.9	13.1 - 1.6	11	2°02.8	2°03.1	1°57.2	1.1 - 0.2	7.1 - 1.0	13.1 - 1.9
12	1°33.0	1°33.3	1°28.8	1.2 - 0.1	7.2 - 0.8	13.2 - 1.4	12	1°48.0	1°48.3	1°43.1	1.2 - 0.2	7.2 - 0.9	13.2 - 1.6	12	2°03.0	2°03.3	1°57.4	1.2 - 0.2	7.2 - 1.0	13.2 - 1.9
13	1°33.3	1°33.5	1°29.0	1.3 - 0.1	7.3 - 0.8	13.3 - 1.4	13	1°48.3	1°48.5	1°43.3	1.3 - 0.2	7.3 - 0.9	13.3 - 1.7	13	2°03.3	2°03.6	1°57.6	1.3 - 0.2	7.3 - 1.0	13.3 - 1.9
14	1°33.5	1°33.8	1°29.2	1.4 - 0.2	7.4 - 0.8	13.4 - 1.5	14	1°48.5	1°48.8	1°43.6	1.4 - 0.2	7.4 - 0.9	13.4 - 1.7	14	2°03.5	2°03.8	1°57.9	1.4 - 0.2	7.4 - 1.0	13.4 - 1.9
15	1°33.8	1°34.0	1°29.5	1.5 - 0.2	7.5 - 0.8	13.5 - 1.5	15	1°48.8	1°49.0	1°43.8	1.5 - 0.2	7.5 - 0.9	13.5 - 1.7	15	2°03.8	2°04.1	1°58.1	1.5 - 0.2	7.5 - 1.1	13.5 - 1.9
16	1°34.0	1°34.3	1°29.7	1.6 - 0.2	7.6 - 0.8	13.6 - 1.5	16	1°49.0	1°49.3	1°44.0	1.6 - 0.2	7.6 - 0.9	13.6 - 1.7	16	2°04.0	2°04.3	1°58.4	1.6 - 0.2	7.6 - 1.1	13.6 - 1.9
17	1°34.3	1°34.5	1°30.0	1.7 - 0.2	7.7 - 0.8	13.7 - 1.5	17	1°49.3	1°49.5	1°44.3	1.7 - 0.2	7.7 - 1.0	13.7 - 1.7	17	2°04.2	2°04.6	1°58.6	1.7 - 0.2	7.7 - 1.1	13.7 - 1.9
18	1°34.5	1°34.8	1°30.2	1.8 - 0.2	7.8 - 0.8	13.8 - 1.5	18	1°49.5	1°49.8	1°44.5	1.8 - 0.2	7.8 - 1.0	13.8 - 1.7	18	2°04.5	2°04.8	1°58.8	1.8 - 0.3	7.8 - 1.1	13.8 - 2.0
19	1°34.8	1°35.0	1°30.4	1.9 - 0.2	7.9 - 0.9	13.9 - 1.5	19	1°49.8	1°50.0	1°44.8	1.9 - 0.2	7.9 - 1.0	13.9 - 1.7	19	2°04.7	2°05.1	1°59.1	1.9 - 0.3	7.9 - 1.1	13.9 - 2.0
20	1°35.0	1°35.3	1°30.7	2.0 - 0.2	8.0 - 0.9	14.0 - 1.5	20	1°50.0	1°50.3	1°45.0	2.0 - 0.3	8.0 - 1.0	14.0 - 1.8	20	2°05.0	2°05.3	1°59.3	2.0 - 0.3	8.0 - 1.1	14.0 - 2.0
21	1°35.2	1°35.5	1°30.9	2.1 - 0.2	8.1 - 0.9	14.1 - 1.5	21	1°50.2	1°50.6	1°45.2	2.1 - 0.3	8.1 - 1.0	14.1 - 1.8	21	2°05.2	2°05.6	1°59.5	2.1 - 0.3	8.1 - 1.1	14.1 - 2.0
22	1°35.5	1°35.8	1°31.1	2.2 - 0.2	8.2 - 0.9	14.2 - 1.5	22	1°50.5	1°50.8	1°45.5	2.2 - 0.3	8.2 - 1.0	14.2 - 1.8	22	2°05.5	2°05.8	1°59.8	2.2 - 0.3	8.2 - 1.2	14.2 - 2.0
23	1°35.8	1°36.0	1°31.4	2.3 - 0.2	8.3 - 0.9	14.3 - 1.5	23	1°50.8	1°51.1	1°45.7	2.3 - 0.3	8.3 - 1.0	14.3 - 1.8	23	2°05.7	2°06.1	2°00.0	2.3 - 0.3	8.3 - 1.2	14.3 - 2.0
24	1°36.0	1°36.3	1°31.6	2.4 - 0.3	8.4 - 0.9	14.4 - 1.6	24	1°51.0	1°51.3	1°45.9	2.4 - 0.3	8.4 - 1.1	14.4 - 1.8	24	2°06.0	2°06.3	2°00.3	2.4 - 0.3	8.4 - 1.2	14.4 - 2.0
25	1°36.3	1°36.5	1°31.9	2.5 - 0.3	8.5 - 0.9	14.5 - 1.6	25	1°51.3	1°51.6	1°46.2	2.5 - 0.3	8.5 - 1.1	14.5 - 1.8	25	2°06.2	2°06.6	2°00.5	2.5 - 0.4	8.5 - 1.2	14.5 - 2.1
26	1°36.5	1°36.8	1°32.1	2.6 - 0.3	8.6 - 0.9	14.6 - 1.6	26	1°51.5	1°51.8	1°46.4	2.6 - 0.3	8.6 - 1.1	14.6 - 1.8	26	2°06.5	2°06.8	2°00.7	2.6 - 0.4	8.6 - 1.2	14.6 - 2.1
27	1°36.8	1°37.0	1°32.3	2.7 - 0.3	8.7 - 0.9	14.7 - 1.6	27	1°51.8	1°52.1	1°46.7	2.7 - 0.3	8.7 - 1.1	14.7 - 1.8	27	2°06.7	2°07.1	2°01.0	2.7 - 0.4	8.7 - 1.2	14.7 - 2.1
28	1°37.0	1°37.3	1°32.6	2.8 - 0.3	8.8 - 1.0	14.8 - 1.6	28	1°52.0	1°52.3	1°46.9	2.8 - 0.4	8.8 - 1.1	14.8 - 1.9	28	2°07.0	2°07.3	2°01.2	2.8 - 0.4	8.8 - 1.2	14.8 - 2.1
29	1°37.3	1°37.5	1°32.8	2.9 - 0.3	8.9 - 1.0	14.9 - 1.6	29	1°52.3	1°52.6	1°47.1	2.9 - 0.4	8.9 - 1.1	14.9 - 1.9	29	2°07.2	2°07.6	2°01.5	2.9 - 0.4	8.9 - 1.3	14.9 - 2.1
30	1°37.5	1°37.8	1°33.1	3.0 - 0.3	9.0 - 1.0	15.0 - 1.6	30	1°52.5	1°52.8	1°47.4	3.0 - 0.4	9.0 - 1.1	15.0 - 1.9	30	2°07.5	2°07.8	2°01.7	3.0 - 0.4	9.0 - 1.3	15.0 - 2.1
31	1°37.8	1°38.0	1°33.3	3.1 - 0.3	9.1 - 1.0	15.1 - 1.6	31	1°52.7	1°53.1	1°47.6	3.1 - 0.4	9.1 - 1.1	15.1 - 1.9	31	2°07.8	2°08.1	2°01.9	3.1 - 0.4	9.1 - 1.3	15.1 - 2.1
32	1°38.0	1°38.3	1°33.5	3.2 - 0.3	9.2 - 1.0	15.2 - 1.6	32	1°53.0	1°53.3	1°47.9	3.2 - 0.4	9.2 - 1.1	15.2 - 1.9	32	2°08.0	2°08.3	2°02.2	3.2 - 0.5	9.2 - 1.3	15.2 - 2.2
33	1°38.3	1°38.5	1°33.8	3.3 - 0.4	9.3 - 1.0	15.3 - 1.7	33	1°53.3	1°53.6	1°48.1	3.3 - 0.4	9.3 - 1.2	15.3 - 1.9	33	2°08.3	2°08.6	2°02.4	3.3 - 0.5	9.3 - 1.3	15.3 - 2.2
34	1°38.5	1°38.8	1°34.0	3.4 - 0.4	9.4 - 1.0	15.4 - 1.7	34	1°53.5	1°53.8	1°48.3	3.4 - 0.4	9.4 - 1.2	15.4 - 1.9	34	2°08.5	2°08.9	2°02.6	3.4 - 0.5	9.4 - 1.3	15.4 - 2.2
35	1°38.7	1°39.0	1°34.3	3.5 - 0.4	9.5 - 1.0	15.5 - 1.7	35	1°53.7	1°54.1	1°48.6	3.5 - 0.4	9.5 - 1.2	15.5 - 1.9	35	2°08.8	2°09.1	2°02.9	3.5 - 0.5	9.5 - 1.3	15.5 - 2.2
36	1°39.0	1°39.3	1°34.5	3.6 - 0.4	9.6 - 1.0	15.6 - 1.7	36	1°54.0	1°54.3	1°48.8	3.6 - 0.5	9.6 - 1.2	15.6 - 1.9	36	2°09.0	2°09.4	2°03.1	3.6 - 0.5	9.6 - 1.4	15.6 - 2.2
37	1°39.3	1°39.5	1°34.7	3.7 - 0.4	9.7 - 1.1	15.7 - 1.7	37	1°54.2	1°54.6	1°49.0	3.7 - 0.5	9.7 - 1.2	15.7 - 2.0	37	2°09.3	2°09.6	2°03.4	3.7 - 0.5	9.7 - 1.4	15.7 - 2.2
38	1°39.5	1°39.8	1°35.0	3.8 - 0.4	9.8 - 1.1	15.8 - 1.7	38	1°54.5	1°54.8	1°49.3	3.8 - 0.5	9.8 - 1.2	15.8 - 2.0	38	2°09.5	2°09.9	2°03.6	3.8 - 0.5	9.8 - 1.4	15.8 - 2.2
39	1°39.8	1°40.0	1°35.2	3.9 - 0.4	9.9 - 1.1	15.9 - 1.7	39	1°54.8	1°55.1	1°49.5	3.9 - 0.5	9.9 - 1.2	15.9 - 2.0	39	2°09.8	2°10.1	2°03.8	3.9 - 0.6	9.9 - 1.4	15.9 - 2.3
40	1°40.0	1°40.3	1°35.4	4.0 - 0.4	10.0 - 1.1	16.0 - 1.7	40	1°55.0	1°55.3	1°49.8	4.0 - 0.5	10.0 - 1.3	16.0 - 2.0	40	2°10.0	2°10.4	2°04.1	4.0 - 0.6	10.0 - 1.4	16.0 - 2.3
41	1°40.3	1°40.5	1°35.7	4.1 - 0.4	10.1 - 1.1	16.1 - 1.7	41	1°55.3	1°55.6	1°50.0	4.1 - 0.5	10.1 - 1.3	16.1 - 2.0	41	2°10.3	2°10.6	2°04.3	4.1 - 0.6	10.1 - 1.4	16.1 - 2.3
42	1°40.5	1°40.8	1°35.9	4.2 - 0.5	10.2 - 1.1	16.2 - 1.8	42	1°55.5	1°55.8	1°50.2	4.2 - 0.5	10.2 - 1.3	16.2 - 2.0	42	2°10.5	2°10.9	2°04.6	4.2 - 0.6	10.2 - 1.4	16.2 - 2.3
43	1°40.8	1°41.0	1°36.2	4.3 - 0.5	10.3 - 1.1	16.3 - 1.8	43	1°55.8	1°56.1	1°50.5	4.3 - 0.5	10.3 - 1.3	16.3 - 2.0	43	2°10.8	2°11.1	2°04.8	4.3 - 0.6	10.3 - 1.5	16.3 - 2.3
44	1°41.0	1°41.3	1°36.4	4.4 - 0.5	10.4 - 1.1	16.4 - 1.8	44	1°56.0	1°56.3	1°50.7	4.4 - 0.6	10.4 - 1.3	16.4 - 2.0	44	2°11.0	2°11.4	2°05.0	4.4 - 0.6	10.4 - 1.5	16.4 - 2.3
45	1°41.3	1°41.5	1°36.6	4.5 - 0.5	10.5 - 1.1	16.5 - 1.8	45	1°56.3	1°56.6	1°51.0	4.5 - 0.6	10.5 - 1.3	16.5 - 2.1	45	2°11.3	2°11.6	2°05.3	4.5 - 0.6	10.5 - 1.5	16.5 - 2.3
46	1°41.5	1°41.8	1°36.9	4.6 - 0.5	10.6 - 1.1	16.6 - 1.8	46	1°56.5	1°56.8	1°51.2	4.6 - 0.6	10.6 - 1.3	16.6 - 2.1	46	2°11.5	2°11.9	2°05.5	4.6 - 0.7	10.6 - 1.5	16.6 - 2.4
47	1°41.8	1°42.0	1°37.1	4.7 - 0.5	10.7 - 1.2	16.7 - 1.8	47	1°56.7	1°57.1	1°51.4	4.7 - 0.6	10.7 - 1.3	16.7 - 2.1	47	2°11.7	2°12.1	2°05.7	4.7 - 0.7	10.7 - 1.5	16.7 - 2.4
48	1°42.0	1°42.3	1°37.4	4.8 - 0.5	10.8 - 1.2	16.8 - 1.8	48	1°57.0	1°57.3	1°51.7	4.8 - 0.6	10.8 - 1.4	16.8 - 2.1	48	2°12.0	2°12.4	2°06.0	4.8 - 0.7	10.8 - 1.5	16.8 - 2.4
49	1°42.3	1°42.5	1°37.6	4.9 - 0.5	10.9 - 1.2	16.9 - 1.8	49	1°57.3	1°57.6											

Increments and Corrections

m 9	Sun Plan.	Aries	Moon	v and d corr			m 10	Sun Plan.	Aries	Moon	v and d corr			m 11	Sun Plan.	Aries	Moon	v and d corr		
0	2°15.0	2°15.4	2°08.8	0.0 - 0.0	6.0 - 0.9	12.0 - 1.9	0	2°30.0	2°30.4	2°23.2	0.0 - 0.0	6.0 - 1.0	12.0 - 2.1	0	2°45.0	2°45.5	2°37.5	0.0 - 0.0	6.0 - 1.2	12.0 - 2.3
1	2°15.3	2°15.6	2°09.1	0.1 - 0.0	6.1 - 1.0	12.1 - 1.9	1	2°30.3	2°30.7	2°23.4	0.1 - 0.0	6.1 - 1.1	12.1 - 2.1	1	2°45.3	2°45.7	2°37.7	0.1 - 0.0	6.1 - 1.2	12.1 - 2.3
2	2°15.5	2°15.9	2°09.3	0.2 - 0.0	6.2 - 1.0	12.2 - 1.9	2	2°30.5	2°30.9	2°23.6	0.2 - 0.0	6.2 - 1.1	12.2 - 2.1	2	2°45.5	2°46.0	2°38.0	0.2 - 0.0	6.2 - 1.2	12.2 - 2.3
3	2°15.8	2°16.1	2°09.6	0.3 - 0.0	6.3 - 1.0	12.3 - 1.9	3	2°30.8	2°31.2	2°23.9	0.3 - 0.1	6.3 - 1.1	12.3 - 2.2	3	2°45.8	2°46.2	2°38.2	0.3 - 0.1	6.3 - 1.2	12.3 - 2.4
4	2°16.0	2°16.4	2°09.8	0.4 - 0.1	6.4 - 1.0	12.4 - 2.0	4	2°31.0	2°31.4	2°24.1	0.4 - 0.1	6.4 - 1.1	12.4 - 2.2	4	2°46.0	2°46.5	2°38.4	0.4 - 0.1	6.4 - 1.2	12.4 - 2.4
5	2°16.3	2°16.6	2°10.0	0.5 - 0.1	6.5 - 1.0	12.5 - 2.0	5	2°31.3	2°31.7	2°24.4	0.5 - 0.1	6.5 - 1.1	12.5 - 2.2	5	2°46.3	2°46.7	2°38.7	0.5 - 0.1	6.5 - 1.2	12.5 - 2.4
6	2°16.5	2°16.9	2°10.3	0.6 - 0.1	6.6 - 1.0	12.6 - 2.0	6	2°31.5	2°31.9	2°24.6	0.6 - 0.1	6.6 - 1.2	12.6 - 2.2	6	2°46.5	2°47.0	2°38.9	0.6 - 0.1	6.6 - 1.3	12.6 - 2.4
7	2°16.8	2°17.1	2°10.5	0.7 - 0.1	6.7 - 1.1	12.7 - 2.0	7	2°31.8	2°32.2	2°24.8	0.7 - 0.1	6.7 - 1.2	12.7 - 2.2	7	2°46.8	2°47.2	2°39.2	0.7 - 0.1	6.7 - 1.3	12.7 - 2.4
8	2°17.0	2°17.4	2°10.8	0.8 - 0.1	6.8 - 1.1	12.8 - 2.0	8	2°32.0	2°32.4	2°25.1	0.8 - 0.1	6.8 - 1.2	12.8 - 2.2	8	2°47.0	2°47.5	2°39.4	0.8 - 0.2	6.8 - 1.3	12.8 - 2.5
9	2°17.3	2°17.6	2°11.0	0.9 - 0.1	6.9 - 1.1	12.9 - 2.0	9	2°32.3	2°32.7	2°25.3	0.9 - 0.2	6.9 - 1.2	12.9 - 2.3	9	2°47.3	2°47.7	2°39.6	0.9 - 0.2	6.9 - 1.3	12.9 - 2.5
10	2°17.5	2°17.9	2°11.2	1.0 - 0.2	7.0 - 1.1	13.0 - 2.1	10	2°32.5	2°32.9	2°25.6	1.0 - 0.2	7.0 - 1.2	13.0 - 2.3	10	2°47.5	2°48.0	2°39.9	1.0 - 0.2	7.0 - 1.3	13.0 - 2.5
11	2°17.8	2°18.1	2°11.5	1.1 - 0.2	7.1 - 1.1	13.1 - 2.1	11	2°32.8	2°33.2	2°25.8	1.1 - 0.2	7.1 - 1.2	13.1 - 2.3	11	2°47.8	2°48.2	2°40.1	1.1 - 0.2	7.1 - 1.4	13.1 - 2.5
12	2°18.0	2°18.4	2°11.7	1.2 - 0.2	7.2 - 1.1	13.2 - 2.1	12	2°33.0	2°33.4	2°26.0	1.2 - 0.2	7.2 - 1.3	13.2 - 2.3	12	2°48.0	2°48.5	2°40.3	1.2 - 0.2	7.2 - 1.4	13.2 - 2.5
13	2°18.3	2°18.6	2°12.0	1.3 - 0.2	7.3 - 1.2	13.3 - 2.1	13	2°33.3	2°33.7	2°26.3	1.3 - 0.2	7.3 - 1.3	13.3 - 2.3	13	2°48.3	2°48.7	2°40.6	1.3 - 0.2	7.3 - 1.4	13.3 - 2.5
14	2°18.5	2°18.9	2°12.2	1.4 - 0.2	7.4 - 1.2	13.4 - 2.1	14	2°33.5	2°33.9	2°26.5	1.4 - 0.2	7.4 - 1.3	13.4 - 2.3	14	2°48.5	2°49.0	2°40.8	1.4 - 0.3	7.4 - 1.4	13.4 - 2.6
15	2°18.8	2°19.1	2°12.4	1.5 - 0.2	7.5 - 1.2	13.5 - 2.1	15	2°33.8	2°34.2	2°26.7	1.5 - 0.3	7.5 - 1.3	13.5 - 2.4	15	2°48.8	2°49.2	2°41.1	1.5 - 0.3	7.5 - 1.4	13.5 - 2.6
16	2°19.0	2°19.4	2°12.7	1.6 - 0.3	7.6 - 1.2	13.6 - 2.2	16	2°34.0	2°34.4	2°27.0	1.6 - 0.3	7.6 - 1.3	13.6 - 2.4	16	2°49.0	2°49.5	2°41.3	1.6 - 0.3	7.6 - 1.5	13.6 - 2.6
17	2°19.3	2°19.6	2°12.9	1.7 - 0.3	7.7 - 1.2	13.7 - 2.2	17	2°34.3	2°34.7	2°27.2	1.7 - 0.3	7.7 - 1.3	13.7 - 2.4	17	2°49.3	2°49.7	2°41.5	1.7 - 0.3	7.7 - 1.5	13.7 - 2.6
18	2°19.5	2°19.9	2°13.1	1.8 - 0.3	7.8 - 1.2	13.8 - 2.2	18	2°34.5	2°34.9	2°27.5	1.8 - 0.3	7.8 - 1.4	13.8 - 2.4	18	2°49.5	2°50.0	2°41.8	1.8 - 0.3	7.8 - 1.5	13.8 - 2.6
19	2°19.7	2°20.1	2°13.4	1.9 - 0.3	7.9 - 1.3	13.9 - 2.2	19	2°34.8	2°35.2	2°27.7	1.9 - 0.3	7.9 - 1.4	13.9 - 2.4	19	2°49.8	2°50.2	2°42.0	1.9 - 0.4	7.9 - 1.5	13.9 - 2.7
20	2°20.0	2°20.4	2°13.6	2.0 - 0.3	8.0 - 1.3	14.0 - 2.2	20	2°35.0	2°35.4	2°27.9	2.0 - 0.3	8.0 - 1.4	14.0 - 2.4	20	2°50.0	2°50.5	2°42.3	2.0 - 0.4	8.0 - 1.5	14.0 - 2.7
21	2°20.2	2°20.6	2°13.9	2.1 - 0.3	8.1 - 1.3	14.1 - 2.2	21	2°35.2	2°35.7	2°28.2	2.1 - 0.4	8.1 - 1.4	14.1 - 2.5	21	2°50.2	2°50.7	2°42.5	2.1 - 0.4	8.1 - 1.6	14.1 - 2.7
22	2°20.5	2°20.9	2°14.1	2.2 - 0.3	8.2 - 1.3	14.2 - 2.2	22	2°35.5	2°35.9	2°28.4	2.2 - 0.4	8.2 - 1.4	14.2 - 2.5	22	2°50.5	2°51.0	2°42.7	2.2 - 0.4	8.2 - 1.6	14.2 - 2.7
23	2°20.7	2°21.1	2°14.3	2.3 - 0.4	8.3 - 1.3	14.3 - 2.3	23	2°35.7	2°36.2	2°28.7	2.3 - 0.4	8.3 - 1.5	14.3 - 2.5	23	2°50.7	2°51.2	2°43.0	2.3 - 0.4	8.3 - 1.6	14.3 - 2.7
24	2°21.0	2°21.4	2°14.6	2.4 - 0.4	8.4 - 1.3	14.4 - 2.3	24	2°36.0	2°36.4	2°28.9	2.4 - 0.4	8.4 - 1.5	14.4 - 2.5	24	2°51.0	2°51.5	2°43.2	2.4 - 0.5	8.4 - 1.6	14.4 - 2.8
25	2°21.2	2°21.6	2°14.8	2.5 - 0.4	8.5 - 1.3	14.5 - 2.3	25	2°36.2	2°36.7	2°29.1	2.5 - 0.4	8.5 - 1.5	14.5 - 2.5	25	2°51.2	2°51.7	2°43.4	2.5 - 0.5	8.5 - 1.6	14.5 - 2.8
26	2°21.5	2°21.9	2°15.1	2.6 - 0.4	8.6 - 1.4	14.6 - 2.3	26	2°36.5	2°36.9	2°29.4	2.6 - 0.5	8.6 - 1.5	14.6 - 2.6	26	2°51.5	2°52.0	2°43.7	2.6 - 0.5	8.6 - 1.6	14.6 - 2.8
27	2°21.7	2°22.1	2°15.3	2.7 - 0.4	8.7 - 1.4	14.7 - 2.3	27	2°36.7	2°37.2	2°29.6	2.7 - 0.5	8.7 - 1.5	14.7 - 2.6	27	2°51.7	2°52.2	2°43.9	2.7 - 0.5	8.7 - 1.7	14.7 - 2.8
28	2°22.0	2°22.4	2°15.5	2.8 - 0.4	8.8 - 1.4	14.8 - 2.3	28	2°37.0	2°37.4	2°29.8	2.8 - 0.5	8.8 - 1.5	14.8 - 2.6	28	2°52.0	2°52.5	2°44.2	2.8 - 0.5	8.8 - 1.7	14.8 - 2.8
29	2°22.2	2°22.6	2°15.8	2.9 - 0.5	8.9 - 1.4	14.9 - 2.4	29	2°37.2	2°37.7	2°30.1	2.9 - 0.5	8.9 - 1.6	14.9 - 2.6	29	2°52.2	2°52.7	2°44.4	2.9 - 0.6	8.9 - 1.7	14.9 - 2.9
30	2°22.5	2°22.9	2°16.0	3.0 - 0.5	9.0 - 1.4	15.0 - 2.4	30	2°37.5	2°37.9	2°30.3	3.0 - 0.5	9.0 - 1.6	15.0 - 2.6	30	2°52.5	2°53.0	2°44.6	3.0 - 0.6	9.0 - 1.7	15.0 - 2.9
31	2°22.8	2°23.1	2°16.2	3.1 - 0.5	9.1 - 1.4	15.1 - 2.4	31	2°37.8	2°38.2	2°30.6	3.1 - 0.5	9.1 - 1.6	15.1 - 2.6	31	2°52.8	2°53.2	2°44.9	3.1 - 0.6	9.1 - 1.7	15.1 - 2.9
32	2°23.0	2°23.4	2°16.5	3.2 - 0.5	9.2 - 1.5	15.2 - 2.4	32	2°38.0	2°38.4	2°30.8	3.2 - 0.6	9.2 - 1.6	15.2 - 2.7	32	2°53.0	2°53.5	2°45.1	3.2 - 0.6	9.2 - 1.8	15.2 - 2.9
33	2°23.3	2°23.6	2°16.7	3.3 - 0.5	9.3 - 1.5	15.3 - 2.4	33	2°38.3	2°38.7	2°31.0	3.3 - 0.6	9.3 - 1.6	15.3 - 2.7	33	2°53.3	2°53.7	2°45.4	3.3 - 0.6	9.3 - 1.8	15.3 - 2.9
34	2°23.5	2°23.9	2°17.0	3.4 - 0.5	9.4 - 1.5	15.4 - 2.4	34	2°38.5	2°38.9	2°31.3	3.4 - 0.6	9.4 - 1.6	15.4 - 2.7	34	2°53.5	2°54.0	2°45.6	3.4 - 0.7	9.4 - 1.8	15.4 - 3.0
35	2°23.8	2°24.1	2°17.2	3.5 - 0.6	9.5 - 1.5	15.5 - 2.5	35	2°38.8	2°39.2	2°31.5	3.5 - 0.6	9.5 - 1.7	15.5 - 2.7	35	2°53.8	2°54.2	2°45.8	3.5 - 0.7	9.5 - 1.8	15.5 - 3.0
36	2°24.0	2°24.4	2°17.4	3.6 - 0.6	9.6 - 1.5	15.6 - 2.5	36	2°39.0	2°39.4	2°31.8	3.6 - 0.6	9.6 - 1.7	15.6 - 2.7	36	2°54.0	2°54.5	2°46.1	3.6 - 0.7	9.6 - 1.8	15.6 - 3.0
37	2°24.3	2°24.6	2°17.7	3.7 - 0.6	9.7 - 1.5	15.7 - 2.5	37	2°39.3	2°39.7	2°32.0	3.7 - 0.6	9.7 - 1.7	15.7 - 2.7	37	2°54.3	2°54.7	2°46.3	3.7 - 0.7	9.7 - 1.9	15.7 - 3.0
38	2°24.5	2°24.9	2°17.9	3.8 - 0.6	9.8 - 1.6	15.8 - 2.5	38	2°39.5	2°39.9	2°32.2	3.8 - 0.7	9.8 - 1.7	15.8 - 2.8	38	2°54.5	2°55.0	2°46.6	3.8 - 0.7	9.8 - 1.9	15.8 - 3.0
39	2°24.8	2°25.1	2°18.2	3.9 - 0.6	9.9 - 1.6	15.9 - 2.5	39	2°39.8	2°40.2	2°32.5	3.9 - 0.7	9.9 - 1.7	15.9 - 2.8	39	2°54.8	2°55.2	2°46.8	3.9 - 0.7	9.9 - 1.9	15.9 - 3.0
40	2°25.0	2°25.4	2°18.4	4.0 - 0.6	10.0 - 1.6	16.0 - 2.5	40	2°40.0	2°40.4	2°32.7	4.0 - 0.7	10.0 - 1.8	16.0 - 2.8	40	2°55.0	2°55.5	2°47.0	4.0 - 0.8	10.0 - 1.9	16.0 - 3.1
41	2°25.3	2°25.6	2°18.6	4.1 - 0.6	10.1 - 1.6	16.1 - 2.5	41	2°40.3	2°40.7	2°32.9	4.1 - 0.7	10.1 - 1.8	16.1 - 2.8	41	2°55.3	2°55.7	2°47.3	4.1 - 0.8	10.1 - 1.9	16.1 - 3.1
42	2°25.5	2°25.9	2°18.9	4.2 - 0.7	10.2 - 1.6	16.2 - 2.6	42	2°40.5	2°40.9	2°33.2	4.2 - 0.7	10.2 - 1.8	16.2 - 2.8	42	2°55.5	2°56.0	2°47.5	4.2 - 0.8	10.2 - 2.0	16.2 - 3.1
43	2°25.8	2°26.1	2°19.1	4.3 - 0.7	10.3 - 1.6	16.3 - 2.6	43	2°40.8	2°41.2	2°33.4	4.3 - 0.8	10.3 - 1.8	16.3 - 2.9	43	2°55.8	2°56.2	2°47.7	4.3 - 0.8	10.3 - 2.0	16.3 - 3.1
44	2°26.0	2°26.4	2°19.3	4.4 - 0.7	10.4 - 1.6	16.4 - 2.6	44	2°41.0	2°41.4	2°33.7	4.4 - 0.8	10.4 - 1.8	16.4 - 2.9	44	2°56.0	2°56.5	2°48.0	4.4 - 0.8	10.4 - 2.0	16.4 - 3.1
45	2°26.3	2°26.6	2°19.6	4.5 - 0.7	10.5 - 1.7	16.5 - 2.6	45	2°41.3	2°41.7	2°33.9	4.5 - 0.8	10.5 - 1.8	16.5 - 2.9	45	2°56.3	2°56.7	2°48.2	4.5 - 0.9	10.5 - 2.0	16.5 - 3.2
46	2°26.5	2°26.9	2°19.8	4.6 - 0.7	10.6 - 1.7	16.6 - 2.6	46	2°41.5	2°41.9	2°34.1	4.6 - 0.8	10.6 - 1.9	16.6 - 2.9	46	2°56.5	2°57.0	2°48.5	4.6 - 0.9	10.6 - 2.0	16.6 - 3.2
47	2°26.8	2°27.2	2°20.1	4.7 - 0.7	10.7 - 1.7	16.7 - 2.6	47	2°41.8	2°42.2	2°34.4	4.7 - 0.8	10.7 - 1.9	16.7 - 2.9	47	2°56.8	2°57.2	2°48.7	4.7 - 0.9	10.7 - 2.1	16.7 - 3.2
48	2°27.0	2°27.4	2°20.3	4.8 - 0.8	10.8 - 1.7	16.8 - 2.7	48	2°42.0	2°42.4	2°34.6	4.8 - 0.8	10.8 - 1.9	16.8 - 2.9	48	2°57.0	2°57.5	2°48.9	4.8 - 0.9	10.8 - 2.1	16.8 - 3.2
49	2°27.2	2°27.7	2°20.5	4.9 - 0.8	10.9 - 1.7	16.9 - 2.7	49	2°42.3	2											

Increments and Corrections

m 12	Sun Plan.	Aries	Moon	v and d corr		
0	3°00.0	3°00.5	2°51.8	0.0 - 0.0	6.0 - 1.3	12.0 - 2.5
1	3°00.3	3°00.7	2°52.0	0.1 - 0.0	6.1 - 1.3	12.1 - 2.5
2	3°00.5	3°01.0	2°52.3	0.2 - 0.0	6.2 - 1.3	12.2 - 2.5
3	3°00.8	3°01.2	2°52.5	0.3 - 0.1	6.3 - 1.3	12.3 - 2.6
4	3°01.0	3°01.5	2°52.8	0.4 - 0.1	6.4 - 1.3	12.4 - 2.6
5	3°01.3	3°01.7	2°53.0	0.5 - 0.1	6.5 - 1.4	12.5 - 2.6
6	3°01.5	3°02.0	2°53.2	0.6 - 0.1	6.6 - 1.4	12.6 - 2.6
7	3°01.8	3°02.2	2°53.5	0.7 - 0.1	6.7 - 1.4	12.7 - 2.6
8	3°02.0	3°02.5	2°53.7	0.8 - 0.2	6.8 - 1.4	12.8 - 2.7
9	3°02.3	3°02.7	2°53.9	0.9 - 0.2	6.9 - 1.4	12.9 - 2.7
10	3°02.5	3°03.0	2°54.2	1.0 - 0.2	7.0 - 1.5	13.0 - 2.7
11	3°02.8	3°03.2	2°54.4	1.1 - 0.2	7.1 - 1.5	13.1 - 2.7
12	3°03.0	3°03.5	2°54.7	1.2 - 0.3	7.2 - 1.5	13.2 - 2.8
13	3°03.3	3°03.8	2°54.9	1.3 - 0.3	7.3 - 1.5	13.3 - 2.8
14	3°03.5	3°04.0	2°55.1	1.4 - 0.3	7.4 - 1.5	13.4 - 2.8
15	3°03.8	3°04.3	2°55.4	1.5 - 0.3	7.5 - 1.6	13.5 - 2.8
16	3°04.0	3°04.5	2°55.6	1.6 - 0.3	7.6 - 1.6	13.6 - 2.8
17	3°04.2	3°04.8	2°55.9	1.7 - 0.4	7.7 - 1.6	13.7 - 2.9
18	3°04.5	3°05.0	2°56.1	1.8 - 0.4	7.8 - 1.6	13.8 - 2.9
19	3°04.7	3°05.3	2°56.3	1.9 - 0.4	7.9 - 1.6	13.9 - 2.9
20	3°05.0	3°05.5	2°56.6	2.0 - 0.4	8.0 - 1.7	14.0 - 2.9
21	3°05.2	3°05.8	2°56.8	2.1 - 0.4	8.1 - 1.7	14.1 - 2.9
22	3°05.5	3°06.0	2°57.0	2.2 - 0.5	8.2 - 1.7	14.2 - 3.0
23	3°05.7	3°06.3	2°57.3	2.3 - 0.5	8.3 - 1.7	14.3 - 3.0
24	3°06.0	3°06.5	2°57.5	2.4 - 0.5	8.4 - 1.8	14.4 - 3.0
25	3°06.2	3°06.8	2°57.8	2.5 - 0.5	8.5 - 1.8	14.5 - 3.0
26	3°06.5	3°07.0	2°58.0	2.6 - 0.5	8.6 - 1.8	14.6 - 3.0
27	3°06.7	3°07.3	2°58.2	2.7 - 0.6	8.7 - 1.8	14.7 - 3.1
28	3°07.0	3°07.5	2°58.5	2.8 - 0.6	8.8 - 1.8	14.8 - 3.1
29	3°07.2	3°07.8	2°58.7	2.9 - 0.6	8.9 - 1.9	14.9 - 3.1
30	3°07.5	3°08.0	2°59.0	3.0 - 0.6	9.0 - 1.9	15.0 - 3.1
31	3°07.8	3°08.3	2°59.2	3.1 - 0.6	9.1 - 1.9	15.1 - 3.1
32	3°08.0	3°08.5	2°59.4	3.2 - 0.7	9.2 - 1.9	15.2 - 3.2
33	3°08.3	3°08.8	2°59.7	3.3 - 0.7	9.3 - 1.9	15.3 - 3.2
34	3°08.5	3°09.0	2°59.9	3.4 - 0.7	9.4 - 2.0	15.4 - 3.2
35	3°08.8	3°09.3	3°00.2	3.5 - 0.7	9.5 - 2.0	15.5 - 3.2
36	3°09.0	3°09.5	3°00.4	3.6 - 0.8	9.6 - 2.0	15.6 - 3.3
37	3°09.3	3°09.8	3°00.6	3.7 - 0.8	9.7 - 2.0	15.7 - 3.3
38	3°09.5	3°10.0	3°00.9	3.8 - 0.8	9.8 - 2.0	15.8 - 3.3
39	3°09.8	3°10.3	3°01.1	3.9 - 0.8	9.9 - 2.1	15.9 - 3.3
40	3°10.0	3°10.5	3°01.3	4.0 - 0.8	10.0 - 2.1	16.0 - 3.3
41	3°10.3	3°10.8	3°01.6	4.1 - 0.9	10.1 - 2.1	16.1 - 3.4
42	3°10.5	3°11.0	3°01.8	4.2 - 0.9	10.2 - 2.1	16.2 - 3.4
43	3°10.8	3°11.3	3°02.1	4.3 - 0.9	10.3 - 2.1	16.3 - 3.4
44	3°11.0	3°11.5	3°02.3	4.4 - 0.9	10.4 - 2.2	16.4 - 3.4
45	3°11.3	3°11.8	3°02.5	4.5 - 0.9	10.5 - 2.2	16.5 - 3.4
46	3°11.5	3°12.0	3°02.8	4.6 - 1.0	10.6 - 2.2	16.6 - 3.5
47	3°11.7	3°12.3	3°03.0	4.7 - 1.0	10.7 - 2.2	16.7 - 3.5
48	3°12.0	3°12.5	3°03.3	4.8 - 1.0	10.8 - 2.3	16.8 - 3.5
49	3°12.2	3°12.8	3°03.5	4.9 - 1.0	10.9 - 2.3	16.9 - 3.5
50	3°12.5	3°13.0	3°03.7	5.0 - 1.0	11.0 - 2.3	17.0 - 3.5
51	3°12.7	3°13.3	3°04.0	5.1 - 1.1	11.1 - 2.3	17.1 - 3.6
52	3°13.0	3°13.5	3°04.2	5.2 - 1.1	11.2 - 2.3	17.2 - 3.6
53	3°13.2	3°13.8	3°04.4	5.3 - 1.1	11.3 - 2.4	17.3 - 3.6
54	3°13.5	3°14.0	3°04.7	5.4 - 1.1	11.4 - 2.4	17.4 - 3.6
55	3°13.7	3°14.3	3°04.9	5.5 - 1.1	11.5 - 2.4	17.5 - 3.6
56	3°14.0	3°14.5	3°05.2	5.6 - 1.2	11.6 - 2.4	17.6 - 3.7
57	3°14.2	3°14.8	3°05.4	5.7 - 1.2	11.7 - 2.4	17.7 - 3.7
58	3°14.5	3°15.0	3°05.6	5.8 - 1.2	11.8 - 2.5	17.8 - 3.7
59	3°14.7	3°15.3	3°05.9	5.9 - 1.2	11.9 - 2.5	17.9 - 3.7

m 13	Sun Plan.	Aries	Moon	v and d corr		
0	3°15.0	3°15.5	3°06.1	0.0 - 0.0	6.0 - 1.4	12.0 - 2.7
1	3°15.3	3°15.8	3°06.4	0.1 - 0.0	6.1 - 1.4	12.1 - 2.7
2	3°15.5	3°16.0	3°06.6	0.2 - 0.0	6.2 - 1.4	12.2 - 2.7
3	3°15.8	3°16.3	3°06.8	0.3 - 0.1	6.3 - 1.4	12.3 - 2.8
4	3°16.0	3°16.5	3°07.1	0.4 - 0.1	6.4 - 1.4	12.4 - 2.8
5	3°16.3	3°16.8	3°07.3	0.5 - 0.1	6.5 - 1.5	12.5 - 2.8
6	3°16.5	3°17.0	3°07.5	0.6 - 0.1	6.6 - 1.5	12.6 - 2.8
7	3°16.8	3°17.3	3°07.8	0.7 - 0.2	6.7 - 1.5	12.7 - 2.9
8	3°17.0	3°17.5	3°08.0	0.8 - 0.2	6.8 - 1.5	12.8 - 2.9
9	3°17.3	3°17.8	3°08.3	0.9 - 0.2	6.9 - 1.6	12.9 - 2.9
10	3°17.5	3°18.0	3°08.5	1.0 - 0.2	7.0 - 1.6	13.0 - 2.9
11	3°17.8	3°18.3	3°08.7	1.1 - 0.2	7.1 - 1.6	13.1 - 2.9
12	3°18.0	3°18.5	3°09.0	1.2 - 0.3	7.2 - 1.6	13.2 - 3.0
13	3°18.3	3°18.8	3°09.2	1.3 - 0.3	7.3 - 1.6	13.3 - 3.0
14	3°18.5	3°19.0	3°09.5	1.4 - 0.3	7.4 - 1.7	13.4 - 3.0
15	3°18.8	3°19.3	3°09.7	1.5 - 0.3	7.5 - 1.7	13.5 - 3.0
16	3°19.0	3°19.5	3°09.9	1.6 - 0.4	7.6 - 1.7	13.6 - 3.1
17	3°19.3	3°19.8	3°10.2	1.7 - 0.4	7.7 - 1.7	13.7 - 3.1
18	3°19.5	3°20.0	3°10.4	1.8 - 0.4	7.8 - 1.8	13.8 - 3.1
19	3°19.7	3°20.3	3°10.7	1.9 - 0.4	7.9 - 1.8	13.9 - 3.1
20	3°20.0	3°20.5	3°10.9	2.0 - 0.5	8.0 - 1.8	14.0 - 3.1
21	3°20.2	3°20.8	3°11.1	2.1 - 0.5	8.1 - 1.8	14.1 - 3.2
22	3°20.5	3°21.0	3°11.4	2.2 - 0.5	8.2 - 1.8	14.2 - 3.2
23	3°20.7	3°21.3	3°11.6	2.3 - 0.5	8.3 - 1.9	14.3 - 3.2
24	3°21.0	3°21.5	3°11.8	2.4 - 0.5	8.4 - 1.9	14.4 - 3.2
25	3°21.2	3°21.8	3°12.1	2.5 - 0.6	8.5 - 1.9	14.5 - 3.3
26	3°21.5	3°22.1	3°12.3	2.6 - 0.6	8.6 - 1.9	14.6 - 3.3
27	3°21.7	3°22.3	3°12.6	2.7 - 0.6	8.7 - 2.0	14.7 - 3.3
28	3°22.0	3°22.6	3°12.8	2.8 - 0.6	8.8 - 2.0	14.8 - 3.3
29	3°22.2	3°22.8	3°13.0	2.9 - 0.7	8.9 - 2.0	14.9 - 3.4
30	3°22.5	3°23.1	3°13.3	3.0 - 0.7	9.0 - 2.0	15.0 - 3.4
31	3°22.8	3°23.3	3°13.5	3.1 - 0.7	9.1 - 2.0	15.1 - 3.4
32	3°23.0	3°23.6	3°13.8	3.2 - 0.7	9.2 - 2.1	15.2 - 3.4
33	3°23.3	3°23.8	3°14.0	3.3 - 0.7	9.3 - 2.1	15.3 - 3.4
34	3°23.5	3°24.1	3°14.2	3.4 - 0.8	9.4 - 2.1	15.4 - 3.5
35	3°23.8	3°24.3	3°14.5	3.5 - 0.8	9.5 - 2.1	15.5 - 3.5
36	3°24.0	3°24.6	3°14.7	3.6 - 0.8	9.6 - 2.2	15.6 - 3.5
37	3°24.3	3°24.8	3°14.9	3.7 - 0.8	9.7 - 2.2	15.7 - 3.5
38	3°24.5	3°25.1	3°15.2	3.8 - 0.9	9.8 - 2.2	15.8 - 3.6
39	3°24.8	3°25.3	3°15.4	3.9 - 0.9	9.9 - 2.2	15.9 - 3.6
40	3°25.0	3°25.6	3°15.7	4.0 - 0.9	10.0 - 2.3	16.0 - 3.6
41	3°25.3	3°25.8	3°15.9	4.1 - 0.9	10.1 - 2.3	16.1 - 3.6
42	3°25.5	3°26.1	3°16.1	4.2 - 0.9	10.2 - 2.3	16.2 - 3.6
43	3°25.8	3°26.3	3°16.4	4.3 - 1.0	10.3 - 2.3	16.3 - 3.7
44	3°26.0	3°26.6	3°16.6	4.4 - 1.0	10.4 - 2.3	16.4 - 3.7
45	3°26.3	3°26.8	3°16.9	4.5 - 1.0	10.5 - 2.4	16.5 - 3.7
46	3°26.5	3°27.1	3°17.1	4.6 - 1.0	10.6 - 2.4	16.6 - 3.7
47	3°26.8	3°27.3	3°17.3	4.7 - 1.1	10.7 - 2.4	16.7 - 3.8
48	3°27.0	3°27.6	3°17.6	4.8 - 1.1	10.8 - 2.4	16.8 - 3.8
49	3°27.2	3°27.8	3°17.8	4.9 - 1.1	10.9 - 2.5	16.9 - 3.8
50	3°27.5	3°28.1	3°18.0	5.0 - 1.1	11.0 - 2.5	17.0 - 3.8
51	3°27.7	3°28.3	3°18.3	5.1 - 1.1	11.1 - 2.5	17.1 - 3.8
52	3°28.0	3°28.6	3°18.5	5.2 - 1.2	11.2 - 2.5	17.2 - 3.9
53	3°28.2	3°28.8	3°18.8	5.3 - 1.2	11.3 - 2.5	17.3 - 3.9
54	3°28.5	3°29.1	3°19.0	5.4 - 1.2	11.4 - 2.6	17.4 - 3.9
55	3°28.7	3°29.3	3°19.2	5.5 - 1.2	11.5 - 2.6	17.5 - 3.9
56	3°29.0	3°29.6	3°19.5	5.6 - 1.3	11.6 - 2.6	17.6 - 4.0
57	3°29.2	3°29.8	3°19.7	5.7 - 1.3	11.7 - 2.6	17.7 - 4.0
58	3°29.5	3°30.1	3°20.0	5.8 - 1.3	11.8 - 2.7	17.8 - 4.0
59	3°29.7	3°30.3	3°20.2	5.9 - 1.3	11.9 - 2.7	17.9 - 4.0

m	Sun Plan.	Aries	Moon	v and d corr		
14						
0	3°30.0	3°30.6	3°20.4	0.0 - 0.0	6.0 - 1.4	12.0 - 2.9
1	3°30.3	3°30.8	3°20.7	0.1 - 0.0	6.1 - 1.5	12.1 - 2.9
2	3°30.5	3°31.1	3°20.9	0.2 - 0.0	6.2 - 1.5	12.2 - 2.9
3	3°30.8	3°31.3	3°21.1	0.3 - 0.1	6.3 - 1.5	12.3 - 3.0
4	3°31.0	3°31.6	3°21.4	0.4 - 0.1	6.4 - 1.5	12.4 - 3.0
5	3°31.3	3°31.8	3°21.6	0.5 - 0.1	6.5 - 1.6	12.5 - 3.0
6	3°31.5	3°32.1	3°21.9	0.6 - 0.1	6.6 - 1.6	12.6 - 3.0
7	3°31.8	3°32.3	3°22.1	0.7 - 0.2	6.7 - 1.6	12.7 - 3.1
8	3°32.0	3°32.6	3°22.3	0.8 - 0.2	6.8 - 1.6	12.8 - 3.1
9	3°32.3	3°32.8	3°22.6	0.9 - 0.2	6.9 - 1.7	12.9 - 3.1
10	3°32.5	3°33.1	3°22.8	1.0 - 0.2	7.0 - 1.7	13.0 - 3.1
11	3°32.8	3°33.3	3°23.1	1.1 - 0.3	7.1 - 1.7	13.1 - 3.2
12	3°33.0	3°33.6	3°23.3	1.2 - 0.3	7.2 - 1.7	13.2 - 3.2
13	3°33.3	3°33.8	3°23.5	1.3 - 0.3	7.3 - 1.8	13.3 - 3.2
14	3°33.5	3°34.1	3°23.8	1.4 - 0.3	7.4 - 1.8	13.4 - 3.2
15	3°33.8	3°34.3	3°24.0	1.5 - 0.4	7.5 - 1.8	13.5 - 3.3
16	3°34.0	3°34.6	3°24.3	1.6 - 0.4	7.6 - 1.8	13.6 - 3.3
17	3°34.3	3°34.8	3°24.5	1.7 - 0.4	7.7 - 1.9	13.7 - 3.3
18	3°34.5	3°35.1	3°24.7	1.8 - 0.4	7.8 - 1.9	13.8 - 3.3
19	3°34.8	3°35.3	3°25.0	1.9 - 0.5	7.9 - 1.9	13.9 - 3.4
20	3°35.0	3°35.6	3°25.2	2.0 - 0.5	8.0 - 1.9	14.0 - 3.4
21	3°35.2	3°35.8	3°25.4	2.1 - 0.5	8.1 - 2.0	14.1 - 3.4
22	3°35.5	3°36.1	3°25.7	2.2 - 0.5	8.2 - 2.0	14.2 - 3.4
23	3°35.7	3°36.3	3°25.9	2.3 - 0.6	8.3 - 2.0	14.3 - 3.5
24	3°36.0	3°36.6	3°26.2	2.4 - 0.6	8.4 - 2.0	14.4 - 3.5
25	3°36.2	3°36.8	3°26.4	2.5 - 0.6	8.5 - 2.1	14.5 - 3.5
26	3°36.5	3°37.1	3°26.6	2.6 - 0.6	8.6 - 2.1	14.6 - 3.5
27	3°36.7	3°37.3	3°26.9	2.7 - 0.7	8.7 - 2.1	14.7 - 3.6
28	3°37.0	3°37.6	3°27.1	2.8 - 0.7	8.8 - 2.1	14.8 - 3.6
29	3°37.2	3°37.8	3°27.4	2.9 - 0.7	8.9 - 2.2	14.9 - 3.6
30	3°37.5	3°38.1	3°27.6	3.0 - 0.7	9.0 - 2.2	15.0 - 3.6
31	3°37.8	3°38.3	3°27.8	3.1 - 0.7	9.1 - 2.2	15.1 - 3.6
32	3°38.0	3°38.6	3°28.1	3.2 - 0.8	9.2 - 2.2	15.2 - 3.7
33	3°38.3	3°38.8	3°28.3	3.3 - 0.8	9.3 - 2.2	15.3 - 3.7
34	3°38.5	3°39.1	3°28.5	3.4 - 0.8	9.4 - 2.3	15.4 - 3.7
35	3°38.8	3°39.3	3°28.8	3.5 - 0.8	9.5 - 2.3	15.5 - 3.7
36	3°39.0	3°39.6	3°29.0	3.6 - 0.9	9.6 - 2.3	15.6 - 3.8
37	3°39.3	3°39.8	3°29.3	3.7 - 0.9	9.7 - 2.3	15.7 - 3.8
38	3°39.5	3°40.1	3°29.5	3.8 - 0.9	9.8 - 2.4	15.8 - 3.8
39	3°39.8	3°40.4	3°29.7	3.9 - 0.9	9.9 - 2.4	15.9 - 3.8
40	3°40.0	3°40.6	3°30.0	4.0 - 1.0	10.0 - 2.4	16.0 - 3.9
41	3°40.3	3°40.9	3°30.2	4.1 - 1.0	10.1 - 2.4	16.1 - 3.9
42	3°40.5	3°41.1	3°30.5	4.2 - 1.0	10.2 - 2.5	16.2 - 3.9
43	3°40.8	3°41.4	3°30.7	4.3 - 1.0	10.3 - 2.5	16.3 - 3.9
44	3°41.0	3°41.6	3°30.9	4.4 - 1.1	10.4 - 2.5	16.4 - 4.0
45	3°41.3	3°41.9	3°31.2	4.5 - 1.1	10.5 - 2.5	16.5 - 4.0
46	3°41.5	3°42.1	3°31.4	4.6 - 1.1	10.6 - 2.6	16.6 - 4.0
47	3°41.8	3°42.4	3°31.6	4.7 - 1.1	10.7 - 2.6	16.7 - 4.0
48	3°42.0	3°42.6	3°31.9	4.8 - 1.2	10.8 - 2.6	16.8 - 4.1
49	3°42.3	3°42.9	3°32.1	4.9 - 1.2	10.9 - 2.6	16.9 - 4.1
50	3°42.5	3°43.1	3°32.4	5.0 - 1.2	11.0 - 2.7	17.0 - 4.1
51	3°42.7	3°43.4	3°32.6	5.1 - 1.2	11.1 - 2.7	17.1 - 4.1
52	3°43.0	3°43.6	3°32.8	5.2 - 1.3	11.2 - 2.7	17.2 - 4.2
53	3°43.2	3°43.9	3°33.1	5.3 - 1.3	11.3 - 2.7	17.3 - 4.2
54	3°43.5	3°44.1	3°33.3	5.4 - 1.3	11.4 - 2.8	17.4 - 4.2
55	3°43.7	3°44.4	3°33.6	5.5 - 1.3	11.5 - 2.8	17.5 - 4.2
56	3°44.0	3°44.6	3°33.8	5.6 - 1.4	11.6 - 2.8	17.6 - 4.3
57	3°44.2	3°44.9	3°34.0	5.7 - 1.4	11.7 - 2.8	17.7 - 4.3
58	3°44.5	3°45.1	3°34.3	5.8 - 1.4	11.8 - 2.9	17.8 - 4.3
59	3°44.7	3°45.4	3°34.5	5.9 - 1.4	11.9 - 2.9	17.9 - 4.3

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
15	Plan.					
0	3°45.0	3°45.6	3°34.8	0.0 - 0.0	6.0 - 1.6	12.0 - 3.1
1	3°45.2	3°45.9	3°35.0	0.1 - 0.0	6.1 - 1.6	12.1 - 3.1
2	3°45.5	3°46.1	3°35.2	0.2 - 0.1	6.2 - 1.6	12.2 - 3.2
3	3°45.8	3°46.4	3°35.5	0.3 - 0.1	6.3 - 1.6	12.3 - 3.2
4	3°46.0	3°46.6	3°35.7	0.4 - 0.1	6.4 - 1.7	12.4 - 3.2
5	3°46.2	3°46.9	3°35.9	0.5 - 0.1	6.5 - 1.7	12.5 - 3.2
6	3°46.5	3°47.1	3°36.2	0.6 - 0.2	6.6 - 1.7	12.6 - 3.3
7	3°46.8	3°47.4	3°36.4	0.7 - 0.2	6.7 - 1.7	12.7 - 3.3
8	3°47.0	3°47.6	3°36.7	0.8 - 0.2	6.8 - 1.8	12.8 - 3.3
9	3°47.3	3°47.9	3°36.9	0.9 - 0.2	6.9 - 1.8	12.9 - 3.3
10	3°47.5	3°48.1	3°37.1	1.0 - 0.3	7.0 - 1.8	13.0 - 3.4
11	3°47.7	3°48.4	3°37.4	1.1 - 0.3	7.1 - 1.8	13.1 - 3.4
12	3°48.0	3°48.6	3°37.6	1.2 - 0.3	7.2 - 1.9	13.2 - 3.4
13	3°48.3	3°48.9	3°37.9	1.3 - 0.3	7.3 - 1.9	13.3 - 3.4
14	3°48.5	3°49.1	3°38.1	1.4 - 0.4	7.4 - 1.9	13.4 - 3.5
15	3°48.8	3°49.4	3°38.3	1.5 - 0.4	7.5 - 1.9	13.5 - 3.5
16	3°49.0	3°49.6	3°38.6	1.6 - 0.4	7.6 - 2.0	13.6 - 3.5
17	3°49.3	3°49.9	3°38.8	1.7 - 0.4	7.7 - 2.0	13.7 - 3.5
18	3°49.5	3°50.1	3°39.0	1.8 - 0.5	7.8 - 2.0	13.8 - 3.6
19	3°49.8	3°50.4	3°39.3	1.9 - 0.5	7.9 - 2.0	13.9 - 3.6
20	3°50.0	3°50.6	3°39.5	2.0 - 0.5	8.0 - 2.1	14.0 - 3.6
21	3°50.2	3°50.9	3°39.8	2.1 - 0.5	8.1 - 2.1	14.1 - 3.6
22	3°50.5	3°51.1	3°40.0	2.2 - 0.6	8.2 - 2.1	14.2 - 3.7
23	3°50.7	3°51.4	3°40.2	2.3 - 0.6	8.3 - 2.1	14.3 - 3.7
24	3°51.0	3°51.6	3°40.5	2.4 - 0.6	8.4 - 2.2	14.4 - 3.7
25	3°51.2	3°51.9	3°40.7	2.5 - 0.6	8.5 - 2.2	14.5 - 3.7
26	3°51.5	3°52.1	3°41.0	2.6 - 0.7	8.6 - 2.2	14.6 - 3.8
27	3°51.8	3°52.4	3°41.2	2.7 - 0.7	8.7 - 2.2	14.7 - 3.8
28	3°52.0	3°52.6	3°41.4	2.8 - 0.7	8.8 - 2.3	14.8 - 3.8
29	3°52.2	3°52.9	3°41.7	2.9 - 0.7	8.9 - 2.3	14.9 - 3.8
30	3°52.5	3°53.1	3°41.9	3.0 - 0.8	9.0 - 2.3	15.0 - 3.9
31	3°52.8	3°53.4	3°42.1	3.1 - 0.8	9.1 - 2.4	15.1 - 3.9
32	3°53.0	3°53.6	3°42.4	3.2 - 0.8	9.2 - 2.4	15.2 - 3.9
33	3°53.2	3°53.9	3°42.6	3.3 - 0.9	9.3 - 2.4	15.3 - 4.0
34	3°53.5	3°54.1	3°42.9	3.4 - 0.9	9.4 - 2.4	15.4 - 4.0
35	3°53.8	3°54.4	3°43.1	3.5 - 0.9	9.5 - 2.5	15.5 - 4.0
36	3°54.0	3°54.6	3°43.3	3.6 - 0.9	9.6 - 2.5	15.6 - 4.0
37	3°54.3	3°54.9	3°43.6	3.7 - 1.0	9.7 - 2.5	15.7 - 4.1
38	3°54.5	3°55.1	3°43.8	3.8 - 1.0	9.8 - 2.5	15.8 - 4.1
39	3°54.8	3°55.4	3°44.1	3.9 - 1.0	9.9 - 2.6	15.9 - 4.1
40	3°55.0	3°55.6	3°44.3	4.0 - 1.0	10.0 - 2.6	16.0 - 4.1
41	3°55.3	3°55.9	3°44.5	4.1 - 1.1	10.1 - 2.6	16.1 - 4.2
42	3°55.5	3°56.1	3°44.8	4.2 - 1.1	10.2 - 2.6	16.2 - 4.2
43	3°55.7	3°56.4	3°45.0	4.3 - 1.1	10.3 - 2.7	16.3 - 4.2
44	3°56.0	3°56.6	3°45.2	4.4 - 1.1	10.4 - 2.7	16.4 - 4.2
45	3°56.3	3°56.9	3°45.5	4.5 - 1.2	10.5 - 2.7	16.5 - 4.3
46	3°56.5	3°57.1	3°45.7	4.6 - 1.2	10.6 - 2.7	16.6 - 4.3
47	3°56.8	3°57.4	3°46.0	4.7 - 1.2	10.7 - 2.8	16.7 - 4.3
48	3°57.0	3°57.6	3°46.2	4.8 - 1.2	10.8 - 2.8	16.8 - 4.3
49	3°57.3	3°57.9	3°46.4	4.9 - 1.3	10.9 - 2.8	16.9 - 4.4
50	3°57.5	3°58.1	3°46.7	5.0 - 1.3	11.0 - 2.8	17.0 - 4.4
51	3°57.7	3°58.4	3°46.9	5.1 - 1.3	11.1 - 2.9	17.1 - 4.4
52	3°58.0	3°58.7	3°47.2	5.2 - 1.3	11.2 - 2.9	17.2 - 4.4
53	3°58.2	3°58.9	3°47.4	5.3 - 1.4	11.3 - 2.9	17.3 - 4.5
54	3°58.5	3°59.2	3°47.6	5.4 - 1.4	11.4 - 2.9	17.4 - 4.5
55	3°58.7	3°59.4	3°47.9	5.5 - 1.4	11.5 - 3.0	17.5 - 4.5
56	3°59.0	3°59.7	3°48.1	5.6 - 1.4	11.6 - 3.0	17.6 - 4.5
57	3°59.2	3°59.9	3°48.4	5.7 - 1.5	11.7 - 3.0	17.7 - 4.6
58	3°59.5	4°00.2	3°48.6	5.8 - 1.5	11.8 - 3.0	17.8 - 4.6
59	3°59.8	4°00.4	3°48.8	5.9 - 1.5	11.9 - 3.1	17.9 - 4.6

m	Sun	Aries	Moon	v and d corr		
16	Plan.					
0	4°00.0	4°00.7	3°49.1	0.0 - 0.0	6.0 - 1.7	12.0 - 3.3
1	4°00.2	4°00.9	3°49.3	0.1 - 0.0	6.1 - 1.7	12.1 - 3.3
2	4°00.5	4°01.2	3°49.5	0.2 - 0.1	6.2 - 1.7	12.2 - 3.4
3	4°00.8	4°01.4	3°49.8	0.3 - 0.1	6.3 - 1.7	12.3 - 3.4
4	4°01.0	4°01.7	3°50.0	0.4 - 0.1	6.4 - 1.8	12.4 - 3.4
5	4°01.2	4°01.9	3°50.3	0.5 - 0.1	6.5 - 1.8	12.5 - 3.4
6	4°01.5	4°02.2	3°50.5	0.6 - 0.2	6.6 - 1.8	12.6 - 3.5
7	4°01.8	4°02.4	3°50.7	0.7 - 0.2	6.7 - 1.8	12.7 - 3.5
8	4°02.0	4°02.7	3°51.0	0.8 - 0.2	6.8 - 1.9	12.8 - 3.5
9	4°02.2	4°02.9	3°51.2	0.9 - 0.2	6.9 - 1.9	12.9 - 3.5
10	4°02.5	4°03.2	3°51.5	1.0 - 0.3	7.0 - 1.9	13.0 - 3.6
11	4°02.8	4°03.4	3°51.7	1.1 - 0.3	7.1 - 2.0	13.1 - 3.6
12	4°03.0	4°03.7	3°51.9	1.2 - 0.3	7.2 - 2.0	13.2 - 3.6
13	4°03.2	4°03.9	3°52.2	1.3 - 0.4	7.3 - 2.0	13.3 - 3.7
14	4°03.5	4°04.2	3°52.4	1.4 - 0.4	7.4 - 2.0	13.4 - 3.7
15	4°03.8	4°04.4	3°52.6	1.5 - 0.4	7.5 - 2.1	13.5 - 3.7
16	4°04.0	4°04.7	3°52.9	1.6 - 0.4	7.6 - 2.1	13.6 - 3.7
17	4°04.3	4°04.9	3°53.1	1.7 - 0.5	7.7 - 2.1	13.7 - 3.8
18	4°04.5	4°05.2	3°53.4	1.8 - 0.5	7.8 - 2.1	13.8 - 3.8
19	4°04.7	4°05.4	3°53.6	1.9 - 0.5	7.9 - 2.2	13.9 - 3.8
20	4°05.0	4°05.7	3°53.8	2.0 - 0.6	8.0 - 2.2	14.0 - 3.9
21	4°05.3	4°05.9	3°54.1	2.1 - 0.6	8.1 - 2.2	14.1 - 3.9
22	4°05.5	4°06.2	3°54.3	2.2 - 0.6	8.2 - 2.3	14.2 - 3.9
23	4°05.7	4°06.4	3°54.6	2.3 - 0.6	8.3 - 2.3	14.3 - 3.9
24	4°06.0	4°06.7	3°54.8	2.4 - 0.7	8.4 - 2.3	14.4 - 4.0
25	4°06.3	4°06.9	3°55.0	2.5 - 0.7	8.5 - 2.3	14.5 - 4.0
26	4°06.5	4°07.2	3°55.3	2.6 - 0.7	8.6 - 2.4	14.6 - 4.0
27	4°06.7	4°07.4	3°55.5	2.7 - 0.7	8.7 - 2.4	14.7 - 4.0
28	4°07.0	4°07.7	3°55.7	2.8 - 0.8	8.8 - 2.4	14.8 - 4.1
29	4°07.3	4°07.9	3°56.0	2.9 - 0.8	8.9 - 2.4	14.9 - 4.1
30	4°07.5	4°08.2	3°56.2	3.0 - 0.8	9.0 - 2.5	15.0 - 4.1
31	4°07.7	4°08.4	3°56.5	3.1 - 0.9	9.1 - 2.5	15.1 - 4.2
32	4°08.0	4°08.7	3°56.7	3.2 - 0.9	9.2 - 2.5	15.2 - 4.2
33	4°08.3	4°08.9	3°56.9	3.3 - 0.9	9.3 - 2.6	15.3 - 4.2
34	4°08.5	4°09.2	3°57.2	3.4 - 0.9	9.4 - 2.6	15.4 - 4.2
35	4°08.7	4°09.4	3°57.4	3.5 - 1.0	9.5 - 2.6	15.5 - 4.3
36	4°09.0	4°09.7	3°57.7	3.6 - 1.0	9.6 - 2.6	15.6 - 4.3
37	4°09.3	4°09.9	3°57.9	3.7 - 1.0	9.7 - 2.7	15.7 - 4.3
38	4°09.5	4°10.2	3°58.1	3.8 - 1.0	9.8 - 2.7	15.8 - 4.3
39	4°09.7	4°10.4	3°58.4	3.9 - 1.1	9.9 - 2.7	15.9 - 4.4
40	4°10.0	4°10.7	3°58.6	4.0 - 1.1	10.0 - 2.8	16.0 - 4.4
41	4°10.3	4°10.9	3°58.8	4.1 - 1.1	10.1 - 2.8	16.1 - 4.4
42	4°10.5	4°11.2	3°59.1	4.2 - 1.2	10.2 - 2.8	16.2 - 4.5
43	4°10.7	4°11.4	3°59.3	4.3 - 1.2	10.3 - 2.8	16.3 - 4.5
44	4°11.0	4°11.7	3°59.6	4.4 - 1.2	10.4 - 2.9	16.4 - 4.5
45	4°11.3	4°11.9	3°59.8	4.5 - 1.2	10.5 - 2.9	16.5 - 4.5
46	4°11.5	4°12.2	4°00.0	4.6 - 1.3	10.6 - 2.9	16.6 - 4.6
47	4°11.8	4°12.4	4°00.3	4.7 - 1.3	10.7 - 2.9	16.7 - 4.6
48	4°12.0	4°12.7	4°00.5	4.8 - 1.3	10.8 - 3.0	16.8 - 4.6
49	4°12.2	4°12.9	4°00.8	4.9 - 1.3	10.9 - 3.0	16.9 - 4.6
50	4°12.5	4°13.2	4°01.0	5.0 - 1.4	11.0 - 3.0	17.0 - 4.7
51	4°12.8	4°13.4	4°01.2	5.1 - 1.4	11.1 - 3.1	17.1 - 4.7
52	4°13.0	4°13.7	4°01.5	5.2 - 1.4	11.2 - 3.1	17.2 - 4.7
53	4°13.2	4°13.9	4°01.7	5.3 - 1.5	11.3 - 3.1	17.3 - 4.8
54	4°13.5	4°14.2	4°02.0	5.4 - 1.5	11.4 - 3.1	17.4 - 4.8
55	4°13.8	4°14.4	4°02.2	5.5 - 1.5	11.5 - 3.2	17.5 - 4.8
56	4°14.0	4°14.7	4°02.4	5.6 - 1.5	11.6 - 3.2	17.6 - 4.8
57	4°14.2	4°14.9	4°02.7	5.7 - 1.6	11.7 - 3.2	17.7 - 4.9
58	4°14.5	4°15.2	4°02.9	5.8 - 1.6	11.8 - 3.2	17.8 - 4.9
59	4°14.8	4°15.4	4°03.1	5.9 - 1.6	11.9 - 3.3	17.9 - 4.9

m	Sun Plan.	Aries	Moon	v and d corr		
17						
0	4°15.0	4°15.7	4°03.4	0.0 - 0.0	6.0 - 1.8	12.0 - 3.5
1	4°15.2	4°15.9	4°03.6	0.1 - 0.0	6.1 - 1.8	12.1 - 3.5
2	4°15.5	4°16.2	4°03.9	0.2 - 0.1	6.2 - 1.8	12.2 - 3.6
3	4°15.8	4°16.4	4°04.1	0.3 - 0.1	6.3 - 1.8	12.3 - 3.6
4	4°16.0	4°16.7	4°04.3	0.4 - 0.1	6.4 - 1.9	12.4 - 3.6
5	4°16.2	4°17.0	4°04.6	0.5 - 0.1	6.5 - 1.9	12.5 - 3.6
6	4°16.5	4°17.2	4°04.8	0.6 - 0.2	6.6 - 1.9	12.6 - 3.7
7	4°16.8	4°17.5	4°05.1	0.7 - 0.2	6.7 - 2.0	12.7 - 3.7
8	4°17.0	4°17.7	4°05.3	0.8 - 0.2	6.8 - 2.0	12.8 - 3.7
9	4°17.2	4°18.0	4°05.5	0.9 - 0.3	6.9 - 2.0	12.9 - 3.8
10	4°17.5	4°18.2	4°05.8	1.0 - 0.3	7.0 - 2.0	13.0 - 3.8
11	4°17.8	4°18.5	4°06.0	1.1 - 0.3	7.1 - 2.1	13.1 - 3.8
12	4°18.0	4°18.7	4°06.2	1.2 - 0.4	7.2 - 2.1	13.2 - 3.9
13	4°18.2	4°19.0	4°06.5	1.3 - 0.4	7.3 - 2.1	13.3 - 3.9
14	4°18.5	4°19.2	4°06.7	1.4 - 0.4	7.4 - 2.2	13.4 - 3.9
15	4°18.8	4°19.5	4°07.0	1.5 - 0.4	7.5 - 2.2	13.5 - 3.9
16	4°19.0	4°19.7	4°07.2	1.6 - 0.5	7.6 - 2.2	13.6 - 4.0
17	4°19.3	4°20.0	4°07.4	1.7 - 0.5	7.7 - 2.2	13.7 - 4.0
18	4°19.5	4°20.2	4°07.7	1.8 - 0.5	7.8 - 2.3	13.8 - 4.0
19	4°19.7	4°20.5	4°07.9	1.9 - 0.6	7.9 - 2.3	13.9 - 4.1
20	4°20.0	4°20.7	4°08.2	2.0 - 0.6	8.0 - 2.3	14.0 - 4.1
21	4°20.3	4°21.0	4°08.4	2.1 - 0.6	8.1 - 2.4	14.1 - 4.1
22	4°20.5	4°21.2	4°08.6	2.2 - 0.6	8.2 - 2.4	14.2 - 4.1
23	4°20.7	4°21.5	4°08.9	2.3 - 0.7	8.3 - 2.4	14.3 - 4.2
24	4°21.0	4°21.7	4°09.1	2.4 - 0.7	8.4 - 2.5	14.4 - 4.2
25	4°21.3	4°22.0	4°09.3	2.5 - 0.7	8.5 - 2.5	14.5 - 4.2
26	4°21.5	4°22.2	4°09.6	2.6 - 0.8	8.6 - 2.5	14.6 - 4.3
27	4°21.7	4°22.5	4°09.8	2.7 - 0.8	8.7 - 2.5	14.7 - 4.3
28	4°22.0	4°22.7	4°10.1	2.8 - 0.8	8.8 - 2.6	14.8 - 4.3
29	4°22.3	4°23.0	4°10.3	2.9 - 0.8	8.9 - 2.6	14.9 - 4.3
30	4°22.5	4°23.2	4°10.5	3.0 - 0.9	9.0 - 2.6	15.0 - 4.4
31	4°22.7	4°23.5	4°10.8	3.1 - 0.9	9.1 - 2.7	15.1 - 4.4
32	4°23.0	4°23.7	4°11.0	3.2 - 0.9	9.2 - 2.7	15.2 - 4.4
33	4°23.3	4°24.0	4°11.3	3.3 - 1.0	9.3 - 2.7	15.3 - 4.5
34	4°23.5	4°24.2	4°11.5	3.4 - 1.0	9.4 - 2.7	15.4 - 4.5
35	4°23.7	4°24.5	4°11.7	3.5 - 1.0	9.5 - 2.8	15.5 - 4.5
36	4°24.0	4°24.7	4°12.0	3.6 - 1.1	9.6 - 2.8	15.6 - 4.5
37	4°24.3	4°25.0	4°12.2	3.7 - 1.1	9.7 - 2.8	15.7 - 4.6
38	4°24.5	4°25.2	4°12.5	3.8 - 1.1	9.8 - 2.9	15.8 - 4.6
39	4°24.7	4°25.5	4°12.7	3.9 - 1.1	9.9 - 2.9	15.9 - 4.6
40	4°25.0	4°25.7	4°12.9	4.0 - 1.2	10.0 - 2.9	16.0 - 4.7
41	4°25.3	4°26.0	4°13.2	4.1 - 1.2	10.1 - 2.9	16.1 - 4.7
42	4°25.5	4°26.2	4°13.4	4.2 - 1.2	10.2 - 3.0	16.2 - 4.7
43	4°25.7	4°26.5	4°13.6	4.3 - 1.3	10.3 - 3.0	16.3 - 4.8
44	4°26.0	4°26.7	4°13.9	4.4 - 1.3	10.4 - 3.0	16.4 - 4.8
45	4°26.3	4°27.0	4°14.1	4.5 - 1.3	10.5 - 3.1	16.5 - 4.8
46	4°26.5	4°27.2	4°14.4	4.6 - 1.3	10.6 - 3.1	16.6 - 4.8
47	4°26.8	4°27.5	4°14.6	4.7 - 1.4	10.7 - 3.1	16.7 - 4.9
48	4°27.0	4°27.7	4°14.8	4.8 - 1.4	10.8 - 3.2	16.8 - 4.9
49	4°27.2	4°28.0	4°15.1	4.9 - 1.4	10.9 - 3.2	16.9 - 4.9
50	4°27.5	4°28.2	4°15.3	5.0 - 1.5	11.0 - 3.2	17.0 - 5.0
51	4°27.8	4°28.5	4°15.6	5.1 - 1.5	11.1 - 3.2	17.1 - 5.0
52	4°28.0	4°28.7	4°15.8	5.2 - 1.5	11.2 - 3.3	17.2 - 5.0
53	4°28.2	4°29.0	4°16.0	5.3 - 1.5	11.3 - 3.3	17.3 - 5.0
54	4°28.5	4°29.2	4°16.3	5.4 - 1.6	11.4 - 3.3	17.4 - 5.1
55	4°28.8	4°29.5	4°16.5	5.5 - 1.6	11.5 - 3.4	17.5 - 5.1
56	4°29.0	4°29.7	4°16.7	5.6 - 1.6	11.6 - 3.4	17.6 - 5.1
57	4°29.2	4°30.0	4°17.0	5.7 - 1.7	11.7 - 3.4	17.7 - 5.2
58	4°29.5	4°30.2	4°17.2	5.8 - 1.7	11.8 - 3.4	17.8 - 5.2
59	4°29.8	4°30.5	4°17.5	5.9 - 1.7	11.9 - 3.5	17.9 - 5.2

Increments and Corrections

m 18	Sun Plan.	Aries	Moon	v and d corr			m 19	Sun Plan.	Aries	Moon	v and d corr			m 20	Sun Plan.	Aries	Moon	v and d corr		
0	4°30.0	4°30.7	4°17.7	0.0 - 0.0	6.0 - 1.9	12.0 - 3.7	0	4°45.0	4°45.8	4°32.0	0.0 - 0.0	6.0 - 2.0	12.0 - 3.9	0	5°00.0	5°00.8	4°46.3	0.0 - 0.0	6.0 - 2.0	12.0 - 4.1
1	4°30.2	4°31.0	4°17.9	0.1 - 0.0	6.1 - 1.9	12.1 - 3.7	1	4°45.2	4°46.0	4°32.3	0.1 - 0.0	6.1 - 2.0	12.1 - 3.9	1	5°00.2	5°01.1	4°46.6	0.1 - 0.0	6.1 - 2.1	12.1 - 4.1
2	4°30.5	4°31.2	4°18.2	0.2 - 0.1	6.2 - 1.9	12.2 - 3.8	2	4°45.5	4°46.3	4°32.5	0.2 - 0.1	6.2 - 2.0	12.2 - 4.0	2	5°00.5	5°01.3	4°46.8	0.2 - 0.1	6.2 - 2.1	12.2 - 4.2
3	4°30.8	4°31.5	4°18.4	0.3 - 0.1	6.3 - 1.9	12.3 - 3.8	3	4°45.8	4°46.5	4°32.7	0.3 - 0.1	6.3 - 2.0	12.3 - 4.0	3	5°00.8	5°01.6	4°47.0	0.3 - 0.1	6.3 - 2.2	12.3 - 4.2
4	4°31.0	4°31.7	4°18.7	0.4 - 0.1	6.4 - 2.0	12.4 - 3.8	4	4°46.0	4°46.8	4°33.0	0.4 - 0.1	6.4 - 2.1	12.4 - 4.0	4	5°01.0	5°01.8	4°47.3	0.4 - 0.1	6.4 - 2.2	12.4 - 4.2
5	4°31.2	4°32.0	4°18.9	0.5 - 0.2	6.5 - 2.0	12.5 - 3.9	5	4°46.2	4°47.0	4°33.2	0.5 - 0.2	6.5 - 2.1	12.5 - 4.1	5	5°01.2	5°02.1	4°47.5	0.5 - 0.2	6.5 - 2.2	12.5 - 4.3
6	4°31.5	4°32.2	4°19.1	0.6 - 0.2	6.6 - 2.0	12.6 - 3.9	6	4°46.5	4°47.3	4°33.4	0.6 - 0.2	6.6 - 2.1	12.6 - 4.1	6	5°01.5	5°02.3	4°47.8	0.6 - 0.2	6.6 - 2.3	12.6 - 4.3
7	4°31.8	4°32.5	4°19.4	0.7 - 0.2	6.7 - 2.1	12.7 - 3.9	7	4°46.8	4°47.5	4°33.7	0.7 - 0.2	6.7 - 2.2	12.7 - 4.1	7	5°01.8	5°02.6	4°48.0	0.7 - 0.2	6.7 - 2.3	12.7 - 4.3
8	4°32.0	4°32.7	4°19.6	0.8 - 0.2	6.8 - 2.1	12.8 - 3.9	8	4°47.0	4°47.8	4°33.9	0.8 - 0.3	6.8 - 2.2	12.8 - 4.2	8	5°02.0	5°02.8	4°48.2	0.8 - 0.3	6.8 - 2.3	12.8 - 4.4
9	4°32.2	4°33.0	4°19.8	0.9 - 0.3	6.9 - 2.1	12.9 - 4.0	9	4°47.2	4°48.0	4°34.2	0.9 - 0.3	6.9 - 2.2	12.9 - 4.2	9	5°02.2	5°03.1	4°48.5	0.9 - 0.3	6.9 - 2.4	12.9 - 4.4
10	4°32.5	4°33.2	4°20.1	1.0 - 0.3	7.0 - 2.2	13.0 - 4.0	10	4°47.5	4°48.3	4°34.4	1.0 - 0.3	7.0 - 2.3	13.0 - 4.2	10	5°02.5	5°03.3	4°48.7	1.0 - 0.3	7.0 - 2.4	13.0 - 4.4
11	4°32.8	4°33.5	4°20.3	1.1 - 0.3	7.1 - 2.2	13.1 - 4.0	11	4°47.8	4°48.5	4°34.6	1.1 - 0.4	7.1 - 2.3	13.1 - 4.3	11	5°02.8	5°03.6	4°49.0	1.1 - 0.4	7.1 - 2.4	13.1 - 4.5
12	4°33.0	4°33.7	4°20.6	1.2 - 0.4	7.2 - 2.2	13.2 - 4.1	12	4°48.0	4°48.8	4°34.9	1.2 - 0.4	7.2 - 2.3	13.2 - 4.3	12	5°03.0	5°03.8	4°49.2	1.2 - 0.4	7.2 - 2.5	13.2 - 4.5
13	4°33.2	4°34.0	4°20.8	1.3 - 0.4	7.3 - 2.3	13.3 - 4.1	13	4°48.2	4°49.0	4°35.1	1.3 - 0.4	7.3 - 2.4	13.3 - 4.3	13	5°03.2	5°04.1	4°49.4	1.3 - 0.4	7.3 - 2.5	13.3 - 4.5
14	4°33.5	4°34.2	4°21.0	1.4 - 0.4	7.4 - 2.3	13.4 - 4.1	14	4°48.5	4°49.3	4°35.4	1.4 - 0.5	7.4 - 2.4	13.4 - 4.4	14	5°03.5	5°04.3	4°49.7	1.4 - 0.5	7.4 - 2.5	13.4 - 4.6
15	4°33.8	4°34.5	4°21.3	1.5 - 0.5	7.5 - 2.3	13.5 - 4.2	15	4°48.8	4°49.5	4°35.6	1.5 - 0.5	7.5 - 2.4	13.5 - 4.4	15	5°03.8	5°04.6	4°49.9	1.5 - 0.5	7.5 - 2.6	13.5 - 4.6
16	4°34.0	4°34.7	4°21.5	1.6 - 0.5	7.6 - 2.3	13.6 - 4.2	16	4°49.0	4°49.8	4°35.8	1.6 - 0.5	7.6 - 2.5	13.6 - 4.4	16	5°04.0	5°04.8	4°50.2	1.6 - 0.5	7.6 - 2.6	13.6 - 4.6
17	4°34.3	4°35.0	4°21.8	1.7 - 0.5	7.7 - 2.4	13.7 - 4.2	17	4°49.3	4°50.0	4°36.1	1.7 - 0.6	7.7 - 2.5	13.7 - 4.5	17	5°04.3	5°05.1	4°50.4	1.7 - 0.6	7.7 - 2.6	13.7 - 4.7
18	4°34.5	4°35.3	4°22.0	1.8 - 0.6	7.8 - 2.4	13.8 - 4.3	18	4°49.5	4°50.3	4°36.3	1.8 - 0.6	7.8 - 2.5	13.8 - 4.5	18	5°04.5	5°05.3	4°50.6	1.8 - 0.6	7.8 - 2.7	13.8 - 4.7
19	4°34.8	4°35.5	4°22.2	1.9 - 0.6	7.9 - 2.4	13.9 - 4.3	19	4°49.8	4°50.5	4°36.6	1.9 - 0.6	7.9 - 2.6	13.9 - 4.5	19	5°04.7	5°05.6	4°50.9	1.9 - 0.6	7.9 - 2.7	13.9 - 4.7
20	4°35.0	4°35.8	4°22.5	2.0 - 0.6	8.0 - 2.5	14.0 - 4.3	20	4°50.0	4°50.8	4°36.8	2.0 - 0.7	8.0 - 2.6	14.0 - 4.5	20	5°05.0	5°05.8	4°51.1	2.0 - 0.7	8.0 - 2.7	14.0 - 4.8
21	4°35.3	4°36.0	4°22.7	2.1 - 0.6	8.1 - 2.5	14.1 - 4.3	21	4°50.3	4°51.0	4°37.0	2.1 - 0.7	8.1 - 2.6	14.1 - 4.6	21	5°05.3	5°06.1	4°51.3	2.1 - 0.7	8.1 - 2.8	14.1 - 4.8
22	4°35.5	4°36.3	4°22.9	2.2 - 0.7	8.2 - 2.5	14.2 - 4.4	22	4°50.5	4°51.3	4°37.3	2.2 - 0.7	8.2 - 2.7	14.2 - 4.6	22	5°05.5	5°06.3	4°51.6	2.2 - 0.8	8.2 - 2.8	14.2 - 4.9
23	4°35.7	4°36.5	4°23.2	2.3 - 0.7	8.3 - 2.6	14.3 - 4.4	23	4°50.7	4°51.5	4°37.5	2.3 - 0.7	8.3 - 2.7	14.3 - 4.6	23	5°05.7	5°06.6	4°51.8	2.3 - 0.8	8.3 - 2.8	14.3 - 4.9
24	4°36.0	4°36.8	4°23.4	2.4 - 0.7	8.4 - 2.6	14.4 - 4.4	24	4°51.0	4°51.8	4°37.7	2.4 - 0.8	8.4 - 2.7	14.4 - 4.7	24	5°06.0	5°06.8	4°52.1	2.4 - 0.8	8.4 - 2.9	14.4 - 4.9
25	4°36.3	4°37.0	4°23.7	2.5 - 0.8	8.5 - 2.6	14.5 - 4.5	25	4°51.3	4°52.0	4°38.0	2.5 - 0.8	8.5 - 2.8	14.5 - 4.7	25	5°06.3	5°07.1	4°52.3	2.5 - 0.9	8.5 - 2.9	14.5 - 5.0
26	4°36.5	4°37.3	4°23.9	2.6 - 0.8	8.6 - 2.7	14.6 - 4.5	26	4°51.5	4°52.3	4°38.2	2.6 - 0.8	8.6 - 2.8	14.6 - 4.7	26	5°06.5	5°07.3	4°52.5	2.6 - 0.9	8.6 - 2.9	14.6 - 5.0
27	4°36.7	4°37.5	4°24.1	2.7 - 0.8	8.7 - 2.7	14.7 - 4.5	27	4°51.7	4°52.5	4°38.5	2.7 - 0.9	8.7 - 2.8	14.7 - 4.8	27	5°06.7	5°07.6	4°52.8	2.7 - 0.9	8.7 - 3.0	14.7 - 5.0
28	4°37.0	4°37.8	4°24.4	2.8 - 0.9	8.8 - 2.7	14.8 - 4.6	28	4°52.0	4°52.8	4°38.7	2.8 - 0.9	8.8 - 2.9	14.8 - 4.8	28	5°07.0	5°07.8	4°53.0	2.8 - 1.0	8.8 - 3.0	14.8 - 5.1
29	4°37.3	4°38.0	4°24.6	2.9 - 0.9	8.9 - 2.7	14.9 - 4.6	29	4°52.3	4°53.0	4°38.9	2.9 - 0.9	8.9 - 2.9	14.9 - 4.8	29	5°07.3	5°08.1	4°53.3	2.9 - 1.0	8.9 - 3.0	14.9 - 5.1
30	4°37.5	4°38.3	4°24.9	3.0 - 0.9	9.0 - 2.8	15.0 - 4.6	30	4°52.5	4°53.3	4°39.2	3.0 - 1.0	9.0 - 2.9	15.0 - 4.9	30	5°07.5	5°08.3	4°53.5	3.0 - 1.0	9.0 - 3.1	15.0 - 5.1
31	4°37.7	4°38.5	4°25.1	3.1 - 1.0	9.1 - 2.8	15.1 - 4.7	31	4°52.7	4°53.6	4°39.4	3.1 - 1.0	9.1 - 3.0	15.1 - 4.9	31	5°07.7	5°08.6	4°53.7	3.1 - 1.1	9.1 - 3.1	15.1 - 5.2
32	4°38.0	4°38.8	4°25.3	3.2 - 1.0	9.2 - 2.8	15.2 - 4.7	32	4°53.0	4°53.8	4°39.7	3.2 - 1.0	9.2 - 3.0	15.2 - 4.9	32	5°08.0	5°08.8	4°54.0	3.2 - 1.1	9.2 - 3.1	15.2 - 5.2
33	4°38.3	4°39.0	4°25.6	3.3 - 1.0	9.3 - 2.9	15.3 - 4.7	33	4°53.3	4°54.1	4°39.9	3.3 - 1.1	9.3 - 3.0	15.3 - 5.0	33	5°08.3	5°09.1	4°54.2	3.3 - 1.1	9.3 - 3.2	15.3 - 5.2
34	4°38.5	4°39.3	4°25.8	3.4 - 1.0	9.4 - 2.9	15.4 - 4.7	34	4°53.5	4°54.3	4°40.1	3.4 - 1.1	9.4 - 3.1	15.4 - 5.0	34	5°08.5	5°09.3	4°54.4	3.4 - 1.2	9.4 - 3.2	15.4 - 5.3
35	4°38.7	4°39.5	4°26.1	3.5 - 1.1	9.5 - 2.9	15.5 - 4.8	35	4°53.7	4°54.6	4°40.4	3.5 - 1.1	9.5 - 3.1	15.5 - 5.0	35	5°08.7	5°09.6	4°54.7	3.5 - 1.2	9.5 - 3.2	15.5 - 5.3
36	4°39.0	4°39.8	4°26.3	3.6 - 1.1	9.6 - 3.0	15.6 - 4.8	36	4°54.0	4°54.8	4°40.6	3.6 - 1.2	9.6 - 3.1	15.6 - 5.1	36	5°09.0	5°09.8	4°54.9	3.6 - 1.2	9.6 - 3.3	15.6 - 5.3
37	4°39.3	4°40.0	4°26.5	3.7 - 1.1	9.7 - 3.0	15.7 - 4.8	37	4°54.3	4°55.1	4°40.8	3.7 - 1.2	9.7 - 3.2	15.7 - 5.1	37	5°09.3	5°10.1	4°55.2	3.7 - 1.3	9.7 - 3.3	15.7 - 5.4
38	4°39.5	4°40.3	4°26.8	3.8 - 1.2	9.8 - 3.0	15.8 - 4.9	38	4°54.5	4°55.3	4°41.1	3.8 - 1.2	9.8 - 3.2	15.8 - 5.1	38	5°09.5	5°10.3	4°55.4	3.8 - 1.3	9.8 - 3.3	15.8 - 5.4
39	4°39.7	4°40.5	4°27.0	3.9 - 1.2	9.9 - 3.1	15.9 - 4.9	39	4°54.7	4°55.6	4°41.3	3.9 - 1.3	9.9 - 3.2	15.9 - 5.2	39	5°09.7	5°10.6	4°55.6	3.9 - 1.3	9.9 - 3.4	15.9 - 5.4
40	4°40.0	4°40.8	4°27.2	4.0 - 1.2	10.0 - 3.1	16.0 - 4.9	40	4°55.0	4°55.8	4°41.6	4.0 - 1.3	10.0 - 3.3	16.0 - 5.2	40	5°10.0	5°10.8	4°55.9	4.0 - 1.4	10.0 - 3.4	16.0 - 5.5
41	4°40.3	4°41.0	4°27.5	4.1 - 1.3	10.1 - 3.1	16.1 - 5.0	41	4°55.3	4°56.1	4°41.8	4.1 - 1.3	10.1 - 3.3	16.1 - 5.2	41	5°10.3	5°11.1	4°56.1	4.1 - 1.4	10.1 - 3.5	16.1 - 5.5
42	4°40.5	4°41.3	4°27.7	4.2 - 1.3	10.2 - 3.1	16.2 - 5.0	42	4°55.5	4°56.3	4°42.0	4.2 - 1.4	10.2 - 3.3	16.2 - 5.3	42	5°10.5	5°11.3	4°56.4	4.2 - 1.4	10.2 - 3.5	16.2 - 5.5
43	4°40.7	4°41.5	4°28.0	4.3 - 1.3	10.3 - 3.2	16.3 - 5.0	43	4°55.7	4°56.6	4°42.3	4.3 - 1.4	10.3 - 3.3	16.3 - 5.3	43	5°10.7	5°11.6	4°56.6	4.3 - 1.5	10.3 - 3.5	16.3 - 5.6
44	4°41.0	4°41.8	4°28.2	4.4 - 1.4	10.4 - 3.2	16.4 - 5.1	44	4°56.0	4°56.8	4°42.5	4.4 - 1.4	10.4 - 3.4	16.4 - 5.3	44	5°11.0	5°11.9	4°56.8	4.4 - 1.5	10.4 - 3.6	16.4 - 5.6
45	4°41.3	4°42.0	4°28.4	4.5 - 1.4	10.5 - 3.2	16.5 - 5.1	45	4°56.3	4°57.1	4°42.8	4.5 - 1.5	10.5 - 3.4	16.5 - 5.4	45	5°11.3	5°12.1	4°57.1	4.5 - 1.5	10.5 - 3.6	16.5 - 5.6
46	4°41.5	4°42.3	4°28.7	4.6 - 1.4	10.6 - 3.3	16.6 - 5.1	46	4°56.5	4°57.3	4°43.0	4.6 - 1.5	10.6 - 3.4	16.6 - 5.4	46	5°11.5	5°12.4	4°57.3	4.6 - 1.6	10.6 - 3.6	16.6 - 5.7
47	4°41.8	4°42.5	4°28.9	4.7 - 1.4	10.7 - 3.3	16.7 - 5.1	47	4°56.8	4°57.6	4°43.2	4.7 - 1.5	10.7 - 3.5	16.7 - 5.4	47	5°11.8	5°12.6	4°57.5	4.7 - 1.6	10.7 - 3.7	16.7 - 5.7
48	4°42.0	4°42.8	4°29.2	4.8 - 1.5	10.8 - 3.3	16.8 - 5.2	48	4°57.0	4°57.8	4°43.5	4.8 - 1.6	10.8 - 3.5	16.8 - 5.5	48	5°12.0	5°12.9	4°57.8	4.8 - 1.6	10.8 - 3.7	16.8 - 5.7
49	4°42.3	4°43.0	4°29.4	4.9 - 1.5	10.9 - 3.4	16.9 - 5.2	49	4°57.3												

Increments and Corrections

m 21	Sun Plan.	Aries	Moon	v and d corr		
0	5°15.0	5°15.9	5°00.6	0.0 - 0.0	6.0 - 2.1	12.0 - 4.3
1	5°15.2	5°16.1	5°00.9	0.1 - 0.0	6.1 - 2.2	12.1 - 4.3
2	5°15.5	5°16.4	5°01.1	0.2 - 0.1	6.2 - 2.2	12.2 - 4.4
3	5°15.8	5°16.6	5°01.4	0.3 - 0.1	6.3 - 2.3	12.3 - 4.4
4	5°16.0	5°16.9	5°01.6	0.4 - 0.1	6.4 - 2.3	12.4 - 4.4
5	5°16.2	5°17.1	5°01.8	0.5 - 0.2	6.5 - 2.3	12.5 - 4.5
6	5°16.5	5°17.4	5°02.1	0.6 - 0.2	6.6 - 2.4	12.6 - 4.5
7	5°16.8	5°17.6	5°02.3	0.7 - 0.3	6.7 - 2.4	12.7 - 4.6
8	5°17.0	5°17.9	5°02.6	0.8 - 0.3	6.8 - 2.4	12.8 - 4.6
9	5°17.2	5°18.1	5°02.8	0.9 - 0.3	6.9 - 2.5	12.9 - 4.6
10	5°17.5	5°18.4	5°03.0	1.0 - 0.4	7.0 - 2.5	13.0 - 4.7
11	5°17.8	5°18.6	5°03.3	1.1 - 0.4	7.1 - 2.5	13.1 - 4.7
12	5°18.0	5°18.9	5°03.5	1.2 - 0.4	7.2 - 2.6	13.2 - 4.7
13	5°18.2	5°19.1	5°03.8	1.3 - 0.5	7.3 - 2.6	13.3 - 4.8
14	5°18.5	5°19.4	5°04.0	1.4 - 0.5	7.4 - 2.7	13.4 - 4.8
15	5°18.8	5°19.6	5°04.2	1.5 - 0.5	7.5 - 2.7	13.5 - 4.8
16	5°19.0	5°19.9	5°04.5	1.6 - 0.6	7.6 - 2.7	13.6 - 4.9
17	5°19.3	5°20.1	5°04.7	1.7 - 0.6	7.7 - 2.8	13.7 - 4.9
18	5°19.5	5°20.4	5°04.9	1.8 - 0.6	7.8 - 2.8	13.8 - 4.9
19	5°19.7	5°20.6	5°05.2	1.9 - 0.7	7.9 - 2.8	13.9 - 5.0
20	5°20.0	5°20.9	5°05.4	2.0 - 0.7	8.0 - 2.9	14.0 - 5.0
21	5°20.3	5°21.1	5°05.7	2.1 - 0.8	8.1 - 2.9	14.1 - 5.1
22	5°20.5	5°21.4	5°05.9	2.2 - 0.8	8.2 - 2.9	14.2 - 5.1
23	5°20.7	5°21.6	5°06.1	2.3 - 0.8	8.3 - 3.0	14.3 - 5.1
24	5°21.0	5°21.9	5°06.4	2.4 - 0.9	8.4 - 3.0	14.4 - 5.2
25	5°21.3	5°22.1	5°06.6	2.5 - 0.9	8.5 - 3.0	14.5 - 5.2
26	5°21.5	5°22.4	5°06.9	2.6 - 0.9	8.6 - 3.1	14.6 - 5.2
27	5°21.7	5°22.6	5°07.1	2.7 - 1.0	8.7 - 3.1	14.7 - 5.3
28	5°22.0	5°22.9	5°07.3	2.8 - 1.0	8.8 - 3.2	14.8 - 5.3
29	5°22.3	5°23.1	5°07.6	2.9 - 1.0	8.9 - 3.2	14.9 - 5.3
30	5°22.5	5°23.4	5°07.8	3.0 - 1.1	9.0 - 3.2	15.0 - 5.4
31	5°22.7	5°23.6	5°08.0	3.1 - 1.1	9.1 - 3.3	15.1 - 5.4
32	5°23.0	5°23.9	5°08.3	3.2 - 1.1	9.2 - 3.3	15.2 - 5.4
33	5°23.3	5°24.1	5°08.5	3.3 - 1.2	9.3 - 3.3	15.3 - 5.5
34	5°23.5	5°24.4	5°08.8	3.4 - 1.2	9.4 - 3.4	15.4 - 5.5
35	5°23.7	5°24.6	5°09.0	3.5 - 1.3	9.5 - 3.4	15.5 - 5.6
36	5°24.0	5°24.9	5°09.2	3.6 - 1.3	9.6 - 3.4	15.6 - 5.6
37	5°24.3	5°25.1	5°09.5	3.7 - 1.3	9.7 - 3.5	15.7 - 5.6
38	5°24.5	5°25.4	5°09.7	3.8 - 1.4	9.8 - 3.5	15.8 - 5.7
39	5°24.7	5°25.6	5°10.0	3.9 - 1.4	9.9 - 3.5	15.9 - 5.7
40	5°25.0	5°25.9	5°10.2	4.0 - 1.4	10.0 - 3.6	16.0 - 5.7
41	5°25.3	5°26.1	5°10.4	4.1 - 1.5	10.1 - 3.6	16.1 - 5.8
42	5°25.5	5°26.4	5°10.7	4.2 - 1.5	10.2 - 3.7	16.2 - 5.8
43	5°25.7	5°26.6	5°10.9	4.3 - 1.5	10.3 - 3.7	16.3 - 5.8
44	5°26.0	5°26.9	5°11.1	4.4 - 1.6	10.4 - 3.7	16.4 - 5.9
45	5°26.3	5°27.1	5°11.4	4.5 - 1.6	10.5 - 3.8	16.5 - 5.9
46	5°26.5	5°27.4	5°11.6	4.6 - 1.6	10.6 - 3.8	16.6 - 5.9
47	5°26.8	5°27.6	5°11.9	4.7 - 1.7	10.7 - 3.8	16.7 - 6.0
48	5°27.0	5°27.9	5°12.1	4.8 - 1.7	10.8 - 3.9	16.8 - 6.0
49	5°27.2	5°28.1	5°12.3	4.9 - 1.8	10.9 - 3.9	16.9 - 6.1
50	5°27.5	5°28.4	5°12.6	5.0 - 1.8	11.0 - 3.9	17.0 - 6.1
51	5°27.8	5°28.6	5°12.8	5.1 - 1.8	11.1 - 4.0	17.1 - 6.1
52	5°28.0	5°28.9	5°13.1	5.2 - 1.9	11.2 - 4.0	17.2 - 6.2
53	5°28.2	5°29.1	5°13.3	5.3 - 1.9	11.3 - 4.0	17.3 - 6.2
54	5°28.5	5°29.4	5°13.5	5.4 - 1.9	11.4 - 4.1	17.4 - 6.2
55	5°28.8	5°29.6	5°13.8	5.5 - 2.0	11.5 - 4.1	17.5 - 6.3
56	5°29.0	5°29.9	5°14.0	5.6 - 2.0	11.6 - 4.2	17.6 - 6.3
57	5°29.2	5°30.1	5°14.3	5.7 - 2.0	11.7 - 4.2	17.7 - 6.3
58	5°29.5	5°30.4	5°14.5	5.8 - 2.1	11.8 - 4.2	17.8 - 6.4
59	5°29.8	5°30.7	5°14.7	5.9 - 2.1	11.9 - 4.3	17.9 - 6.4

m 22	Sun Plan.	Aries	Moon	v and d corr		
0	5°30.0	5°30.9	5°15.0	0.0 - 0.0	6.0 - 2.3	12.0 - 4.5
1	5°30.2	5°31.2	5°15.2	0.1 - 0.0	6.1 - 2.3	12.1 - 4.5
2	5°30.5	5°31.4	5°15.4	0.2 - 0.1	6.2 - 2.3	12.2 - 4.6
3	5°30.8	5°31.7	5°15.7	0.3 - 0.1	6.3 - 2.4	12.3 - 4.6
4	5°31.0	5°31.9	5°15.9	0.4 - 0.2	6.4 - 2.4	12.4 - 4.7
5	5°31.2	5°32.2	5°16.2	0.5 - 0.2	6.5 - 2.4	12.5 - 4.7
6	5°31.5	5°32.4	5°16.4	0.6 - 0.2	6.6 - 2.5	12.6 - 4.7
7	5°31.8	5°32.7	5°16.6	0.7 - 0.3	6.7 - 2.5	12.7 - 4.8
8	5°32.0	5°32.9	5°16.9	0.8 - 0.3	6.8 - 2.5	12.8 - 4.8
9	5°32.2	5°33.2	5°17.1	0.9 - 0.3	6.9 - 2.6	12.9 - 4.8
10	5°32.5	5°33.4	5°17.4	1.0 - 0.4	7.0 - 2.6	13.0 - 4.9
11	5°32.8	5°33.7	5°17.6	1.1 - 0.4	7.1 - 2.7	13.1 - 4.9
12	5°33.0	5°33.9	5°17.8	1.2 - 0.5	7.2 - 2.7	13.2 - 4.9
13	5°33.2	5°34.2	5°18.1	1.3 - 0.5	7.3 - 2.7	13.3 - 5.0
14	5°33.5	5°34.4	5°18.3	1.4 - 0.5	7.4 - 2.8	13.4 - 5.0
15	5°33.8	5°34.7	5°18.5	1.5 - 0.6	7.5 - 2.8	13.5 - 5.1
16	5°34.0	5°34.9	5°18.8	1.6 - 0.6	7.6 - 2.8	13.6 - 5.1
17	5°34.3	5°35.2	5°19.0	1.7 - 0.6	7.7 - 2.9	13.7 - 5.1
18	5°34.5	5°35.4	5°19.3	1.8 - 0.7	7.8 - 2.9	13.8 - 5.2
19	5°34.8	5°35.7	5°19.5	1.9 - 0.7	7.9 - 3.0	13.9 - 5.2
20	5°35.0	5°35.9	5°19.7	2.0 - 0.8	8.0 - 3.0	14.0 - 5.3
21	5°35.3	5°36.2	5°20.0	2.1 - 0.8	8.1 - 3.0	14.1 - 5.3
22	5°35.5	5°36.4	5°20.2	2.2 - 0.8	8.2 - 3.1	14.2 - 5.3
23	5°35.7	5°36.7	5°20.5	2.3 - 0.9	8.3 - 3.1	14.3 - 5.4
24	5°36.0	5°36.9	5°20.7	2.4 - 0.9	8.4 - 3.2	14.4 - 5.4
25	5°36.3	5°37.2	5°20.9	2.5 - 0.9	8.5 - 3.2	14.5 - 5.4
26	5°36.5	5°37.4	5°21.2	2.6 - 1.0	8.6 - 3.2	14.6 - 5.5
27	5°36.7	5°37.7	5°21.4	2.7 - 1.0	8.7 - 3.3	14.7 - 5.5
28	5°37.0	5°37.9	5°21.6	2.8 - 1.1	8.8 - 3.3	14.8 - 5.6
29	5°37.3	5°38.2	5°21.9	2.9 - 1.1	8.9 - 3.3	14.9 - 5.6
30	5°37.5	5°38.4	5°22.1	3.0 - 1.1	9.0 - 3.4	15.0 - 5.6
31	5°37.7	5°38.7	5°22.4	3.1 - 1.2	9.1 - 3.4	15.1 - 5.7
32	5°38.0	5°38.9	5°22.6	3.2 - 1.2	9.2 - 3.4	15.2 - 5.7
33	5°38.3	5°39.2	5°22.8	3.3 - 1.2	9.3 - 3.5	15.3 - 5.7
34	5°38.5	5°39.4	5°23.1	3.4 - 1.3	9.4 - 3.5	15.4 - 5.8
35	5°38.7	5°39.7	5°23.3	3.5 - 1.3	9.5 - 3.6	15.5 - 5.8
36	5°39.0	5°39.9	5°23.6	3.6 - 1.4	9.6 - 3.6	15.6 - 5.8
37	5°39.3	5°40.2	5°23.8	3.7 - 1.4	9.7 - 3.6	15.7 - 5.9
38	5°39.5	5°40.4	5°24.0	3.8 - 1.4	9.8 - 3.7	15.8 - 5.9
39	5°39.7	5°40.7	5°24.3	3.9 - 1.5	9.9 - 3.7	15.9 - 6.0
40	5°40.0	5°40.9	5°24.5	4.0 - 1.5	10.0 - 3.8	16.0 - 6.0
41	5°40.3	5°41.2	5°24.7	4.1 - 1.5	10.1 - 3.8	16.1 - 6.0
42	5°40.5	5°41.4	5°25.0	4.2 - 1.6	10.2 - 3.8	16.2 - 6.1
43	5°40.7	5°41.7	5°25.2	4.3 - 1.6	10.3 - 3.9	16.3 - 6.1
44	5°41.0	5°41.9	5°25.5	4.4 - 1.7	10.4 - 3.9	16.4 - 6.1
45	5°41.3	5°42.2	5°25.7	4.5 - 1.7	10.5 - 3.9	16.5 - 6.2
46	5°41.5	5°42.4	5°25.9	4.6 - 1.7	10.6 - 4.0	16.6 - 6.2
47	5°41.8	5°42.7	5°26.2	4.7 - 1.8	10.7 - 4.0	16.7 - 6.3
48	5°42.0	5°42.9	5°26.4	4.8 - 1.8	10.8 - 4.1	16.8 - 6.3
49	5°42.3	5°43.2	5°26.7	4.9 - 1.8	10.9 - 4.1	16.9 - 6.3
50	5°42.5	5°43.4	5°26.9	5.0 - 1.9	11.0 - 4.1	17.0 - 6.4
51	5°42.8	5°43.7	5°27.1	5.1 - 1.9	11.1 - 4.2	17.1 - 6.4
52	5°43.0	5°43.9	5°27.4	5.2 - 2.0	11.2 - 4.2	17.2 - 6.4
53	5°43.2	5°44.2	5°27.6	5.3 - 2.0	11.3 - 4.2	17.3 - 6.5
54	5°43.5	5°44.4	5°27.9	5.4 - 2.0	11.4 - 4.3	17.4 - 6.5
55	5°43.8	5°44.7	5°28.1	5.5 - 2.1	11.5 - 4.3	17.5 - 6.6
56	5°44.0	5°44.9	5°28.3	5.6 - 2.1	11.6 - 4.4	17.6 - 6.6
57	5°44.2	5°45.2	5°28.6	5.7 - 2.1	11.7 - 4.4	17.7 - 6.6
58	5°44.5	5°45.4	5°28.8	5.8 - 2.2	11.8 - 4.4	17.8 - 6.7
59	5°44.8	5°45.7	5°29.0	5.9 - 2.2	11.9 - 4.5	17.9 - 6.7

m 23	Sun Plan.	Aries	Moon	v and d corr		
0	5°45.0	5°45.9	5°29.3	0.0 - 0.0	6.0 - 2.4	12.0 - 4.7
1	5°45.2	5°46.2	5°29.5	0.1 - 0.0	6.1 - 2.4	12.1 - 4.7
2	5°45.5	5°46.4	5°29.8	0.2 - 0.1	6.2 - 2.4	12.2 - 4.8
3	5°45.8	5°46.7	5°30.0	0.3 - 0.1	6.3 - 2.5	12.3 - 4.8
4	5°46.0	5°46.9	5°30.2	0.4 - 0.2	6.4 - 2.5	12.4 - 4.9
5	5°46.2	5°47.2	5°30.5	0.5 - 0.2	6.5 - 2.5	12.5 - 4.9
6	5°46.5	5°47.4	5°30.7	0.6 - 0.2	6.6 - 2.6	12.6 - 4.9
7	5°46.8	5°47.7	5°31.0	0.7 - 0.3	6.7 - 2.6	12.7 - 5.0
8	5°47.0	5°47.9	5°31.2	0.8 - 0.3	6.8 - 2.7	12.8 - 5.0
9	5°47.2	5°48.2	5°31.4	0.9 - 0.4	6.9 - 2.7	12.9 - 5.1
10	5°47.5	5°48.4	5°31.7	1.0 - 0.4	7.0 - 2.7	13.0 - 5.1
11	5°47.8	5°48.7	5°31.9	1.1 - 0.4	7.1 - 2.8	13.1 - 5.1
12	5°48.0	5°49.0	5°32.1	1.2 - 0.5	7.2 - 2.8	13.2 - 5.2
13	5°48.2	5°49.2	5°32.4	1.3 - 0.5	7.3 - 2.9	13.3 - 5.2
14	5°48.5	5°49.5	5°32.6	1.4 - 0.5	7.4 - 2.9	13.4 - 5.2
15	5°48.8	5°49.7	5°32.9	1.5 - 0.6	7.5 - 2.9	13.5 - 5.3
16	5°49.0	5°50.0	5°33.1	1.6 - 0.6	7.6 - 3.0	13.6 - 5.3
17	5°49.3	5°50.2	5°33.3	1.7 - 0.7	7.7 - 3.0	13.7 - 5.4
18	5°49.5	5°50.5	5°33.6	1.8 - 0.7	7.8 - 3.1	13.8 - 5.4
19	5°49.8	5°50.7	5°33.8	1.9 - 0.7	7.9 - 3.1	13.9 - 5.4
20	5°50.0	5°51.0	5°34.1	2.0 - 0.8	8.0 - 3.1	14.0 - 5.5
21	5°50.3	5°51.2	5°34.3	2.1 - 0.8	8.1 - 3.2	14.1 - 5.5
22	5°50.5	5°51.5	5°34.5	2.2 - 0.9	8.2 - 3.2	14.2 - 5.6
23	5°50.7	5°51.7	5°34.8	2.3 - 0.9	8.3 - 3.3	14.3 - 5.6
24	5°51.0	5°52.0	5°35.0	2.4 - 0.9	8.4 - 3.3	14.4 - 5.6
25	5°51.3	5°52.2	5°35.2	2.5 - 1.0	8.5 - 3.3	14.5 - 5.7
26	5°51.5	5°52.5	5°35.5	2.6 - 1.0	8.6 - 3.4	14.6 - 5.7
27	5°51.7	5°52.7	5°35.7	2.7 - 1.1	8.7 - 3.4	14.7 - 5.8
28	5°52.0	5°53.0	5°36.0	2.8 - 1.1	8.8 - 3.4	14.8 - 5.8
29	5°52.3	5°53.2	5°36.2	2.9 - 1.1	8.9 - 3.5	14.9 - 5.8
30	5°52.5	5°53.5	5°36.4	3.0 - 1.2	9.0 - 3.5	15.0 - 5.9
31	5°52.7	5°53.7	5°36.7	3.1 - 1.2	9.1 - 3.6	15.1 - 5.9
32	5°53.0	5°54.0	5°36.9	3.2 - 1.3	9.2 - 3.6	15.2 - 6.0
33	5°53.3	5°54.2	5°37.2	3.3 - 1.3	9.3 - 3.6	15.3 - 6.0
34	5°53.5	5°54.5	5°37.4	3.4 - 1.3	9.4 - 3.7	15.4 - 6.0
35	5°53.7	5°54.7	5°37.6	3.5 - 1.4	9.5 - 3.7	15.5 - 6.1
36	5°54.0	5°55.0	5°37.9	3.6 - 1.4	9.6 - 3.8	15.6 - 6.1
37	5°54.3	5°55.2	5°38.1	3.7 - 1.4	9.7 - 3.8	15.7 - 6.1
38	5°54.5	5°55.5	5°38.4	3.8 - 1.5	9.8 - 3.8	15.8 - 6.2
39	5°54.7	5°55.7	5°38.6	3.9 - 1.5	9.9 - 3.9	15.9 - 6.2
40	5°55.0	5°56.0	5°38.8	4.0 - 1.6	10.0 - 3.9	16.0 - 6.3
41	5°55.3	5°56.2	5°39.1	4.1 - 1.6	10.1 - 4.0	16.1 - 6.3
42	5°55.5	5°56.5	5°39.3	4.2 - 1.6	10.2 - 4.0	16.2 - 6.3
43	5°55.7	5°56.7	5°39.5	4.3 - 1.7	10.3 - 4.0	16.3 - 6.4
44	5°56.0	5°57.0	5°39.8	4.4 - 1.7	10.4 - 4.1	16.4 - 6.4
45	5°56.3	5°57.2	5°40.0	4.5 - 1.8	10.5 - 4.1	16.5 - 6.5
46	5°56.5	5°57.5	5°40.3	4.6 - 1.8	10.6 - 4.2	16.6 - 6.5
47	5°56.8	5°57.7	5°40.5	4.7 - 1.8	10.7 - 4.2	16.7 - 6.5
48	5°57.0	5°58.0	5°40.7	4.8 - 1.9	10.8 - 4.2	16.8 - 6.6
49	5°57.3	5°58.2	5°41.0	4.9 - 1.9	10.9 - 4.3	16.9 - 6.6
50	5°57.5	5°58.5	5°41.2	5.0 - 2.0	11.0 - 4.3	17.0 - 6.7
51	5°57.8	5°58.7	5°41.5	5.1 - 2.0	11.1 - 4.3	17.1 - 6.7
52	5°58.0	5°59.0	5°41.7	5.2 - 2.0	11.2 - 4.4	17.2 - 6.7
53	5°58.2	5°59.2	5°41.9	5.3 - 2.1	11.3 - 4.4	17.3 - 6.8
54	5°58.5	5°59.5	5°42.2	5.4 - 2.1	11.4 - 4.5	17.4 - 6.8
55	5°58.8	5°59.7	5°42.4	5.5 - 2.2	11.5 - 4.5	17.5 - 6.9
56	5°59.0	6°00.0	5°42.6	5.6 - 2.2	11.6 - 4.5	17.6 - 6.9
57	5°59.2	6°00.2	5°42.9	5.7 - 2.2	11.7 - 4.6	17.7 - 6.9
58	5°59.5	6°00.5	5°43.1	5.8 - 2.3	11.8 - 4.6	17.8 - 7.0
59	5°59.8	6°00.7	5°43.4	5.9 - 2.3	11.9 - 4.7	17.9 - 7.0

Increments and Corrections

m 24	Sun Plan.	Aries	Moon	v and d corr			m 25	Sun Plan.	Aries	Moon	v and d corr			m 26	Sun Plan.	Aries	Moon	v and d corr		
0	6°00.0	6°01.0	5°43.6	0.0 - 0.0	6.0 - 2.5	12.0 - 4.9	0	6°15.0	6°16.0	5°57.9	0.0 - 0.0	6.0 - 2.5	12.0 - 5.1	0	6°30.0	6°31.1	6°12.2	0.0 - 0.0	6.0 - 2.6	12.0 - 5.3
1	6°00.2	6°01.2	5°43.8	0.1 - 0.0	6.1 - 2.5	12.1 - 4.9	1	6°15.2	6°16.3	5°58.2	0.1 - 0.0	6.1 - 2.6	12.1 - 5.1	1	6°30.2	6°31.3	6°12.5	0.1 - 0.0	6.1 - 2.7	12.1 - 5.3
2	6°00.5	6°01.5	5°44.1	0.2 - 0.1	6.2 - 2.5	12.2 - 5.0	2	6°15.5	6°16.5	5°58.4	0.2 - 0.1	6.2 - 2.6	12.2 - 5.2	2	6°30.5	6°31.6	6°12.7	0.2 - 0.1	6.2 - 2.7	12.2 - 5.4
3	6°00.8	6°01.7	5°44.3	0.3 - 0.1	6.3 - 2.6	12.3 - 5.0	3	6°15.8	6°16.8	5°58.6	0.3 - 0.1	6.3 - 2.7	12.3 - 5.2	3	6°30.8	6°31.8	6°12.9	0.3 - 0.1	6.3 - 2.8	12.3 - 5.4
4	6°01.0	6°02.0	5°44.6	0.4 - 0.2	6.4 - 2.6	12.4 - 5.1	4	6°16.0	6°17.0	5°58.9	0.4 - 0.2	6.4 - 2.7	12.4 - 5.3	4	6°31.0	6°32.1	6°13.2	0.4 - 0.2	6.4 - 2.8	12.4 - 5.5
5	6°01.2	6°02.2	5°44.8	0.5 - 0.2	6.5 - 2.7	12.5 - 5.1	5	6°16.2	6°17.3	5°59.1	0.5 - 0.2	6.5 - 2.8	12.5 - 5.3	5	6°31.2	6°32.3	6°13.4	0.5 - 0.2	6.5 - 2.9	12.5 - 5.5
6	6°01.5	6°02.5	5°45.0	0.6 - 0.2	6.6 - 2.7	12.6 - 5.1	6	6°16.5	6°17.5	5°59.3	0.6 - 0.3	6.6 - 2.8	12.6 - 5.4	6	6°31.5	6°32.6	6°13.7	0.6 - 0.3	6.6 - 2.9	12.6 - 5.6
7	6°01.8	6°02.7	5°45.3	0.7 - 0.3	6.7 - 2.7	12.7 - 5.2	7	6°16.8	6°17.8	5°59.6	0.7 - 0.3	6.7 - 2.8	12.7 - 5.4	7	6°31.8	6°32.8	6°13.9	0.7 - 0.3	6.7 - 3.0	12.7 - 5.6
8	6°02.0	6°03.0	5°45.5	0.8 - 0.3	6.8 - 2.8	12.8 - 5.2	8	6°17.0	6°18.0	5°59.8	0.8 - 0.3	6.8 - 2.9	12.8 - 5.4	8	6°32.0	6°33.1	6°14.1	0.8 - 0.4	6.8 - 3.0	12.8 - 5.7
9	6°02.2	6°03.2	5°45.7	0.9 - 0.4	6.9 - 2.8	12.9 - 5.3	9	6°17.2	6°18.3	6°00.1	0.9 - 0.4	6.9 - 2.9	12.9 - 5.5	9	6°32.2	6°33.3	6°14.4	0.9 - 0.4	6.9 - 3.0	12.9 - 5.7
10	6°02.5	6°03.5	5°46.0	1.0 - 0.4	7.0 - 2.9	13.0 - 5.3	10	6°17.5	6°18.5	6°00.3	1.0 - 0.4	7.0 - 3.0	13.0 - 5.5	10	6°32.5	6°33.6	6°14.6	1.0 - 0.4	7.0 - 3.1	13.0 - 5.7
11	6°02.8	6°03.7	5°46.2	1.1 - 0.4	7.1 - 2.9	13.1 - 5.3	11	6°17.8	6°18.8	6°00.5	1.1 - 0.5	7.1 - 3.0	13.1 - 5.6	11	6°32.8	6°33.8	6°14.9	1.1 - 0.5	7.1 - 3.1	13.1 - 5.8
12	6°03.0	6°04.0	5°46.5	1.2 - 0.5	7.2 - 2.9	13.2 - 5.4	12	6°18.0	6°19.0	6°00.8	1.2 - 0.5	7.2 - 3.1	13.2 - 5.6	12	6°33.0	6°34.1	6°15.1	1.2 - 0.5	7.2 - 3.2	13.2 - 5.8
13	6°03.2	6°04.2	5°46.7	1.3 - 0.5	7.3 - 3.0	13.3 - 5.4	13	6°18.2	6°19.3	6°01.0	1.3 - 0.6	7.3 - 3.1	13.3 - 5.7	13	6°33.2	6°34.3	6°15.3	1.3 - 0.6	7.3 - 3.2	13.3 - 5.9
14	6°03.5	6°04.5	5°46.9	1.4 - 0.6	7.4 - 3.0	13.4 - 5.5	14	6°18.5	6°19.5	6°01.3	1.4 - 0.6	7.4 - 3.1	13.4 - 5.7	14	6°33.5	6°34.6	6°15.6	1.4 - 0.6	7.4 - 3.3	13.4 - 5.9
15	6°03.8	6°04.7	5°47.2	1.5 - 0.6	7.5 - 3.1	13.5 - 5.5	15	6°18.8	6°19.8	6°01.5	1.5 - 0.6	7.5 - 3.2	13.5 - 5.7	15	6°33.8	6°34.8	6°15.8	1.5 - 0.7	7.5 - 3.3	13.5 - 6.0
16	6°04.0	6°05.0	5°47.4	1.6 - 0.7	7.6 - 3.1	13.6 - 5.6	16	6°19.0	6°20.0	6°01.7	1.6 - 0.7	7.6 - 3.2	13.6 - 5.8	16	6°34.0	6°35.1	6°16.1	1.6 - 0.7	7.6 - 3.4	13.6 - 6.0
17	6°04.3	6°05.2	5°47.7	1.7 - 0.7	7.7 - 3.1	13.7 - 5.6	17	6°19.3	6°20.3	6°02.0	1.7 - 0.7	7.7 - 3.3	13.7 - 5.8	17	6°34.3	6°35.3	6°16.3	1.7 - 0.8	7.7 - 3.4	13.7 - 6.1
18	6°04.5	6°05.5	5°47.9	1.8 - 0.7	7.8 - 3.2	13.8 - 5.6	18	6°19.5	6°20.5	6°02.2	1.8 - 0.8	7.8 - 3.3	13.8 - 5.9	18	6°34.5	6°35.6	6°16.5	1.8 - 0.8	7.8 - 3.4	13.8 - 6.1
19	6°04.7	6°05.7	5°48.1	1.9 - 0.8	7.9 - 3.2	13.9 - 5.7	19	6°19.7	6°20.8	6°02.5	1.9 - 0.8	7.9 - 3.4	13.9 - 5.9	19	6°34.8	6°35.8	6°16.8	1.9 - 0.8	7.9 - 3.5	13.9 - 6.1
20	6°05.0	6°06.0	5°48.4	2.0 - 0.8	8.0 - 3.3	14.0 - 5.7	20	6°20.0	6°21.0	6°02.7	2.0 - 0.8	8.0 - 3.4	14.0 - 6.0	20	6°35.0	6°36.1	6°17.0	2.0 - 0.9	8.0 - 3.5	14.0 - 6.2
21	6°05.3	6°06.2	5°48.6	2.1 - 0.9	8.1 - 3.3	14.1 - 5.8	21	6°20.3	6°21.3	6°02.9	2.1 - 0.9	8.1 - 3.4	14.1 - 6.0	21	6°35.3	6°36.3	6°17.2	2.1 - 0.9	8.1 - 3.6	14.1 - 6.2
22	6°05.5	6°06.5	5°48.8	2.2 - 0.9	8.2 - 3.3	14.2 - 5.8	22	6°20.5	6°21.5	6°03.2	2.2 - 0.9	8.2 - 3.5	14.2 - 6.0	22	6°35.5	6°36.6	6°17.5	2.2 - 1.0	8.2 - 3.6	14.2 - 6.3
23	6°05.7	6°06.7	5°49.1	2.3 - 0.9	8.3 - 3.4	14.3 - 5.8	23	6°20.7	6°21.8	6°03.4	2.3 - 1.0	8.3 - 3.5	14.3 - 6.1	23	6°35.7	6°36.8	6°17.7	2.3 - 1.0	8.3 - 3.7	14.3 - 6.3
24	6°06.0	6°07.0	5°49.3	2.4 - 1.0	8.4 - 3.4	14.4 - 5.9	24	6°21.0	6°22.0	6°03.6	2.4 - 1.0	8.4 - 3.6	14.4 - 6.1	24	6°36.0	6°37.1	6°18.0	2.4 - 1.1	8.4 - 3.7	14.4 - 6.4
25	6°06.3	6°07.3	5°49.6	2.5 - 1.0	8.5 - 3.5	14.5 - 5.9	25	6°21.3	6°22.3	6°03.9	2.5 - 1.1	8.5 - 3.6	14.5 - 6.2	25	6°36.3	6°37.3	6°18.2	2.5 - 1.1	8.5 - 3.8	14.5 - 6.4
26	6°06.5	6°07.5	5°49.8	2.6 - 1.1	8.6 - 3.5	14.6 - 6.0	26	6°21.5	6°22.5	6°04.1	2.6 - 1.1	8.6 - 3.7	14.6 - 6.2	26	6°36.5	6°37.6	6°18.4	2.6 - 1.1	8.6 - 3.8	14.6 - 6.4
27	6°06.7	6°07.8	5°50.0	2.7 - 1.1	8.7 - 3.6	14.7 - 6.0	27	6°21.7	6°22.8	6°04.4	2.7 - 1.1	8.7 - 3.7	14.7 - 6.2	27	6°36.7	6°37.8	6°18.7	2.7 - 1.2	8.7 - 3.8	14.7 - 6.5
28	6°07.0	6°08.0	5°50.3	2.8 - 1.1	8.8 - 3.6	14.8 - 6.0	28	6°22.0	6°23.0	6°04.6	2.8 - 1.2	8.8 - 3.7	14.8 - 6.3	28	6°37.0	6°38.1	6°18.9	2.8 - 1.2	8.8 - 3.9	14.8 - 6.5
29	6°07.3	6°08.3	5°50.5	2.9 - 1.2	8.9 - 3.6	14.9 - 6.1	29	6°22.3	6°23.3	6°04.8	2.9 - 1.2	8.9 - 3.8	14.9 - 6.3	29	6°37.3	6°38.3	6°19.2	2.9 - 1.3	8.9 - 3.9	14.9 - 6.6
30	6°07.5	6°08.5	5°50.8	3.0 - 1.2	9.0 - 3.7	15.0 - 6.1	30	6°22.5	6°23.5	6°05.1	3.0 - 1.3	9.0 - 3.8	15.0 - 6.4	30	6°37.5	6°38.6	6°19.4	3.0 - 1.3	9.0 - 4.0	15.0 - 6.6
31	6°07.7	6°08.8	5°51.0	3.1 - 1.3	9.1 - 3.7	15.1 - 6.2	31	6°22.7	6°23.8	6°05.3	3.1 - 1.3	9.1 - 3.9	15.1 - 6.4	31	6°37.7	6°38.8	6°19.6	3.1 - 1.4	9.1 - 4.0	15.1 - 6.7
32	6°08.0	6°09.0	5°51.2	3.2 - 1.3	9.2 - 3.8	15.2 - 6.2	32	6°23.0	6°24.0	6°05.6	3.2 - 1.4	9.2 - 3.9	15.2 - 6.5	32	6°38.0	6°39.1	6°19.9	3.2 - 1.4	9.2 - 4.1	15.2 - 6.7
33	6°08.3	6°09.3	5°51.5	3.3 - 1.3	9.3 - 3.8	15.3 - 6.2	33	6°23.3	6°24.3	6°05.8	3.3 - 1.4	9.3 - 4.0	15.3 - 6.5	33	6°38.3	6°39.3	6°20.1	3.3 - 1.5	9.3 - 4.1	15.3 - 6.8
34	6°08.5	6°09.5	5°51.7	3.4 - 1.4	9.4 - 3.8	15.4 - 6.3	34	6°23.5	6°24.5	6°06.0	3.4 - 1.4	9.4 - 4.0	15.4 - 6.5	34	6°38.5	6°39.6	6°20.3	3.4 - 1.5	9.4 - 4.2	15.4 - 6.8
35	6°08.7	6°09.8	5°52.0	3.5 - 1.4	9.5 - 3.9	15.5 - 6.3	35	6°23.7	6°24.8	6°06.3	3.5 - 1.5	9.5 - 4.0	15.5 - 6.6	35	6°38.7	6°39.8	6°20.6	3.5 - 1.5	9.5 - 4.2	15.5 - 6.8
36	6°09.0	6°10.0	5°52.2	3.6 - 1.5	9.6 - 3.9	15.6 - 6.4	36	6°24.0	6°25.0	6°06.5	3.6 - 1.5	9.6 - 4.1	15.6 - 6.6	36	6°39.0	6°40.1	6°20.8	3.6 - 1.6	9.6 - 4.2	15.6 - 6.9
37	6°09.3	6°10.3	5°52.4	3.7 - 1.5	9.7 - 4.0	15.7 - 6.4	37	6°24.3	6°25.3	6°06.7	3.7 - 1.6	9.7 - 4.1	15.7 - 6.7	37	6°39.3	6°40.3	6°21.1	3.7 - 1.6	9.7 - 4.3	15.7 - 6.9
38	6°09.5	6°10.5	5°52.7	3.8 - 1.6	9.8 - 4.0	15.8 - 6.5	38	6°24.5	6°25.6	6°07.0	3.8 - 1.6	9.8 - 4.2	15.8 - 6.7	38	6°39.5	6°40.6	6°21.3	3.8 - 1.7	9.8 - 4.3	15.8 - 7.0
39	6°09.7	6°10.8	5°52.9	3.9 - 1.6	9.9 - 4.0	15.9 - 6.5	39	6°24.7	6°25.8	6°07.2	3.9 - 1.7	9.9 - 4.2	15.9 - 6.8	39	6°39.7	6°40.8	6°21.5	3.9 - 1.7	9.9 - 4.4	15.9 - 7.0
40	6°10.0	6°11.0	5°53.1	4.0 - 1.6	10.0 - 4.1	16.0 - 6.5	40	6°25.0	6°26.1	6°07.5	4.0 - 1.7	10.0 - 4.3	16.0 - 6.8	40	6°40.0	6°41.1	6°21.8	4.0 - 1.8	10.0 - 4.4	16.0 - 7.1
41	6°10.3	6°11.3	5°53.4	4.1 - 1.7	10.1 - 4.1	16.1 - 6.6	41	6°25.3	6°26.3	6°07.7	4.1 - 1.7	10.1 - 4.3	16.1 - 6.8	41	6°40.3	6°41.3	6°22.0	4.1 - 1.8	10.1 - 4.5	16.1 - 7.1
42	6°10.5	6°11.5	5°53.6	4.2 - 1.7	10.2 - 4.2	16.2 - 6.6	42	6°25.5	6°26.6	6°07.9	4.2 - 1.8	10.2 - 4.3	16.2 - 6.9	42	6°40.5	6°41.6	6°22.3	4.2 - 1.9	10.2 - 4.5	16.2 - 7.2
43	6°10.7	6°11.8	5°53.9	4.3 - 1.8	10.3 - 4.2	16.3 - 6.7	43	6°25.7	6°26.8	6°08.2	4.3 - 1.8	10.3 - 4.4	16.3 - 6.9	43	6°40.7	6°41.8	6°22.5	4.3 - 1.9	10.3 - 4.5	16.3 - 7.2
44	6°11.0	6°12.0	5°54.1	4.4 - 1.8	10.4 - 4.2	16.4 - 6.7	44	6°26.0	6°27.1	6°08.4	4.4 - 1.9	10.4 - 4.4	16.4 - 7.0	44	6°41.0	6°42.1	6°22.7	4.4 - 1.9	10.4 - 4.6	16.4 - 7.2
45	6°11.3	6°12.3	5°54.3	4.5 - 1.8	10.5 - 4.3	16.5 - 6.7	45	6°26.3	6°27.3	6°08.7	4.5 - 1.9	10.5 - 4.5	16.5 - 7.0	45	6°41.3	6°42.3	6°23.0	4.5 - 2.0	10.5 - 4.6	16.5 - 7.3
46	6°11.5	6°12.5	5°54.6	4.6 - 1.9	10.6 - 4.3	16.6 - 6.8	46	6°26.5	6°27.6	6°08.9	4.6 - 2.0	10.6 - 4.5	16.6 - 7.1	46	6°41.5	6°42.6	6°23.2	4.6 - 2.0	10.6 - 4.7	16.6 - 7.3
47	6°11.8	6°12.8	5°54.8	4.7 - 1.9	10.7 - 4.4	16.7 - 6.8	47	6°26.8	6°27.8	6°09.1	4.7 - 2.0	10.7 - 4.5	16.7 - 7.1	47	6°41.8	6°42.8	6°23.4	4.7 - 2.1	10.7 - 4.7	16.7 - 7.4
48	6°12.0	6°13.0	5°55.1	4.8 - 2.0	10.8 - 4.4	16.8 - 6.9	48	6°27.0	6°28.1	6°09.4	4.8 - 2.0	10.8 - 4.6	16.8 - 7.1	48	6°42.0	6°43.1	6°23.7	4.8 - 2.1	10.8 - 4.8	16.8 - 7.4
49	6°12.2	6°13.3	5°55.3	4.9 - 2.0	10.9 - 4.5	16.9 - 6.9	49	6°27.2	6°28.3</											

Increments and Corrections

m 27	Sun Plan.	Aries	Moon	v and d corr			m 28	Sun Plan.	Aries	Moon	v and d corr			m 29	Sun Plan.	Aries	Moon	v and d corr		
0	6°45.0	6°46.1	6°26.5	0.0 - 0.0	6.0 - 2.8	12.0 - 5.5	0	7°00.0	7°01.1	6°40.9	0.0 - 0.0	6.0 - 2.8	12.0 - 5.7	0	7°15.0	7°16.2	6°55.2	0.0 - 0.0	6.0 - 2.9	12.0 - 5.9
1	6°45.2	6°46.4	6°26.8	0.1 - 0.0	6.1 - 2.8	12.1 - 5.5	1	7°00.2	7°01.4	6°41.1	0.1 - 0.0	6.1 - 2.9	12.1 - 5.7	1	7°15.2	7°16.4	6°55.4	0.1 - 0.0	6.1 - 3.0	12.1 - 5.9
2	6°45.5	6°46.6	6°27.0	0.2 - 0.1	6.2 - 2.8	12.2 - 5.6	2	7°00.5	7°01.6	6°41.3	0.2 - 0.1	6.2 - 2.9	12.2 - 5.8	2	7°15.5	7°16.7	6°55.7	0.2 - 0.1	6.2 - 3.0	12.2 - 6.0
3	6°45.8	6°46.9	6°27.3	0.3 - 0.1	6.3 - 2.9	12.3 - 5.6	3	7°00.8	7°01.9	6°41.6	0.3 - 0.1	6.3 - 3.0	12.3 - 5.8	3	7°15.8	7°16.9	6°55.9	0.3 - 0.1	6.3 - 3.1	12.3 - 6.0
4	6°46.0	6°47.1	6°27.5	0.4 - 0.2	6.4 - 2.9	12.4 - 5.7	4	7°01.0	7°02.2	6°41.8	0.4 - 0.2	6.4 - 3.0	12.4 - 5.9	4	7°16.0	7°17.2	6°56.1	0.4 - 0.2	6.4 - 3.1	12.4 - 6.1
5	6°46.2	6°47.4	6°27.7	0.5 - 0.2	6.5 - 3.0	12.5 - 5.7	5	7°01.2	7°02.4	6°42.1	0.5 - 0.2	6.5 - 3.1	12.5 - 5.9	5	7°16.2	7°17.4	6°56.4	0.5 - 0.2	6.5 - 3.2	12.5 - 6.1
6	6°46.5	6°47.6	6°28.0	0.6 - 0.3	6.6 - 3.0	12.6 - 5.8	6	7°01.5	7°02.7	6°42.3	0.6 - 0.3	6.6 - 3.1	12.6 - 6.0	6	7°16.5	7°17.7	6°56.6	0.6 - 0.3	6.6 - 3.2	12.6 - 6.2
7	6°46.8	6°47.9	6°28.2	0.7 - 0.3	6.7 - 3.1	12.7 - 5.8	7	7°01.8	7°02.9	6°42.5	0.7 - 0.3	6.7 - 3.2	12.7 - 6.0	7	7°16.8	7°17.9	6°56.9	0.7 - 0.3	6.7 - 3.3	12.7 - 6.2
8	6°47.0	6°48.1	6°28.5	0.8 - 0.4	6.8 - 3.1	12.8 - 5.9	8	7°02.0	7°03.2	6°42.8	0.8 - 0.4	6.8 - 3.2	12.8 - 6.1	8	7°17.0	7°18.2	6°57.1	0.8 - 0.4	6.8 - 3.3	12.8 - 6.3
9	6°47.2	6°48.4	6°28.7	0.9 - 0.4	6.9 - 3.2	12.9 - 5.9	9	7°02.2	7°03.4	6°43.0	0.9 - 0.4	6.9 - 3.3	12.9 - 6.1	9	7°17.2	7°18.4	6°57.3	0.9 - 0.4	6.9 - 3.4	12.9 - 6.3
10	6°47.5	6°48.6	6°28.9	1.0 - 0.5	7.0 - 3.2	13.0 - 6.0	10	7°02.5	7°03.7	6°43.3	1.0 - 0.5	7.0 - 3.3	13.0 - 6.2	10	7°17.5	7°18.7	6°57.6	1.0 - 0.5	7.0 - 3.4	13.0 - 6.4
11	6°47.8	6°48.9	6°29.2	1.1 - 0.5	7.1 - 3.3	13.1 - 6.0	11	7°02.8	7°03.9	6°43.5	1.1 - 0.5	7.1 - 3.4	13.1 - 6.2	11	7°17.8	7°18.9	6°57.8	1.1 - 0.5	7.1 - 3.5	13.1 - 6.4
12	6°48.0	6°49.1	6°29.4	1.2 - 0.6	7.2 - 3.3	13.2 - 6.0	12	7°03.0	7°04.2	6°43.7	1.2 - 0.6	7.2 - 3.4	13.2 - 6.3	12	7°18.0	7°19.2	6°58.0	1.2 - 0.6	7.2 - 3.5	13.2 - 6.5
13	6°48.2	6°49.4	6°29.7	1.3 - 0.6	7.3 - 3.3	13.3 - 6.1	13	7°03.2	7°04.4	6°44.0	1.3 - 0.6	7.3 - 3.5	13.3 - 6.3	13	7°18.2	7°19.4	6°58.3	1.3 - 0.6	7.3 - 3.6	13.3 - 6.5
14	6°48.5	6°49.6	6°29.9	1.4 - 0.6	7.4 - 3.4	13.4 - 6.1	14	7°03.5	7°04.7	6°44.2	1.4 - 0.7	7.4 - 3.5	13.4 - 6.4	14	7°18.5	7°19.7	6°58.5	1.4 - 0.7	7.4 - 3.6	13.4 - 6.6
15	6°48.8	6°49.9	6°30.1	1.5 - 0.7	7.5 - 3.4	13.5 - 6.2	15	7°03.8	7°04.9	6°44.4	1.5 - 0.7	7.5 - 3.6	13.5 - 6.4	15	7°18.8	7°19.9	6°58.8	1.5 - 0.7	7.5 - 3.7	13.5 - 6.6
16	6°49.0	6°50.1	6°30.4	1.6 - 0.7	7.6 - 3.5	13.6 - 6.2	16	7°04.0	7°05.2	6°44.7	1.6 - 0.8	7.6 - 3.6	13.6 - 6.5	16	7°19.0	7°20.2	6°59.0	1.6 - 0.8	7.6 - 3.7	13.6 - 6.7
17	6°49.3	6°50.4	6°30.6	1.7 - 0.8	7.7 - 3.5	13.7 - 6.3	17	7°04.3	7°05.4	6°44.9	1.7 - 0.8	7.7 - 3.7	13.7 - 6.5	17	7°19.3	7°20.5	6°59.2	1.7 - 0.8	7.7 - 3.8	13.7 - 6.7
18	6°49.5	6°50.6	6°30.8	1.8 - 0.8	7.8 - 3.6	13.8 - 6.3	18	7°04.5	7°05.7	6°45.2	1.8 - 0.9	7.8 - 3.7	13.8 - 6.6	18	7°19.5	7°20.7	6°59.5	1.8 - 0.9	7.8 - 3.8	13.8 - 6.8
19	6°49.8	6°50.9	6°31.1	1.9 - 0.9	7.9 - 3.6	13.9 - 6.4	19	7°04.7	7°05.9	6°45.4	1.9 - 0.9	7.9 - 3.8	13.9 - 6.6	19	7°19.7	7°21.0	6°59.7	1.9 - 0.9	7.9 - 3.9	13.9 - 6.8
20	6°50.0	6°51.1	6°31.3	2.0 - 0.9	8.0 - 3.7	14.0 - 6.4	20	7°05.0	7°06.2	6°45.6	2.0 - 0.9	8.0 - 3.8	14.0 - 6.6	20	7°20.0	7°21.2	7°00.0	2.0 - 1.0	8.0 - 3.9	14.0 - 6.9
21	6°50.3	6°51.4	6°31.6	2.1 - 1.0	8.1 - 3.7	14.1 - 6.5	21	7°05.3	7°06.4	6°45.9	2.1 - 1.0	8.1 - 3.8	14.1 - 6.7	21	7°20.3	7°21.5	7°00.2	2.1 - 1.0	8.1 - 4.0	14.1 - 6.9
22	6°50.5	6°51.6	6°31.8	2.2 - 1.0	8.2 - 3.8	14.2 - 6.5	22	7°05.5	7°06.7	6°46.1	2.2 - 1.0	8.2 - 3.9	14.2 - 6.7	22	7°20.5	7°21.7	7°00.4	2.2 - 1.1	8.2 - 4.0	14.2 - 7.0
23	6°50.7	6°51.9	6°32.0	2.3 - 1.1	8.3 - 3.8	14.3 - 6.6	23	7°05.7	7°06.9	6°46.4	2.3 - 1.1	8.3 - 3.9	14.3 - 6.8	23	7°20.7	7°22.0	7°00.7	2.3 - 1.1	8.3 - 4.1	14.3 - 7.0
24	6°51.0	6°52.1	6°32.3	2.4 - 1.1	8.4 - 3.9	14.4 - 6.6	24	7°06.0	7°07.2	6°46.6	2.4 - 1.1	8.4 - 4.0	14.4 - 6.8	24	7°21.0	7°22.2	7°00.9	2.4 - 1.2	8.4 - 4.1	14.4 - 7.1
25	6°51.3	6°52.4	6°32.5	2.5 - 1.1	8.5 - 3.9	14.5 - 6.6	25	7°06.3	7°07.4	6°46.8	2.5 - 1.2	8.5 - 4.0	14.5 - 6.9	25	7°21.3	7°22.5	7°01.1	2.5 - 1.2	8.5 - 4.2	14.5 - 7.1
26	6°51.5	6°52.6	6°32.8	2.6 - 1.2	8.6 - 3.9	14.6 - 6.7	26	7°06.5	7°07.7	6°47.1	2.6 - 1.2	8.6 - 4.1	14.6 - 6.9	26	7°21.5	7°22.7	7°01.4	2.6 - 1.3	8.6 - 4.2	14.6 - 7.2
27	6°51.7	6°52.9	6°33.0	2.7 - 1.2	8.7 - 4.0	14.7 - 6.7	27	7°06.7	7°07.9	6°47.3	2.7 - 1.3	8.7 - 4.1	14.7 - 7.0	27	7°21.7	7°23.0	7°01.6	2.7 - 1.3	8.7 - 4.3	14.7 - 7.2
28	6°52.0	6°53.1	6°33.2	2.8 - 1.3	8.8 - 4.0	14.8 - 6.8	28	7°07.0	7°08.2	6°47.5	2.8 - 1.3	8.8 - 4.2	14.8 - 7.0	28	7°22.0	7°23.2	7°01.9	2.8 - 1.4	8.8 - 4.3	14.8 - 7.3
29	6°52.3	6°53.4	6°33.5	2.9 - 1.3	8.9 - 4.1	14.9 - 6.8	29	7°07.3	7°08.4	6°47.8	2.9 - 1.4	8.9 - 4.2	14.9 - 7.1	29	7°22.3	7°23.5	7°02.1	2.9 - 1.4	8.9 - 4.4	14.9 - 7.3
30	6°52.5	6°53.6	6°33.7	3.0 - 1.4	9.0 - 4.1	15.0 - 6.9	30	7°07.5	7°08.7	6°48.0	3.0 - 1.4	9.0 - 4.3	15.0 - 7.1	30	7°22.5	7°23.7	7°02.3	3.0 - 1.5	9.0 - 4.4	15.0 - 7.4
31	6°52.7	6°53.9	6°33.9	3.1 - 1.4	9.1 - 4.2	15.1 - 6.9	31	7°07.7	7°08.9	6°48.3	3.1 - 1.5	9.1 - 4.3	15.1 - 7.2	31	7°22.7	7°24.0	7°02.6	3.1 - 1.5	9.1 - 4.5	15.1 - 7.4
32	6°53.0	6°54.1	6°34.2	3.2 - 1.5	9.2 - 4.2	15.2 - 7.0	32	7°08.0	7°09.2	6°48.5	3.2 - 1.5	9.2 - 4.4	15.2 - 7.2	32	7°23.0	7°24.2	7°02.8	3.2 - 1.6	9.2 - 4.5	15.2 - 7.5
33	6°53.3	6°54.4	6°34.4	3.3 - 1.5	9.3 - 4.3	15.3 - 7.0	33	7°08.3	7°09.4	6°48.7	3.3 - 1.6	9.3 - 4.4	15.3 - 7.3	33	7°23.3	7°24.5	7°03.1	3.3 - 1.6	9.3 - 4.6	15.3 - 7.5
34	6°53.5	6°54.6	6°34.7	3.4 - 1.6	9.4 - 4.3	15.4 - 7.1	34	7°08.5	7°09.7	6°49.0	3.4 - 1.6	9.4 - 4.5	15.4 - 7.3	34	7°23.5	7°24.7	7°03.3	3.4 - 1.7	9.4 - 4.6	15.4 - 7.6
35	6°53.7	6°54.9	6°34.9	3.5 - 1.6	9.5 - 4.4	15.5 - 7.1	35	7°08.7	7°09.9	6°49.2	3.5 - 1.7	9.5 - 4.5	15.5 - 7.4	35	7°23.7	7°25.0	7°03.5	3.5 - 1.7	9.5 - 4.7	15.5 - 7.6
36	6°54.0	6°55.1	6°35.1	3.6 - 1.6	9.6 - 4.4	15.6 - 7.1	36	7°09.0	7°10.2	6°49.5	3.6 - 1.7	9.6 - 4.6	15.6 - 7.4	36	7°24.0	7°25.2	7°03.8	3.6 - 1.8	9.6 - 4.7	15.6 - 7.7
37	6°54.3	6°55.4	6°35.4	3.7 - 1.7	9.7 - 4.4	15.7 - 7.2	37	7°09.3	7°10.4	6°49.7	3.7 - 1.8	9.7 - 4.6	15.7 - 7.5	37	7°24.3	7°25.5	7°04.0	3.7 - 1.8	9.7 - 4.8	15.7 - 7.7
38	6°54.5	6°55.6	6°35.6	3.8 - 1.7	9.8 - 4.5	15.8 - 7.2	38	7°09.5	7°10.7	6°49.9	3.8 - 1.8	9.8 - 4.7	15.8 - 7.5	38	7°24.5	7°25.7	7°04.3	3.8 - 1.9	9.8 - 4.8	15.8 - 7.8
39	6°54.7	6°55.9	6°35.9	3.9 - 1.8	9.9 - 4.5	15.9 - 7.3	39	7°09.7	7°10.9	6°50.2	3.9 - 1.9	9.9 - 4.7	15.9 - 7.6	39	7°24.7	7°26.0	7°04.5	3.9 - 1.9	9.9 - 4.9	15.9 - 7.8
40	6°55.0	6°56.1	6°36.1	4.0 - 1.8	10.0 - 4.6	16.0 - 7.3	40	7°10.0	7°11.2	6°50.4	4.0 - 1.9	10.0 - 4.8	16.0 - 7.6	40	7°25.0	7°26.2	7°04.7	4.0 - 2.0	10.0 - 4.9	16.0 - 7.9
41	6°55.3	6°56.4	6°36.3	4.1 - 1.9	10.1 - 4.6	16.1 - 7.4	41	7°10.3	7°11.4	6°50.6	4.1 - 1.9	10.1 - 4.8	16.1 - 7.6	41	7°25.3	7°26.5	7°05.0	4.1 - 2.0	10.1 - 5.0	16.1 - 7.9
42	6°55.5	6°56.6	6°36.6	4.2 - 1.9	10.2 - 4.7	16.2 - 7.4	42	7°10.5	7°11.7	6°50.9	4.2 - 2.0	10.2 - 4.8	16.2 - 7.7	42	7°25.5	7°26.7	7°05.2	4.2 - 2.1	10.2 - 5.0	16.2 - 8.0
43	6°55.7	6°56.9	6°36.8	4.3 - 2.0	10.3 - 4.7	16.3 - 7.5	43	7°10.7	7°11.9	6°51.1	4.3 - 2.0	10.3 - 4.9	16.3 - 7.7	43	7°25.7	7°27.0	7°05.4	4.3 - 2.1	10.3 - 5.1	16.3 - 8.0
44	6°56.0	6°57.1	6°37.0	4.4 - 2.0	10.4 - 4.8	16.4 - 7.5	44	7°11.0	7°12.2	6°51.4	4.4 - 2.1	10.4 - 4.9	16.4 - 7.8	44	7°26.0	7°27.2	7°05.7	4.4 - 2.2	10.4 - 5.1	16.4 - 8.1
45	6°56.3	6°57.4	6°37.3	4.5 - 2.1	10.5 - 4.8	16.5 - 7.6	45	7°11.3	7°12.4	6°51.6	4.5 - 2.1	10.5 - 5.0	16.5 - 7.8	45	7°26.3	7°27.5	7°05.9	4.5 - 2.2	10.5 - 5.2	16.5 - 8.1
46	6°56.5	6°57.6	6°37.5	4.6 - 2.1	10.6 - 4.9	16.6 - 7.6	46	7°11.5	7°12.7	6°51.8	4.6 - 2.2	10.6 - 5.0	16.6 - 7.9	46	7°26.5	7°27.7	7°06.2	4.6 - 2.3	10.6 - 5.2	16.6 - 8.2
47	6°56.8	6°57.9	6°37.8	4.7 - 2.2	10.7 - 4.9	16.7 - 7.7	47	7°11.8	7°12.9	6°52.1	4.7 - 2.2	10.7 - 5.1	16.7 - 7.9	47	7°26.8	7°28.0	7°06.4	4.7 - 2.3	10.7 - 5.3	16.7 - 8.2
48	6°57.0	6°58.1	6°38.0	4.8 - 2.2	10.8 - 5.0	16.8 - 7.7	48	7°12.0	7°13.2	6°52.3	4.8 - 2.3	10.8 - 5.1	16.8 - 8.0	48	7°27.0	7°28.2	7°06.6	4.8 - 2.4	10.8 - 5.3	16.8 - 8.3
49	6°57.3	6°58.4	6°38.2	4.9 - 2.2	10.9 - 5.0	16.9 - 7.7	49	7°12.2	7°13.											

Increments and Corrections

m 30	Sun Plan.	Aries	Moon	v and d corr		
0	7°30.0	7°31.2	7°09.5	0.0 - 0.0	6.0 - 3.0	12.0 - 6.1
1	7°30.2	7°31.5	7°09.7	0.1 - 0.1	6.1 - 3.1	12.1 - 6.2
2	7°30.5	7°31.7	7°10.0	0.2 - 0.1	6.2 - 3.2	12.2 - 6.2
3	7°30.8	7°32.0	7°10.2	0.3 - 0.2	6.3 - 3.2	12.3 - 6.3
4	7°31.0	7°32.2	7°10.5	0.4 - 0.2	6.4 - 3.3	12.4 - 6.3
5	7°31.2	7°32.5	7°10.7	0.5 - 0.3	6.5 - 3.3	12.5 - 6.4
6	7°31.5	7°32.7	7°10.9	0.6 - 0.3	6.6 - 3.4	12.6 - 6.4
7	7°31.7	7°33.0	7°11.2	0.7 - 0.4	6.7 - 3.4	12.7 - 6.5
8	7°32.0	7°33.2	7°11.4	0.8 - 0.4	6.8 - 3.5	12.8 - 6.5
9	7°32.2	7°33.5	7°11.6	0.9 - 0.5	6.9 - 3.5	12.9 - 6.6
10	7°32.5	7°33.7	7°11.9	1.0 - 0.5	7.0 - 3.6	13.0 - 6.6
11	7°32.8	7°34.0	7°12.1	1.1 - 0.6	7.1 - 3.6	13.1 - 6.7
12	7°33.0	7°34.2	7°12.4	1.2 - 0.6	7.2 - 3.7	13.2 - 6.7
13	7°33.3	7°34.5	7°12.6	1.3 - 0.7	7.3 - 3.7	13.3 - 6.8
14	7°33.5	7°34.7	7°12.8	1.4 - 0.7	7.4 - 3.8	13.4 - 6.8
15	7°33.8	7°35.0	7°13.1	1.5 - 0.8	7.5 - 3.8	13.5 - 6.9
16	7°34.0	7°35.2	7°13.3	1.6 - 0.8	7.6 - 3.9	13.6 - 6.9
17	7°34.3	7°35.5	7°13.6	1.7 - 0.9	7.7 - 3.9	13.7 - 7.0
18	7°34.5	7°35.7	7°13.8	1.8 - 0.9	7.8 - 4.0	13.8 - 7.0
19	7°34.8	7°36.0	7°14.0	1.9 - 1.0	7.9 - 4.0	13.9 - 7.1
20	7°35.0	7°36.2	7°14.3	2.0 - 1.0	8.0 - 4.1	14.0 - 7.1
21	7°35.3	7°36.5	7°14.5	2.1 - 1.1	8.1 - 4.1	14.1 - 7.2
22	7°35.5	7°36.7	7°14.7	2.2 - 1.1	8.2 - 4.2	14.2 - 7.2
23	7°35.7	7°37.0	7°15.0	2.3 - 1.2	8.3 - 4.2	14.3 - 7.3
24	7°36.0	7°37.2	7°15.2	2.4 - 1.2	8.4 - 4.3	14.4 - 7.3
25	7°36.2	7°37.5	7°15.5	2.5 - 1.3	8.5 - 4.3	14.5 - 7.4
26	7°36.5	7°37.7	7°15.7	2.6 - 1.3	8.6 - 4.4	14.6 - 7.4
27	7°36.7	7°38.0	7°15.9	2.7 - 1.4	8.7 - 4.4	14.7 - 7.5
28	7°37.0	7°38.2	7°16.2	2.8 - 1.4	8.8 - 4.5	14.8 - 7.5
29	7°37.3	7°38.5	7°16.4	2.9 - 1.5	8.9 - 4.5	14.9 - 7.6
30	7°37.5	7°38.8	7°16.7	3.0 - 1.5	9.0 - 4.6	15.0 - 7.6
31	7°37.7	7°39.0	7°16.9	3.1 - 1.6	9.1 - 4.6	15.1 - 7.7
32	7°38.0	7°39.3	7°17.1	3.2 - 1.6	9.2 - 4.7	15.2 - 7.7
33	7°38.3	7°39.5	7°17.4	3.3 - 1.7	9.3 - 4.7	15.3 - 7.8
34	7°38.5	7°39.8	7°17.6	3.4 - 1.7	9.4 - 4.8	15.4 - 7.8
35	7°38.7	7°40.0	7°17.9	3.5 - 1.8	9.5 - 4.8	15.5 - 7.9
36	7°39.0	7°40.3	7°18.1	3.6 - 1.8	9.6 - 4.9	15.6 - 7.9
37	7°39.3	7°40.5	7°18.3	3.7 - 1.9	9.7 - 4.9	15.7 - 8.0
38	7°39.5	7°40.8	7°18.6	3.8 - 1.9	9.8 - 5.0	15.8 - 8.0
39	7°39.8	7°41.0	7°18.8	3.9 - 2.0	9.9 - 5.0	15.9 - 8.1
40	7°40.0	7°41.3	7°19.0	4.0 - 2.0	10.0 - 5.1	16.0 - 8.1
41	7°40.3	7°41.5	7°19.3	4.1 - 2.1	10.1 - 5.1	16.1 - 8.2
42	7°40.5	7°41.8	7°19.5	4.2 - 2.1	10.2 - 5.2	16.2 - 8.2
43	7°40.7	7°42.0	7°19.8	4.3 - 2.2	10.3 - 5.2	16.3 - 8.3
44	7°41.0	7°42.3	7°20.0	4.4 - 2.2	10.4 - 5.3	16.4 - 8.3
45	7°41.2	7°42.5	7°20.2	4.5 - 2.3	10.5 - 5.3	16.5 - 8.4
46	7°41.5	7°42.8	7°20.5	4.6 - 2.3	10.6 - 5.4	16.6 - 8.4
47	7°41.8	7°43.0	7°20.7	4.7 - 2.4	10.7 - 5.4	16.7 - 8.5
48	7°42.0	7°43.3	7°21.0	4.8 - 2.4	10.8 - 5.5	16.8 - 8.5
49	7°42.3	7°43.5	7°21.2	4.9 - 2.5	10.9 - 5.5	16.9 - 8.6
50	7°42.5	7°43.8	7°21.4	5.0 - 2.5	11.0 - 5.6	17.0 - 8.6
51	7°42.8	7°44.0	7°21.7	5.1 - 2.6	11.1 - 5.6	17.1 - 8.7
52	7°43.0	7°44.3	7°21.9	5.2 - 2.6	11.2 - 5.7	17.2 - 8.7
53	7°43.2	7°44.5	7°22.1	5.3 - 2.7	11.3 - 5.7	17.3 - 8.8
54	7°43.5	7°44.8	7°22.4	5.4 - 2.7	11.4 - 5.8	17.4 - 8.8
55	7°43.8	7°45.0	7°22.6	5.5 - 2.8	11.5 - 5.8	17.5 - 8.9
56	7°44.0	7°45.3	7°22.9	5.6 - 2.8	11.6 - 5.9	17.6 - 8.9
57	7°44.3	7°45.5	7°23.1	5.7 - 2.9	11.7 - 5.9	17.7 - 9.0
58	7°44.5	7°45.8	7°23.3	5.8 - 2.9	11.8 - 6.0	17.8 - 9.0
59	7°44.8	7°46.0	7°23.6	5.9 - 3.0	11.9 - 6.0	17.9 - 9.1

m 31	Sun Plan.	Aries	Moon	v and d corr		
0	7°45.0	7°46.3	7°23.8	0.0 - 0.0	6.0 - 3.2	12.0 - 6.3
1	7°45.2	7°46.5	7°24.1	0.1 - 0.1	6.1 - 3.2	12.1 - 6.4
2	7°45.5	7°46.8	7°24.3	0.2 - 0.1	6.2 - 3.3	12.2 - 6.4
3	7°45.7	7°47.0	7°24.5	0.3 - 0.2	6.3 - 3.3	12.3 - 6.5
4	7°46.0	7°47.3	7°24.8	0.4 - 0.2	6.4 - 3.4	12.4 - 6.5
5	7°46.2	7°47.5	7°25.0	0.5 - 0.3	6.5 - 3.4	12.5 - 6.6
6	7°46.5	7°47.8	7°25.2	0.6 - 0.3	6.6 - 3.5	12.6 - 6.6
7	7°46.8	7°48.0	7°25.5	0.7 - 0.4	6.7 - 3.5	12.7 - 6.7
8	7°47.0	7°48.3	7°25.7	0.8 - 0.4	6.8 - 3.6	12.8 - 6.7
9	7°47.2	7°48.5	7°26.0	0.9 - 0.5	6.9 - 3.6	12.9 - 6.8
10	7°47.5	7°48.8	7°26.2	1.0 - 0.5	7.0 - 3.7	13.0 - 6.8
11	7°47.7	7°49.0	7°26.4	1.1 - 0.6	7.1 - 3.7	13.1 - 6.9
12	7°48.0	7°49.3	7°26.7	1.2 - 0.6	7.2 - 3.8	13.2 - 6.9
13	7°48.2	7°49.5	7°26.9	1.3 - 0.7	7.3 - 3.8	13.3 - 7.0
14	7°48.5	7°49.8	7°27.2	1.4 - 0.7	7.4 - 3.9	13.4 - 7.0
15	7°48.8	7°50.0	7°27.4	1.5 - 0.8	7.5 - 3.9	13.5 - 7.1
16	7°49.0	7°50.3	7°27.6	1.6 - 0.8	7.6 - 4.0	13.6 - 7.1
17	7°49.3	7°50.5	7°27.9	1.7 - 0.9	7.7 - 4.0	13.7 - 7.2
18	7°49.5	7°50.8	7°28.1	1.8 - 0.9	7.8 - 4.1	13.8 - 7.2
19	7°49.8	7°51.0	7°28.4	1.9 - 1.0	7.9 - 4.1	13.9 - 7.3
20	7°50.0	7°51.3	7°28.6	2.0 - 1.1	8.0 - 4.2	14.0 - 7.4
21	7°50.3	7°51.5	7°28.8	2.1 - 1.1	8.1 - 4.3	14.1 - 7.4
22	7°50.5	7°51.8	7°29.1	2.2 - 1.2	8.2 - 4.3	14.2 - 7.5
23	7°50.7	7°52.0	7°29.3	2.3 - 1.2	8.3 - 4.4	14.3 - 7.5
24	7°51.0	7°52.3	7°29.5	2.4 - 1.3	8.4 - 4.4	14.4 - 7.6
25	7°51.3	7°52.5	7°29.8	2.5 - 1.3	8.5 - 4.5	14.5 - 7.6
26	7°51.5	7°52.8	7°30.0	2.6 - 1.4	8.6 - 4.5	14.6 - 7.7
27	7°51.7	7°53.0	7°30.3	2.7 - 1.4	8.7 - 4.6	14.7 - 7.7
28	7°52.0	7°53.3	7°30.5	2.8 - 1.5	8.8 - 4.6	14.8 - 7.8
29	7°52.2	7°53.5	7°30.7	2.9 - 1.5	8.9 - 4.7	14.9 - 7.8
30	7°52.5	7°53.8	7°31.0	3.0 - 1.6	9.0 - 4.7	15.0 - 7.9
31	7°52.7	7°54.0	7°31.2	3.1 - 1.6	9.1 - 4.8	15.1 - 7.9
32	7°53.0	7°54.3	7°31.5	3.2 - 1.7	9.2 - 4.8	15.2 - 8.0
33	7°53.3	7°54.5	7°31.7	3.3 - 1.7	9.3 - 4.9	15.3 - 8.0
34	7°53.5	7°54.8	7°31.9	3.4 - 1.8	9.4 - 4.9	15.4 - 8.1
35	7°53.8	7°55.0	7°32.2	3.5 - 1.8	9.5 - 5.0	15.5 - 8.1
36	7°54.0	7°55.3	7°32.4	3.6 - 1.9	9.6 - 5.0	15.6 - 8.2
37	7°54.3	7°55.5	7°32.6	3.7 - 1.9	9.7 - 5.1	15.7 - 8.2
38	7°54.5	7°55.8	7°32.9	3.8 - 2.0	9.8 - 5.1	15.8 - 8.3
39	7°54.7	7°56.0	7°33.1	3.9 - 2.0	9.9 - 5.2	15.9 - 8.3
40	7°55.0	7°56.3	7°33.4	4.0 - 2.1	10.0 - 5.3	16.0 - 8.4
41	7°55.3	7°56.5	7°33.6	4.1 - 2.2	10.1 - 5.3	16.1 - 8.5
42	7°55.5	7°56.8	7°33.8	4.2 - 2.2	10.2 - 5.4	16.2 - 8.5
43	7°55.7	7°57.1	7°34.1	4.3 - 2.3	10.3 - 5.4	16.3 - 8.6
44	7°56.0	7°57.3	7°34.3	4.4 - 2.3	10.4 - 5.5	16.4 - 8.6
45	7°56.3	7°57.6	7°34.6	4.5 - 2.4	10.5 - 5.5	16.5 - 8.7
46	7°56.5	7°57.8	7°34.8	4.6 - 2.4	10.6 - 5.6	16.6 - 8.7
47	7°56.7	7°58.1	7°35.0	4.7 - 2.5	10.7 - 5.6	16.7 - 8.8
48	7°57.0	7°58.3	7°35.3	4.8 - 2.5	10.8 - 5.7	16.8 - 8.8
49	7°57.2	7°58.6	7°35.5	4.9 - 2.6	10.9 - 5.7	16.9 - 8.9
50	7°57.5	7°58.8	7°35.7	5.0 - 2.6	11.0 - 5.8	17.0 - 8.9
51	7°57.8	7°59.1	7°36.0	5.1 - 2.7	11.1 - 5.8	17.1 - 9.0
52	7°58.0	7°59.3	7°36.2	5.2 - 2.7	11.2 - 5.9	17.2 - 9.0
53	7°58.2	7°59.6	7°36.5	5.3 - 2.8	11.3 - 5.9	17.3 - 9.1
54	7°58.5	7°59.8	7°36.7	5.4 - 2.8	11.4 - 6.0	17.4 - 9.1
55	7°58.8	8°00.1	7°36.9	5.5 - 2.9	11.5 - 6.0	17.5 - 9.2
56	7°59.0	8°00.3	7°37.2	5.6 - 2.9	11.6 - 6.1	17.6 - 9.2
57	7°59.2	8°00.6	7°37.4	5.7 - 3.0	11.7 - 6.1	17.7 - 9.3
58	7°59.5	8°00.8	7°37.7	5.8 - 3.0	11.8 - 6.2	17.8 - 9.3
59	7°59.8	8°01.1	7°37.9	5.9 - 3.1	11.9 - 6.2	17.9 - 9.4

m 32	Sun Plan.	Aries	Moon	v and d corr		
0	8°00.0	8°01.3	7°38.1	0.0 - 0.0	6.0 - 3.3	12.0 - 6.5
1	8°00.2	8°01.6	7°38.4	0.1 - 0.1	6.1 - 3.3	12.1 - 6.6
2	8°00.5	8°01.8	7°38.6	0.2 - 0.1	6.2 - 3.4	12.2 - 6.6
3	8°00.7	8°02.1	7°38.8	0.3 - 0.2	6.3 - 3.4	12.3 - 6.7
4	8°01.0	8°02.3	7°39.1	0.4 - 0.2	6.4 - 3.5	12.4 - 6.7
5	8°01.3	8°02.6	7°39.3	0.5 - 0.3	6.5 - 3.5	12.5 - 6.8
6	8°01.5	8°02.8	7°39.6	0.6 - 0.3	6.6 - 3.6	12.6 - 6.8
7	8°01.8	8°03.1	7°39.8	0.7 - 0.4	6.7 - 3.6	12.7 - 6.9
8	8°02.0	8°03.3	7°40.0	0.8 - 0.4	6.8 - 3.7	12.8 - 6.9
9	8°02.2	8°03.6	7°40.3	0.9 - 0.5	6.9 - 3.7	12.9 - 7.0
10	8°02.5	8°03.8	7°40.5	1.0 - 0.5	7.0 - 3.8	13.0 - 7.0
11	8°02.7	8°04.1	7°40.8	1.1 - 0.6	7.1 - 3.8	13.1 - 7.1
12	8°03.0	8°04.3	7°41.0	1.2 - 0.7	7.2 - 3.9	13.2 - 7.1
13	8°03.3	8°04.6	7°41.2	1.3 - 0.7	7.3 - 4.0	13.3 - 7.2
14	8°03.5	8°04.8	7°41.5	1.4 - 0.8	7.4 - 4.0	13.4 - 7.3
15	8°03.8	8°05.1	7°41.7	1.5 - 0.8	7.5 - 4.1	13.5 - 7.3
16	8°04.0	8°05.3	7°42.0	1.6 - 0.9	7.6 - 4.1	13.6 - 7.4
17	8°04.2	8°05.6	7°42.2	1.7 - 0.9	7.7 - 4.2	13.7 - 7.4
18	8°04.5	8°05.8	7°42.4	1.8 - 1.0	7.8 - 4.2	13.8 - 7.5
19	8°04.8	8°06.1	7°42.7	1.9 - 1.0	7.9 - 4.3	13.9 - 7.5
20	8°05.0	8°06.3	7°42.9	2.0 - 1.1	8.0 - 4.3	14.0 - 7.6
21	8°05.3	8°06.6	7°43.1	2.1 - 1.1	8.1 - 4.4	14.1 - 7.6
22	8°05.5	8°06.8	7°43.4	2.2 - 1.2	8.2 - 4.4	14.2 - 7.7
23	8°05.7	8°07.1	7°43.6	2.3 - 1.2	8.3 - 4.5	14.3 - 7.7
24	8°06.0	8°07.3	7°43.9	2.4 - 1.3	8.4 - 4.5	14.4 - 7.8
25	8°06.2	8°07.6	7°44.1	2.5 - 1.4	8.5 - 4.6	14.5 - 7.9
26	8°06.5	8°07.8	7°44.3	2.6 - 1.4	8.6 - 4.7	14.6 - 7.9
27	8°06.8	8°08.1	7°44.6	2.7 - 1.5	8.7 - 4.7	14.7 - 8.0
28	8°07.0	8°08.3	7°44.8	2.8 - 1.5	8.8 - 4.8	14.8 - 8.0
29	8°07.3	8°08.6	7°45.1	2.9 - 1.6	8.9 - 4.8	14.9 - 8.1
30	8°07.5	8°08.8	7°45.3	3.0 - 1.6	9.0 - 4.9	15.0 - 8.1
31	8°07.7	8°09.1	7°45.5	3.1 - 1.7	9.1 - 4.9	15.1 - 8.2
32	8°08.0	8°09.3	7°45.8	3.2 - 1.7	9.2 - 5.0	15.2 - 8.2
33	8°08.2	8°09.6	7°46.0	3.3 - 1.8	9.3 - 5.0	15.3 - 8.3
34	8°08.5	8°09.8	7°46.2	3.4 - 1.8	9.4 - 5.1	15.4 - 8.3
35	8°08.8	8°10.1	7°46.5	3.5 - 1.9	9.5 - 5.1	15.5 - 8.4
36	8°09.0	8°10.3	7°46.7	3.6 - 1.9	9.6 - 5.2	15.6 - 8.4
37	8°09.3	8°10.6	7°47.0	3.7 - 2.0	9.7 - 5.3	15.7 - 8.5
38	8°09.5	8°10.8	7°47.2	3.8 - 2.1	9.8 - 5.3	15.8 - 8.6
39	8°09.7	8°11.1	7°47.4	3.9 - 2.1	9.9 - 5.4	15.9 - 8.6
40	8°10.0	8°11.3	7°47.7	4.0 - 2.2	10.0 - 5.4	16.0 - 8.7
41	8°10.2	8°11.6	7°47.9	4.1 - 2.2	10.1 - 5.5	16.1 - 8.7
42	8°10.5	8°11.8	7°48.2	4.2 - 2.3	10.2 - 5.5	16.2 - 8.8
43	8°10.8	8°12.1	7°48.4	4.3 - 2.3	10.3 - 5.6	16.3 - 8.8
44	8°11.0	8°12.3	7°48.6	4.4 - 2.4	10.4 - 5.6	16.4 - 8.9
45	8°11.3	8°12.6	7°48.9	4.5 - 2.4	10.5 - 5.7	16.5 - 8.9
46	8°11.5	8°12.8	7°49.1	4.6 - 2.5	10.6 - 5.7	16.6 - 9.0
47	8°11.7	8°13.1	7°49.3	4.7 - 2.5	10.7 - 5.8	16.7 - 9.0
48	8°12.0	8°13.3	7°49.6	4.8 - 2.6	10.8 - 5.8	16.8 - 9.1
49	8°12.3	8°13.6	7°49.8	4.9 - 2.7	10.9 - 5.9	16.9 - 9.2
50	8°12.5	8°13.8	7°50.1	5.0 - 2.7	11.0 - 6.0	17.0 - 9.2
51	8°12.8	8°14.1	7°50.3	5.1 - 2.8	11.1 - 6.0	17.1 - 9.3
52	8°13.0	8°14.3	7°50.5	5.2 - 2.8	11.2 - 6.1	17.2 - 9.3
53	8°13.2	8°14.6	7°50.8	5.3 - 2.9	11.3 - 6.1	17.3 - 9.4
54	8°13.5	8°14.8	7°51.0	5.4 - 2.9	11.4 - 6.2	17.4 - 9.4
55	8°13.7	8°15.1	7°51.3	5.5 - 3.0	11.5 - 6.2	17.5 - 9.5
56	8°14.0	8°15.4	7°51.5	5.6 - 3.0	11.6 - 6.3	17.6 - 9.5
57	8°14.3	8°15.6	7°51.7	5.7 - 3.1	11.7 - 6.3	17.7 - 9.6
58	8°14.5	8°15.9	7°52.0	5.8 - 3.1	11.8 - 6.4	17.8 - 9.6
59	8°14.8	8°16.1	7°52.2	5.9 - 3.2	11.9 - 6.4	17.9 - 9.7

Increments and Corrections

m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr		
33	Plan.						34	Plan.						35	Plan.					
0	8°15.0	8°16.4	7°52.5	0.0 - 0.0	6.0 - 3.4	12.0 - 6.7	0	8°30.0	8°31.4	8°06.8	0.0 - 0.0	6.0 - 3.4	12.0 - 6.9	0	8°45.0	8°46.4	8°21.1	0.0 - 0.0	6.0 - 3.5	12.0 - 7.1
1	8°15.2	8°16.6	7°52.7	0.1 - 0.1	6.1 - 3.4	12.1 - 6.8	1	8°30.2	8°31.6	8°07.0	0.1 - 0.1	6.1 - 3.5	12.1 - 7.0	1	8°45.2	8°46.7	8°21.3	0.1 - 0.1	6.1 - 3.6	12.1 - 7.2
2	8°15.5	8°16.9	7°52.9	0.2 - 0.1	6.2 - 3.5	12.2 - 6.8	2	8°30.5	8°31.9	8°07.2	0.2 - 0.1	6.2 - 3.6	12.2 - 7.0	2	8°45.5	8°46.9	8°21.6	0.2 - 0.1	6.2 - 3.7	12.2 - 7.2
3	8°15.7	8°17.1	7°53.2	0.3 - 0.2	6.3 - 3.5	12.3 - 6.9	3	8°30.7	8°32.1	8°07.5	0.3 - 0.2	6.3 - 3.6	12.3 - 7.1	3	8°45.7	8°47.2	8°21.8	0.3 - 0.2	6.3 - 3.7	12.3 - 7.3
4	8°16.0	8°17.4	7°53.4	0.4 - 0.2	6.4 - 3.6	12.4 - 6.9	4	8°31.0	8°32.4	8°07.7	0.4 - 0.2	6.4 - 3.7	12.4 - 7.1	4	8°46.0	8°47.4	8°22.0	0.4 - 0.2	6.4 - 3.8	12.4 - 7.3
5	8°16.3	8°17.6	7°53.6	0.5 - 0.3	6.5 - 3.6	12.5 - 7.0	5	8°31.3	8°32.6	8°08.0	0.5 - 0.3	6.5 - 3.7	12.5 - 7.2	5	8°46.3	8°47.7	8°22.3	0.5 - 0.3	6.5 - 3.8	12.5 - 7.4
6	8°16.5	8°17.9	7°53.9	0.6 - 0.3	6.6 - 3.7	12.6 - 7.0	6	8°31.5	8°32.9	8°08.2	0.6 - 0.3	6.6 - 3.8	12.6 - 7.2	6	8°46.5	8°47.9	8°22.5	0.6 - 0.4	6.6 - 3.9	12.6 - 7.5
7	8°16.8	8°18.1	7°54.1	0.7 - 0.4	6.7 - 3.7	12.7 - 7.1	7	8°31.8	8°33.1	8°08.4	0.7 - 0.4	6.7 - 3.9	12.7 - 7.3	7	8°46.8	8°48.2	8°22.8	0.7 - 0.4	6.7 - 4.0	12.7 - 7.5
8	8°17.0	8°18.4	7°54.4	0.8 - 0.4	6.8 - 3.8	12.8 - 7.1	8	8°32.0	8°33.4	8°08.7	0.8 - 0.5	6.8 - 3.9	12.8 - 7.4	8	8°47.0	8°48.4	8°23.0	0.8 - 0.5	6.8 - 4.0	12.8 - 7.6
9	8°17.2	8°18.6	7°54.6	0.9 - 0.5	6.9 - 3.9	12.9 - 7.2	9	8°32.2	8°33.7	8°08.9	0.9 - 0.5	6.9 - 4.0	12.9 - 7.4	9	8°47.2	8°48.7	8°23.2	0.9 - 0.5	6.9 - 4.1	12.9 - 7.6
10	8°17.5	8°18.9	7°54.8	1.0 - 0.6	7.0 - 3.9	13.0 - 7.3	10	8°32.5	8°33.9	8°09.2	1.0 - 0.6	7.0 - 4.0	13.0 - 7.5	10	8°47.5	8°48.9	8°23.5	1.0 - 0.6	7.0 - 4.1	13.0 - 7.7
11	8°17.7	8°19.1	7°55.1	1.1 - 0.6	7.1 - 4.0	13.1 - 7.3	11	8°32.7	8°34.2	8°09.4	1.1 - 0.6	7.1 - 4.1	13.1 - 7.5	11	8°47.7	8°49.2	8°23.7	1.1 - 0.7	7.1 - 4.2	13.1 - 7.8
12	8°18.0	8°19.4	7°55.3	1.2 - 0.7	7.2 - 4.0	13.2 - 7.4	12	8°33.0	8°34.4	8°09.6	1.2 - 0.7	7.2 - 4.1	13.2 - 7.6	12	8°48.0	8°49.4	8°23.9	1.2 - 0.7	7.2 - 4.3	13.2 - 7.8
13	8°18.3	8°19.6	7°55.6	1.3 - 0.7	7.3 - 4.1	13.3 - 7.4	13	8°33.3	8°34.7	8°09.9	1.3 - 0.7	7.3 - 4.2	13.3 - 7.6	13	8°48.3	8°49.7	8°24.2	1.3 - 0.8	7.3 - 4.3	13.3 - 7.9
14	8°18.5	8°19.9	7°55.8	1.4 - 0.8	7.4 - 4.1	13.4 - 7.5	14	8°33.5	8°34.9	8°10.1	1.4 - 0.8	7.4 - 4.3	13.4 - 7.7	14	8°48.5	8°49.9	8°24.4	1.4 - 0.8	7.4 - 4.4	13.4 - 7.9
15	8°18.8	8°20.1	7°56.0	1.5 - 0.8	7.5 - 4.2	13.5 - 7.5	15	8°33.8	8°35.2	8°10.3	1.5 - 0.9	7.5 - 4.3	13.5 - 7.8	15	8°48.8	8°50.2	8°24.7	1.5 - 0.9	7.5 - 4.4	13.5 - 8.0
16	8°19.0	8°20.4	7°56.3	1.6 - 0.9	7.6 - 4.2	13.6 - 7.6	16	8°34.0	8°35.4	8°10.6	1.6 - 0.9	7.6 - 4.4	13.6 - 7.8	16	8°49.0	8°50.4	8°24.9	1.6 - 0.9	7.6 - 4.5	13.6 - 8.0
17	8°19.2	8°20.6	7°56.5	1.7 - 0.9	7.7 - 4.3	13.7 - 7.6	17	8°34.2	8°35.7	8°10.8	1.7 - 1.0	7.7 - 4.4	13.7 - 7.9	17	8°49.2	8°50.7	8°25.1	1.7 - 1.0	7.7 - 4.6	13.7 - 8.1
18	8°19.5	8°20.9	7°56.7	1.8 - 1.0	7.8 - 4.4	13.8 - 7.7	18	8°34.5	8°35.9	8°11.1	1.8 - 1.0	7.8 - 4.5	13.8 - 7.9	18	8°49.5	8°50.9	8°25.4	1.8 - 1.1	7.8 - 4.6	13.8 - 8.2
19	8°19.8	8°21.1	7°57.0	1.9 - 1.1	7.9 - 4.4	13.9 - 7.8	19	8°34.8	8°36.2	8°11.3	1.9 - 1.1	7.9 - 4.5	13.9 - 8.0	19	8°49.8	8°51.2	8°25.6	1.9 - 1.1	7.9 - 4.7	13.9 - 8.2
20	8°20.0	8°21.4	7°57.2	2.0 - 1.1	8.0 - 4.5	14.0 - 7.8	20	8°35.0	8°36.4	8°11.5	2.0 - 1.1	8.0 - 4.6	14.0 - 8.0	20	8°50.0	8°51.4	8°25.9	2.0 - 1.2	8.0 - 4.7	14.0 - 8.3
21	8°20.3	8°21.6	7°57.5	2.1 - 1.2	8.1 - 4.5	14.1 - 7.9	21	8°35.3	8°36.7	8°11.8	2.1 - 1.2	8.1 - 4.7	14.1 - 8.1	21	8°50.3	8°51.7	8°26.1	2.1 - 1.2	8.1 - 4.8	14.1 - 8.3
22	8°20.5	8°21.9	7°57.7	2.2 - 1.2	8.2 - 4.6	14.2 - 7.9	22	8°35.5	8°36.9	8°12.0	2.2 - 1.3	8.2 - 4.7	14.2 - 8.2	22	8°50.5	8°52.0	8°26.3	2.2 - 1.3	8.2 - 4.9	14.2 - 8.4
23	8°20.7	8°22.1	7°57.9	2.3 - 1.3	8.3 - 4.6	14.3 - 8.0	23	8°35.7	8°37.2	8°12.3	2.3 - 1.3	8.3 - 4.8	14.3 - 8.2	23	8°50.7	8°52.2	8°26.6	2.3 - 1.4	8.3 - 4.9	14.3 - 8.5
24	8°21.0	8°22.4	7°58.2	2.4 - 1.3	8.4 - 4.7	14.4 - 8.0	24	8°36.0	8°37.4	8°12.5	2.4 - 1.4	8.4 - 4.8	14.4 - 8.3	24	8°51.0	8°52.5	8°26.8	2.4 - 1.4	8.4 - 5.0	14.4 - 8.5
25	8°21.2	8°22.6	7°58.4	2.5 - 1.4	8.5 - 4.7	14.5 - 8.1	25	8°36.2	8°37.7	8°12.7	2.5 - 1.4	8.5 - 4.9	14.5 - 8.3	25	8°51.2	8°52.7	8°27.0	2.5 - 1.5	8.5 - 5.0	14.5 - 8.6
26	8°21.5	8°22.9	7°58.7	2.6 - 1.5	8.6 - 4.8	14.6 - 8.2	26	8°36.5	8°37.9	8°13.0	2.6 - 1.5	8.6 - 4.9	14.6 - 8.4	26	8°51.5	8°53.0	8°27.3	2.6 - 1.5	8.6 - 5.1	14.6 - 8.6
27	8°21.8	8°23.1	7°58.9	2.7 - 1.5	8.7 - 4.9	14.7 - 8.2	27	8°36.8	8°38.2	8°13.2	2.7 - 1.6	8.7 - 5.0	14.7 - 8.5	27	8°51.8	8°53.2	8°27.5	2.7 - 1.6	8.7 - 5.1	14.7 - 8.7
28	8°22.0	8°23.4	7°59.1	2.8 - 1.6	8.8 - 4.9	14.8 - 8.3	28	8°37.0	8°38.4	8°13.4	2.8 - 1.6	8.8 - 5.1	14.8 - 8.5	28	8°52.0	8°53.5	8°27.8	2.8 - 1.7	8.8 - 5.2	14.8 - 8.8
29	8°22.3	8°23.6	7°59.4	2.9 - 1.6	8.9 - 5.0	14.9 - 8.3	29	8°37.3	8°38.7	8°13.7	2.9 - 1.7	8.9 - 5.1	14.9 - 8.6	29	8°52.3	8°53.7	8°28.0	2.9 - 1.7	8.9 - 5.3	14.9 - 8.8
30	8°22.5	8°23.9	7°59.6	3.0 - 1.7	9.0 - 5.0	15.0 - 8.4	30	8°37.5	8°38.9	8°13.9	3.0 - 1.7	9.0 - 5.2	15.0 - 8.6	30	8°52.5	8°54.0	8°28.2	3.0 - 1.8	9.0 - 5.3	15.0 - 8.9
31	8°22.7	8°24.1	7°59.8	3.1 - 1.7	9.1 - 5.1	15.1 - 8.4	31	8°37.7	8°39.2	8°14.2	3.1 - 1.8	9.1 - 5.2	15.1 - 8.7	31	8°52.7	8°54.2	8°28.5	3.1 - 1.8	9.1 - 5.4	15.1 - 8.9
32	8°23.0	8°24.4	8°00.1	3.2 - 1.8	9.2 - 5.1	15.2 - 8.5	32	8°38.0	8°39.4	8°14.4	3.2 - 1.8	9.2 - 5.3	15.2 - 8.7	32	8°53.0	8°54.5	8°28.7	3.2 - 1.9	9.2 - 5.4	15.2 - 9.0
33	8°23.2	8°24.6	8°00.3	3.3 - 1.8	9.3 - 5.2	15.3 - 8.5	33	8°38.2	8°39.7	8°14.6	3.3 - 1.9	9.3 - 5.3	15.3 - 8.8	33	8°53.2	8°54.7	8°29.0	3.3 - 2.0	9.3 - 5.5	15.3 - 9.1
34	8°23.5	8°24.9	8°00.6	3.4 - 1.9	9.4 - 5.2	15.4 - 8.6	34	8°38.5	8°39.9	8°14.9	3.4 - 2.0	9.4 - 5.4	15.4 - 8.9	34	8°53.5	8°55.0	8°29.2	3.4 - 2.0	9.4 - 5.6	15.4 - 9.1
35	8°23.8	8°25.1	8°00.8	3.5 - 2.0	9.5 - 5.3	15.5 - 8.7	35	8°38.8	8°40.2	8°15.1	3.5 - 2.0	9.5 - 5.5	15.5 - 8.9	35	8°53.8	8°55.2	8°29.4	3.5 - 2.1	9.5 - 5.6	15.5 - 9.2
36	8°24.0	8°25.4	8°01.0	3.6 - 2.0	9.6 - 5.4	15.6 - 8.7	36	8°39.0	8°40.4	8°15.4	3.6 - 2.1	9.6 - 5.5	15.6 - 9.0	36	8°54.0	8°55.5	8°29.7	3.6 - 2.1	9.6 - 5.7	15.6 - 9.2
37	8°24.3	8°25.6	8°01.3	3.7 - 2.1	9.7 - 5.4	15.7 - 8.8	37	8°39.3	8°40.7	8°15.6	3.7 - 2.1	9.7 - 5.6	15.7 - 9.0	37	8°54.3	8°55.7	8°29.9	3.7 - 2.2	9.7 - 5.7	15.7 - 9.3
38	8°24.5	8°25.9	8°01.5	3.8 - 2.1	9.8 - 5.5	15.8 - 8.8	38	8°39.5	8°40.9	8°15.8	3.8 - 2.2	9.8 - 5.6	15.8 - 9.1	38	8°54.5	8°56.0	8°30.2	3.8 - 2.2	9.8 - 5.8	15.8 - 9.3
39	8°24.7	8°26.1	8°01.8	3.9 - 2.2	9.9 - 5.5	15.9 - 8.9	39	8°39.7	8°41.2	8°16.1	3.9 - 2.2	9.9 - 5.7	15.9 - 9.1	39	8°54.7	8°56.2	8°30.4	3.9 - 2.3	9.9 - 5.9	15.9 - 9.4
40	8°25.0	8°26.4	8°02.0	4.0 - 2.2	10.0 - 5.6	16.0 - 8.9	40	8°40.0	8°41.4	8°16.3	4.0 - 2.3	10.0 - 5.8	16.0 - 9.2	40	8°55.0	8°56.5	8°30.6	4.0 - 2.4	10.0 - 5.9	16.0 - 9.5
41	8°25.2	8°26.6	8°02.2	4.1 - 2.3	10.1 - 5.6	16.1 - 9.0	41	8°40.2	8°41.7	8°16.5	4.1 - 2.4	10.1 - 5.8	16.1 - 9.3	41	8°55.2	8°56.7	8°30.9	4.1 - 2.4	10.1 - 6.0	16.1 - 9.5
42	8°25.5	8°26.9	8°02.5	4.2 - 2.3	10.2 - 5.7	16.2 - 9.0	42	8°40.5	8°41.9	8°16.8	4.2 - 2.4	10.2 - 5.9	16.2 - 9.3	42	8°55.5	8°57.0	8°31.1	4.2 - 2.5	10.2 - 6.0	16.2 - 9.6
43	8°25.8	8°27.1	8°02.7	4.3 - 2.4	10.3 - 5.8	16.3 - 9.1	43	8°40.8	8°42.2	8°17.0	4.3 - 2.5	10.3 - 5.9	16.3 - 9.4	43	8°55.8	8°57.2	8°31.3	4.3 - 2.5	10.3 - 6.1	16.3 - 9.6
44	8°26.0	8°27.4	8°02.9	4.4 - 2.5	10.4 - 5.8	16.4 - 9.2	44	8°41.0	8°42.4	8°17.3	4.4 - 2.5	10.4 - 6.0	16.4 - 9.4	44	8°56.0	8°57.5	8°31.6	4.4 - 2.6	10.4 - 6.2	16.4 - 9.7
45	8°26.3	8°27.6	8°03.2	4.5 - 2.5	10.5 - 5.9	16.5 - 9.2	45	8°41.3	8°42.7	8°17.5	4.5 - 2.6	10.5 - 6.0	16.5 - 9.5	45	8°56.3	8°57.7	8°31.8	4.5 - 2.7	10.5 - 6.2	16.5 - 9.8
46	8°26.5	8°27.9	8°03.4	4.6 - 2.6	10.6 - 5.9	16.6 - 9.3	46	8°41.5	8°42.9	8°17.7	4.6 - 2.6	10.6 - 6.1	16.6 - 9.5	46	8°56.5	8°58.0	8°32.1	4.6 - 2.7	10.6 - 6.3	16.6 - 9.8
47	8°26.7	8°28.1	8°03.7	4.7 - 2.6	10.7 - 6.0	16.7 - 9.3	47	8°41.7	8°43.2	8°18.0	4.7 - 2.7	10.7 - 6.2	16.7 - 9.6	47	8°56.7	8°58.2	8°32.3	4.7 - 2.8	10.7 - 6.3	16.7 - 9.9
48	8°27.0	8°28.4	8°03.9	4.8 - 2.7	10.8 - 6.0	16.8 - 9.4	48	8°42.0	8°43.4	8°18.2	4.8 - 2.8	10.8 - 6.2	16.8 - 9.7	48	8°57.0	8°58.5	8°32.5	4.8 - 2.8	10.8 - 6.4	16.8 - 9.9
49	8°27.3	8°28																		

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
36	Plan.					
0	9°00.0	9°01.5	8°35.4	0.0 - 0.0	6.0 - 3.6	12.0 - 7.3
1	9°00.2	9°01.7	8°35.6	0.1 - 0.1	6.1 - 3.7	12.1 - 7.4
2	9°00.5	9°02.0	8°35.9	0.2 - 0.1	6.2 - 3.8	12.2 - 7.4
3	9°00.7	9°02.2	8°36.1	0.3 - 0.2	6.3 - 3.8	12.3 - 7.5
4	9°01.0	9°02.5	8°36.4	0.4 - 0.2	6.4 - 3.9	12.4 - 7.5
5	9°01.3	9°02.7	8°36.6	0.5 - 0.3	6.5 - 4.0	12.5 - 7.6
6	9°01.5	9°03.0	8°36.8	0.6 - 0.4	6.6 - 4.0	12.6 - 7.7
7	9°01.8	9°03.2	8°37.1	0.7 - 0.4	6.7 - 4.1	12.7 - 7.7
8	9°02.0	9°03.5	8°37.3	0.8 - 0.5	6.8 - 4.1	12.8 - 7.8
9	9°02.2	9°03.7	8°37.5	0.9 - 0.5	6.9 - 4.2	12.9 - 7.8
10	9°02.5	9°04.0	8°37.8	1.0 - 0.6	7.0 - 4.3	13.0 - 7.9
11	9°02.7	9°04.2	8°38.0	1.1 - 0.7	7.1 - 4.3	13.1 - 8.0
12	9°03.0	9°04.5	8°38.3	1.2 - 0.7	7.2 - 4.4	13.2 - 8.0
13	9°03.3	9°04.7	8°38.5	1.3 - 0.8	7.3 - 4.4	13.3 - 8.1
14	9°03.5	9°05.0	8°38.7	1.4 - 0.9	7.4 - 4.5	13.4 - 8.2
15	9°03.8	9°05.2	8°39.0	1.5 - 0.9	7.5 - 4.6	13.5 - 8.2
16	9°04.0	9°05.5	8°39.2	1.6 - 1.0	7.6 - 4.6	13.6 - 8.3
17	9°04.2	9°05.7	8°39.5	1.7 - 1.0	7.7 - 4.7	13.7 - 8.3
18	9°04.5	9°06.0	8°39.7	1.8 - 1.1	7.8 - 4.7	13.8 - 8.4
19	9°04.8	9°06.2	8°39.9	1.9 - 1.2	7.9 - 4.8	13.9 - 8.5
20	9°05.0	9°06.5	8°40.2	2.0 - 1.2	8.0 - 4.9	14.0 - 8.5
21	9°05.3	9°06.7	8°40.4	2.1 - 1.3	8.1 - 4.9	14.1 - 8.6
22	9°05.5	9°07.0	8°40.6	2.2 - 1.3	8.2 - 5.0	14.2 - 8.6
23	9°05.7	9°07.2	8°40.9	2.3 - 1.4	8.3 - 5.0	14.3 - 8.7
24	9°06.0	9°07.5	8°41.1	2.4 - 1.5	8.4 - 5.1	14.4 - 8.8
25	9°06.2	9°07.7	8°41.4	2.5 - 1.5	8.5 - 5.2	14.5 - 8.8
26	9°06.5	9°08.0	8°41.6	2.6 - 1.6	8.6 - 5.2	14.6 - 8.9
27	9°06.8	9°08.2	8°41.8	2.7 - 1.6	8.7 - 5.3	14.7 - 8.9
28	9°07.0	9°08.5	8°42.1	2.8 - 1.7	8.8 - 5.4	14.8 - 9.0
29	9°07.3	9°08.7	8°42.3	2.9 - 1.8	8.9 - 5.4	14.9 - 9.1
30	9°07.5	9°09.0	8°42.6	3.0 - 1.8	9.0 - 5.5	15.0 - 9.1
31	9°07.7	9°09.2	8°42.8	3.1 - 1.9	9.1 - 5.5	15.1 - 9.2
32	9°08.0	9°09.5	8°43.0	3.2 - 1.9	9.2 - 5.6	15.2 - 9.2
33	9°08.2	9°09.7	8°43.3	3.3 - 2.0	9.3 - 5.7	15.3 - 9.3
34	9°08.5	9°10.0	8°43.5	3.4 - 2.1	9.4 - 5.7	15.4 - 9.4
35	9°08.8	9°10.2	8°43.8	3.5 - 2.1	9.5 - 5.8	15.5 - 9.4
36	9°09.0	9°10.5	8°44.0	3.6 - 2.2	9.6 - 5.8	15.6 - 9.5
37	9°09.3	9°10.8	8°44.2	3.7 - 2.3	9.7 - 5.9	15.7 - 9.6
38	9°09.5	9°11.0	8°44.5	3.8 - 2.3	9.8 - 6.0	15.8 - 9.6
39	9°09.7	9°11.3	8°44.7	3.9 - 2.4	9.9 - 6.0	15.9 - 9.7
40	9°10.0	9°11.5	8°44.9	4.0 - 2.4	10.0 - 6.1	16.0 - 9.7
41	9°10.2	9°11.8	8°45.2	4.1 - 2.5	10.1 - 6.1	16.1 - 9.8
42	9°10.5	9°12.0	8°45.4	4.2 - 2.6	10.2 - 6.2	16.2 - 9.9
43	9°10.8	9°12.3	8°45.7	4.3 - 2.6	10.3 - 6.3	16.3 - 9.9
44	9°11.0	9°12.5	8°45.9	4.4 - 2.7	10.4 - 6.3	16.4 - 10.0
45	9°11.3	9°12.8	8°46.1	4.5 - 2.7	10.5 - 6.4	16.5 - 10.0
46	9°11.5	9°13.0	8°46.4	4.6 - 2.8	10.6 - 6.4	16.6 - 10.1
47	9°11.7	9°13.3	8°46.6	4.7 - 2.9	10.7 - 6.5	16.7 - 10.2
48	9°12.0	9°13.5	8°46.9	4.8 - 2.9	10.8 - 6.6	16.8 - 10.2
49	9°12.3	9°13.8	8°47.1	4.9 - 3.0	10.9 - 6.6	16.9 - 10.3
50	9°12.5	9°14.0	8°47.3	5.0 - 3.0	11.0 - 6.7	17.0 - 10.3
51	9°12.8	9°14.3	8°47.6	5.1 - 3.1	11.1 - 6.8	17.1 - 10.4
52	9°13.0	9°14.5	8°47.8	5.2 - 3.2	11.2 - 6.8	17.2 - 10.5
53	9°13.2	9°14.8	8°48.0	5.3 - 3.2	11.3 - 6.9	17.3 - 10.5
54	9°13.5	9°15.0	8°48.3	5.4 - 3.3	11.4 - 6.9	17.4 - 10.6
55	9°13.7	9°15.3	8°48.5	5.5 - 3.3	11.5 - 7.0	17.5 - 10.6
56	9°14.0	9°15.5	8°48.8	5.6 - 3.4	11.6 - 7.1	17.6 - 10.7
57	9°14.3	9°15.8	8°49.0	5.7 - 3.5	11.7 - 7.1	17.7 - 10.8
58	9°14.5	9°16.0	8°49.2	5.8 - 3.5	11.8 - 7.2	17.8 - 10.8
59	9°14.8	9°16.3	8°49.5	5.9 - 3.6	11.9 - 7.2	17.9 - 10.9

m	Sun	Aries	Moon	v and d corr		
37	Plan.					
0	9°15.0	9°16.5	8°49.7	0.0 - 0.0	6.0 - 3.8	12.0 - 7.5
1	9°15.2	9°16.8	8°50.0	0.1 - 0.1	6.1 - 3.8	12.1 - 7.6
2	9°15.5	9°17.0	8°50.2	0.2 - 0.1	6.2 - 3.9	12.2 - 7.6
3	9°15.7	9°17.3	8°50.4	0.3 - 0.2	6.3 - 3.9	12.3 - 7.7
4	9°16.0	9°17.5	8°50.7	0.4 - 0.3	6.4 - 4.0	12.4 - 7.8
5	9°16.3	9°17.8	8°50.9	0.5 - 0.3	6.5 - 4.1	12.5 - 7.8
6	9°16.5	9°18.0	8°51.1	0.6 - 0.4	6.6 - 4.1	12.6 - 7.9
7	9°16.8	9°18.3	8°51.4	0.7 - 0.4	6.7 - 4.2	12.7 - 7.9
8	9°17.0	9°18.5	8°51.6	0.8 - 0.5	6.8 - 4.3	12.8 - 8.0
9	9°17.2	9°18.8	8°51.9	0.9 - 0.6	6.9 - 4.3	12.9 - 8.1
10	9°17.5	9°19.0	8°52.1	1.0 - 0.6	7.0 - 4.4	13.0 - 8.1
11	9°17.7	9°19.3	8°52.3	1.1 - 0.7	7.1 - 4.4	13.1 - 8.2
12	9°18.0	9°19.5	8°52.6	1.2 - 0.8	7.2 - 4.5	13.2 - 8.3
13	9°18.3	9°19.8	8°52.8	1.3 - 0.8	7.3 - 4.6	13.3 - 8.3
14	9°18.5	9°20.0	8°53.1	1.4 - 0.9	7.4 - 4.6	13.4 - 8.4
15	9°18.8	9°20.3	8°53.3	1.5 - 0.9	7.5 - 4.7	13.5 - 8.4
16	9°19.0	9°20.5	8°53.5	1.6 - 1.0	7.6 - 4.8	13.6 - 8.5
17	9°19.2	9°20.8	8°53.8	1.7 - 1.1	7.7 - 4.8	13.7 - 8.6
18	9°19.5	9°21.0	8°54.0	1.8 - 1.1	7.8 - 4.9	13.8 - 8.6
19	9°19.8	9°21.3	8°54.3	1.9 - 1.2	7.9 - 4.9	13.9 - 8.7
20	9°20.0	9°21.5	8°54.5	2.0 - 1.3	8.0 - 5.0	14.0 - 8.8
21	9°20.3	9°21.8	8°54.7	2.1 - 1.3	8.1 - 5.1	14.1 - 8.8
22	9°20.5	9°22.0	8°55.0	2.2 - 1.4	8.2 - 5.1	14.2 - 8.9
23	9°20.7	9°22.3	8°55.2	2.3 - 1.4	8.3 - 5.2	14.3 - 8.9
24	9°21.0	9°22.5	8°55.4	2.4 - 1.5	8.4 - 5.3	14.4 - 9.0
25	9°21.2	9°22.8	8°55.7	2.5 - 1.6	8.5 - 5.3	14.5 - 9.1
26	9°21.5	9°23.0	8°55.9	2.6 - 1.6	8.6 - 5.4	14.6 - 9.1
27	9°21.8	9°23.3	8°56.2	2.7 - 1.7	8.7 - 5.4	14.7 - 9.2
28	9°22.0	9°23.5	8°56.4	2.8 - 1.8	8.8 - 5.5	14.8 - 9.3
29	9°22.3	9°23.8	8°56.6	2.9 - 1.8	8.9 - 5.6	14.9 - 9.3
30	9°22.5	9°24.0	8°56.9	3.0 - 1.9	9.0 - 5.6	15.0 - 9.4
31	9°22.7	9°24.3	8°57.1	3.1 - 1.9	9.1 - 5.7	15.1 - 9.4
32	9°23.0	9°24.5	8°57.4	3.2 - 2.0	9.2 - 5.8	15.2 - 9.5
33	9°23.2	9°24.8	8°57.6	3.3 - 2.1	9.3 - 5.8	15.3 - 9.6
34	9°23.5	9°25.0	8°57.8	3.4 - 2.1	9.4 - 5.9	15.4 - 9.6
35	9°23.8	9°25.3	8°58.1	3.5 - 2.2	9.5 - 5.9	15.5 - 9.7
36	9°24.0	9°25.5	8°58.3	3.6 - 2.3	9.6 - 6.0	15.6 - 9.8
37	9°24.3	9°25.8	8°58.5	3.7 - 2.3	9.7 - 6.1	15.7 - 9.8
38	9°24.5	9°26.0	8°58.8	3.8 - 2.4	9.8 - 6.1	15.8 - 9.9
39	9°24.7	9°26.3	8°59.0	3.9 - 2.4	9.9 - 6.2	15.9 - 9.9
40	9°25.0	9°26.5	8°59.3	4.0 - 2.5	10.0 - 6.3	16.0 - 10.0
41	9°25.2	9°26.8	8°59.5	4.1 - 2.6	10.1 - 6.3	16.1 - 10.1
42	9°25.5	9°27.0	8°59.7	4.2 - 2.6	10.2 - 6.4	16.2 - 10.1
43	9°25.8	9°27.3	9°00.0	4.3 - 2.7	10.3 - 6.4	16.3 - 10.2
44	9°26.0	9°27.5	9°00.2	4.4 - 2.8	10.4 - 6.5	16.4 - 10.3
45	9°26.3	9°27.8	9°00.5	4.5 - 2.8	10.5 - 6.6	16.5 - 10.3
46	9°26.5	9°28.0	9°00.7	4.6 - 2.9	10.6 - 6.6	16.6 - 10.4
47	9°26.7	9°28.3	9°00.9	4.7 - 2.9	10.7 - 6.7	16.7 - 10.4
48	9°27.0	9°28.5	9°01.2	4.8 - 3.0	10.8 - 6.8	16.8 - 10.5
49	9°27.3	9°28.8	9°01.4	4.9 - 3.1	10.9 - 6.8	16.9 - 10.6
50	9°27.5	9°29.1	9°01.6	5.0 - 3.1	11.0 - 6.9	17.0 - 10.6
51	9°27.8	9°29.3	9°01.9	5.1 - 3.2	11.1 - 6.9	17.1 - 10.7
52	9°28.0	9°29.6	9°02.1	5.2 - 3.3	11.2 - 7.0	17.2 - 10.8
53	9°28.2	9°29.8	9°02.4	5.3 - 3.3	11.3 - 7.1	17.3 - 10.8
54	9°28.5	9°30.1	9°02.6	5.4 - 3.4	11.4 - 7.1	17.4 - 10.9
55	9°28.7	9°30.3	9°02.8	5.5 - 3.4	11.5 - 7.2	17.5 - 10.9
56	9°29.0	9°30.6	9°03.1	5.6 - 3.5	11.6 - 7.3	17.6 - 11.0
57	9°29.3	9°30.8	9°03.3	5.7 - 3.6	11.7 - 7.3	17.7 - 11.1
58	9°29.5	9°31.1	9°03.6	5.8 - 3.6	11.8 - 7.4	17.8 - 11.1
59	9°29.8	9°31.3	9°03.8	5.9 - 3.7	11.9 - 7.4	17.9 - 11.2

m	Sun	Aries	Moon	v and d corr		
38	Plan.					
0	9°30.0	9°31.6	9°04.0	0.0 - 0.0	6.0 - 3.9	12.0 - 7.7
1	9°30.2	9°31.8	9°04.3	0.1 - 0.1	6.1 - 3.9	12.1 - 7.8
2	9°30.5	9°32.1	9°04.5	0.2 - 0.1	6.2 - 4.0	12.2 - 7.8
3	9°30.7	9°32.3	9°04.7	0.3 - 0.2	6.3 - 4.0	12.3 - 7.9
4	9°31.0	9°32.6	9°05.0	0.4 - 0.3	6.4 - 4.1	12.4 - 8.0
5	9°31.3	9°32.8	9°05.2	0.5 - 0.3	6.5 - 4.2	12.5 - 8.0
6	9°31.5	9°33.1	9°05.5	0.6 - 0.4	6.6 - 4.2	12.6 - 8.1
7	9°31.8	9°33.3	9°05.7	0.7 - 0.4	6.7 - 4.3	12.7 - 8.1
8	9°32.0	9°33.6	9°05.9	0.8 - 0.5	6.8 - 4.4	12.8 - 8.2
9	9°32.2	9°33.8	9°06.2	0.9 - 0.6	6.9 - 4.4	12.9 - 8.3
10	9°32.5	9°34.1	9°06.4	1.0 - 0.6	7.0 - 4.5	13.0 - 8.3
11	9°32.7	9°34.3	9°06.7	1.1 - 0.7	7.1 - 4.6	13.1 - 8.4
12	9°33.0	9°34.6	9°06.9	1.2 - 0.8	7.2 - 4.6	13.2 - 8.5
13	9°33.3	9°34.8	9°07.1	1.3 - 0.8	7.3 - 4.7	13.3 - 8.5
14	9°33.5	9°35.1	9°07.4	1.4 - 0.9	7.4 - 4.7	13.4 - 8.6
15	9°33.8	9°35.3	9°07.6	1.5 - 1.0	7.5 - 4.8	13.5 - 8.7
16	9°34.0	9°35.6	9°07.9	1.6 - 1.0	7.6 - 4.9	13.6 - 8.7
17	9°34.2	9°35.8	9°08.1	1.7 - 1.1	7.7 - 4.9	13.7 - 8.8
18	9°34.5	9°36.1	9°08.3	1.8 - 1.2	7.8 - 5.0	13.8 - 8.9
19	9°34.8	9°36.3	9°08.6	1.9 - 1.2	7.9 - 5.1	13.9 - 8.9
20	9°35.0	9°36.6	9°08.8	2.0 - 1.3	8.0 - 5.1	14.0 - 9.0
21	9°35.3	9°36.8	9°09.0	2.1 - 1.3	8.1 - 5.2	14.1 - 9.0
22	9°35.5	9°37.1	9°09.3	2.2 - 1.4	8.2 - 5.3	14.2 - 9.1
23	9°35.7	9°37.3	9°09.5	2.3 - 1.5	8.3 - 5.3	14.3 - 9.2
24	9°36.0	9°37.6	9°09.8	2.4 - 1.5	8.4 - 5.4	14.4 - 9.2
25	9°36.2	9°37.8	9°10.0	2.5 - 1.6	8.5 - 5.5	14.5 - 9.3
26	9°36.5	9°38.1	9°10.2	2.6 - 1.7	8.6 - 5.5	14.6 - 9.4
27	9°36.8	9°38.3	9°10.5	2.7 - 1.7	8.7 - 5.6	14.7 - 9.4
28	9°37.0	9°38.6	9°10.7	2.8 - 1.8	8.8 - 5.6	14.8 - 9.5
29	9°37.3	9°38.8	9°11.0	2.9 - 1.9	8.9 - 5.7	14.9 - 9.6
30	9°37.5	9°39.1	9°11.2	3.0 - 1.9	9.0 - 5.8	15.0 - 9.6
31	9°37.7	9°39.3	9°11.4	3.1 - 2.0	9.1 - 5.8	15.1 - 9.7
32	9°38.0	9°39.6	9°11.7	3.2 - 2.1	9.2 - 5.9	15.2 - 9.8
33	9°38.2	9°39.8	9°11.9	3.3 - 2.1	9.3 - 6.0	15.3 - 9.8
34	9°38.5	9°40.1	9°12.1	3.4 - 2.2	9.4 - 6.0	15.4 - 9.9
35	9°38.8	9°40.3	9°12.4	3.5 - 2.2	9.5 - 6.1	15.5 - 9.9
36	9°39.0	9°40.6	9°12.6	3.6 - 2.3	9.6 - 6.2	15.6 - 10.0
37	9°39.3	9°40.8	9°12.9	3.7 - 2.4	9.7 - 6.2	15.7 - 10.1
38	9°39.5	9°41.1	9°13.1	3.8 - 2.4	9.8 - 6.3	15.8 - 10.1
39	9°39.7	9°41.3	9°13.3	3.9 - 2.5	9.9 - 6.4	15.9 - 10.2
40	9°40.0	9°41.6	9°13.6	4.0 - 2.6	10.0 - 6.4	16.0 - 10.3
41	9°40.2	9°41.8	9°13.8	4.1 - 2.6	10.1 - 6.5	16.1 - 10.3
42	9°40.5	9°42.1	9°14.1	4.2 - 2.7	10.2 - 6.5	16.2 - 10.4
43	9°40.8	9°42.3	9°14.3	4.3 - 2.8	10.3 - 6.6	16.3 - 10.5
44	9°41.0	9°42.6	9°14.5	4.4 - 2.8	10.4 - 6.7	16.4 - 10.5
45	9°41.3	9°42.8	9°14.8	4.5 - 2.9	10.5 - 6.7	16.5 - 10.6
46	9°41.5	9°43.1	9°15.0	4.6 - 3.0	10.6 - 6.8	16.6 - 10.7
47	9°41.7	9°43.3	9°15.2	4.7 - 3.0	10.7 - 6.9	16.7 - 10.7
48	9°42.0	9°43.6	9°15.5	4.8 - 3.1	10.8 - 6.9	16.8 - 10.8
49	9°42.3	9°43.8	9°15.7	4.9 - 3.1	10.9 - 7.0	16.9 - 10.8
50	9°42.5	9°44.1	9°16.0	5.0 - 3.2	11.0 - 7.1	17.0 - 10.9
51	9°42.8	9°44.3	9°16.2	5.1 - 3.3	11.1 - 7.1	17.1 - 11.0
52	9°43.0	9°44.6	9°16.4	5.2 - 3.3	11.2 - 7.2	17.2 - 11.0
53	9°43.2	9°44.8	9°16.7	5.3 - 3.4	11.3 - 7.3	17.3 - 11.1
54	9°43.5	9°45.1	9°16.9	5.4 - 3.5	11.4 - 7.3	17.4 - 11.2
55	9°43.7	9°45.3	9°17.2	5.5 - 3.5	11.5 - 7.4	17.5 - 11.2
56	9°44.0	9°45.6	9°17.4	5.6 - 3.6	11.6 - 7.4	17.6 - 11.3
57	9°44.3	9°45.8	9°17.6	5.7 - 3.7	11.7 - 7.5	17.7 - 11.4
58	9°44.5	9°46.1	9°17.9	5.8 - 3.7	11.8 - 7.6	17.8 - 11.4
59	9°44.8	9°46.3	9°18.1	5.9 - 3.8	11.9 - 7.6	17.9 - 11.5

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
39	Plan.					
0	9°45.0	9°46.6	9°18.4	0.0 - 0.0	6.0 - 4.0	12.0 - 7.9
1	9°45.2	9°46.8	9°18.6	0.1 - 0.1	6.1 - 4.0	12.1 - 8.0
2	9°45.5	9°47.1	9°18.8	0.2 - 0.1	6.2 - 4.1	12.2 - 8.0
3	9°45.7	9°47.4	9°19.1	0.3 - 0.2	6.3 - 4.1	12.3 - 8.1
4	9°46.0	9°47.6	9°19.3	0.4 - 0.3	6.4 - 4.2	12.4 - 8.2
5	9°46.3	9°47.9	9°19.5	0.5 - 0.3	6.5 - 4.3	12.5 - 8.2
6	9°46.5	9°48.1	9°19.8	0.6 - 0.4	6.6 - 4.3	12.6 - 8.3
7	9°46.8	9°48.4	9°20.0	0.7 - 0.5	6.7 - 4.4	12.7 - 8.4
8	9°47.0	9°48.6	9°20.3	0.8 - 0.5	6.8 - 4.5	12.8 - 8.4
9	9°47.2	9°48.9	9°20.5	0.9 - 0.6	6.9 - 4.5	12.9 - 8.5
10	9°47.5	9°49.1	9°20.7	1.0 - 0.7	7.0 - 4.6	13.0 - 8.6
11	9°47.7	9°49.4	9°21.0	1.1 - 0.7	7.1 - 4.7	13.1 - 8.6
12	9°48.0	9°49.6	9°21.2	1.2 - 0.8	7.2 - 4.7	13.2 - 8.7
13	9°48.3	9°49.9	9°21.5	1.3 - 0.9	7.3 - 4.8	13.3 - 8.8
14	9°48.5	9°50.1	9°21.7	1.4 - 0.9	7.4 - 4.9	13.4 - 8.8
15	9°48.8	9°50.4	9°21.9	1.5 - 1.0	7.5 - 4.9	13.5 - 8.9
16	9°49.0	9°50.6	9°22.2	1.6 - 1.1	7.6 - 5.0	13.6 - 9.0
17	9°49.2	9°50.9	9°22.4	1.7 - 1.1	7.7 - 5.1	13.7 - 9.0
18	9°49.5	9°51.1	9°22.6	1.8 - 1.2	7.8 - 5.1	13.8 - 9.1
19	9°49.8	9°51.4	9°22.9	1.9 - 1.3	7.9 - 5.2	13.9 - 9.2
20	9°50.0	9°51.6	9°23.1	2.0 - 1.3	8.0 - 5.3	14.0 - 9.2
21	9°50.3	9°51.9	9°23.4	2.1 - 1.4	8.1 - 5.3	14.1 - 9.3
22	9°50.5	9°52.1	9°23.6	2.2 - 1.4	8.2 - 5.4	14.2 - 9.3
23	9°50.7	9°52.4	9°23.8	2.3 - 1.5	8.3 - 5.5	14.3 - 9.4
24	9°51.0	9°52.6	9°24.1	2.4 - 1.6	8.4 - 5.5	14.4 - 9.5
25	9°51.2	9°52.9	9°24.3	2.5 - 1.6	8.5 - 5.6	14.5 - 9.5
26	9°51.5	9°53.1	9°24.6	2.6 - 1.7	8.6 - 5.7	14.6 - 9.6
27	9°51.8	9°53.4	9°24.8	2.7 - 1.8	8.7 - 5.7	14.7 - 9.7
28	9°52.0	9°53.6	9°25.0	2.8 - 1.8	8.8 - 5.8	14.8 - 9.7
29	9°52.3	9°53.9	9°25.3	2.9 - 1.9	8.9 - 5.9	14.9 - 9.8
30	9°52.5	9°54.1	9°25.5	3.0 - 2.0	9.0 - 5.9	15.0 - 9.9
31	9°52.7	9°54.4	9°25.7	3.1 - 2.0	9.1 - 6.0	15.1 - 9.9
32	9°53.0	9°54.6	9°26.0	3.2 - 2.1	9.2 - 6.1	15.2 - 10.0
33	9°53.2	9°54.9	9°26.2	3.3 - 2.2	9.3 - 6.1	15.3 - 10.1
34	9°53.5	9°55.1	9°26.5	3.4 - 2.2	9.4 - 6.2	15.4 - 10.1
35	9°53.8	9°55.4	9°26.7	3.5 - 2.3	9.5 - 6.3	15.5 - 10.2
36	9°54.0	9°55.6	9°26.9	3.6 - 2.4	9.6 - 6.3	15.6 - 10.3
37	9°54.3	9°55.9	9°27.2	3.7 - 2.4	9.7 - 6.4	15.7 - 10.3
38	9°54.5	9°56.1	9°27.4	3.8 - 2.5	9.8 - 6.5	15.8 - 10.4
39	9°54.7	9°56.4	9°27.7	3.9 - 2.6	9.9 - 6.5	15.9 - 10.5
40	9°55.0	9°56.6	9°27.9	4.0 - 2.6	10.0 - 6.6	16.0 - 10.5
41	9°55.2	9°56.9	9°28.1	4.1 - 2.7	10.1 - 6.6	16.1 - 10.6
42	9°55.5	9°57.1	9°28.4	4.2 - 2.8	10.2 - 6.7	16.2 - 10.7
43	9°55.8	9°57.4	9°28.6	4.3 - 2.8	10.3 - 6.8	16.3 - 10.7
44	9°56.0	9°57.6	9°28.8	4.4 - 2.9	10.4 - 6.8	16.4 - 10.8
45	9°56.3	9°57.9	9°29.1	4.5 - 3.0	10.5 - 6.9	16.5 - 10.9
46	9°56.5	9°58.1	9°29.3	4.6 - 3.0	10.6 - 7.0	16.6 - 10.9
47	9°56.7	9°58.4	9°29.6	4.7 - 3.1	10.7 - 7.0	16.7 - 11.0
48	9°57.0	9°58.6	9°29.8	4.8 - 3.2	10.8 - 7.1	16.8 - 11.1
49	9°57.3	9°58.9	9°30.0	4.9 - 3.2	10.9 - 7.2	16.9 - 11.1
50	9°57.5	9°59.1	9°30.3	5.0 - 3.3	11.0 - 7.2	17.0 - 11.2
51	9°57.8	9°59.4	9°30.5	5.1 - 3.4	11.1 - 7.3	17.1 - 11.3
52	9°58.0	9°59.6	9°30.8	5.2 - 3.4	11.2 - 7.4	17.2 - 11.3
53	9°58.2	9°59.9	9°31.0	5.3 - 3.5	11.3 - 7.4	17.3 - 11.4
54	9°58.5	10°00.1	9°31.2	5.4 - 3.6	11.4 - 7.5	17.4 - 11.5
55	9°58.7	10°00.4	9°31.5	5.5 - 3.6	11.5 - 7.6	17.5 - 11.5
56	9°59.0	10°00.6	9°31.7	5.6 - 3.7	11.6 - 7.6	17.6 - 11.6
57	9°59.3	10°00.9	9°32.0	5.7 - 3.8	11.7 - 7.7	17.7 - 11.7
58	9°59.5	10°01.1	9°32.2	5.8 - 3.8	11.8 - 7.8	17.8 - 11.7
59	9°59.8	10°01.4	9°32.4	5.9 - 3.9	11.9 - 7.8	17.9 - 11.8

m	Sun	Aries	Moon	v and d corr		
40	Plan.					
0	10°00.0	10°01.6	9°32.7	0.0 - 0.0	6.0 - 4.1	12.0 - 8.1
1	10°00.2	10°01.9	9°32.9	0.1 - 0.1	6.1 - 4.1	12.1 - 8.2
2	10°00.5	10°02.1	9°33.1	0.2 - 0.1	6.2 - 4.2	12.2 - 8.2
3	10°00.7	10°02.4	9°33.4	0.3 - 0.2	6.3 - 4.3	12.3 - 8.3
4	10°01.0	10°02.6	9°33.6	0.4 - 0.3	6.4 - 4.3	12.4 - 8.4
5	10°01.3	10°02.9	9°33.9	0.5 - 0.3	6.5 - 4.4	12.5 - 8.4
6	10°01.5	10°03.1	9°34.1	0.6 - 0.4	6.6 - 4.5	12.6 - 8.5
7	10°01.8	10°03.4	9°34.3	0.7 - 0.5	6.7 - 4.5	12.7 - 8.6
8	10°02.0	10°03.6	9°34.6	0.8 - 0.5	6.8 - 4.6	12.8 - 8.6
9	10°02.2	10°03.9	9°34.8	0.9 - 0.6	6.9 - 4.7	12.9 - 8.7
10	10°02.5	10°04.1	9°35.1	1.0 - 0.7	7.0 - 4.7	13.0 - 8.8
11	10°02.7	10°04.4	9°35.3	1.1 - 0.7	7.1 - 4.8	13.1 - 8.8
12	10°03.0	10°04.6	9°35.5	1.2 - 0.8	7.2 - 4.9	13.2 - 8.9
13	10°03.3	10°04.9	9°35.8	1.3 - 0.9	7.3 - 4.9	13.3 - 9.0
14	10°03.5	10°05.1	9°36.0	1.4 - 0.9	7.4 - 5.0	13.4 - 9.0
15	10°03.8	10°05.4	9°36.2	1.5 - 1.0	7.5 - 5.1	13.5 - 9.1
16	10°04.0	10°05.7	9°36.5	1.6 - 1.1	7.6 - 5.1	13.6 - 9.2
17	10°04.2	10°05.9	9°36.7	1.7 - 1.1	7.7 - 5.2	13.7 - 9.2
18	10°04.5	10°06.2	9°37.0	1.8 - 1.2	7.8 - 5.3	13.8 - 9.3
19	10°04.8	10°06.4	9°37.2	1.9 - 1.3	7.9 - 5.3	13.9 - 9.4
20	10°05.0	10°06.7	9°37.4	2.0 - 1.4	8.0 - 5.4	14.0 - 9.5
21	10°05.3	10°06.9	9°37.7	2.1 - 1.4	8.1 - 5.5	14.1 - 9.5
22	10°05.5	10°07.2	9°37.9	2.2 - 1.5	8.2 - 5.5	14.2 - 9.6
23	10°05.7	10°07.4	9°38.2	2.3 - 1.6	8.3 - 5.6	14.3 - 9.7
24	10°06.0	10°07.7	9°38.4	2.4 - 1.6	8.4 - 5.7	14.4 - 9.7
25	10°06.2	10°07.9	9°38.6	2.5 - 1.7	8.5 - 5.7	14.5 - 9.8
26	10°06.5	10°08.2	9°38.9	2.6 - 1.8	8.6 - 5.8	14.6 - 9.9
27	10°06.8	10°08.4	9°39.1	2.7 - 1.8	8.7 - 5.9	14.7 - 9.9
28	10°07.0	10°08.7	9°39.3	2.8 - 1.9	8.8 - 5.9	14.8 - 10.0
29	10°07.3	10°08.9	9°39.6	2.9 - 2.0	8.9 - 6.0	14.9 - 10.1
30	10°07.5	10°09.2	9°39.8	3.0 - 2.0	9.0 - 6.1	15.0 - 10.1
31	10°07.7	10°09.4	9°40.1	3.1 - 2.1	9.1 - 6.1	15.1 - 10.2
32	10°08.0	10°09.7	9°40.3	3.2 - 2.2	9.2 - 6.2	15.2 - 10.3
33	10°08.2	10°09.9	9°40.5	3.3 - 2.2	9.3 - 6.3	15.3 - 10.3
34	10°08.5	10°10.2	9°40.8	3.4 - 2.3	9.4 - 6.3	15.4 - 10.4
35	10°08.8	10°10.4	9°41.0	3.5 - 2.4	9.5 - 6.4	15.5 - 10.5
36	10°09.0	10°10.7	9°41.3	3.6 - 2.4	9.6 - 6.5	15.6 - 10.5
37	10°09.3	10°10.9	9°41.5	3.7 - 2.5	9.7 - 6.5	15.7 - 10.6
38	10°09.5	10°11.2	9°41.7	3.8 - 2.6	9.8 - 6.6	15.8 - 10.7
39	10°09.7	10°11.4	9°42.0	3.9 - 2.6	9.9 - 6.7	15.9 - 10.7
40	10°10.0	10°11.7	9°42.2	4.0 - 2.7	10.0 - 6.8	16.0 - 10.8
41	10°10.2	10°11.9	9°42.4	4.1 - 2.8	10.1 - 6.8	16.1 - 10.9
42	10°10.5	10°12.2	9°42.7	4.2 - 2.8	10.2 - 6.9	16.2 - 10.9
43	10°10.8	10°12.4	9°42.9	4.3 - 2.9	10.3 - 7.0	16.3 - 11.0
44	10°11.0	10°12.7	9°43.2	4.4 - 3.0	10.4 - 7.0	16.4 - 11.1
45	10°11.3	10°12.9	9°43.4	4.5 - 3.0	10.5 - 7.1	16.5 - 11.1
46	10°11.5	10°13.2	9°43.6	4.6 - 3.1	10.6 - 7.2	16.6 - 11.2
47	10°11.7	10°13.4	9°43.9	4.7 - 3.2	10.7 - 7.2	16.7 - 11.3
48	10°12.0	10°13.7	9°44.1	4.8 - 3.2	10.8 - 7.3	16.8 - 11.3
49	10°12.3	10°13.9	9°44.4	4.9 - 3.3	10.9 - 7.4	16.9 - 11.4
50	10°12.5	10°14.2	9°44.6	5.0 - 3.4	11.0 - 7.4	17.0 - 11.5
51	10°12.8	10°14.4	9°44.8	5.1 - 3.4	11.1 - 7.5	17.1 - 11.5
52	10°13.0	10°14.7	9°45.1	5.2 - 3.5	11.2 - 7.6	17.2 - 11.6
53	10°13.2	10°14.9	9°45.3	5.3 - 3.6	11.3 - 7.6	17.3 - 11.7
54	10°13.5	10°15.2	9°45.6	5.4 - 3.6	11.4 - 7.7	17.4 - 11.7
55	10°13.7	10°15.4	9°45.8	5.5 - 3.7	11.5 - 7.8	17.5 - 11.8
56	10°14.0	10°15.7	9°46.0	5.6 - 3.8	11.6 - 7.8	17.6 - 11.9
57	10°14.3	10°15.9	9°46.3	5.7 - 3.8	11.7 - 7.9	17.7 - 11.9
58	10°14.5	10°16.2	9°46.5	5.8 - 3.9	11.8 - 8.0	17.8 - 12.0
59	10°14.8	10°16.4	9°46.7	5.9 - 4.0	11.9 - 8.0	17.9 - 12.1

m	Sun	Aries	Moon	v and d corr		
41	Plan.					
0	10°15.0	10°16.7	9°47.0	0.0 - 0.0	6.0 - 4.2	12.0 - 8.3
1	10°15.2	10°16.9	9°47.2	0.1 - 0.1	6.1 - 4.2	12.1 - 8.4
2	10°15.5	10°17.2	9°47.5	0.2 - 0.1	6.2 - 4.3	12.2 - 8.4
3	10°15.7	10°17.4	9°47.7	0.3 - 0.2	6.3 - 4.4	12.3 - 8.5
4	10°16.0	10°17.7	9°47.9	0.4 - 0.3	6.4 - 4.4	12.4 - 8.6
5	10°16.3	10°17.9	9°48.2	0.5 - 0.3	6.5 - 4.5	12.5 - 8.6
6	10°16.5	10°18.2	9°48.4	0.6 - 0.4	6.6 - 4.6	12.6 - 8.7
7	10°16.8	10°18.4	9°48.7	0.7 - 0.5	6.7 - 4.6	12.7 - 8.8
8	10°17.0	10°18.7	9°48.9	0.8 - 0.6	6.8 - 4.7	12.8 - 8.9
9	10°17.2	10°18.9	9°49.1	0.9 - 0.6	6.9 - 4.8	12.9 - 8.9
10	10°17.5	10°19.2	9°49.4	1.0 - 0.7	7.0 - 4.8	13.0 - 9.0
11	10°17.7	10°19.4	9°49.6	1.1 - 0.8	7.1 - 4.9	13.1 - 9.1
12	10°18.0	10°19.7	9°49.8	1.2 - 0.8	7.2 - 5.0	13.2 - 9.1
13	10°18.3	10°19.9	9°50.1	1.3 - 0.9	7.3 - 5.0	13.3 - 9.2
14	10°18.5	10°20.2	9°50.3	1.4 - 1.0	7.4 - 5.1	13.4 - 9.3
15	10°18.8	10°20.4	9°50.6	1.5 - 1.0	7.5 - 5.2	13.5 - 9.3
16	10°19.0	10°20.7	9°50.8	1.6 - 1.1	7.6 - 5.3	13.6 - 9.4
17	10°19.2	10°20.9	9°51.0	1.7 - 1.2	7.7 - 5.3	13.7 - 9.5
18	10°19.5	10°21.2	9°51.3	1.8 - 1.2	7.8 - 5.4	13.8 - 9.5
19	10°19.8	10°21.4	9°51.5	1.9 - 1.3	7.9 - 5.5	13.9 - 9.6
20	10°20.0	10°21.7	9°51.8	2.0 - 1.4	8.0 - 5.5	14.0 - 9.7
21	10°20.3	10°21.9	9°52.0	2.1 - 1.5	8.1 - 5.6	14.1 - 9.8
22	10°20.5	10°22.2	9°52.2	2.2 - 1.5	8.2 - 5.7	14.2 - 9.8
23	10°20.7	10°22.4	9°52.5	2.3 - 1.6	8.3 - 5.7	14.3 - 9.9
24	10°21.0	10°22.7	9°52.7	2.4 - 1.7	8.4 - 5.8	14.4 - 10.0
25	10°21.2	10°22.9	9°52.9	2.5 - 1.7	8.5 - 5.9	14.5 - 10.0
26	10°21.5	10°23.2	9°53.2	2.6 - 1.8	8.6 - 5.9	14.6 - 10.1
27	10°21.8	10°23.4	9°53.4	2.7 - 1.9	8.7 - 6.0	14.7 - 10.2
28	10°22.0	10°23.7	9°53.7	2.8 - 1.9	8.8 - 6.1	14.8 - 10.2
29	10°22.3	10°24.0	9°53.9	2.9 - 2.0	8.9 - 6.2	14.9 - 10.3
30	10°22.5	10°24.2	9°54.1	3.0 - 2.1	9.0 - 6.2	15.0 - 10.4
31	10°22.7	10°24.5	9°54.4	3.1 - 2.1	9.1 - 6.3	15.1 - 10.4
32	10°23.0	10°24.7	9°54.6	3.2 - 2.2	9.2 - 6.4	15.2 - 10.5
33	10°23.2	10°25.0	9°54.9	3.3 - 2.3	9.3 - 6.4	15.3 - 10.6
34	10°23.5	10°25.2	9°55.1	3.4 - 2.4	9.4 - 6.5	15.4 - 10.7
35	10°23.8	10°25.5	9°55.3	3.5 - 2.4	9.5 - 6.6	15.5 - 10.7
36	10°24.0	10°25.7	9°55.6	3.6 - 2.5	9.6 - 6.6	15.6 - 10.8
37	10°24.3	10°26.0	9°55.8	3.7 - 2.6	9.7 - 6.7	15.7 - 10.9
38	10°24.5	10°26.2	9°56.1	3.8 - 2.6	9.8 - 6.8	15.8 - 10.9
39	10°24.7	10°26.5	9°56.3	3.9 - 2.7	9.9 - 6.8	15.9 - 11.0
40	10°25.0	10°26.7	9°56.5	4.0 - 2.8	10.0 - 6.9	16.0 - 11.1
41	10°25.2	10°27.0	9°56.8	4.1 - 2.8	10.1 - 7.0	16.1 - 11.1
42	10°25.5	10°27.2	9°57.0	4.2 - 2.9	10.2 - 7.1	16.2 - 11.2
43	10°25.8	10°27.5	9°57.2	4.3 - 3.0	10.3 - 7.1	16.3 - 11.3
44	10°26.0	10°27.7	9°57.5	4.4 - 3.0	10.4 - 7.2	16.4 - 11.3
45	10°26.3	10°28.0	9°57.7	4.5 - 3.1	10.5 - 7.3	16.5 - 11.4
46	10°26.5	10°28.2	9°58.0	4.6 - 3.2	10.6 - 7.3	16.6 - 11.5
47	10°26.7	10°28.5	9°58.2	4.7 - 3.3	10.7 - 7.4	16.7 - 11.6
48	10°27.0	10°28.7	9°58.4	4.8 - 3.3	10.8 - 7.5	16.8 - 11.6
49	10°27.3	10°29.0	9°58.7	4.9 - 3.4	10.9 - 7.5	16.9 - 11.7
50	10°27.5	10°29.2	9°58.9	5.0 - 3.5	11.0 - 7.6	17.0 - 11.8
51	10°27.8	10°29.5	9°59.2	5.1 - 3.5	11.1 - 7.7	17.1 - 11.8
52	10°28.0	10°29.7	9°59.4	5.2 - 3.6	11.2 - 7.7	17.2 - 11.9
53	10°28.2	10°30.0	9°59.6	5.3 - 3.7	11.3 - 7.8	17.3 - 12.0
54	10°28.5	10°30.2	9°59.9	5.4 - 3.7	11.4 - 7.9	17.4 - 12.0
55	10°28.7	10°30.5	10°00.1	5.5 - 3.8	11.5 - 8.0	17.5 - 12.1
56	10°29.0	10°30.7	10°00.3	5.6 - 3.9	11.6 - 8.0	17.6 - 12.2
57	10°29.3	10°31.0	10°00.6	5.7 - 3.9	11.7 - 8.1	17.7 - 12.2
58	10°29.5	10°31.2	10°00.8	5.8 - 4.0	11.8 - 8.2	17.8 - 12.3
59	10°29.8	10°31.5	10°01.1	5.9 - 4.1	11.9 - 8.2	17.9 - 12.4

Increments and Corrections

m 42	Sun Plan.	Aries	Moon	v and d corr		
0	10°30.0	10°31.7	10°01.3	0.0 - 0.0	6.0 - 4.3	12.0 - 8.5
1	10°30.2	10°32.0	10°01.5	0.1 - 0.1	6.1 - 4.3	12.1 - 8.6
2	10°30.5	10°32.2	10°01.8	0.2 - 0.1	6.2 - 4.4	12.2 - 8.6
3	10°30.7	10°32.5	10°02.0	0.3 - 0.2	6.3 - 4.5	12.3 - 8.7
4	10°31.0	10°32.7	10°02.3	0.4 - 0.3	6.4 - 4.5	12.4 - 8.8
5	10°31.3	10°33.0	10°02.5	0.5 - 0.4	6.5 - 4.6	12.5 - 8.9
6	10°31.5	10°33.2	10°02.7	0.6 - 0.4	6.6 - 4.7	12.6 - 8.9
7	10°31.8	10°33.5	10°03.0	0.7 - 0.5	6.7 - 4.7	12.7 - 9.0
8	10°32.0	10°33.7	10°03.2	0.8 - 0.6	6.8 - 4.8	12.8 - 9.1
9	10°32.2	10°34.0	10°03.4	0.9 - 0.6	6.9 - 4.9	12.9 - 9.1
10	10°32.5	10°34.2	10°03.7	1.0 - 0.7	7.0 - 5.0	13.0 - 9.2
11	10°32.7	10°34.5	10°03.9	1.1 - 0.8	7.1 - 5.0	13.1 - 9.3
12	10°33.0	10°34.7	10°04.2	1.2 - 0.9	7.2 - 5.1	13.2 - 9.3
13	10°33.3	10°35.0	10°04.4	1.3 - 0.9	7.3 - 5.2	13.3 - 9.4
14	10°33.5	10°35.2	10°04.6	1.4 - 1.0	7.4 - 5.2	13.4 - 9.5
15	10°33.8	10°35.5	10°04.9	1.5 - 1.1	7.5 - 5.3	13.5 - 9.6
16	10°34.0	10°35.7	10°05.1	1.6 - 1.1	7.6 - 5.4	13.6 - 9.6
17	10°34.2	10°36.0	10°05.4	1.7 - 1.2	7.7 - 5.5	13.7 - 9.7
18	10°34.5	10°36.2	10°05.6	1.8 - 1.3	7.8 - 5.5	13.8 - 9.8
19	10°34.8	10°36.5	10°05.8	1.9 - 1.3	7.9 - 5.6	13.9 - 9.8
20	10°35.0	10°36.7	10°06.1	2.0 - 1.4	8.0 - 5.7	14.0 - 9.9
21	10°35.3	10°37.0	10°06.3	2.1 - 1.5	8.1 - 5.7	14.1 - 10.0
22	10°35.5	10°37.2	10°06.5	2.2 - 1.6	8.2 - 5.8	14.2 - 10.1
23	10°35.7	10°37.5	10°06.8	2.3 - 1.6	8.3 - 5.9	14.3 - 10.1
24	10°36.0	10°37.7	10°07.0	2.4 - 1.7	8.4 - 6.0	14.4 - 10.2
25	10°36.2	10°38.0	10°07.3	2.5 - 1.8	8.5 - 6.0	14.5 - 10.3
26	10°36.5	10°38.2	10°07.5	2.6 - 1.8	8.6 - 6.1	14.6 - 10.3
27	10°36.8	10°38.5	10°07.7	2.7 - 1.9	8.7 - 6.2	14.7 - 10.4
28	10°37.0	10°38.7	10°08.0	2.8 - 2.0	8.8 - 6.2	14.8 - 10.5
29	10°37.3	10°39.0	10°08.2	2.9 - 2.1	8.9 - 6.3	14.9 - 10.6
30	10°37.5	10°39.2	10°08.5	3.0 - 2.1	9.0 - 6.4	15.0 - 10.6
31	10°37.7	10°39.5	10°08.7	3.1 - 2.2	9.1 - 6.4	15.1 - 10.7
32	10°38.0	10°39.7	10°08.9	3.2 - 2.3	9.2 - 6.5	15.2 - 10.8
33	10°38.2	10°40.0	10°09.2	3.3 - 2.3	9.3 - 6.6	15.3 - 10.8
34	10°38.5	10°40.2	10°09.4	3.4 - 2.4	9.4 - 6.7	15.4 - 10.9
35	10°38.8	10°40.5	10°09.7	3.5 - 2.5	9.5 - 6.7	15.5 - 11.0
36	10°39.0	10°40.7	10°09.9	3.6 - 2.6	9.6 - 6.8	15.6 - 11.1
37	10°39.3	10°41.0	10°10.1	3.7 - 2.6	9.7 - 6.9	15.7 - 11.1
38	10°39.5	10°41.2	10°10.4	3.8 - 2.7	9.8 - 6.9	15.8 - 11.2
39	10°39.7	10°41.5	10°10.6	3.9 - 2.8	9.9 - 7.0	15.9 - 11.3
40	10°40.0	10°41.7	10°10.8	4.0 - 2.8	10.0 - 7.1	16.0 - 11.3
41	10°40.2	10°42.0	10°11.1	4.1 - 2.9	10.1 - 7.2	16.1 - 11.4
42	10°40.5	10°42.3	10°11.3	4.2 - 3.0	10.2 - 7.2	16.2 - 11.5
43	10°40.8	10°42.5	10°11.6	4.3 - 3.0	10.3 - 7.3	16.3 - 11.5
44	10°41.0	10°42.8	10°11.8	4.4 - 3.1	10.4 - 7.4	16.4 - 11.6
45	10°41.3	10°43.0	10°12.0	4.5 - 3.2	10.5 - 7.4	16.5 - 11.7
46	10°41.5	10°43.3	10°12.3	4.6 - 3.3	10.6 - 7.5	16.6 - 11.8
47	10°41.7	10°43.5	10°12.5	4.7 - 3.3	10.7 - 7.6	16.7 - 11.8
48	10°42.0	10°43.8	10°12.8	4.8 - 3.4	10.8 - 7.7	16.8 - 11.9
49	10°42.3	10°44.0	10°13.0	4.9 - 3.5	10.9 - 7.7	16.9 - 12.0
50	10°42.5	10°44.3	10°13.2	5.0 - 3.5	11.0 - 7.8	17.0 - 12.0
51	10°42.8	10°44.5	10°13.5	5.1 - 3.6	11.1 - 7.9	17.1 - 12.1
52	10°43.0	10°44.8	10°13.7	5.2 - 3.7	11.2 - 7.9	17.2 - 12.2
53	10°43.2	10°45.0	10°13.9	5.3 - 3.8	11.3 - 8.0	17.3 - 12.3
54	10°43.5	10°45.3	10°14.2	5.4 - 3.8	11.4 - 8.1	17.4 - 12.3
55	10°43.7	10°45.5	10°14.4	5.5 - 3.9	11.5 - 8.1	17.5 - 12.4
56	10°44.0	10°45.8	10°14.7	5.6 - 4.0	11.6 - 8.2	17.6 - 12.5
57	10°44.3	10°46.0	10°14.9	5.7 - 4.0	11.7 - 8.3	17.7 - 12.5
58	10°44.5	10°46.3	10°15.1	5.8 - 4.1	11.8 - 8.4	17.8 - 12.6
59	10°44.8	10°46.5	10°15.4	5.9 - 4.2	11.9 - 8.4	17.9 - 12.7

m 43	Sun Plan.	Aries	Moon	v and d corr		
0	10°45.0	10°46.8	10°15.6	0.0 - 0.0	6.0 - 4.3	12.0 - 8.7
1	10°45.2	10°47.0	10°15.9	0.1 - 0.1	6.1 - 4.4	12.1 - 8.8
2	10°45.5	10°47.3	10°16.1	0.2 - 0.1	6.2 - 4.5	12.2 - 8.8
3	10°45.7	10°47.5	10°16.3	0.3 - 0.2	6.3 - 4.6	12.3 - 8.9
4	10°46.0	10°47.8	10°16.6	0.4 - 0.3	6.4 - 4.6	12.4 - 9.0
5	10°46.3	10°48.0	10°16.8	0.5 - 0.4	6.5 - 4.7	12.5 - 9.1
6	10°46.5	10°48.3	10°17.0	0.6 - 0.4	6.6 - 4.8	12.6 - 9.1
7	10°46.8	10°48.5	10°17.3	0.7 - 0.5	6.7 - 4.9	12.7 - 9.2
8	10°47.0	10°48.8	10°17.5	0.8 - 0.6	6.8 - 4.9	12.8 - 9.3
9	10°47.2	10°49.0	10°17.8	0.9 - 0.7	6.9 - 5.0	12.9 - 9.4
10	10°47.5	10°49.3	10°18.0	1.0 - 0.7	7.0 - 5.1	13.0 - 9.4
11	10°47.7	10°49.5	10°18.2	1.1 - 0.8	7.1 - 5.1	13.1 - 9.5
12	10°48.0	10°49.8	10°18.5	1.2 - 0.9	7.2 - 5.2	13.2 - 9.6
13	10°48.3	10°50.0	10°18.7	1.3 - 0.9	7.3 - 5.3	13.3 - 9.6
14	10°48.5	10°50.3	10°19.0	1.4 - 1.0	7.4 - 5.4	13.4 - 9.7
15	10°48.8	10°50.5	10°19.2	1.5 - 1.1	7.5 - 5.4	13.5 - 9.8
16	10°49.0	10°50.8	10°19.4	1.6 - 1.2	7.6 - 5.5	13.6 - 9.9
17	10°49.2	10°51.0	10°19.7	1.7 - 1.2	7.7 - 5.6	13.7 - 9.9
18	10°49.5	10°51.3	10°19.9	1.8 - 1.3	7.8 - 5.7	13.8 - 10.0
19	10°49.8	10°51.5	10°20.2	1.9 - 1.4	7.9 - 5.7	13.9 - 10.1
20	10°50.0	10°51.8	10°20.4	2.0 - 1.4	8.0 - 5.8	14.0 - 10.2
21	10°50.3	10°52.0	10°20.6	2.1 - 1.5	8.1 - 5.9	14.1 - 10.2
22	10°50.5	10°52.3	10°20.9	2.2 - 1.6	8.2 - 5.9	14.2 - 10.3
23	10°50.7	10°52.5	10°21.1	2.3 - 1.7	8.3 - 6.0	14.3 - 10.4
24	10°51.0	10°52.8	10°21.3	2.4 - 1.7	8.4 - 6.1	14.4 - 10.4
25	10°51.2	10°53.0	10°21.6	2.5 - 1.8	8.5 - 6.2	14.5 - 10.5
26	10°51.5	10°53.3	10°21.8	2.6 - 1.9	8.6 - 6.2	14.6 - 10.6
27	10°51.8	10°53.5	10°22.1	2.7 - 2.0	8.7 - 6.3	14.7 - 10.7
28	10°52.0	10°53.8	10°22.3	2.8 - 2.0	8.8 - 6.4	14.8 - 10.7
29	10°52.3	10°54.0	10°22.5	2.9 - 2.1	8.9 - 6.5	14.9 - 10.8
30	10°52.5	10°54.3	10°22.8	3.0 - 2.2	9.0 - 6.5	15.0 - 10.9
31	10°52.7	10°54.5	10°23.0	3.1 - 2.2	9.1 - 6.6	15.1 - 10.9
32	10°53.0	10°54.8	10°23.3	3.2 - 2.3	9.2 - 6.7	15.2 - 11.0
33	10°53.2	10°55.0	10°23.5	3.3 - 2.4	9.3 - 6.7	15.3 - 11.1
34	10°53.5	10°55.3	10°23.7	3.4 - 2.5	9.4 - 6.8	15.4 - 11.2
35	10°53.8	10°55.5	10°24.0	3.5 - 2.5	9.5 - 6.9	15.5 - 11.2
36	10°54.0	10°55.8	10°24.2	3.6 - 2.6	9.6 - 7.0	15.6 - 11.3
37	10°54.3	10°56.0	10°24.4	3.7 - 2.7	9.7 - 7.0	15.7 - 11.4
38	10°54.5	10°56.3	10°24.7	3.8 - 2.8	9.8 - 7.1	15.8 - 11.5
39	10°54.7	10°56.5	10°24.9	3.9 - 2.8	9.9 - 7.2	15.9 - 11.5
40	10°55.0	10°56.8	10°25.2	4.0 - 2.9	10.0 - 7.3	16.0 - 11.6
41	10°55.2	10°57.0	10°25.4	4.1 - 3.0	10.1 - 7.3	16.1 - 11.7
42	10°55.5	10°57.3	10°25.6	4.2 - 3.0	10.2 - 7.4	16.2 - 11.7
43	10°55.8	10°57.5	10°25.9	4.3 - 3.1	10.3 - 7.5	16.3 - 11.8
44	10°56.0	10°57.8	10°26.1	4.4 - 3.2	10.4 - 7.5	16.4 - 11.9
45	10°56.3	10°58.0	10°26.4	4.5 - 3.3	10.5 - 7.6	16.5 - 12.0
46	10°56.5	10°58.3	10°26.6	4.6 - 3.3	10.6 - 7.7	16.6 - 12.0
47	10°56.7	10°58.5	10°26.8	4.7 - 3.4	10.7 - 7.8	16.7 - 12.1
48	10°57.0	10°58.8	10°27.1	4.8 - 3.5	10.8 - 7.8	16.8 - 12.2
49	10°57.3	10°59.0	10°27.3	4.9 - 3.6	10.9 - 7.9	16.9 - 12.3
50	10°57.5	10°59.3	10°27.5	5.0 - 3.6	11.0 - 8.0	17.0 - 12.3
51	10°57.8	10°59.5	10°27.8	5.1 - 3.7	11.1 - 8.0	17.1 - 12.4
52	10°58.0	10°59.8	10°28.0	5.2 - 3.8	11.2 - 8.1	17.2 - 12.5
53	10°58.2	11°00.0	10°28.3	5.3 - 3.8	11.3 - 8.2	17.3 - 12.5
54	10°58.5	11°00.3	10°28.5	5.4 - 3.9	11.4 - 8.3	17.4 - 12.6
55	10°58.7	11°00.6	10°28.7	5.5 - 4.0	11.5 - 8.3	17.5 - 12.7
56	10°59.0	11°00.8	10°29.0	5.6 - 4.1	11.6 - 8.4	17.6 - 12.8
57	10°59.3	11°01.1	10°29.2	5.7 - 4.1	11.7 - 8.5	17.7 - 12.8
58	10°59.5	11°01.3	10°29.5	5.8 - 4.2	11.8 - 8.6	17.8 - 12.9
59	10°59.8	11°01.6	10°29.7	5.9 - 4.3	11.9 - 8.6	17.9 - 13.0

m	Sun Plan.	Aries	Moon	v and d corr		
44						
0	11°00.0	11°01.8	10°29.9	0.0 - 0.0	6.0 - 4.5	12.0 - 8.9
1	11°00.2	11°02.1	10°30.2	0.1 - 0.1	6.1 - 4.5	12.1 - 9.0
2	11°00.5	11°02.3	10°30.4	0.2 - 0.1	6.2 - 4.6	12.2 - 9.0
3	11°00.7	11°02.6	10°30.6	0.3 - 0.2	6.3 - 4.7	12.3 - 9.1
4	11°01.0	11°02.8	10°30.9	0.4 - 0.3	6.4 - 4.7	12.4 - 9.2
5	11°01.3	11°03.1	10°31.1	0.5 - 0.4	6.5 - 4.8	12.5 - 9.3
6	11°01.5	11°03.3	10°31.4	0.6 - 0.4	6.6 - 4.9	12.6 - 9.3
7	11°01.8	11°03.6	10°31.6	0.7 - 0.5	6.7 - 5.0	12.7 - 9.4
8	11°02.0	11°03.8	10°31.8	0.8 - 0.6	6.8 - 5.0	12.8 - 9.5
9	11°02.2	11°04.1	10°32.1	0.9 - 0.7	6.9 - 5.1	12.9 - 9.6
10	11°02.5	11°04.3	10°32.3	1.0 - 0.7	7.0 - 5.2	13.0 - 9.6
11	11°02.7	11°04.6	10°32.6	1.1 - 0.8	7.1 - 5.3	13.1 - 9.7
12	11°03.0	11°04.8	10°32.8	1.2 - 0.9	7.2 - 5.3	13.2 - 9.8
13	11°03.3	11°05.1	10°33.0	1.3 - 1.0	7.3 - 5.4	13.3 - 9.9
14	11°03.5	11°05.3	10°33.3	1.4 - 1.0	7.4 - 5.5	13.4 - 9.9
15	11°03.8	11°05.6	10°33.5	1.5 - 1.1	7.5 - 5.6	13.5 - 10.0
16	11°04.0	11°05.8	10°33.8	1.6 - 1.2	7.6 - 5.6	13.6 - 10.1
17	11°04.2	11°06.1	10°34.0	1.7 - 1.3	7.7 - 5.7	13.7 - 10.2
18	11°04.5	11°06.3	10°34.2	1.8 - 1.3	7.8 - 5.8	13.8 - 10.2
19	11°04.8	11°06.6	10°34.5	1.9 - 1.4	7.9 - 5.9	13.9 - 10.3
20	11°05.0	11°06.8	10°34.7	2.0 - 1.5	8.0 - 5.9	14.0 - 10.4
21	11°05.3	11°07.1	10°34.9	2.1 - 1.6	8.1 - 6.0	14.1 - 10.5
22	11°05.5	11°07.3	10°35.2	2.2 - 1.6	8.2 - 6.1	14.2 - 10.5
23	11°05.7	11°07.6	10°35.4	2.3 - 1.7	8.3 - 6.2	14.3 - 10.6
24	11°06.0	11°07.8	10°35.7	2.4 - 1.8	8.4 - 6.2	14.4 - 10.7
25	11°06.2	11°08.1	10°35.9	2.5 - 1.9	8.5 - 6.3	14.5 - 10.8
26	11°06.5	11°08.3	10°36.1	2.6 - 1.9	8.6 - 6.4	14.6 - 10.8
27	11°06.8	11°08.6	10°36.4	2.7 - 2.0	8.7 - 6.5	14.7 - 10.9
28	11°07.0	11°08.8	10°36.6	2.8 - 2.1	8.8 - 6.5	14.8 - 11.0
29	11°07.3	11°09.1	10°36.9	2.9 - 2.2	8.9 - 6.6	14.9 - 11.1
30	11°07.5	11°09.3	10°37.1	3.0 - 2.2	9.0 - 6.7	15.0 - 11.1
31	11°07.7	11°09.6	10°37.3	3.1 - 2.3	9.1 - 6.7	15.1 - 11.2
32	11°08.0	11°09.8	10°37.6	3.2 - 2.4	9.2 - 6.8	15.2 - 11.3
33	11°08.2	11°10.1	10°37.8	3.3 - 2.4	9.3 - 6.9	15.3 - 11.3
34	11°08.5	11°10.3	10°38.0	3.4 - 2.5	9.4 - 7.0	15.4 - 11.4
35	11°08.8	11°10.6	10°38.3	3.5 - 2.6	9.5 - 7.0	15.5 - 11.5
36	11°09.0	11°10.8	10°38.5	3.6 - 2.7	9.6 - 7.1	15.6 - 11.6
37	11°09.3	11°11.1	10°38.8	3.7 - 2.7	9.7 - 7.2	15.7 - 11.6
38	11°09.5	11°11.3	10°39.0	3.8 - 2.8	9.8 - 7.3	15.8 - 11.7
39	11°09.7	11°11.6	10°39.2	3.9 - 2.9	9.9 - 7.3	15.9 - 11.8
40	11°10.0	11°11.8	10°39.5	4.0 - 3.0	10.0 - 7.4	16.0 - 11.9
41	11°10.2	11°12.1	10°39.7	4.1 - 3.0	10.1 - 7.5	16.1 - 11.9
42	11°10.5	11°12.3	10°40.0	4.2 - 3.1	10.2 - 7.6	16.2 - 12.0
43	11°10.8	11°12.6	10°40.2	4.3 - 3.2	10.3 - 7.6	16.3 - 12.1
44	11°11.0	11°12.8	10°40.4	4.4 - 3.3	10.4 - 7.7	16.4 - 12.2
45	11°11.3	11°13.1	10°40.7	4.5 - 3.3	10.5 - 7.8	16.5 - 12.2
46	11°11.5	11°13.3	10°40.9	4.6 - 3.4	10.6 - 7.9	16.6 - 12.3
47	11°11.7	11°13.6	10°41.1	4.7 - 3.5	10.7 - 7.9	16.7 - 12.4
48	11°12.0	11°13.8	10°41.4	4.8 - 3.6	10.8 - 8.0	16.8 - 12.5
49	11°12.3	11°14.1	10°41.6	4.9 - 3.6	10.9 - 8.1	16.9 - 12.5
50	11°12.5	11°14.3	10°41.9	5.0 - 3.7	11.0 - 8.2	17.0 - 12.6
51	11°12.8	11°14.6	10°42.1	5.1 - 3.8	11.1 - 8.2	17.1 - 12.7
52	11°13.0	11°14.8	10°42.3	5.2 - 3.9	11.2 - 8.3	17.2 - 12.8
53	11°13.2	11°15.1	10°42.6	5.3 - 3.9	11.3 - 8.4	17.3 - 12.8
54	11°13.5	11°15.3	10°42.8	5.4 - 4.0	11.4 - 8.5	17.4 - 12.9
55	11°13.7	11°15.6	10°43.1	5.5 - 4.1	11.5 - 8.5	17.5 - 13.0
56	11°14.0	11°15.8	10°43.3	5.6 - 4.2	11.6 - 8.6	17.6 - 13.1
57	11°14.3	11°16.1	10°43.5	5.7 - 4.2	11.7 - 8.7	17.7 - 13.1
58	11°14.5	11°16.3	10°43.8	5.8 - 4.3	11.8 - 8.8	17.8 - 13.2
59	11°14.8	11°16.6	10°44.0	5.9 - 4.4	11.9 - 8.8	17.9 - 13.3

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
45	Plan.					
0	11°15.0	11°16.8	10°44.3	0.0 - 0.0	6.0 - 4.5	12.0 - 9.1
1	11°15.2	11°17.1	10°44.5	0.1 - 0.1	6.1 - 4.6	12.1 - 9.2
2	11°15.5	11°17.3	10°44.7	0.2 - 0.2	6.2 - 4.7	12.2 - 9.3
3	11°15.7	11°17.6	10°45.0	0.3 - 0.2	6.3 - 4.8	12.3 - 9.3
4	11°16.0	11°17.8	10°45.2	0.4 - 0.3	6.4 - 4.9	12.4 - 9.4
5	11°16.3	11°18.1	10°45.4	0.5 - 0.4	6.5 - 4.9	12.5 - 9.5
6	11°16.5	11°18.3	10°45.7	0.6 - 0.5	6.6 - 5.0	12.6 - 9.6
7	11°16.8	11°18.6	10°45.9	0.7 - 0.5	6.7 - 5.1	12.7 - 9.6
8	11°17.0	11°18.9	10°46.2	0.8 - 0.6	6.8 - 5.2	12.8 - 9.7
9	11°17.2	11°19.1	10°46.4	0.9 - 0.7	6.9 - 5.2	12.9 - 9.8
10	11°17.5	11°19.4	10°46.6	1.0 - 0.8	7.0 - 5.3	13.0 - 9.9
11	11°17.7	11°19.6	10°46.9	1.1 - 0.8	7.1 - 5.4	13.1 - 9.9
12	11°18.0	11°19.9	10°47.1	1.2 - 0.9	7.2 - 5.5	13.2 - 10.0
13	11°18.3	11°20.1	10°47.4	1.3 - 1.0	7.3 - 5.5	13.3 - 10.1
14	11°18.5	11°20.4	10°47.6	1.4 - 1.1	7.4 - 5.6	13.4 - 10.2
15	11°18.8	11°20.6	10°47.8	1.5 - 1.1	7.5 - 5.7	13.5 - 10.2
16	11°19.0	11°20.9	10°48.1	1.6 - 1.2	7.6 - 5.8	13.6 - 10.3
17	11°19.2	11°21.1	10°48.3	1.7 - 1.3	7.7 - 5.8	13.7 - 10.4
18	11°19.5	11°21.4	10°48.5	1.8 - 1.4	7.8 - 5.9	13.8 - 10.5
19	11°19.8	11°21.6	10°48.8	1.9 - 1.4	7.9 - 6.0	13.9 - 10.5
20	11°20.0	11°21.9	10°49.0	2.0 - 1.5	8.0 - 6.1	14.0 - 10.6
21	11°20.3	11°22.1	10°49.3	2.1 - 1.6	8.1 - 6.1	14.1 - 10.7
22	11°20.5	11°22.4	10°49.5	2.2 - 1.7	8.2 - 6.2	14.2 - 10.8
23	11°20.7	11°22.6	10°49.7	2.3 - 1.7	8.3 - 6.3	14.3 - 10.8
24	11°21.0	11°22.9	10°50.0	2.4 - 1.8	8.4 - 6.4	14.4 - 10.9
25	11°21.2	11°23.1	10°50.2	2.5 - 1.9	8.5 - 6.4	14.5 - 11.0
26	11°21.5	11°23.4	10°50.5	2.6 - 2.0	8.6 - 6.5	14.6 - 11.1
27	11°21.8	11°23.6	10°50.7	2.7 - 2.0	8.7 - 6.6	14.7 - 11.1
28	11°22.0	11°23.9	10°50.9	2.8 - 2.1	8.8 - 6.7	14.8 - 11.2
29	11°22.3	11°24.1	10°51.2	2.9 - 2.2	8.9 - 6.7	14.9 - 11.3
30	11°22.5	11°24.4	10°51.4	3.0 - 2.3	9.0 - 6.8	15.0 - 11.4
31	11°22.7	11°24.6	10°51.6	3.1 - 2.4	9.1 - 6.9	15.1 - 11.5
32	11°23.0	11°24.9	10°51.9	3.2 - 2.4	9.2 - 7.0	15.2 - 11.5
33	11°23.2	11°25.1	10°52.1	3.3 - 2.5	9.3 - 7.1	15.3 - 11.6
34	11°23.5	11°25.4	10°52.4	3.4 - 2.6	9.4 - 7.1	15.4 - 11.7
35	11°23.8	11°25.6	10°52.6	3.5 - 2.7	9.5 - 7.2	15.5 - 11.8
36	11°24.0	11°25.9	10°52.8	3.6 - 2.7	9.6 - 7.3	15.6 - 11.8
37	11°24.3	11°26.1	10°53.1	3.7 - 2.8	9.7 - 7.4	15.7 - 11.9
38	11°24.5	11°26.4	10°53.3	3.8 - 2.9	9.8 - 7.4	15.8 - 12.0
39	11°24.7	11°26.6	10°53.6	3.9 - 3.0	9.9 - 7.5	15.9 - 12.1
40	11°25.0	11°26.9	10°53.8	4.0 - 3.0	10.0 - 7.6	16.0 - 12.1
41	11°25.2	11°27.1	10°54.0	4.1 - 3.1	10.1 - 7.7	16.1 - 12.2
42	11°25.5	11°27.4	10°54.3	4.2 - 3.2	10.2 - 7.7	16.2 - 12.3
43	11°25.8	11°27.6	10°54.5	4.3 - 3.3	10.3 - 7.8	16.3 - 12.4
44	11°26.0	11°27.9	10°54.7	4.4 - 3.3	10.4 - 7.9	16.4 - 12.4
45	11°26.3	11°28.1	10°55.0	4.5 - 3.4	10.5 - 8.0	16.5 - 12.5
46	11°26.5	11°28.4	10°55.2	4.6 - 3.5	10.6 - 8.0	16.6 - 12.6
47	11°26.7	11°28.6	10°55.5	4.7 - 3.6	10.7 - 8.1	16.7 - 12.7
48	11°27.0	11°28.9	10°55.7	4.8 - 3.6	10.8 - 8.2	16.8 - 12.7
49	11°27.3	11°29.1	10°55.9	4.9 - 3.7	10.9 - 8.3	16.9 - 12.8
50	11°27.5	11°29.4	10°56.2	5.0 - 3.8	11.0 - 8.3	17.0 - 12.9
51	11°27.8	11°29.6	10°56.4	5.1 - 3.9	11.1 - 8.4	17.1 - 13.0
52	11°28.0	11°29.9	10°56.7	5.2 - 3.9	11.2 - 8.5	17.2 - 13.0
53	11°28.2	11°30.1	10°56.9	5.3 - 4.0	11.3 - 8.6	17.3 - 13.1
54	11°28.5	11°30.4	10°57.1	5.4 - 4.1	11.4 - 8.6	17.4 - 13.2
55	11°28.7	11°30.6	10°57.4	5.5 - 4.2	11.5 - 8.7	17.5 - 13.3
56	11°29.0	11°30.9	10°57.6	5.6 - 4.2	11.6 - 8.8	17.6 - 13.3
57	11°29.3	11°31.1	10°57.9	5.7 - 4.3	11.7 - 8.9	17.7 - 13.4
58	11°29.5	11°31.4	10°58.1	5.8 - 4.4	11.8 - 8.9	17.8 - 13.5
59	11°29.8	11°31.6	10°58.3	5.9 - 4.5	11.9 - 9.0	17.9 - 13.6

m	Sun	Aries	Moon	v and d corr		
46	Plan.					
0	11°30.0	11°31.9	10°58.6	0.0 - 0.0	6.0 - 4.7	12.0 - 9.3
1	11°30.2	11°32.1	10°58.8	0.1 - 0.1	6.1 - 4.7	12.1 - 9.4
2	11°30.5	11°32.4	10°59.0	0.2 - 0.2	6.2 - 4.8	12.2 - 9.5
3	11°30.7	11°32.6	10°59.3	0.3 - 0.2	6.3 - 4.9	12.3 - 9.5
4	11°31.0	11°32.9	10°59.5	0.4 - 0.3	6.4 - 5.0	12.4 - 9.6
5	11°31.3	11°33.1	10°59.8	0.5 - 0.4	6.5 - 5.0	12.5 - 9.7
6	11°31.5	11°33.4	11°00.0	0.6 - 0.5	6.6 - 5.1	12.6 - 9.8
7	11°31.8	11°33.6	11°00.2	0.7 - 0.5	6.7 - 5.2	12.7 - 9.8
8	11°32.0	11°33.9	11°00.5	0.8 - 0.6	6.8 - 5.3	12.8 - 9.9
9	11°32.2	11°34.1	11°00.7	0.9 - 0.7	6.9 - 5.3	12.9 - 10.0
10	11°32.5	11°34.4	11°01.0	1.0 - 0.8	7.0 - 5.4	13.0 - 10.1
11	11°32.7	11°34.6	11°01.2	1.1 - 0.9	7.1 - 5.5	13.1 - 10.2
12	11°33.0	11°34.9	11°01.4	1.2 - 0.9	7.2 - 5.6	13.2 - 10.2
13	11°33.3	11°35.1	11°01.7	1.3 - 1.0	7.3 - 5.7	13.3 - 10.3
14	11°33.5	11°35.4	11°01.9	1.4 - 1.1	7.4 - 5.7	13.4 - 10.4
15	11°33.8	11°35.6	11°02.1	1.5 - 1.2	7.5 - 5.8	13.5 - 10.5
16	11°34.0	11°35.9	11°02.4	1.6 - 1.2	7.6 - 5.9	13.6 - 10.5
17	11°34.2	11°36.1	11°02.6	1.7 - 1.3	7.7 - 6.0	13.7 - 10.6
18	11°34.5	11°36.4	11°02.9	1.8 - 1.4	7.8 - 6.0	13.8 - 10.7
19	11°34.8	11°36.6	11°03.1	1.9 - 1.5	7.9 - 6.1	13.9 - 10.8
20	11°35.0	11°36.9	11°03.3	2.0 - 1.6	8.0 - 6.2	14.0 - 10.8
21	11°35.3	11°37.2	11°03.6	2.1 - 1.6	8.1 - 6.3	14.1 - 10.9
22	11°35.5	11°37.4	11°03.8	2.2 - 1.7	8.2 - 6.4	14.2 - 11.0
23	11°35.7	11°37.7	11°04.1	2.3 - 1.8	8.3 - 6.4	14.3 - 11.1
24	11°36.0	11°37.9	11°04.3	2.4 - 1.9	8.4 - 6.5	14.4 - 11.2
25	11°36.2	11°38.2	11°04.5	2.5 - 1.9	8.5 - 6.6	14.5 - 11.2
26	11°36.5	11°38.4	11°04.8	2.6 - 2.0	8.6 - 6.7	14.6 - 11.3
27	11°36.8	11°38.7	11°05.0	2.7 - 2.1	8.7 - 6.7	14.7 - 11.4
28	11°37.0	11°38.9	11°05.2	2.8 - 2.2	8.8 - 6.8	14.8 - 11.5
29	11°37.3	11°39.2	11°05.5	2.9 - 2.2	8.9 - 6.9	14.9 - 11.5
30	11°37.5	11°39.4	11°05.7	3.0 - 2.3	9.0 - 7.0	15.0 - 11.6
31	11°37.7	11°39.7	11°06.0	3.1 - 2.4	9.1 - 7.1	15.1 - 11.7
32	11°38.0	11°39.9	11°06.2	3.2 - 2.5	9.2 - 7.1	15.2 - 11.8
33	11°38.2	11°40.2	11°06.4	3.3 - 2.6	9.3 - 7.2	15.3 - 11.9
34	11°38.5	11°40.4	11°06.7	3.4 - 2.6	9.4 - 7.3	15.4 - 11.9
35	11°38.8	11°40.7	11°06.9	3.5 - 2.7	9.5 - 7.4	15.5 - 12.0
36	11°39.0	11°40.9	11°07.2	3.6 - 2.8	9.6 - 7.4	15.6 - 12.1
37	11°39.3	11°41.2	11°07.4	3.7 - 2.9	9.7 - 7.5	15.7 - 12.2
38	11°39.5	11°41.4	11°07.6	3.8 - 2.9	9.8 - 7.6	15.8 - 12.2
39	11°39.7	11°41.7	11°07.9	3.9 - 3.0	9.9 - 7.7	15.9 - 12.3
40	11°40.0	11°41.9	11°08.1	4.0 - 3.1	10.0 - 7.8	16.0 - 12.4
41	11°40.2	11°42.2	11°08.3	4.1 - 3.2	10.1 - 7.8	16.1 - 12.5
42	11°40.5	11°42.4	11°08.6	4.2 - 3.3	10.2 - 7.9	16.2 - 12.6
43	11°40.8	11°42.7	11°08.8	4.3 - 3.3	10.3 - 8.0	16.3 - 12.6
44	11°41.0	11°42.9	11°09.1	4.4 - 3.4	10.4 - 8.1	16.4 - 12.7
45	11°41.3	11°43.2	11°09.3	4.5 - 3.5	10.5 - 8.1	16.5 - 12.8
46	11°41.5	11°43.4	11°09.5	4.6 - 3.6	10.6 - 8.2	16.6 - 12.9
47	11°41.7	11°43.7	11°09.8	4.7 - 3.6	10.7 - 8.3	16.7 - 12.9
48	11°42.0	11°43.9	11°10.0	4.8 - 3.7	10.8 - 8.4	16.8 - 13.0
49	11°42.3	11°44.2	11°10.3	4.9 - 3.8	10.9 - 8.4	16.9 - 13.1
50	11°42.5	11°44.4	11°10.5	5.0 - 3.9	11.0 - 8.5	17.0 - 13.2
51	11°42.8	11°44.7	11°10.7	5.1 - 4.0	11.1 - 8.6	17.1 - 13.3
52	11°43.0	11°44.9	11°11.0	5.2 - 4.0	11.2 - 8.7	17.2 - 13.3
53	11°43.2	11°45.2	11°11.2	5.3 - 4.1	11.3 - 8.8	17.3 - 13.4
54	11°43.5	11°45.4	11°11.5	5.4 - 4.2	11.4 - 8.8	17.4 - 13.5
55	11°43.7	11°45.7	11°11.7	5.5 - 4.3	11.5 - 8.9	17.5 - 13.6
56	11°44.0	11°45.9	11°11.9	5.6 - 4.3	11.6 - 9.0	17.6 - 13.6
57	11°44.3	11°46.2	11°12.2	5.7 - 4.4	11.7 - 9.1	17.7 - 13.7
58	11°44.5	11°46.4	11°12.4	5.8 - 4.5	11.8 - 9.1	17.8 - 13.8
59	11°44.8	11°46.7	11°12.6	5.9 - 4.6	11.9 - 9.2	17.9 - 13.9

m	Sun	Aries	Moon	v and d corr		
47	Plan.					
0	11°45.0	11°46.9	11°12.9	0.0 - 0.0	6.0 - 4.8	12.0 - 9.5
1	11°45.2	11°47.2	11°13.1	0.1 - 0.1	6.1 - 4.8	12.1 - 9.6
2	11°45.5	11°47.4	11°13.4	0.2 - 0.2	6.2 - 4.9	12.2 - 9.7
3	11°45.7	11°47.7	11°13.6	0.3 - 0.2	6.3 - 5.0	12.3 - 9.7
4	11°46.0	11°47.9	11°13.8	0.4 - 0.3	6.4 - 5.1	12.4 - 9.8
5	11°46.3	11°48.2	11°14.1	0.5 - 0.4	6.5 - 5.1	12.5 - 9.9
6	11°46.5	11°48.4	11°14.3	0.6 - 0.5	6.6 - 5.2	12.6 - 10.0
7	11°46.8	11°48.7	11°14.6	0.7 - 0.6	6.7 - 5.3	12.7 - 10.1
8	11°47.0	11°48.9	11°14.8	0.8 - 0.6	6.8 - 5.4	12.8 - 10.1
9	11°47.2	11°49.2	11°15.0	0.9 - 0.7	6.9 - 5.5	12.9 - 10.2
10	11°47.5	11°49.4	11°15.3	1.0 - 0.8	7.0 - 5.5	13.0 - 10.3
11	11°47.7	11°49.7	11°15.5	1.1 - 0.9	7.1 - 5.6	13.1 - 10.4
12	11°48.0	11°49.9	11°15.7	1.2 - 1.0	7.2 - 5.7	13.2 - 10.4
13	11°48.3	11°50.2	11°16.0	1.3 - 1.0	7.3 - 5.8	13.3 - 10.5
14	11°48.5	11°50.4	11°16.2	1.4 - 1.1	7.4 - 5.9	13.4 - 10.6
15	11°48.8	11°50.7	11°16.5	1.5 - 1.2	7.5 - 5.9	13.5 - 10.7
16	11°49.0	11°50.9	11°16.7	1.6 - 1.3	7.6 - 6.0	13.6 - 10.8
17	11°49.2	11°51.2	11°16.9	1.7 - 1.3	7.7 - 6.1	13.7 - 10.8
18	11°49.5	11°51.4	11°17.2	1.8 - 1.4	7.8 - 6.2	13.8 - 10.9
19	11°49.8	11°51.7	11°17.4	1.9 - 1.5	7.9 - 6.3	13.9 - 11.0
20	11°50.0	11°51.9	11°17.7	2.0 - 1.6	8.0 - 6.3	14.0 - 11.1
21	11°50.3	11°52.2	11°17.9	2.1 - 1.7	8.1 - 6.4	14.1 - 11.2
22	11°50.5	11°52.4	11°18.1	2.2 - 1.7	8.2 - 6.5	14.2 - 11.2
23	11°50.7	11°52.7	11°18.4	2.3 - 1.8	8.3 - 6.6	14.3 - 11.3
24	11°51.0	11°52.9	11°18.6	2.4 - 1.9	8.4 - 6.7	14.4 - 11.4
25	11°51.2	11°53.2	11°18.8	2.5 - 2.0	8.5 - 6.7	14.5 - 11.5
26	11°51.5	11°53.4	11°19.1	2.6 - 2.1	8.6 - 6.8	14.6 - 11.6
27	11°51.8	11°53.7	11°19.3	2.7 - 2.1	8.7 - 6.9	14.7 - 11.6
28	11°52.0	11°53.9	11°19.6	2.8 - 2.2	8.8 - 7.0	14.8 - 11.7
29	11°52.3	11°54.2	11°19.8	2.9 - 2.3	8.9 - 7.0	14.9 - 11.8
30	11°52.5	11°54.4	11°20.0	3.0 - 2.4	9.0 - 7.1	15.0 - 11.9
31	11°52.7	11°54.7	11°20.3	3.1 - 2.5	9.1 - 7.2	15.1 - 12.0
32	11°53.0	11°54.9	11°20.5	3.2 - 2.5	9.2 - 7.3	15.2 - 12.0
33	11°53.2	11°55.2	11°20.8	3.3 - 2.6	9.3 - 7.4	15.3 - 12.1
34	11°53.5	11°55.5	11°21.0	3.4 - 2.7	9.4 - 7.4	15.4 - 12.2
35	11°53.8	11°55.7	11°21.2	3.5 - 2.8	9.5 - 7.5	15.5 - 12.3
36	11°54.0	11°56.0	11°21.5	3.6 - 2.9	9.6 - 7.6	15.6 - 12.3
37	11°54.3	11°56.2	11°21.7	3.7 - 2.9	9.7 - 7.7	15.7 - 12.4
38	11°54.5	11°56.5	11°22.0	3.8 - 3.0	9.8 - 7.8	15.8 - 12.5
39	11°54.7	11°56.7	11°22.2	3.9 - 3.1	9.9 - 7.8	15.9 - 12.6
40	11°55.0	11°57.0	11°22.4	4.0 - 3.2	10.0 - 7.9	16.0 - 12.7
41	11°55.2	11°57.2	11°22.7	4.1 - 3.2	10.1 - 8.0	16.1 - 12.7
42	11°55.5	11°57.5	11°22.9	4.2 - 3.3	10.2 - 8.1	16.2 - 12.8
43	11°55.8	11°57.7	11°23.1	4.3 - 3.4	10.3 - 8.2	16.3 - 12.9
44	11°56.0	11°58.0	11°23.4	4.4 - 3.5	10.4 - 8.2	16.4 - 13.0
45	11°56.3	11°58.2	11°23.6	4.5 - 3.6	10.5 - 8.3	16.5 - 13.1
46	11°56.5	11°58.5	11°23.9	4.6 - 3.6	10.6 - 8.4	16.6 - 13.1
47	11°56.7	11°58.7	11°24.1	4.7 - 3.7	10.7 - 8.5	16.7 - 13.2
48	11°57.0	11°59.0	11°24.3	4.8 - 3.8	10.8 - 8.6	16.8 - 13.3
49	11°57.3	11°59.2	11°24.6	4.9 - 3.9	10.9 - 8.6	16.9 - 13.4
50	11°57.5	11°59.5	11°24.8	5.0 - 4.0	11.0 - 8.7	17.0 - 13.5
51	11°57.8	11°59.7	11°25.1	5.1 - 4.0	11.1 - 8.8	17.1 - 13.5
52	11°58.0	12°00.0	11°25.3	5.2 - 4.1	11.2 - 8.9	17.2 - 13.6
53	11°58.2	12°00.2	11°25.5	5.3 - 4.2	11.3 - 8.9	17.3 - 13.7
54	11°58.5	12°00.5	11°25.8	5.4 - 4.3	11.4 - 9.0	17.4 - 13.8
55	11°58.7	12°00.7	11°26.0	5.5 - 4.4	11.5 - 9.1	17.5 - 13.9
56	11°59.0	12°01.0	11°26.2	5.6 - 4.4	11.6 - 9.2	17.6 - 13.9
57	11°59.3	12°01.2	11°26.5	5.7 - 4.5	11.7 - 9.3	17.7 - 14.0
58	11°59.5	12°01.5	11°26.7	5.8 - 4.6	11.8 - 9.3	17.8 - 14.1
59	11°59.8	12°01.7	11°27.0	5.9 - 4.7	11.9 - 9.4	17.9 - 14.2

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
48	Plan.					
0	12°00.0	12°02.0	11°27.2	0.0 - 0.0	6.0 - 4.8	12.0 - 9.7
1	12°00.2	12°02.2	11°27.4	0.1 - 0.1	6.1 - 4.9	12.1 - 9.8
2	12°00.5	12°02.5	11°27.7	0.2 - 0.2	6.2 - 5.0	12.2 - 9.9
3	12°00.7	12°02.7	11°27.9	0.3 - 0.2	6.3 - 5.1	12.3 - 9.9
4	12°01.0	12°03.0	11°28.2	0.4 - 0.3	6.4 - 5.2	12.4 - 10.0
5	12°01.3	12°03.2	11°28.4	0.5 - 0.4	6.5 - 5.3	12.5 - 10.1
6	12°01.5	12°03.5	11°28.6	0.6 - 0.5	6.6 - 5.3	12.6 - 10.2
7	12°01.8	12°03.7	11°28.9	0.7 - 0.6	6.7 - 5.4	12.7 - 10.3
8	12°02.0	12°04.0	11°29.1	0.8 - 0.6	6.8 - 5.5	12.8 - 10.3
9	12°02.2	12°04.2	11°29.3	0.9 - 0.7	6.9 - 5.6	12.9 - 10.4
10	12°02.5	12°04.5	11°29.6	1.0 - 0.8	7.0 - 5.7	13.0 - 10.5
11	12°02.7	12°04.7	11°29.8	1.1 - 0.9	7.1 - 5.7	13.1 - 10.6
12	12°03.0	12°05.0	11°30.1	1.2 - 1.0	7.2 - 5.8	13.2 - 10.7
13	12°03.3	12°05.2	11°30.3	1.3 - 1.1	7.3 - 5.9	13.3 - 10.8
14	12°03.5	12°05.5	11°30.5	1.4 - 1.1	7.4 - 6.0	13.4 - 10.8
15	12°03.8	12°05.7	11°30.8	1.5 - 1.2	7.5 - 6.1	13.5 - 10.9
16	12°04.0	12°06.0	11°31.0	1.6 - 1.3	7.6 - 6.1	13.6 - 11.0
17	12°04.2	12°06.2	11°31.3	1.7 - 1.4	7.7 - 6.2	13.7 - 11.1
18	12°04.5	12°06.5	11°31.5	1.8 - 1.5	7.8 - 6.3	13.8 - 11.2
19	12°04.8	12°06.7	11°31.7	1.9 - 1.5	7.9 - 6.4	13.9 - 11.2
20	12°05.0	12°07.0	11°32.0	2.0 - 1.6	8.0 - 6.5	14.0 - 11.3
21	12°05.3	12°07.2	11°32.2	2.1 - 1.7	8.1 - 6.5	14.1 - 11.4
22	12°05.5	12°07.5	11°32.4	2.2 - 1.8	8.2 - 6.6	14.2 - 11.5
23	12°05.7	12°07.7	11°32.7	2.3 - 1.9	8.3 - 6.7	14.3 - 11.6
24	12°06.0	12°08.0	11°32.9	2.4 - 1.9	8.4 - 6.8	14.4 - 11.6
25	12°06.2	12°08.2	11°33.2	2.5 - 2.0	8.5 - 6.9	14.5 - 11.7
26	12°06.5	12°08.5	11°33.4	2.6 - 2.1	8.6 - 7.0	14.6 - 11.8
27	12°06.8	12°08.7	11°33.6	2.7 - 2.2	8.7 - 7.0	14.7 - 11.9
28	12°07.0	12°09.0	11°33.9	2.8 - 2.3	8.8 - 7.1	14.8 - 12.0
29	12°07.3	12°09.2	11°34.1	2.9 - 2.3	8.9 - 7.2	14.9 - 12.0
30	12°07.5	12°09.5	11°34.4	3.0 - 2.4	9.0 - 7.3	15.0 - 12.1
31	12°07.7	12°09.7	11°34.6	3.1 - 2.5	9.1 - 7.4	15.1 - 12.2
32	12°08.0	12°10.0	11°34.8	3.2 - 2.6	9.2 - 7.4	15.2 - 12.3
33	12°08.2	12°10.2	11°35.1	3.3 - 2.7	9.3 - 7.5	15.3 - 12.4
34	12°08.5	12°10.5	11°35.3	3.4 - 2.7	9.4 - 7.6	15.4 - 12.4
35	12°08.8	12°10.7	11°35.6	3.5 - 2.8	9.5 - 7.7	15.5 - 12.5
36	12°09.0	12°11.0	11°35.8	3.6 - 2.9	9.6 - 7.8	15.6 - 12.6
37	12°09.3	12°11.2	11°36.0	3.7 - 3.0	9.7 - 7.8	15.7 - 12.7
38	12°09.5	12°11.5	11°36.3	3.8 - 3.1	9.8 - 7.9	15.8 - 12.8
39	12°09.7	12°11.7	11°36.5	3.9 - 3.2	9.9 - 8.0	15.9 - 12.9
40	12°10.0	12°12.0	11°36.7	4.0 - 3.2	10.0 - 8.1	16.0 - 12.9
41	12°10.2	12°12.2	11°37.0	4.1 - 3.3	10.1 - 8.2	16.1 - 13.0
42	12°10.5	12°12.5	11°37.2	4.2 - 3.4	10.2 - 8.2	16.2 - 13.1
43	12°10.8	12°12.7	11°37.5	4.3 - 3.5	10.3 - 8.3	16.3 - 13.2
44	12°11.0	12°13.0	11°37.7	4.4 - 3.6	10.4 - 8.4	16.4 - 13.3
45	12°11.3	12°13.2	11°37.9	4.5 - 3.6	10.5 - 8.5	16.5 - 13.3
46	12°11.5	12°13.5	11°38.2	4.6 - 3.7	10.6 - 8.6	16.6 - 13.4
47	12°11.7	12°13.8	11°38.4	4.7 - 3.8	10.7 - 8.6	16.7 - 13.5
48	12°12.0	12°14.0	11°38.7	4.8 - 3.9	10.8 - 8.7	16.8 - 13.6
49	12°12.3	12°14.3	11°38.9	4.9 - 4.0	10.9 - 8.8	16.9 - 13.7
50	12°12.5	12°14.5	11°39.1	5.0 - 4.0	11.0 - 8.9	17.0 - 13.7
51	12°12.8	12°14.8	11°39.4	5.1 - 4.1	11.1 - 9.0	17.1 - 13.8
52	12°13.0	12°15.0	11°39.6	5.2 - 4.2	11.2 - 9.1	17.2 - 13.9
53	12°13.2	12°15.3	11°39.8	5.3 - 4.3	11.3 - 9.1	17.3 - 14.0
54	12°13.5	12°15.5	11°40.1	5.4 - 4.4	11.4 - 9.2	17.4 - 14.1
55	12°13.7	12°15.8	11°40.3	5.5 - 4.4	11.5 - 9.3	17.5 - 14.1
56	12°14.0	12°16.0	11°40.6	5.6 - 4.5	11.6 - 9.4	17.6 - 14.2
57	12°14.3	12°16.3	11°40.8	5.7 - 4.6	11.7 - 9.5	17.7 - 14.3
58	12°14.5	12°16.5	11°41.0	5.8 - 4.7	11.8 - 9.5	17.8 - 14.4
59	12°14.8	12°16.8	11°41.3	5.9 - 4.8	11.9 - 9.6	17.9 - 14.5

m	Sun	Aries	Moon	v and d corr		
49	Plan.					
0	12°15.0	12°17.0	11°41.5	0.0 - 0.0	6.0 - 4.9	12.0 - 9.9
1	12°15.2	12°17.3	11°41.8	0.1 - 0.1	6.1 - 5.0	12.1 - 10.0
2	12°15.5	12°17.5	11°42.0	0.2 - 0.2	6.2 - 5.1	12.2 - 10.1
3	12°15.7	12°17.8	11°42.2	0.3 - 0.2	6.3 - 5.2	12.3 - 10.1
4	12°16.0	12°18.0	11°42.5	0.4 - 0.3	6.4 - 5.3	12.4 - 10.2
5	12°16.3	12°18.3	11°42.7	0.5 - 0.4	6.5 - 5.4	12.5 - 10.3
6	12°16.5	12°18.5	11°42.9	0.6 - 0.5	6.6 - 5.4	12.6 - 10.4
7	12°16.8	12°18.8	11°43.2	0.7 - 0.6	6.7 - 5.5	12.7 - 10.5
8	12°17.0	12°19.0	11°43.4	0.8 - 0.7	6.8 - 5.6	12.8 - 10.6
9	12°17.2	12°19.3	11°43.7	0.9 - 0.7	6.9 - 5.7	12.9 - 10.6
10	12°17.5	12°19.5	11°43.9	1.0 - 0.8	7.0 - 5.8	13.0 - 10.7
11	12°17.7	12°19.8	11°44.1	1.1 - 0.9	7.1 - 5.9	13.1 - 10.8
12	12°18.0	12°20.0	11°44.4	1.2 - 1.0	7.2 - 5.9	13.2 - 10.9
13	12°18.3	12°20.3	11°44.6	1.3 - 1.1	7.3 - 6.0	13.3 - 11.0
14	12°18.5	12°20.5	11°44.9	1.4 - 1.2	7.4 - 6.1	13.4 - 11.1
15	12°18.8	12°20.8	11°45.1	1.5 - 1.2	7.5 - 6.2	13.5 - 11.1
16	12°19.0	12°21.0	11°45.3	1.6 - 1.3	7.6 - 6.3	13.6 - 11.2
17	12°19.2	12°21.3	11°45.6	1.7 - 1.4	7.7 - 6.4	13.7 - 11.3
18	12°19.5	12°21.5	11°45.8	1.8 - 1.5	7.8 - 6.4	13.8 - 11.4
19	12°19.8	12°21.8	11°46.1	1.9 - 1.6	7.9 - 6.5	13.9 - 11.5
20	12°20.0	12°22.0	11°46.3	2.0 - 1.6	8.0 - 6.6	14.0 - 11.5
21	12°20.3	12°22.3	11°46.5	2.1 - 1.7	8.1 - 6.7	14.1 - 11.6
22	12°20.5	12°22.5	11°46.8	2.2 - 1.8	8.2 - 6.8	14.2 - 11.7
23	12°20.7	12°22.8	11°47.0	2.3 - 1.9	8.3 - 6.8	14.3 - 11.8
24	12°21.0	12°23.0	11°47.2	2.4 - 2.0	8.4 - 6.9	14.4 - 11.9
25	12°21.2	12°23.3	11°47.5	2.5 - 2.1	8.5 - 7.0	14.5 - 12.0
26	12°21.5	12°23.5	11°47.7	2.6 - 2.1	8.6 - 7.1	14.6 - 12.0
27	12°21.8	12°23.8	11°48.0	2.7 - 2.2	8.7 - 7.2	14.7 - 12.1
28	12°22.0	12°24.0	11°48.2	2.8 - 2.3	8.8 - 7.3	14.8 - 12.2
29	12°22.3	12°24.3	11°48.4	2.9 - 2.4	8.9 - 7.3	14.9 - 12.3
30	12°22.5	12°24.5	11°48.7	3.0 - 2.5	9.0 - 7.4	15.0 - 12.4
31	12°22.7	12°24.8	11°48.9	3.1 - 2.6	9.1 - 7.5	15.1 - 12.5
32	12°23.0	12°25.0	11°49.2	3.2 - 2.6	9.2 - 7.6	15.2 - 12.5
33	12°23.2	12°25.3	11°49.4	3.3 - 2.7	9.3 - 7.7	15.3 - 12.6
34	12°23.5	12°25.5	11°49.6	3.4 - 2.8	9.4 - 7.8	15.4 - 12.7
35	12°23.8	12°25.8	11°49.9	3.5 - 2.9	9.5 - 7.8	15.5 - 12.8
36	12°24.0	12°26.0	11°50.1	3.6 - 3.0	9.6 - 7.9	15.6 - 12.9
37	12°24.3	12°26.3	11°50.3	3.7 - 3.1	9.7 - 8.0	15.7 - 13.0
38	12°24.5	12°26.5	11°50.6	3.8 - 3.1	9.8 - 8.1	15.8 - 13.0
39	12°24.7	12°26.8	11°50.8	3.9 - 3.2	9.9 - 8.2	15.9 - 13.1
40	12°25.0	12°27.0	11°51.1	4.0 - 3.3	10.0 - 8.3	16.0 - 13.2
41	12°25.2	12°27.3	11°51.3	4.1 - 3.4	10.1 - 8.3	16.1 - 13.3
42	12°25.5	12°27.5	11°51.5	4.2 - 3.5	10.2 - 8.4	16.2 - 13.4
43	12°25.8	12°27.8	11°51.8	4.3 - 3.5	10.3 - 8.5	16.3 - 13.4
44	12°26.0	12°28.0	11°52.0	4.4 - 3.6	10.4 - 8.6	16.4 - 13.5
45	12°26.3	12°28.3	11°52.3	4.5 - 3.7	10.5 - 8.7	16.5 - 13.6
46	12°26.5	12°28.5	11°52.5	4.6 - 3.8	10.6 - 8.7	16.6 - 13.7
47	12°26.7	12°28.8	11°52.7	4.7 - 3.9	10.7 - 8.8	16.7 - 13.8
48	12°27.0	12°29.0	11°53.0	4.8 - 4.0	10.8 - 8.9	16.8 - 13.9
49	12°27.3	12°29.3	11°53.2	4.9 - 4.0	10.9 - 9.0	16.9 - 13.9
50	12°27.5	12°29.5	11°53.4	5.0 - 4.1	11.0 - 9.1	17.0 - 14.0
51	12°27.8	12°29.8	11°53.7	5.1 - 4.2	11.1 - 9.2	17.1 - 14.1
52	12°28.0	12°30.0	11°53.9	5.2 - 4.3	11.2 - 9.2	17.2 - 14.2
53	12°28.2	12°30.3	11°54.2	5.3 - 4.4	11.3 - 9.3	17.3 - 14.3
54	12°28.5	12°30.5	11°54.4	5.4 - 4.5	11.4 - 9.4	17.4 - 14.4
55	12°28.7	12°30.8	11°54.6	5.5 - 4.5	11.5 - 9.5	17.5 - 14.4
56	12°29.0	12°31.0	11°54.9	5.6 - 4.6	11.6 - 9.6	17.6 - 14.5
57	12°29.3	12°31.3	11°55.1	5.7 - 4.7	11.7 - 9.7	17.7 - 14.6
58	12°29.5	12°31.5	11°55.4	5.8 - 4.8	11.8 - 9.7	17.8 - 14.7
59	12°29.8	12°31.8	11°55.6	5.9 - 4.9	11.9 - 9.8	17.9 - 14.8

m	Sun	Aries	Moon	v and d corr		
50	Plan.					
0	12°30.0	12°32.1	11°55.8	0.0 - 0.0	6.0 - 5.0	12.0 - 10.1
1	12°30.2	12°32.3	11°56.1	0.1 - 0.1	6.1 - 5.1	12.1 - 10.2
2	12°30.5	12°32.6	11°56.3	0.2 - 0.2	6.2 - 5.2	12.2 - 10.3
3	12°30.7	12°32.8	11°56.5	0.3 - 0.3	6.3 - 5.3	12.3 - 10.4
4	12°31.0	12°33.1	11°56.8	0.4 - 0.3	6.4 - 5.4	12.4 - 10.4
5	12°31.3	12°33.3	11°57.0	0.5 - 0.4	6.5 - 5.5	12.5 - 10.5
6	12°31.5	12°33.6	11°57.3	0.6 - 0.5	6.6 - 5.6	12.6 - 10.6
7	12°31.8	12°33.8	11°57.5	0.7 - 0.6	6.7 - 5.6	12.7 - 10.7
8	12°32.0	12°34.1	11°57.7	0.8 - 0.7	6.8 - 5.7	12.8 - 10.8
9	12°32.2	12°34.3	11°58.0	0.9 - 0.8	6.9 - 5.8	12.9 - 10.9
10	12°32.5	12°34.6	11°58.2	1.0 - 0.8	7.0 - 5.9	13.0 - 10.9
11	12°32.7	12°34.8	11°58.5	1.1 - 0.9	7.1 - 6.0	13.1 - 11.0
12	12°33.0	12°35.1	11°58.7	1.2 - 1.0	7.2 - 6.1	13.2 - 11.1
13	12°33.3	12°35.3	11°58.9	1.3 - 1.1	7.3 - 6.1	13.3 - 11

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
51	Plan.					
0	12°45.0	12°47.1	12°10.1	0.0 - 0.0	6.0 - 5.1	12.0 - 10.3
1	12°45.2	12°47.3	12°10.4	0.1 - 0.1	6.1 - 5.2	12.1 - 10.4
2	12°45.5	12°47.6	12°10.6	0.2 - 0.2	6.2 - 5.3	12.2 - 10.5
3	12°45.7	12°47.8	12°10.9	0.3 - 0.3	6.3 - 5.4	12.3 - 10.6
4	12°46.0	12°48.1	12°11.1	0.4 - 0.3	6.4 - 5.5	12.4 - 10.6
5	12°46.3	12°48.3	12°11.3	0.5 - 0.4	6.5 - 5.6	12.5 - 10.7
6	12°46.5	12°48.6	12°11.6	0.6 - 0.5	6.6 - 5.7	12.6 - 10.8
7	12°46.8	12°48.8	12°11.8	0.7 - 0.6	6.7 - 5.8	12.7 - 10.9
8	12°47.0	12°49.1	12°12.1	0.8 - 0.7	6.8 - 5.8	12.8 - 11.0
9	12°47.2	12°49.3	12°12.3	0.9 - 0.8	6.9 - 5.9	12.9 - 11.1
10	12°47.5	12°49.6	12°12.5	1.0 - 0.9	7.0 - 6.0	13.0 - 11.2
11	12°47.7	12°49.8	12°12.8	1.1 - 0.9	7.1 - 6.1	13.1 - 11.2
12	12°48.0	12°50.1	12°13.0	1.2 - 1.0	7.2 - 6.2	13.2 - 11.3
13	12°48.3	12°50.3	12°13.3	1.3 - 1.1	7.3 - 6.3	13.3 - 11.4
14	12°48.5	12°50.6	12°13.5	1.4 - 1.2	7.4 - 6.4	13.4 - 11.5
15	12°48.8	12°50.9	12°13.7	1.5 - 1.3	7.5 - 6.4	13.5 - 11.6
16	12°49.0	12°51.1	12°14.0	1.6 - 1.4	7.6 - 6.5	13.6 - 11.7
17	12°49.2	12°51.4	12°14.2	1.7 - 1.5	7.7 - 6.6	13.7 - 11.8
18	12°49.5	12°51.6	12°14.4	1.8 - 1.5	7.8 - 6.7	13.8 - 11.8
19	12°49.8	12°51.9	12°14.7	1.9 - 1.6	7.9 - 6.8	13.9 - 11.9
20	12°50.0	12°52.1	12°14.9	2.0 - 1.7	8.0 - 6.9	14.0 - 12.0
21	12°50.3	12°52.4	12°15.2	2.1 - 1.8	8.1 - 7.0	14.1 - 12.1
22	12°50.5	12°52.6	12°15.4	2.2 - 1.9	8.2 - 7.0	14.2 - 12.2
23	12°50.7	12°52.9	12°15.6	2.3 - 2.0	8.3 - 7.1	14.3 - 12.3
24	12°51.0	12°53.1	12°15.9	2.4 - 2.1	8.4 - 7.2	14.4 - 12.4
25	12°51.2	12°53.4	12°16.1	2.5 - 2.1	8.5 - 7.3	14.5 - 12.4
26	12°51.5	12°53.6	12°16.4	2.6 - 2.2	8.6 - 7.4	14.6 - 12.5
27	12°51.8	12°53.9	12°16.6	2.7 - 2.3	8.7 - 7.5	14.7 - 12.6
28	12°52.0	12°54.1	12°16.8	2.8 - 2.4	8.8 - 7.6	14.8 - 12.7
29	12°52.3	12°54.4	12°17.1	2.9 - 2.5	8.9 - 7.6	14.9 - 12.8
30	12°52.5	12°54.6	12°17.3	3.0 - 2.6	9.0 - 7.7	15.0 - 12.9
31	12°52.7	12°54.9	12°17.5	3.1 - 2.7	9.1 - 7.8	15.1 - 13.0
32	12°53.0	12°55.1	12°17.8	3.2 - 2.7	9.2 - 7.9	15.2 - 13.0
33	12°53.2	12°55.4	12°18.0	3.3 - 2.8	9.3 - 8.0	15.3 - 13.1
34	12°53.5	12°55.6	12°18.3	3.4 - 2.9	9.4 - 8.1	15.4 - 13.2
35	12°53.8	12°55.9	12°18.5	3.5 - 3.0	9.5 - 8.2	15.5 - 13.3
36	12°54.0	12°56.1	12°18.7	3.6 - 3.1	9.6 - 8.2	15.6 - 13.4
37	12°54.3	12°56.4	12°19.0	3.7 - 3.2	9.7 - 8.3	15.7 - 13.5
38	12°54.5	12°56.6	12°19.2	3.8 - 3.3	9.8 - 8.4	15.8 - 13.6
39	12°54.7	12°56.9	12°19.5	3.9 - 3.3	9.9 - 8.5	15.9 - 13.6
40	12°55.0	12°57.1	12°19.7	4.0 - 3.4	10.0 - 8.6	16.0 - 13.7
41	12°55.2	12°57.4	12°19.9	4.1 - 3.5	10.1 - 8.7	16.1 - 13.8
42	12°55.5	12°57.6	12°20.2	4.2 - 3.6	10.2 - 8.8	16.2 - 13.9
43	12°55.8	12°57.9	12°20.4	4.3 - 3.7	10.3 - 8.8	16.3 - 14.0
44	12°56.0	12°58.1	12°20.6	4.4 - 3.8	10.4 - 8.9	16.4 - 14.1
45	12°56.3	12°58.4	12°20.9	4.5 - 3.9	10.5 - 9.0	16.5 - 14.2
46	12°56.5	12°58.6	12°21.1	4.6 - 3.9	10.6 - 9.1	16.6 - 14.2
47	12°56.7	12°58.9	12°21.4	4.7 - 4.0	10.7 - 9.2	16.7 - 14.3
48	12°57.0	12°59.1	12°21.6	4.8 - 4.1	10.8 - 9.3	16.8 - 14.4
49	12°57.3	12°59.4	12°21.8	4.9 - 4.2	10.9 - 9.4	16.9 - 14.5
50	12°57.5	12°59.6	12°22.1	5.0 - 4.3	11.0 - 9.4	17.0 - 14.6
51	12°57.8	12°59.9	12°22.3	5.1 - 4.4	11.1 - 9.5	17.1 - 14.7
52	12°58.0	13°00.1	12°22.6	5.2 - 4.5	11.2 - 9.6	17.2 - 14.8
53	12°58.2	13°00.4	12°22.8	5.3 - 4.5	11.3 - 9.7	17.3 - 14.8
54	12°58.5	13°00.6	12°23.0	5.4 - 4.6	11.4 - 9.8	17.4 - 14.9
55	12°58.7	13°00.9	12°23.3	5.5 - 4.7	11.5 - 9.9	17.5 - 15.0
56	12°59.0	13°01.1	12°23.5	5.6 - 4.8	11.6 - 10.0	17.6 - 15.1
57	12°59.3	13°01.4	12°23.8	5.7 - 4.9	11.7 - 10.0	17.7 - 15.2
58	12°59.5	13°01.6	12°24.0	5.8 - 5.0	11.8 - 10.1	17.8 - 15.3
59	12°59.8	13°01.9	12°24.2	5.9 - 5.1	11.9 - 10.2	17.9 - 15.4

m	Sun	Aries	Moon	v and d corr		
52	Plan.					
0	13°00.0	13°02.1	12°24.5	0.0 - 0.0	6.0 - 5.3	12.0 - 10.5
1	13°00.2	13°02.4	12°24.7	0.1 - 0.1	6.1 - 5.3	12.1 - 10.6
2	13°00.5	13°02.6	12°24.9	0.2 - 0.2	6.2 - 5.4	12.2 - 10.7
3	13°00.7	13°02.9	12°25.2	0.3 - 0.3	6.3 - 5.5	12.3 - 10.8
4	13°01.0	13°03.1	12°25.4	0.4 - 0.4	6.4 - 5.6	12.4 - 10.8
5	13°01.3	13°03.4	12°25.7	0.5 - 0.4	6.5 - 5.7	12.5 - 10.9
6	13°01.5	13°03.6	12°25.9	0.6 - 0.5	6.6 - 5.8	12.6 - 11.0
7	13°01.8	13°03.9	12°26.1	0.7 - 0.6	6.7 - 5.9	12.7 - 11.1
8	13°02.0	13°04.1	12°26.4	0.8 - 0.7	6.8 - 6.0	12.8 - 11.2
9	13°02.2	13°04.4	12°26.6	0.9 - 0.8	6.9 - 6.0	12.9 - 11.3
10	13°02.5	13°04.6	12°26.9	1.0 - 0.9	7.0 - 6.1	13.0 - 11.4
11	13°02.7	13°04.9	12°27.1	1.1 - 1.0	7.1 - 6.2	13.1 - 11.5
12	13°03.0	13°05.1	12°27.3	1.2 - 1.1	7.2 - 6.3	13.2 - 11.5
13	13°03.3	13°05.4	12°27.6	1.3 - 1.1	7.3 - 6.4	13.3 - 11.6
14	13°03.5	13°05.6	12°27.8	1.4 - 1.2	7.4 - 6.5	13.4 - 11.7
15	13°03.8	13°05.9	12°28.0	1.5 - 1.3	7.5 - 6.6	13.5 - 11.8
16	13°04.0	13°06.1	12°28.3	1.6 - 1.4	7.6 - 6.6	13.6 - 11.9
17	13°04.2	13°06.4	12°28.5	1.7 - 1.5	7.7 - 6.7	13.7 - 12.0
18	13°04.5	13°06.6	12°28.8	1.8 - 1.6	7.8 - 6.8	13.8 - 12.1
19	13°04.8	13°06.9	12°29.0	1.9 - 1.7	7.9 - 6.9	13.9 - 12.2
20	13°05.0	13°07.1	12°29.2	2.0 - 1.8	8.0 - 7.0	14.0 - 12.3
21	13°05.3	13°07.4	12°29.5	2.1 - 1.8	8.1 - 7.1	14.1 - 12.3
22	13°05.5	13°07.6	12°29.7	2.2 - 1.9	8.2 - 7.2	14.2 - 12.4
23	13°05.7	13°07.9	12°30.0	2.3 - 2.0	8.3 - 7.3	14.3 - 12.5
24	13°06.0	13°08.1	12°30.2	2.4 - 2.1	8.4 - 7.4	14.4 - 12.6
25	13°06.2	13°08.4	12°30.4	2.5 - 2.2	8.5 - 7.4	14.5 - 12.7
26	13°06.5	13°08.6	12°30.7	2.6 - 2.3	8.6 - 7.5	14.6 - 12.8
27	13°06.8	13°08.9	12°30.9	2.7 - 2.4	8.7 - 7.6	14.7 - 12.9
28	13°07.0	13°09.2	12°31.1	2.8 - 2.5	8.8 - 7.7	14.8 - 13.0
29	13°07.3	13°09.4	12°31.4	2.9 - 2.5	8.9 - 7.8	14.9 - 13.0
30	13°07.5	13°09.7	12°31.6	3.0 - 2.6	9.0 - 7.9	15.0 - 13.1
31	13°07.7	13°09.9	12°31.9	3.1 - 2.7	9.1 - 8.0	15.1 - 13.2
32	13°08.0	13°10.2	12°32.1	3.2 - 2.8	9.2 - 8.0	15.2 - 13.3
33	13°08.2	13°10.4	12°32.3	3.3 - 2.9	9.3 - 8.1	15.3 - 13.4
34	13°08.5	13°10.7	12°32.6	3.4 - 3.0	9.4 - 8.2	15.4 - 13.5
35	13°08.8	13°10.9	12°32.8	3.5 - 3.1	9.5 - 8.3	15.5 - 13.6
36	13°09.0	13°11.2	12°33.1	3.6 - 3.1	9.6 - 8.4	15.6 - 13.7
37	13°09.3	13°11.4	12°33.3	3.7 - 3.2	9.7 - 8.5	15.7 - 13.7
38	13°09.5	13°11.7	12°33.5	3.8 - 3.3	9.8 - 8.6	15.8 - 13.8
39	13°09.7	13°11.9	12°33.8	3.9 - 3.4	9.9 - 8.7	15.9 - 13.9
40	13°10.0	13°12.2	12°34.0	4.0 - 3.5	10.0 - 8.8	16.0 - 14.0
41	13°10.2	13°12.4	12°34.2	4.1 - 3.6	10.1 - 8.8	16.1 - 14.1
42	13°10.5	13°12.7	12°34.5	4.2 - 3.7	10.2 - 8.9	16.2 - 14.2
43	13°10.8	13°12.9	12°34.7	4.3 - 3.8	10.3 - 9.0	16.3 - 14.3
44	13°11.0	13°13.2	12°35.0	4.4 - 3.9	10.4 - 9.1	16.4 - 14.3
45	13°11.3	13°13.4	12°35.2	4.5 - 3.9	10.5 - 9.2	16.5 - 14.4
46	13°11.5	13°13.7	12°35.4	4.6 - 4.0	10.6 - 9.3	16.6 - 14.5
47	13°11.7	13°13.9	12°35.7	4.7 - 4.1	10.7 - 9.4	16.7 - 14.6
48	13°12.0	13°14.2	12°35.9	4.8 - 4.2	10.8 - 9.5	16.8 - 14.7
49	13°12.3	13°14.4	12°36.2	4.9 - 4.3	10.9 - 9.5	16.9 - 14.8
50	13°12.5	13°14.7	12°36.4	5.0 - 4.4	11.0 - 9.6	17.0 - 14.9
51	13°12.8	13°14.9	12°36.6	5.1 - 4.5	11.1 - 9.7	17.1 - 15.0
52	13°13.0	13°15.2	12°36.9	5.2 - 4.5	11.2 - 9.8	17.2 - 15.0
53	13°13.2	13°15.4	12°37.1	5.3 - 4.6	11.3 - 9.9	17.3 - 15.1
54	13°13.5	13°15.7	12°37.4	5.4 - 4.7	11.4 - 10.0	17.4 - 15.2
55	13°13.7	13°15.9	12°37.6	5.5 - 4.8	11.5 - 10.1	17.5 - 15.3
56	13°14.0	13°16.2	12°37.8	5.6 - 4.9	11.6 - 10.2	17.6 - 15.4
57	13°14.3	13°16.4	12°38.1	5.7 - 5.0	11.7 - 10.2	17.7 - 15.5
58	13°14.5	13°16.7	12°38.3	5.8 - 5.1	11.8 - 10.3	17.8 - 15.6
59	13°14.8	13°16.9	12°38.5	5.9 - 5.2	11.9 - 10.4	17.9 - 15.7

m	Sun	Aries	Moon	v and d corr		
53	Plan.					
0	13°15.0	13°17.2	12°38.8	0.0 - 0.0	6.0 - 5.4	12.0 - 10.7
1	13°15.2	13°17.4	12°39.0	0.1 - 0.1	6.1 - 5.4	12.1 - 10.8
2	13°15.5	13°17.7	12°39.3	0.2 - 0.2	6.2 - 5.5	12.2 - 10.9
3	13°15.7	13°17.9	12°39.5	0.3 - 0.3	6.3 - 5.6	12.3 - 11.0
4	13°16.0	13°18.2	12°39.7	0.4 - 0.4	6.4 - 5.7	12.4 - 11.1
5	13°16.3	13°18.4	12°40.0	0.5 - 0.4	6.5 - 5.8	12.5 - 11.1
6	13°16.5	13°18.7	12°40.2	0.6 - 0.5	6.6 - 5.9	12.6 - 11.2
7	13°16.8	13°18.9	12°40.5	0.7 - 0.6	6.7 - 6.0	12.7 - 11.3
8	13°17.0	13°19.2	12°40.7	0.8 - 0.7	6.8 - 6.1	12.8 - 11.4
9	13°17.2	13°19.4	12°40.9	0.9 - 0.8	6.9 - 6.2	12.9 - 11.5
10	13°17.5	13°19.7	12°41.2	1.0 - 0.9	7.0 - 6.2	13.0 - 11.6
11	13°17.7	13°19.9	12°41.4	1.1 - 1.0	7.1 - 6.3	13.1 - 11.7
12	13°18.0	13°20.2	12°41.6	1.2 - 1.1	7.2 - 6.4	13.2 - 11.8
13	13°18.3	13°20.4	12°41.9	1.3 - 1.2	7.3 - 6.5	13.3 - 11.9
14	13°18.5	13°20.7	12°42.1	1.4 - 1.2	7.4 - 6.6	13.4 - 11.9
15	13°18.8	13°20.9	12°42.4	1.5 - 1.3	7.5 - 6.7	13.5 - 12.0
16	13°19.0	13°21.2	12°42.6	1.6 - 1.4	7.6 - 6.8	13.6 - 12.1
17	13°19.2	13°21.4	12°42.8	1.7 - 1.5	7.7 - 6.9	13.7 - 12.2
18	13°19.5	13°21.7	12°43.1	1.8 - 1.6	7.8 - 7.0	13.8 - 12.3
19	13°19.8	13°21.9	12°43.3	1.9 - 1.7	7.9 - 7.0	13.9 - 12.4
20	13°20.0	13°22.2	12°43.6	2.0 - 1.8	8.0 - 7.1	14.0 - 12.5
21	13°20.3	13°22.4	12°43.8	2.1 - 1.9	8.1 - 7.2	14.1 - 12.6
22	13°20.5	13°22.7	12°44.0	2.2 - 2.0	8.2 - 7.3	14.2 - 12.7
23	13°20.7	13°22.9	12°44.3	2.3 - 2.1	8.3 - 7.4	14.3 - 12.8
24	13°21.0	13°23.2	12°44.5	2.4 - 2.1	8.4 - 7.5	14.4 - 12.8
25	13°21.2	13°23.4	12°44.7	2.5 - 2.2	8.5 - 7.6	14.5 - 12.9
26	13°21.5	13°23.7	12°45.0	2.6 - 2.3	8.6 - 7.7	14.6 - 13.0
27	13°21.8	13°23.9	12°45.2	2.7 - 2.4	8.7 - 7.8	14.7 - 13.1
28	13°22.0	13°24.2	12°45.5	2.8 - 2.5	8.8 - 7.8	14.8 - 13.2
29	13°22.3	13°24.4	12°45.7	2.9 - 2.6	8.9 - 7.9	14.9 - 13.3
30	13°22.5	13°24.7	12°45.9	3.0 - 2.7	9.0 - 8.0	15.0 - 13.4
31	13°22.7	13°24.9	12°46.2	3.1 - 2.8	9.1 - 8.1	15.1 - 13.5
32	13°23.0	13°25.2	12°46.4	3.2 - 2.9	9.2 - 8.2	15.2 - 13.6
33	13°23.2	13°25.4	12°46.7	3.3 - 2.9	9.3 - 8.3	15.3 - 13.6
34	13°23.5	13°25.7	12°46.9	3.4 - 3.0	9.4 - 8.4	15.4 - 13.7
35	13°23.8	13°25.9	12°47.1	3.5 - 3.1	9.5 - 8.5	15.5 - 13.8
36	13°24.0	13°26.2	12°47.4	3.6 - 3.2	9.6 - 8.6	15.6 - 13.9
37	13°24.3	13°26.4	12°47.6	3.7 - 3.3	9.7 - 8.6	15.7 - 14.0
38	13°24.5	13°26.7	12°47.9	3.8 - 3.4	9.8 - 8.7	15.8 - 14.1
39	13°24.7	13°26.9	12°48.1	3.9 - 3.5	9.9 - 8.8	15.9 - 14.2
40	13°25.0	13°27.2	12°48.3	4.0 - 3.6	10.0 - 8.9	16.0 - 14.3
41	13°25.2	13°27.5	12°48.6	4.1 - 3.7	10.1 - 9.0	16.1 - 14.4
42	13°25.5	13°27.7	12°48.8	4.2 - 3.7	10.2 - 9.1	16.2 - 14.4
43	13°25.8	13°28.0	12°49.0	4.3 - 3.8	10.3 - 9.2	16.3 - 14.5
44	13°26.0	13°28.2	12°49.3	4.4 - 3.9	10.4 - 9.3	16.4 - 14.6
45	13°26.3	13°28.5	12°49.5	4.5 - 4.0	10.5 - 9.4	16.5 - 14.7
46	13°26.5	13°28.7	12°49.8	4.6 - 4.1	10.6 - 9.5	16.6 - 14.8
47	13°26.7	13°29.0	12°50.0	4.7 - 4.2	10.7 - 9.5	16.7 - 14.9
48	13°27.0	13°29.2	12°50.2	4.8 - 4.3	10.8 - 9.6	16.8 - 15.0
49	13°27.3	13°29.5	12°50.5	4.9 - 4.4	10.9 - 9.7	16.9 - 15.1
50	13°27.5	13°29.7	12°50.7	5.0 - 4.5	11.0 - 9.8	17.0 - 15.2
51	13°27.8	13°30.0	12°51.0	5.1 - 4.5	11.1 - 9.9	17.1 - 15.2
52	13°28.0	13°30.2	12°51.2	5.2 - 4.6	11.2 - 10.0	17.2 - 15.3
53	13°28.2	13°30.5	12°51.4	5.3 - 4.7	11.3 - 10.1	17.3 - 15.4
54	13°28.5	13°30.7	12°51.7	5.4 - 4.8	11.4 - 10.2	17.4 - 15.5
55	13°28.7	13°31.0	12°51.9	5.5 - 4.9	11.5 - 10.3	17.5 - 15.6
56	13°29.0	13°31.2	12°52.1	5.6 - 5.0	11.6 - 10.3	17.6 - 15.7
57	13°29.3	13°31.5	12°52.4	5.7 - 5.1	11.7 - 10.4	17.7 - 15.8
58	13°29.5	13°31.7	12°52.6	5.8 - 5.2	11.8 - 10.5	17.8 - 15.9
59	13°29.8	13°32.0	12°52.9	5.9 - 5.3	11.9 - 10.6	17.9 - 16.0

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
54	Plan.					
0	13°30.0	13°32.2	12°53.1	0.0 - 0.0	6.0 - 5.5	12.0 - 10.9
1	13°30.2	13°32.5	12°53.3	0.1 - 0.1	6.1 - 5.5	12.1 - 11.0
2	13°30.5	13°32.7	12°53.6	0.2 - 0.2	6.2 - 5.6	12.2 - 11.1
3	13°30.7	13°33.0	12°53.8	0.3 - 0.3	6.3 - 5.7	12.3 - 11.2
4	13°31.0	13°33.2	12°54.1	0.4 - 0.4	6.4 - 5.8	12.4 - 11.3
5	13°31.3	13°33.5	12°54.3	0.5 - 0.5	6.5 - 5.9	12.5 - 11.4
6	13°31.5	13°33.7	12°54.5	0.6 - 0.5	6.6 - 6.0	12.6 - 11.4
7	13°31.8	13°34.0	12°54.8	0.7 - 0.6	6.7 - 6.1	12.7 - 11.5
8	13°32.0	13°34.2	12°55.0	0.8 - 0.7	6.8 - 6.2	12.8 - 11.6
9	13°32.2	13°34.5	12°55.2	0.9 - 0.8	6.9 - 6.3	12.9 - 11.7
10	13°32.5	13°34.7	12°55.5	1.0 - 0.9	7.0 - 6.4	13.0 - 11.8
11	13°32.7	13°35.0	12°55.7	1.1 - 1.0	7.1 - 6.4	13.1 - 11.9
12	13°33.0	13°35.2	12°56.0	1.2 - 1.1	7.2 - 6.5	13.2 - 12.0
13	13°33.3	13°35.5	12°56.2	1.3 - 1.2	7.3 - 6.6	13.3 - 12.1
14	13°33.5	13°35.7	12°56.4	1.4 - 1.3	7.4 - 6.7	13.4 - 12.2
15	13°33.8	13°36.0	12°56.7	1.5 - 1.4	7.5 - 6.8	13.5 - 12.3
16	13°34.0	13°36.2	12°56.9	1.6 - 1.5	7.6 - 6.9	13.6 - 12.4
17	13°34.2	13°36.5	12°57.2	1.7 - 1.5	7.7 - 7.0	13.7 - 12.4
18	13°34.5	13°36.7	12°57.4	1.8 - 1.6	7.8 - 7.1	13.8 - 12.5
19	13°34.8	13°37.0	12°57.6	1.9 - 1.7	7.9 - 7.2	13.9 - 12.6
20	13°35.0	13°37.2	12°57.9	2.0 - 1.8	8.0 - 7.3	14.0 - 12.7
21	13°35.3	13°37.5	12°58.1	2.1 - 1.9	8.1 - 7.4	14.1 - 12.8
22	13°35.5	13°37.7	12°58.3	2.2 - 2.0	8.2 - 7.4	14.2 - 12.9
23	13°35.7	13°38.0	12°58.6	2.3 - 2.1	8.3 - 7.5	14.3 - 13.0
24	13°36.0	13°38.2	12°58.8	2.4 - 2.2	8.4 - 7.6	14.4 - 13.1
25	13°36.2	13°38.5	12°59.1	2.5 - 2.3	8.5 - 7.7	14.5 - 13.2
26	13°36.5	13°38.7	12°59.3	2.6 - 2.4	8.6 - 7.8	14.6 - 13.3
27	13°36.8	13°39.0	12°59.5	2.7 - 2.5	8.7 - 7.9	14.7 - 13.4
28	13°37.0	13°39.2	12°59.8	2.8 - 2.5	8.8 - 8.0	14.8 - 13.4
29	13°37.3	13°39.5	13°00.0	2.9 - 2.6	8.9 - 8.1	14.9 - 13.5
30	13°37.5	13°39.7	13°00.3	3.0 - 2.7	9.0 - 8.2	15.0 - 13.6
31	13°37.7	13°40.0	13°00.5	3.1 - 2.8	9.1 - 8.3	15.1 - 13.7
32	13°38.0	13°40.2	13°00.7	3.2 - 2.9	9.2 - 8.4	15.2 - 13.8
33	13°38.2	13°40.5	13°01.0	3.3 - 3.0	9.3 - 8.4	15.3 - 13.9
34	13°38.5	13°40.7	13°01.2	3.4 - 3.1	9.4 - 8.5	15.4 - 14.0
35	13°38.8	13°41.0	13°01.5	3.5 - 3.2	9.5 - 8.6	15.5 - 14.1
36	13°39.0	13°41.2	13°01.7	3.6 - 3.3	9.6 - 8.7	15.6 - 14.2
37	13°39.3	13°41.5	13°01.9	3.7 - 3.4	9.7 - 8.8	15.7 - 14.3
38	13°39.5	13°41.7	13°02.2	3.8 - 3.5	9.8 - 8.9	15.8 - 14.4
39	13°39.7	13°42.0	13°02.4	3.9 - 3.5	9.9 - 9.0	15.9 - 14.4
40	13°40.0	13°42.2	13°02.6	4.0 - 3.6	10.0 - 9.1	16.0 - 14.5
41	13°40.2	13°42.5	13°02.9	4.1 - 3.7	10.1 - 9.2	16.1 - 14.6
42	13°40.5	13°42.7	13°03.1	4.2 - 3.8	10.2 - 9.3	16.2 - 14.7
43	13°40.8	13°43.0	13°03.4	4.3 - 3.9	10.3 - 9.4	16.3 - 14.8
44	13°41.0	13°43.2	13°03.6	4.4 - 4.0	10.4 - 9.4	16.4 - 14.9
45	13°41.3	13°43.5	13°03.8	4.5 - 4.1	10.5 - 9.5	16.5 - 15.0
46	13°41.5	13°43.7	13°04.1	4.6 - 4.2	10.6 - 9.6	16.6 - 15.1
47	13°41.7	13°44.0	13°04.3	4.7 - 4.3	10.7 - 9.7	16.7 - 15.2
48	13°42.0	13°44.2	13°04.6	4.8 - 4.4	10.8 - 9.8	16.8 - 15.3
49	13°42.3	13°44.5	13°04.8	4.9 - 4.5	10.9 - 9.9	16.9 - 15.4
50	13°42.5	13°44.7	13°05.0	5.0 - 4.5	11.0 - 10.0	17.0 - 15.4
51	13°42.8	13°45.0	13°05.3	5.1 - 4.6	11.1 - 10.1	17.1 - 15.5
52	13°43.0	13°45.2	13°05.5	5.2 - 4.7	11.2 - 10.2	17.2 - 15.6
53	13°43.2	13°45.5	13°05.7	5.3 - 4.8	11.3 - 10.3	17.3 - 15.7
54	13°43.5	13°45.8	13°06.0	5.4 - 4.9	11.4 - 10.4	17.4 - 15.8
55	13°43.7	13°46.0	13°06.2	5.5 - 5.0	11.5 - 10.4	17.5 - 15.9
56	13°44.0	13°46.3	13°06.5	5.6 - 5.1	11.6 - 10.5	17.6 - 16.0
57	13°44.3	13°46.5	13°06.7	5.7 - 5.2	11.7 - 10.6	17.7 - 16.1
58	13°44.5	13°46.8	13°06.9	5.8 - 5.3	11.8 - 10.7	17.8 - 16.2
59	13°44.8	13°47.0	13°07.2	5.9 - 5.4	11.9 - 10.8	17.9 - 16.3

m	Sun	Aries	Moon	v and d corr		
55	Plan.					
0	13°45.0	13°47.3	13°07.4	0.0 - 0.0	6.0 - 5.6	12.0 - 11.1
1	13°45.2	13°47.5	13°07.7	0.1 - 0.1	6.1 - 5.6	12.1 - 11.2
2	13°45.5	13°47.8	13°07.9	0.2 - 0.2	6.2 - 5.7	12.2 - 11.3
3	13°45.7	13°48.0	13°08.1	0.3 - 0.3	6.3 - 5.8	12.3 - 11.4
4	13°46.0	13°48.3	13°08.4	0.4 - 0.4	6.4 - 5.9	12.4 - 11.5
5	13°46.3	13°48.5	13°08.6	0.5 - 0.5	6.5 - 6.0	12.5 - 11.6
6	13°46.5	13°48.8	13°08.8	0.6 - 0.6	6.6 - 6.1	12.6 - 11.7
7	13°46.8	13°49.0	13°09.1	0.7 - 0.6	6.7 - 6.2	12.7 - 11.7
8	13°47.0	13°49.3	13°09.3	0.8 - 0.7	6.8 - 6.3	12.8 - 11.8
9	13°47.2	13°49.5	13°09.6	0.9 - 0.8	6.9 - 6.4	12.9 - 11.9
10	13°47.5	13°49.8	13°09.8	1.0 - 0.9	7.0 - 6.5	13.0 - 12.0
11	13°47.7	13°50.0	13°10.0	1.1 - 1.0	7.1 - 6.6	13.1 - 12.1
12	13°48.0	13°50.3	13°10.3	1.2 - 1.1	7.2 - 6.7	13.2 - 12.2
13	13°48.3	13°50.5	13°10.5	1.3 - 1.2	7.3 - 6.8	13.3 - 12.3
14	13°48.5	13°50.8	13°10.8	1.4 - 1.3	7.4 - 6.8	13.4 - 12.4
15	13°48.8	13°51.0	13°11.0	1.5 - 1.4	7.5 - 6.9	13.5 - 12.5
16	13°49.0	13°51.3	13°11.2	1.6 - 1.5	7.6 - 7.0	13.6 - 12.6
17	13°49.2	13°51.5	13°11.5	1.7 - 1.6	7.7 - 7.1	13.7 - 12.7
18	13°49.5	13°51.8	13°11.7	1.8 - 1.7	7.8 - 7.2	13.8 - 12.8
19	13°49.8	13°52.0	13°12.0	1.9 - 1.8	7.9 - 7.3	13.9 - 12.9
20	13°50.0	13°52.3	13°12.2	2.0 - 1.9	8.0 - 7.4	14.0 - 13.0
21	13°50.3	13°52.5	13°12.4	2.1 - 1.9	8.1 - 7.5	14.1 - 13.0
22	13°50.5	13°52.8	13°12.7	2.2 - 2.0	8.2 - 7.6	14.2 - 13.1
23	13°50.7	13°53.0	13°12.9	2.3 - 2.1	8.3 - 7.7	14.3 - 13.2
24	13°51.0	13°53.3	13°13.1	2.4 - 2.2	8.4 - 7.8	14.4 - 13.3
25	13°51.2	13°53.5	13°13.4	2.5 - 2.3	8.5 - 7.9	14.5 - 13.4
26	13°51.5	13°53.8	13°13.6	2.6 - 2.4	8.6 - 8.0	14.6 - 13.5
27	13°51.8	13°54.0	13°13.9	2.7 - 2.5	8.7 - 8.0	14.7 - 13.6
28	13°52.0	13°54.3	13°14.1	2.8 - 2.6	8.8 - 8.1	14.8 - 13.7
29	13°52.3	13°54.5	13°14.3	2.9 - 2.7	8.9 - 8.2	14.9 - 13.8
30	13°52.5	13°54.8	13°14.6	3.0 - 2.8	9.0 - 8.3	15.0 - 13.9
31	13°52.7	13°55.0	13°14.8	3.1 - 2.9	9.1 - 8.4	15.1 - 14.0
32	13°53.0	13°55.3	13°15.1	3.2 - 3.0	9.2 - 8.5	15.2 - 14.1
33	13°53.2	13°55.5	13°15.3	3.3 - 3.1	9.3 - 8.6	15.3 - 14.2
34	13°53.5	13°55.8	13°15.5	3.4 - 3.1	9.4 - 8.7	15.4 - 14.2
35	13°53.8	13°56.0	13°15.8	3.5 - 3.2	9.5 - 8.8	15.5 - 14.3
36	13°54.0	13°56.3	13°16.0	3.6 - 3.3	9.6 - 8.9	15.6 - 14.4
37	13°54.3	13°56.5	13°16.2	3.7 - 3.4	9.7 - 9.0	15.7 - 14.5
38	13°54.5	13°56.8	13°16.5	3.8 - 3.5	9.8 - 9.1	15.8 - 14.6
39	13°54.7	13°57.0	13°16.7	3.9 - 3.6	9.9 - 9.2	15.9 - 14.7
40	13°55.0	13°57.3	13°17.0	4.0 - 3.7	10.0 - 9.3	16.0 - 14.8
41	13°55.2	13°57.5	13°17.2	4.1 - 3.8	10.1 - 9.3	16.1 - 14.9
42	13°55.5	13°57.8	13°17.4	4.2 - 3.9	10.2 - 9.4	16.2 - 15.0
43	13°55.8	13°58.0	13°17.7	4.3 - 4.0	10.3 - 9.5	16.3 - 15.1
44	13°56.0	13°58.3	13°17.9	4.4 - 4.1	10.4 - 9.6	16.4 - 15.2
45	13°56.3	13°58.5	13°18.2	4.5 - 4.2	10.5 - 9.7	16.5 - 15.3
46	13°56.5	13°58.8	13°18.4	4.6 - 4.3	10.6 - 9.8	16.6 - 15.4
47	13°56.7	13°59.0	13°18.6	4.7 - 4.3	10.7 - 9.9	16.7 - 15.4
48	13°57.0	13°59.3	13°18.9	4.8 - 4.4	10.8 - 10.0	16.8 - 15.5
49	13°57.3	13°59.5	13°19.1	4.9 - 4.5	10.9 - 10.1	16.9 - 15.6
50	13°57.5	13°59.8	13°19.3	5.0 - 4.6	11.0 - 10.2	17.0 - 15.7
51	13°57.8	14°00.0	13°19.6	5.1 - 4.7	11.1 - 10.3	17.1 - 15.8
52	13°58.0	14°00.3	13°19.8	5.2 - 4.8	11.2 - 10.4	17.2 - 15.9
53	13°58.2	14°00.5	13°20.1	5.3 - 4.9	11.3 - 10.5	17.3 - 16.0
54	13°58.5	14°00.8	13°20.3	5.4 - 5.0	11.4 - 10.5	17.4 - 16.1
55	13°58.7	14°01.0	13°20.5	5.5 - 5.1	11.5 - 10.6	17.5 - 16.2
56	13°59.0	14°01.3	13°20.8	5.6 - 5.2	11.6 - 10.7	17.6 - 16.3
57	13°59.3	14°01.5	13°21.0	5.7 - 5.3	11.7 - 10.8	17.7 - 16.4
58	13°59.5	14°01.8	13°21.3	5.8 - 5.4	11.8 - 10.9	17.8 - 16.5
59	13°59.8	14°02.0	13°21.5	5.9 - 5.5	11.9 - 11.0	17.9 - 16.6

m	Sun	Aries	Moon	v and d corr		
56	Plan.					
0	14°00.0	14°02.3	13°21.7	0.0 - 0.0	6.0 - 5.7	12.0 - 11.3
1	14°00.2	14°02.5	13°22.0	0.1 - 0.1	6.1 - 5.7	12.1 - 11.4
2	14°00.5	14°02.8	13°22.2	0.2 - 0.2	6.2 - 5.8	12.2 - 11.5
3	14°00.7	14°03.0	13°22.4	0.3 - 0.3	6.3 - 5.9	12.3 - 11.6
4	14°01.0	14°03.3	13°22.7	0.4 - 0.4	6.4 - 6.0	12.4 - 11.7
5	14°01.3	14°03.5	13°22.9	0.5 - 0.5	6.5 - 6.1	12.5 - 11.8
6	14°01.5	14°03.8	13°23.2	0.6 - 0.6	6.6 - 6.2	12.6 - 11.9
7	14°01.8	14°04.1	13°23.4	0.7 - 0.7	6.7 - 6.3	12.7 - 12.0
8	14°02.0	14°04.3	13°23.6	0.8 - 0.8	6.8 - 6.4	12.8 - 12.1
9	14°02.2	14°04.6	13°23.9	0.9 - 0.8	6.9 - 6.5	12.9 - 12.1
10	14°02.5	14°04.8	13°24.1	1.0 - 0.9	7.0 - 6.6	13.0 - 12.2
11	14°02.7	14°05.1	13°24.4	1.1 - 1.0	7.1 - 6.7	13.1 - 12.3
12	14°03.0	14°05.3	13°24.6	1.2 - 1.1	7.2 - 6.8	13.2 - 12.4
13	14°03.3	14°05.6	13°24.8	1.3 - 1.2	7.3 - 6.9	13.3 - 12.5
14	14°03.5	14°05.8	13°25.1	1.4 - 1.3	7.4 - 7.0	13.4 - 12.6
15	14°03.8	14°06.1	13°25.3	1.5 - 1.4	7.5 - 7.1	13.5 - 12.7
16	14°04.0	14°06.3	13°25.6	1.6 - 1.5	7.6 - 7.2	13.6 - 12.8
17	14°04.2	14°06.6	13°25.8	1.7 - 1.6	7.7 - 7.3	13.7 - 12.9
18	14°04.5	14°06.8	13°26.0	1.8 - 1.7	7.8 - 7.3	13.8 - 13.0
19	14°04.8	14°07.1	13°26.3	1.9 - 1.8	7.9 - 7.4	13.9 - 13.1
20	14°05.0	14°07.3	13°26.5	2.0 - 1.9	8.0 - 7.5	14.0 - 13.2
21	14°05.3	14°07.6	13°26.7	2.1 - 2.0	8.1 - 7.6	14.1 - 13.3
22	14°05.5	14°07.8	13°27.0	2.2 - 2.1	8.2 - 7.7	14.2 - 13.4
23	14°05.7	14°08.1	13°27.2	2.3 - 2.2	8.3 - 7.8	14.3 - 13.5
24	14°06.0	14°08.3	13°27.5	2.4 - 2.3	8.4 - 7.9	14.4 - 13.6
25	14°06.2	14°08.6	13°27.7	2.5 - 2.4	8.5 - 8.0	14.5 - 13.7
26	14°06.5	14°08.8	13°27.9	2.6 - 2.4	8.6 - 8.1	14.6 - 13.7
27	14°06.8	14°09.1	13°28.2	2.7 - 2.5	8.7 - 8.2	14.7 - 13.8
28	14°07.0	14°09.3	13°28.4	2.8 - 2.6	8.8 - 8.3	14.8 - 13.9
29	14°07.3	14°09.6	13°28.7	2.9 - 2.7	8.9 - 8.4	14.9 - 14.0
30	14°07.5	14°09.8	13°28.9	3.0 - 2.8	9.0 - 8.5	15.0 - 14.1
31	14°07.7	14°10.1	13°29.1	3.1 - 2.9	9.1 - 8.6	15.1 - 14.2
32	14°08.0	14°10.3	13°29.4	3.2 - 3.0	9.2 - 8.7	15.2 - 14.3
33	14°08.2	14°10.6	13°29.6	3.3 - 3.1	9.3 - 8.8	15.3 - 14.4
34	14°08.5	14°10.8	13°29.8	3.4 - 3.2	9.4 - 8.9	15.4 - 14.5
35	14°08.8	14°11.1	13°30.1	3.5 - 3.3	9.5 - 8.9	15.5 - 14.6
36	14°09.0	14°11.3	13°30.3	3.6 - 3.4	9.6 - 9.0	15.6 - 14.7
37	14°09.3	14°11.6	13°30.6	3.7 - 3.5	9.7 - 9.1	15.7 - 14.8
38	14°09.5	14°11.8	13°30.8	3.8 - 3.6	9.8 - 9.2	15.8 - 14.9
39	14°09.7	14°12.1	13°31.0	3.9 - 3.7	9.9 - 9.3	15.9 - 15.0
40	14°10.0	14°12.3	13°31.3	4.0 - 3.8	10.0 - 9.4	16.0 - 15.1
41	14°10.2	14°12.6	13°31.5	4.1 - 3.9	10.1 - 9.5	16.1 - 15.2
42	14°10.5	14°12.8	13°31.8	4.2 - 4.0	10.2 - 9.6	16.2 - 15.3
43	14°10.8	14°13.1	13°32.0	4.3 - 4.0	10.3 - 9.7	16.3 - 15.3
44	14°11.0	14°13.3	13°32.2	4.4 - 4.1	10.4 - 9.8	16.4 - 15.4
45	14°11.3	14°13.6	13°32.5	4.5 - 4.2	10.5 - 9.9	16.5 - 15.5
46	14°11.5	14°13.8	13°32.7	4.6 - 4.3	10.6 - 10.0	16.6 - 15.6
47	14°11.7	14°14.1	13°32.9	4.7 - 4.4	10.7 - 10.1	16.7 - 15.7
48	14°12.0	14°14.3	13°33.2	4.8 - 4.5	10.8 - 10.2	16.8 - 15.8
49	14°12.3	14°14.6	13°33.4	4.9 - 4.6	10.9 - 10.3	16.9 - 15.9
50	14°12.5	14°14.8	13°33.7	5.0 - 4.7	11.0 - 10.4	17.0 - 16.0
51	14°12.8	14°15.1	13°33.9	5.1 - 4.8	11.1 - 10.5	17.1 - 16.1
52	14°13.0	14°15.3	13°34.1	5.2 - 4.9	11.2 - 10.5	17.2 - 16.2
53	14°13.2	14°15.6	13°34.4	5.3 - 5.0	11.3 - 10.6	17.3 - 16.3
54	14°13.5	14°15.8	13°34.6	5.4 - 5.1	11.4 - 10.7	17.4 - 16.4
55	14°13.7	14°16.1	13°34.9	5.5 - 5.2	11.5 - 10.8	17.5 - 16.5
56	14°14.0	14°16.3	13°35.1	5.6 - 5.3	11.6 - 10.9	17.6 - 16.6
57	14°14.3	14°16.6	13°35.3	5.7 - 5.4	11.7 - 11.0	17.7 - 16.7
58	14°14.5	14°16.8	13°35.6	5.8 - 5.5	11.8 - 11.1	17.8 - 16.8
59	14°14.8	14°17.1	13°35.8	5.9 - 5.6	11.9 - 11.2	17.9 - 16.9

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
57	Plan.					
0	14°15.0	14°17.3	13°36.0	0.0 - 0.0	6.0 - 5.8	12.0 - 11.5
1	14°15.2	14°17.6	13°36.3	0.1 - 0.1	6.1 - 5.8	12.1 - 11.6
2	14°15.5	14°17.8	13°36.5	0.2 - 0.2	6.2 - 5.9	12.2 - 11.7
3	14°15.7	14°18.1	13°36.8	0.3 - 0.3	6.3 - 6.0	12.3 - 11.8
4	14°16.0	14°18.3	13°37.0	0.4 - 0.4	6.4 - 6.1	12.4 - 11.9
5	14°16.3	14°18.6	13°37.2	0.5 - 0.5	6.5 - 6.2	12.5 - 12.0
6	14°16.5	14°18.8	13°37.5	0.6 - 0.6	6.6 - 6.3	12.6 - 12.1
7	14°16.8	14°19.1	13°37.7	0.7 - 0.7	6.7 - 6.4	12.7 - 12.2
8	14°17.0	14°19.3	13°38.0	0.8 - 0.8	6.8 - 6.5	12.8 - 12.3
9	14°17.2	14°19.6	13°38.2	0.9 - 0.9	6.9 - 6.6	12.9 - 12.4
10	14°17.5	14°19.8	13°38.4	1.0 - 1.0	7.0 - 6.7	13.0 - 12.5
11	14°17.7	14°20.1	13°38.7	1.1 - 1.1	7.1 - 6.8	13.1 - 12.6
12	14°18.0	14°20.3	13°38.9	1.2 - 1.2	7.2 - 6.9	13.2 - 12.7
13	14°18.3	14°20.6	13°39.2	1.3 - 1.2	7.3 - 7.0	13.3 - 12.7
14	14°18.5	14°20.8	13°39.4	1.4 - 1.3	7.4 - 7.1	13.4 - 12.8
15	14°18.8	14°21.1	13°39.6	1.5 - 1.4	7.5 - 7.2	13.5 - 12.9
16	14°19.0	14°21.3	13°39.9	1.6 - 1.5	7.6 - 7.3	13.6 - 13.0
17	14°19.2	14°21.6	13°40.1	1.7 - 1.6	7.7 - 7.4	13.7 - 13.1
18	14°19.5	14°21.8	13°40.3	1.8 - 1.7	7.8 - 7.5	13.8 - 13.2
19	14°19.8	14°22.1	13°40.6	1.9 - 1.8	7.9 - 7.6	13.9 - 13.3
20	14°20.0	14°22.4	13°40.8	2.0 - 1.9	8.0 - 7.7	14.0 - 13.4
21	14°20.3	14°22.6	13°41.1	2.1 - 2.0	8.1 - 7.8	14.1 - 13.5
22	14°20.5	14°22.9	13°41.3	2.2 - 2.1	8.2 - 7.9	14.2 - 13.6
23	14°20.7	14°23.1	13°41.5	2.3 - 2.2	8.3 - 8.0	14.3 - 13.7
24	14°21.0	14°23.4	13°41.8	2.4 - 2.3	8.4 - 8.1	14.4 - 13.8
25	14°21.2	14°23.6	13°42.0	2.5 - 2.4	8.5 - 8.1	14.5 - 13.9
26	14°21.5	14°23.9	13°42.3	2.6 - 2.5	8.6 - 8.2	14.6 - 14.0
27	14°21.8	14°24.1	13°42.5	2.7 - 2.6	8.7 - 8.3	14.7 - 14.1
28	14°22.0	14°24.4	13°42.7	2.8 - 2.7	8.8 - 8.4	14.8 - 14.2
29	14°22.3	14°24.6	13°43.0	2.9 - 2.8	8.9 - 8.5	14.9 - 14.3
30	14°22.5	14°24.9	13°43.2	3.0 - 2.9	9.0 - 8.6	15.0 - 14.4
31	14°22.7	14°25.1	13°43.4	3.1 - 3.0	9.1 - 8.7	15.1 - 14.5
32	14°23.0	14°25.4	13°43.7	3.2 - 3.1	9.2 - 8.8	15.2 - 14.6
33	14°23.2	14°25.6	13°43.9	3.3 - 3.2	9.3 - 8.9	15.3 - 14.7
34	14°23.5	14°25.9	13°44.2	3.4 - 3.3	9.4 - 9.0	15.4 - 14.8
35	14°23.8	14°26.1	13°44.4	3.5 - 3.4	9.5 - 9.1	15.5 - 14.9
36	14°24.0	14°26.4	13°44.6	3.6 - 3.5	9.6 - 9.2	15.6 - 15.0
37	14°24.3	14°26.6	13°44.9	3.7 - 3.5	9.7 - 9.3	15.7 - 15.0
38	14°24.5	14°26.9	13°45.1	3.8 - 3.6	9.8 - 9.4	15.8 - 15.1
39	14°24.7	14°27.1	13°45.4	3.9 - 3.7	9.9 - 9.5	15.9 - 15.2
40	14°25.0	14°27.4	13°45.6	4.0 - 3.8	10.0 - 9.6	16.0 - 15.3
41	14°25.2	14°27.6	13°45.8	4.1 - 3.9	10.1 - 9.7	16.1 - 15.4
42	14°25.5	14°27.9	13°46.1	4.2 - 4.0	10.2 - 9.8	16.2 - 15.5
43	14°25.8	14°28.1	13°46.3	4.3 - 4.1	10.3 - 9.9	16.3 - 15.6
44	14°26.0	14°28.4	13°46.5	4.4 - 4.2	10.4 - 10.0	16.4 - 15.7
45	14°26.3	14°28.6	13°46.8	4.5 - 4.3	10.5 - 10.1	16.5 - 15.8
46	14°26.5	14°28.9	13°47.0	4.6 - 4.4	10.6 - 10.2	16.6 - 15.9
47	14°26.7	14°29.1	13°47.3	4.7 - 4.5	10.7 - 10.3	16.7 - 16.0
48	14°27.0	14°29.4	13°47.5	4.8 - 4.6	10.8 - 10.4	16.8 - 16.1
49	14°27.3	14°29.6	13°47.7	4.9 - 4.7	10.9 - 10.4	16.9 - 16.2
50	14°27.5	14°29.9	13°48.0	5.0 - 4.8	11.0 - 10.5	17.0 - 16.3
51	14°27.8	14°30.1	13°48.2	5.1 - 4.9	11.1 - 10.6	17.1 - 16.4
52	14°28.0	14°30.4	13°48.5	5.2 - 5.0	11.2 - 10.7	17.2 - 16.5
53	14°28.2	14°30.6	13°48.7	5.3 - 5.1	11.3 - 10.8	17.3 - 16.6
54	14°28.5	14°30.9	13°48.9	5.4 - 5.2	11.4 - 10.9	17.4 - 16.7
55	14°28.7	14°31.1	13°49.2	5.5 - 5.3	11.5 - 11.0	17.5 - 16.8
56	14°29.0	14°31.4	13°49.4	5.6 - 5.4	11.6 - 11.1	17.6 - 16.9
57	14°29.3	14°31.6	13°49.7	5.7 - 5.5	11.7 - 11.2	17.7 - 17.0
58	14°29.5	14°31.9	13°49.9	5.8 - 5.6	11.8 - 11.3	17.8 - 17.1
59	14°29.8	14°32.1	13°50.1	5.9 - 5.7	11.9 - 11.4	17.9 - 17.2

m	Sun	Aries	Moon	v and d corr		
58	Plan.					
0	14°30.0	14°32.4	13°50.4	0.0 - 0.0	6.0 - 5.8	12.0 - 11.7
1	14°30.2	14°32.6	13°50.6	0.1 - 0.1	6.1 - 5.9	12.1 - 11.8
2	14°30.5	14°32.9	13°50.8	0.2 - 0.2	6.2 - 6.0	12.2 - 11.9
3	14°30.7	14°33.1	13°51.1	0.3 - 0.3	6.3 - 6.1	12.3 - 12.0
4	14°31.0	14°33.4	13°51.3	0.4 - 0.4	6.4 - 6.2	12.4 - 12.1
5	14°31.3	14°33.6	13°51.6	0.5 - 0.5	6.5 - 6.3	12.5 - 12.2
6	14°31.5	14°33.9	13°51.8	0.6 - 0.6	6.6 - 6.4	12.6 - 12.3
7	14°31.8	14°34.1	13°52.0	0.7 - 0.7	6.7 - 6.5	12.7 - 12.4
8	14°32.0	14°34.4	13°52.3	0.8 - 0.8	6.8 - 6.6	12.8 - 12.5
9	14°32.2	14°34.6	13°52.5	0.9 - 0.9	6.9 - 6.7	12.9 - 12.6
10	14°32.5	14°34.9	13°52.8	1.0 - 1.0	7.0 - 6.8	13.0 - 12.7
11	14°32.7	14°35.1	13°53.0	1.1 - 1.1	7.1 - 6.9	13.1 - 12.8
12	14°33.0	14°35.4	13°53.2	1.2 - 1.2	7.2 - 7.0	13.2 - 12.9
13	14°33.3	14°35.6	13°53.5	1.3 - 1.3	7.3 - 7.1	13.3 - 13.0
14	14°33.5	14°35.9	13°53.7	1.4 - 1.4	7.4 - 7.2	13.4 - 13.1
15	14°33.8	14°36.1	13°53.9	1.5 - 1.5	7.5 - 7.3	13.5 - 13.2
16	14°34.0	14°36.4	13°54.2	1.6 - 1.6	7.6 - 7.4	13.6 - 13.3
17	14°34.2	14°36.6	13°54.4	1.7 - 1.7	7.7 - 7.5	13.7 - 13.4
18	14°34.5	14°36.9	13°54.7	1.8 - 1.8	7.8 - 7.6	13.8 - 13.5
19	14°34.8	14°37.1	13°54.9	1.9 - 1.9	7.9 - 7.7	13.9 - 13.6
20	14°35.0	14°37.4	13°55.1	2.0 - 1.9	8.0 - 7.8	14.0 - 13.7
21	14°35.3	14°37.6	13°55.4	2.1 - 2.0	8.1 - 7.9	14.1 - 13.7
22	14°35.5	14°37.9	13°55.6	2.2 - 2.1	8.2 - 8.0	14.2 - 13.8
23	14°35.7	14°38.1	13°55.9	2.3 - 2.2	8.3 - 8.1	14.3 - 13.9
24	14°36.0	14°38.4	13°56.1	2.4 - 2.3	8.4 - 8.2	14.4 - 14.0
25	14°36.2	14°38.6	13°56.3	2.5 - 2.4	8.5 - 8.3	14.5 - 14.1
26	14°36.5	14°38.9	13°56.6	2.6 - 2.5	8.6 - 8.4	14.6 - 14.2
27	14°36.8	14°39.1	13°56.8	2.7 - 2.6	8.7 - 8.5	14.7 - 14.3
28	14°37.0	14°39.4	13°57.0	2.8 - 2.7	8.8 - 8.6	14.8 - 14.4
29	14°37.3	14°39.6	13°57.3	2.9 - 2.8	8.9 - 8.7	14.9 - 14.5
30	14°37.5	14°39.9	13°57.5	3.0 - 2.9	9.0 - 8.8	15.0 - 14.6
31	14°37.7	14°40.1	13°57.8	3.1 - 3.0	9.1 - 8.9	15.1 - 14.7
32	14°38.0	14°40.4	13°58.0	3.2 - 3.1	9.2 - 9.0	15.2 - 14.8
33	14°38.2	14°40.7	13°58.2	3.3 - 3.2	9.3 - 9.1	15.3 - 14.9
34	14°38.5	14°40.9	13°58.5	3.4 - 3.3	9.4 - 9.2	15.4 - 15.0
35	14°38.8	14°41.2	13°58.7	3.5 - 3.4	9.5 - 9.3	15.5 - 15.1
36	14°39.0	14°41.4	13°59.0	3.6 - 3.5	9.6 - 9.4	15.6 - 15.2
37	14°39.3	14°41.7	13°59.2	3.7 - 3.6	9.7 - 9.5	15.7 - 15.3
38	14°39.5	14°41.9	13°59.4	3.8 - 3.7	9.8 - 9.6	15.8 - 15.4
39	14°39.7	14°42.2	13°59.7	3.9 - 3.8	9.9 - 9.7	15.9 - 15.5
40	14°40.0	14°42.4	13°59.9	4.0 - 3.9	10.0 - 9.8	16.0 - 15.6
41	14°40.2	14°42.7	14°00.1	4.1 - 4.0	10.1 - 9.8	16.1 - 15.7
42	14°40.5	14°42.9	14°00.4	4.2 - 4.1	10.2 - 9.9	16.2 - 15.8
43	14°40.8	14°43.2	14°00.6	4.3 - 4.2	10.3 - 10.0	16.3 - 15.9
44	14°41.0	14°43.4	14°00.9	4.4 - 4.3	10.4 - 10.1	16.4 - 16.0
45	14°41.3	14°43.7	14°01.1	4.5 - 4.4	10.5 - 10.2	16.5 - 16.1
46	14°41.5	14°43.9	14°01.3	4.6 - 4.5	10.6 - 10.3	16.6 - 16.2
47	14°41.7	14°44.2	14°01.6	4.7 - 4.6	10.7 - 10.4	16.7 - 16.3
48	14°42.0	14°44.4	14°01.8	4.8 - 4.7	10.8 - 10.5	16.8 - 16.4
49	14°42.3	14°44.7	14°02.1	4.9 - 4.8	10.9 - 10.6	16.9 - 16.5
50	14°42.5	14°44.9	14°02.3	5.0 - 4.9	11.0 - 10.7	17.0 - 16.6
51	14°42.8	14°45.2	14°02.5	5.1 - 5.0	11.1 - 10.8	17.1 - 16.7
52	14°43.0	14°45.4	14°02.8	5.2 - 5.1	11.2 - 10.9	17.2 - 16.8
53	14°43.2	14°45.7	14°03.0	5.3 - 5.2	11.3 - 11.0	17.3 - 16.9
54	14°43.5	14°45.9	14°03.3	5.4 - 5.3	11.4 - 11.1	17.4 - 17.0
55	14°43.7	14°46.2	14°03.5	5.5 - 5.4	11.5 - 11.2	17.5 - 17.1
56	14°44.0	14°46.4	14°03.7	5.6 - 5.5	11.6 - 11.3	17.6 - 17.2
57	14°44.3	14°46.7	14°04.0	5.7 - 5.6	11.7 - 11.4	17.7 - 17.3
58	14°44.5	14°46.9	14°04.2	5.8 - 5.7	11.8 - 11.5	17.8 - 17.4
59	14°44.8	14°47.2	14°04.4	5.9 - 5.8	11.9 - 11.6	17.9 - 17.5

m	Sun	Aries	Moon	v and d corr		
59	Plan.					
0	14°45.0	14°47.4	14°04.7	0.0 - 0.0	6.0 - 6.0	12.0 - 11.9
1	14°45.2	14°47.7	14°04.9	0.1 - 0.1	6.1 - 6.0	12.1 - 12.0
2	14°45.5	14°47.9	14°05.2	0.2 - 0.2	6.2 - 6.1	12.2 - 12.1
3	14°45.7	14°48.2	14°05.4	0.3 - 0.3	6.3 - 6.2	12.3 - 12.2
4	14°46.0	14°48.4	14°05.6	0.4 - 0.4	6.4 - 6.3	12.4 - 12.3
5	14°46.3	14°48.7	14°05.9	0.5 - 0.5	6.5 - 6.4	12.5 - 12.4
6	14°46.5	14°48.9	14°06.1	0.6 - 0.6	6.6 - 6.5	12.6 - 12.5
7	14°46.8	14°49.2	14°06.4	0.7 - 0.7	6.7 - 6.6	12.7 - 12.6
8	14°47.0	14°49.4	14°06.6	0.8 - 0.8	6.8 - 6.7	12.8 - 12.7
9	14°47.2	14°49.7	14°06.8	0.9 - 0.9	6.9 - 6.8	12.9 - 12.8
10	14°47.5	14°49.9	14°07.1	1.0 - 1.0	7.0 - 6.9	13.0 - 12.9
11	14°47.7	14°50.2	14°07.3	1.1 - 1.1	7.1 - 7.0	13.1 - 13.0
12	14°48.0	14°50.4	14°07.5	1.2 - 1.2	7.2 - 7.1	13.2 - 13.1
13	14°48.3	14°50.7	14°07.8	1.3 - 1.3	7.3 - 7.2	13.3 - 13.2
14	14°48.5	14°50.9	14°08.0	1.4 - 1.4	7.4 - 7.3	13.4 - 13.3
15	14°48.8	14°51.2	14°08.3	1.5 - 1.5	7.5 - 7.4	13.5 - 13.4
16	14°49.0	14°51.4	14°08.5	1.6 - 1.6	7.6 - 7.5	13.6 - 13.5
17	14°49.2	14°51.7	14°08.7	1.7 - 1.7	7.7 - 7.6	13.7 - 13.6
18	14°49.5	14°51.9	14°09.0	1.8 - 1.8	7.8 - 7.7	13.8 - 13.7
19	14°49.8	14°52.2	14°09.2	1.9 - 1.9	7.9 - 7.8	13.9 - 13.8
20	14°50.0	14°52.4	14°09.5	2.0 - 2.0	8.0 - 7.9	14.0 - 13.9
21	14°50.3	14°52.7	14°09.7	2.1 - 2.1	8.1 - 8.0	14.1 - 14.0
22	14°50.5	14°52.9	14°09.9	2.2 - 2.2	8.2 - 8.1	14.2 - 14.1
23	14°50.7	14°53.2	14°10.2	2.3 - 2.3	8.3 - 8.2	14.3 - 14.2
24	14°51.0	14°53.4	14°10.4	2.4 - 2.4	8.4 - 8.3	14.4 - 14.3
25	14°51.2	14°53.7	14°10.6	2.5 - 2.5	8.5 - 8.4	14.5 - 14.4
26	14°51.5	14°53.9	14°10.9	2.6 - 2.6	8.6 - 8.5	14.6 - 14.5
27	14°51.8	14°54.2	14°11.1	2.7 - 2.7	8.7 - 8.6	14.7 - 14.6
28	14°52.0	14°54.4	14°11.4	2.8 - 2.8	8.8 - 8.7	14.8 - 14.7
29	14°52.3	14°54.7	14°11.6	2.9 - 2.9	8.9 - 8.8	14.9 - 14.8
30	14°52.5	14°54.9	14°11.8	3.0 - 3.0	9.0 - 8.9	15.0 - 14.9
31	14°52.7	14°55.2	14°12.1	3.1 - 3.1	9.1 - 9.0	15.1 - 15.0
32	14°53.0	14°55.4	14°12.3	3.2 - 3.2	9.2 - 9.1	15.2 - 15.1
33	14°53.2	14°55.7	14°12.6	3.3 - 3.3	9.3 - 9.2	15.3 - 15.2
34	14°53.5	14°55.9	14°12.8	3.4 - 3.4	9.4 - 9.3	15.4 - 15.3
35	14°53.8	14°56.2	14°13.0	3.5 - 3.5	9.5 - 9.4	15.5 - 15.4
36	14°54.0	14°56.4	14°13.3	3.6 - 3.6	9.6 - 9.5	15.6 - 15.5
37	14°54.3	14°56.7	14°13.5	3.7 - 3.7	9.7 - 9.6	15.7 - 15.6
38	14°54.5	14°56.9	14°13.8	3.8 - 3.8	9.8 - 9.7	15.8 - 15.7
39	14°54.7	14°57.2	14°14.0	3.9 - 3.9	9.9 - 9.8	15.9 - 15.8
40	14°55.0	14°57.4	14°14.2	4.0 - 4.0	10.0 - 9.9	16.0 - 15.9
41	14°55.2	14°57.7	14°14.5	4.1 - 4.1	10.1 - 10.0	16.1 - 16.0
42	14°55.5	14°57.9	14°14.7	4.2 - 4.2	10.2 - 10.1	16.2 - 16.1
43	14°55.8	14°58.2	14°14.9	4.3 - 4.3	10.3 - 10.2	16.3 - 16.2
44	14°56.0	14°58.4	14°15.2	4.4 - 4.4	10.4 - 10.3	16.4 - 16.3
45	14°56.3	14°58.7	14°15.4	4.5 - 4.5	10.5 - 10.4	16.5 - 16.4
46	14°56.5	14°59.0	14°15.7	4.6 - 4.6	10.6 - 10.5	16.6 - 16.5
47	14°56.7	14°59.2	14°15.9	4.7 - 4.7	10.7 - 10.6	16.7 - 16.6
48	14°57.0	14°59.5	14°16.1	4.8 - 4.8	10.8 - 10.7	16.8 - 16.7
49	14°57.3	14°59.7	14°16.4	4.9 - 4.9	10.9 - 10.8	16.9 - 16.8
50	14°57.5	15°00.0	14°16.6	5.0 - 5.0	11.0 - 10.9	17.0 - 16.9
51	14°57.8	15°00.2	14°16.9	5.1 - 5.1	11.1 - 11.0	17.1 - 17.0
52	14°58.0	15°00.5	14°17.1	5.2 - 5.2	11.2 - 11.1	17.2 - 17.1
53	14°58.2	15°00.7	14°17.3	5.3 - 5.3	11.3 - 11.2	17.3 - 17.2
54	14°58.5	15°01.0	14°17.6	5.4 - 5.4	11.4 - 11.3	17.4 - 17.3
55	14°58.7	15°01.2	14°17.8	5.5 - 5.5	11.5 - 11.4	17.5 - 17.4
56	14°59.0	15°01.5	14°18.0	5.6 - 5.6	11.6 - 11.5	17.6 - 17.5
57	14°59.3	15°01.7	14°18.3	5.7 - 5.7	11.7 - 11.6	17.7 - 17.6
58	14°59.5	15°02.0	14°18.5	5.8 - 5.8	11.8 - 11.7	17.8 - 17.7
59	14°59.8	15°02.2	14°18.8	5.9 - 5.9	11.9 - 11.8	17.9 - 17.8

Altitude Correction Tables for 10° to 90° — Sun, Stars, Planets

SUN			SUN			Stars & Planets		Additional Altitude Correction for Mars & Venus	Refraction		DIP				
October – March			April – September								always subtracted from Hs				
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb	App. Alt.	Corr	App. Alt.	Corr	Ht. of Eye	Corr	Ht. of Eye	Ht. of Eye	Corr	
° ' "	' "	' "	° ' "	' "	' "	° ' "	' "			meters	' "	feet	meters	' "	
9 33	+10.8	– 21.5	9 39	+10.6	– 21.2	9 55	– 5.3	A small additional altitude correction for Mars & Venus can be obtained in the Daily Pages of The Nautical Almanac for the day of the observation.	5.5	– 9.1	2.4	– 2.8	8.0	1.0	– 1.8
9 45	+10.9	– 21.4	9 50	+10.7	– 21.1	10 07	– 5.2		6.0	– 8.5	2.6	– 2.9	8.6	1.5	– 2.2
9 56	+11.0	– 21.3	10 02	+10.8	– 21.0	10 20	– 5.1		6.5	– 7.9	2.8	– 3.0	9.2	2.0	– 2.5
10 08	+11.1	– 21.2	10 14	+10.9	– 20.9	10 32	– 5.0		7.0	– 7.5	3.0	– 3.1	9.8	2.5	– 2.8
10 20	+11.2	– 21.1	10 27	+11.0	– 20.8	10 46	– 4.9		7.5	– 7.0	3.2	– 3.1	10.5	3.0	– 3.0
10 33	+11.3	– 21.0	10 40	+11.1	– 20.7	10 59	– 4.8		8.0	– 6.6	3.4	– 3.2	11.2	See table ←	
10 46	+11.4	– 20.9	10 53	+11.2	– 20.6	11 14	– 4.7		8.5	– 6.3	3.6	– 3.3	11.9		
11 00	+11.5	– 20.8	11 07	+11.3	– 20.5	11 29	– 4.6		9.0	– 5.9	3.8	– 3.4	12.6	meters	
11 15	+11.6	– 20.7	11 22	+11.4	– 20.4	11 44	– 4.5		9.5	– 5.7	4.0	– 3.6	13.3		
11 30	+11.7	– 20.6	11 37	+11.5	– 20.3	12 00	– 4.4		10.0	– 5.4	4.3	– 3.7	14.1	20	– 7.9
11 45	+11.8	– 20.5	11 53	+11.6	– 20.2	12 17	– 4.3	10.5	– 5.1	4.5	– 3.7	14.9	22	– 8.3	
12 01	+11.9	– 20.4	12 10	+11.7	– 20.1	12 35	– 4.2	11.0	– 4.9	4.7	– 3.8	15.7	24	– 8.6	
12 18	+12.0	– 20.3	12 27	+11.8	– 20.0	12 53	– 4.1	11.5	– 4.7	5.0	– 3.9	16.5	26	– 9.0	
12 36	+12.1	– 20.2	14 45	+11.9	– 19.9	13 12	– 4.0	12.0	– 4.5	5.2	– 4.0	17.4	28	– 9.3	
12 54	+12.2	– 20.1	13 04	+12.0	– 19.8	13 32	– 3.9	12.5	– 4.4	5.5	– 4.1	18.3	30	– 9.6	
13 14	+12.3	– 20.0	13 24	+12.1	– 19.7	13 53	– 3.8	13.0	– 4.2	5.8	– 4.2	19.1	32	– 10.0	
13 34	+12.4	– 19.9	13 44	+12.2	– 19.6	14 16	– 3.7	13.5	– 4.0	6.1	– 4.4	20.1	34	– 10.3	
13 55	+12.5	– 19.8	14 06	+12.3	– 19.5	14 39	– 3.6	14.0	– 3.9	6.3	– 4.5	21.0	36	– 10.6	
14 17	+12.6	– 19.7	14 29	+12.4	– 19.4	15 03	– 3.5	14.5	– 3.8	6.6	– 4.6	22.0	38	– 10.8	
14 41	+12.7	– 19.6	14 53	+12.5	– 19.3	15 29	– 3.4	15.0	– 3.6	6.9	– 4.7	22.9	See table ←		
15 05	+12.8	– 19.5	15 18	+12.6	– 19.2	15 56	– 3.3	15.5	– 3.5	7.2	– 4.8	23.9			
15 31	+12.9	– 19.4	15 45	+12.7	– 19.1	16 25	– 3.2	16.0	– 3.4	7.5	– 4.9	24.9	40	– 11.1	
15 59	+13.0	– 19.3	16 13	+12.8	– 19.0	16 55	– 3.1	16.5	– 3.3	7.9	– 5.0	26.0	42	– 11.4	
16 27	+13.1	– 19.2	16 43	+12.9	– 18.9	17 27	– 3.0	17.0	– 3.2	8.2	– 5.1	27.1	44	– 11.7	
16 58	+13.2	– 19.1	17 14	+13.0	– 18.8	18 01	– 2.9	17.5	– 3.1	8.5	– 5.2	28.1	46	– 11.9	
17 30	+13.3	– 19.0	17 47	+13.1	– 18.7	18 37	– 2.8	18.0	– 3.0	8.8	– 5.3	29.2	48	– 12.2	
18 05	+13.4	– 18.9	18 23	+13.2	– 18.6	19 16	– 2.7	18.5	– 2.9	9.2	– 5.4	30.4	feet		
18 41	+13.5	– 18.8	19 00	+13.3	– 18.5	19 56	– 2.6	19.0	– 2.9	9.5	– 5.5	31.5	2	– 1.4	
19 20	+13.6	– 18.7	19 41	+13.4	– 18.4	20 40	– 2.5	19.5	– 2.8	9.9	– 5.6	32.7	4	– 1.9	
20 02	+13.7	– 18.6	20 24	+13.5	– 18.3	21 27	– 2.4	20.0	– 2.7	10.3	– 5.7	33.9	6	– 2.4	
20 46	+13.8	– 18.5	21 10	+13.6	– 18.2	22 17	– 2.3	21.0	– 2.6	10.6	– 5.8	35.1	8	– 2.7	
21 34	+13.9	– 18.4	21 59	+13.7	– 18.1	23 11	– 2.2	22.0	– 2.4	11.0	– 5.9	36.3	10	– 3.1	
22 25	+14.0	– 18.3	22 52	+13.8	– 18.0	24 09	– 2.1	23.0	– 2.3	11.4	– 6.0	37.6	See table ←		
23 20	+14.1	– 18.2	23 49	+13.9	– 17.9	25 12	– 2.0	24.0	– 2.2	11.8	– 6.1	38.9			
24 20	+14.2	– 18.1	24 51	+14.0	– 17.8	26 20	– 1.9	25.0	– 2.1	12.2	– 6.2	40.1	feet		
25 24	+14.3	– 18.0	25 58	+14.1	– 17.7	27 34	– 1.8	26.0	– 2.0	12.6	– 6.3	41.5	70	– 8.1	
26 34	+14.4	– 17.9	27 11	+14.2	– 17.6	28 54	– 1.7	27.0	– 1.9	13.0	– 6.4	42.8	75	– 8.4	
27 50	+14.5	– 17.8	28 31	+14.3	– 17.5	30 22	– 1.6	28.0	– 1.9	13.4	– 6.4	44.2	80	– 8.7	
29 13	+14.6	– 17.7	29 58	+14.4	– 17.4	31 58	– 1.5	29.0	– 1.8	13.8	– 6.5	45.5	85	– 8.9	
30 44	+14.7	– 17.6	31 33	+14.5	– 17.3	33 43	– 1.4	30.0	– 1.7	14.2	– 6.6	46.9	90	– 9.2	
32 24	+14.8	– 17.5	33 18	+14.6	– 17.2	35 38	– 1.3	31.0	– 1.7	14.7	– 6.7	48.4	95	9.5	
34 15	+14.9	– 17.4	35 15	+14.7	– 17.1	37 45	– 1.2	32.0	– 1.6	15.1	– 6.8	49.8	100	– 9.7	
36 17	+15.0	– 17.3	37 24	+14.8	– 17.0	40 06	– 1.1	33.0	– 1.5	15.5	– 6.9	51.3	105	– 9.9	
38 34	+15.1	– 17.2	39 48	+14.9	– 16.9	42 42	– 1.0	34.0	– 1.5	16.0	– 7.0	52.8	110	– 10.2	
41 06	+15.2	– 17.1	42 28	+15.0	– 16.8	45 34	– 0.9	35.0	– 1.4	16.5	– 7.1	54.3	115	– 10.4	
43 56	+15.3	– 17.0	45 29	+15.1	– 16.7	48 45	– 0.8	36.0	– 1.4	16.9	– 7.2	55.8	120	– 10.6	
47 07	+15.4	– 16.9	48 52	+15.2	– 16.6	52 16	– 0.7	37.0	– 1.3	17.4	– 7.3	57.4	125	– 10.8	
50 43	+15.5	– 16.8	51 41	+15.3	– 16.5	56 09	– 0.6	38.0	– 1.3	17.9	– 7.4	58.9	130	– 11.1	
54 46	+15.6	– 16.7	56 59	+15.4	– 16.4	60 26	– 0.5	39.0	– 1.2	18.4	– 7.5	60.5	135	– 11.3	
59 21	+15.7	– 16.6	61 50	+15.5	– 16.3	65 06	– 0.4	40.0	– 1.2	18.8	– 7.6	62.1	140	– 11.5	
64 28	+15.8	– 16.5	67 15	+15.6	– 16.2	70 09	– 0.3	45.0	– 1.0	19.3	– 7.7	63.8	145	– 11.7	
70 10	+15.9	– 16.4	73 14	+15.7	– 16.1	75 32	– 0.2	50.0	– 0.8	19.8	– 7.8	65.4	150	– 11.9	
76 24	+16.0	– 16.3	79 42	+15.8	– 16.0	81 12	– 0.1	55.0	– 0.7	20.4	– 7.9	67.1	155	– 12.1	
83 05	+16.1	– 16.2	86 21	+15.9	– 15.9	87 03	0.0	60.0	– 0.6	20.9	– 8.0	68.8	See table ←		
90 00			90 00			90 00		65.0	– 0.5	21.4	– 8.1	70.5			
								70.0	– 0.4						
								75.0	– 0.3						
								80.0	– 0.2						
								85.0	– 0.1						

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

Altitude Correction Tables for 0° to 10° — Sun, Stars, Planets

App. Alt.	Sun		Sun		Stars & Planets	App. Alt.	Sun		Sun		Stars & Planets
	October – March		April – September				October – March		April – September		
	Lower Limb	Upper Limb	Lower Limb	Upper Limb			Lower Limb	Upper Limb	Lower Limb	Upper Limb	
0 00	– 17.5	– 49.8	– 17.8	– 49.6	– 33.8	3 30	+ 3.4	– 28.9	+ 3.1	– 28.7	– 12.9
0 03	16.9	49.2	17.2	49.0	33.2	3 35	3.6	28.7	3.3	28.5	12.7
0 06	16.3	48.6	16.6	48.4	32.6	3 40	3.8	28.5	3.6	28.2	12.5
0 09	15.7	48.0	16.0	47.8	32.0	3 45	4.0	28.3	3.8	28.0	12.3
0 12	15.2	47.5	15.4	47.2	31.5	3 50	4.2	28.1	4.0	27.8	12.1
0 15	14.6	46.9	14.8	46.6	30.9	3 55	4.4	27.9	4.1	27.7	11.9
0 18	– 14.1	– 46.4	– 14.3	– 46.1	– 30.4	4 00	+ 4.6	– 27.7	+ 4.3	– 27.5	– 11.7
0 21	13.5	45.8	13.8	45.6	29.8	4 05	4.8	27.5	4.5	27.3	11.5
0 24	13.0	45.3	13.3	45.1	29.3	4 10	4.9	27.4	4.7	27.1	11.4
0 27	12.5	44.8	12.8	44.6	28.8	4 15	5.1	27.2	4.9	26.9	11.2
0 30	12.0	44.3	12.3	44.1	28.3	4 20	5.3	27.0	5.0	26.8	11.0
0 33	11.6	43.9	11.8	43.6	27.9	4 25	5.4	26.9	5.2	26.6	10.9
0 36	– 11.1	– 10.0	– 11.3	– 43.1	– 27.4	4 30	+ 5.6	– 26.7	+ 5.3	– 26.5	– 10.7
0 39	10.6	42.9	10.9	42.7	26.9	4 35	5.7	26.6	5.5	26.3	10.6
0 42	10.2	42.5	10.5	42.3	26.5	4 40	5.9	26.4	5.6	26.2	10.4
0 45	9.8	42.1	10.0	41.8	26.1	4 45	6.0	26.3	5.8	26.0	10.3
0 48	9.4	41.7	9.6	41.4	25.7	4 50	6.2	26.1	5.9	25.9	10.1
0 51	9.0	41.3	9.2	41.0	25.3	4 55	6.3	26.0	6.1	25.7	10.0
0 54	– 8.6	– 40.9	– 8.8	– 40.6	– 24.9	5 00	+ 6.4	– 25.9	+ 6.2	– 25.6	– 9.9
0 57	8.2	40.5	8.4	40.2	24.5	5 05	6.6	25.7	6.3	25.5	9.7
1 00	7.8	40.1	8.0	39.8	24.1	5 10	6.7	25.6	6.5	25.3	9.6
1 03	7.4	39.7	7.7	39.5	23.7	5 15	6.8	25.5	6.6	25.2	9.5
1 06	7.1	39.4	7.3	39.1	23.4	5 20	7.0	25.3	6.7	25.1	9.3
1 09	6.7	39.0	7.0	38.8	23.0	5 25	7.1	25.2	6.8	25.0	9.2
1 12	– 6.4	– 38.7	– 6.6	– 38.4	– 22.7	5 30	+ 7.2	– 25.1	+ 6.9	– 24.9	– 9.1
1 15	6.0	38.3	6.3	38.1	22.3	5 35	7.3	25.0	7.1	24.7	9.0
1 18	5.7	38.0	6.0	37.8	22.0	5 40	7.4	24.9	7.2	24.6	8.9
1 21	5.4	37.7	5.7	37.5	21.7	5 45	7.5	24.8	7.3	24.5	8.8
1 24	5.1	37.4	5.3	37.1	21.4	5 50	7.6	24.7	7.4	24.4	8.7
1 27	4.8	37.1	5.0	36.8	21.1	5 55	7.7	24.6	7.5	24.3	8.6
1 30	– 4.5	– 36.8	– 4.7	– 36.5	– 20.8	6 00	+ 7.8	– 24.5	+ 7.6	– 24.2	– 8.5
1 35	4.0	36.3	4.3	36.1	20.3	6 10	8.0	24.3	7.8	24.0	8.3
1 40	3.6	35.9	3.8	35.6	19.9	6 20	8.2	24.1	8.0	23.8	8.1
1 45	3.1	35.4	3.4	35.2	19.4	6 30	8.4	23.9	8.2	23.6	7.9
1 50	2.7	35.0	2.9	34.7	19.0	6 40	8.6	23.7	8.3	23.5	7.7
1 55	2.3	34.6	2.5	34.3	18.6	6 50	8.7	23.6	8.5	23.3	7.6
2 00	– 1.9	– 34.2	– 2.1	– 33.9	– 18.2	7 00	+ 8.9	– 23.4	+ 8.7	– 23.1	– 7.4
2 05	1.5	33.8	1.7	33.5	17.8	7 10	9.1	23.2	8.8	23.0	7.2
2 10	1.1	33.4	1.4	33.2	17.4	7 20	9.2	23.1	9.0	22.8	7.1
2 15	0.8	33.1	1.0	32.8	17.1	7 30	9.3	23.0	9.1	22.7	6.9
2 20	0.4	32.7	0.7	32.5	16.7	7 40	9.5	22.8	9.2	22.6	6.8
2 25	– 0.1	32.4	– 0.3	32.1	16.4	7 50	9.6	22.7	9.4	22.4	6.7
2 30	+ 0.2	– 32.1	0.0	– 31.8	– 16.1	8 00	+ 9.7	– 22.6	+ 9.5	– 22.3	– 6.6
2 35	0.5	31.8	+ 0.3	31.5	15.8	8 10	9.9	22.4	9.6	22.2	6.4
2 40	0.8	31.5	0.6	31.2	15.4	8 20	10.0	22.3	9.7	22.1	6.3
2 45	1.1	31.2	0.9	30.9	15.2	8 30	10.1	22.2	9.9	21.9	6.2
2 50	1.4	30.9	1.2	30.6	14.9	8 40	10.2	22.1	10.0	21.8	6.1
2 55	1.7	30.6	1.4	30.4	14.9	8 50	10.3	22.0	10.1	21.7	6.0
3 00	+ 2.0	– 30.3	+ 1.7	– 30.1	– 14.3	9 00	+ 10.4	– 21.9	+ 10.2	– 21.6	– 5.9
3 05	2.2	30.1	2.0	29.8	14.1	9 10	10.5	21.8	10.3	21.5	5.8
3 10	2.5	29.8	2.2	29.6	13.8	9 20	10.6	21.7	10.4	21.4	5.7
3 15	2.7	29.6	2.5	29.3	13.6	9 30	10.7	21.6	10.5	21.3	5.6
3 20	2.9	29.4	2.7	29.1	13.4	9 40	10.8	21.5	10.6	21.2	5.5
3 25	3.2	29.1	2.9	28.9	13.4	9 50	10.9	21.4	10.6	21.2	5.4
3 30	3.4	– 28.9	+ 3.1	– 28.7	– 12.9	10 00	+ 11.0	– 21.3	+ 10.7	– 21.1	– 5.3

For bubble sextant observations- ignore dip and use star corrections for the Sun, planets and stars.

ALTITUDE CORRECTION TABLES 0° – 35° — MOON

App. Alt.	0° – 4°		5° – 9°		10° – 14°		15° – 19°		20° – 24°		25° – 29°		30° – 34°		App. Alt.
	Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		
	0°		5°		10°		15°		20°		25°		30°		
00	34.5		58.2		62.1		62.8		62.2		60.8		58.9		00
10	36.5		58.5		62.2		62.8		62.2		60.8		58.8		10
20	38.3		58.7		62.2		62.8		62.1		60.7		58.8		20
30	40.0		58.9		62.3		62.8		62.1		60.7		58.7		30
40	41.5		59.1		62.3		62.8		62.0		60.6		58.6		40
50	42.9		59.3		62.4		62.7		62.0		60.6		58.5		50
00	1°		6°		11°		16°		21°		26°		31°		00
10	44.2		59.5		62.4		62.7		61.9		60.5		58.5		10
20	45.4		59.7		62.4		62.7		61.9		60.4		58.4		20
30	46.5		59.9		62.5		62.7		61.9		60.4		58.3		30
40	47.5		60.0		62.5		62.7		61.9		60.3		58.2		40
50	48.4		60.2		62.5		62.7		61.8		60.3		58.2		50
00	2°		7°		12°		17°		22°		27°		32°		00
10	50.1		60.5		62.6		62.7		61.7		60.1		58.0		10
20	50.8		60.6		62.6		62.6		61.7		60.1		57.9		20
30	51.5		60.7		62.6		62.6		61.6		60.0		57.8		30
40	52.2		60.9		62.7		62.6		61.6		59.9		57.8		40
50	52.8		61.0		62.7		62.6		61.6		59.9		57.7		50
00	3°		8°		13°		18°		23°		28°		33°		00
10	53.9		61.2		62.7		62.5		61.5		59.7		57.5		10
20	54.4		61.3		62.7		62.5		61.4		59.7		57.4		20
30	54.9		61.4		62.7		62.5		61.4		59.6		57.4		30
40	55.3		61.5		62.8		62.5		61.3		59.5		57.3		40
50	55.7		61.6		62.8		62.4		61.3		59.5		57.2		50
00	4°		9°		14°		19°		24°		29°		34°		00
10	56.4		61.7		62.8		62.4		61.2		59.3		57.0		10
20	56.8		61.8		62.8		62.4		61.1		59.3		56.9		20
30	57.1		61.9		62.8		62.3		61.1		59.2		56.9		30
40	57.4		61.9		62.8		62.3		61.0		59.1		56.8		40
50	57.7		62.0		62.8		62.3		61.0		59.1		56.7		50
HP	L	U	L	U	L	U	L	U	L	U	L	U	L	U	HP
54.0	0.3	0.9	0.3	0.9	0.4	1.0	0.5	1.1	0.6	1.2	0.7	1.3	0.9	1.5	54.0
54.3	0.7	1.1	0.7	1.2	0.8	1.2	0.8	1.3	0.9	1.4	1.1	1.5	1.2	1.7	54.3
54.6	1.1	1.4	1.1	1.4	1.1	1.4	1.2	1.5	1.3	1.6	1.4	1.7	1.5	1.8	54.6
54.9	1.4	1.6	1.4	1.6	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.9	1.9	2.0	54.9
55.2	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	55.2
55.5	2.2	2.0	2.2	2.0	2.3	2.1	2.3	2.1	2.4	2.2	2.4	2.3	2.5	2.4	55.5
55.8	2.6	2.2	2.6	2.2	2.6	2.3	2.7	2.3	2.7	2.4	2.8	2.4	2.9	2.5	55.8
56.1	3.0	2.4	3.0	2.5	3.0	2.5	3.0	2.5	3.1	2.6	3.1	2.6	3.2	2.7	56.1
56.4	3.3	2.7	3.3	2.7	3.4	2.7	3.4	2.7	3.4	2.8	3.5	2.8	3.5	2.9	56.4
56.7	3.7	2.9	3.7	2.9	3.8	2.9	3.8	2.9	3.8	3.0	3.8	3.0	3.9	3.0	56.7
57.0	4.1	3.1	4.1	3.1	4.1	3.1	4.1	3.1	4.2	3.2	4.2	3.2	4.2	3.2	57.0
57.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.4	4.6	3.4	57.3
57.6	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.6	57.6
57.9	5.3	3.8	5.3	3.8	5.2	3.8	5.2	3.7	5.2	3.7	5.2	3.7	5.2	3.7	57.9
58.2	5.6	4.0	5.6	4.0	5.6	4.0	5.6	4.0	5.6	3.9	5.6	3.9	5.6	3.9	58.2
58.5	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.1	5.9	4.1	5.9	4.1	58.5
58.8	6.4	4.4	6.4	4.4	6.4	4.4	6.3	4.4	6.3	4.3	6.3	4.3	6.2	4.2	58.8
59.1	6.8	4.6	6.8	4.6	6.7	4.6	6.7	4.6	6.7	4.5	6.6	4.5	6.6	4.4	59.1
59.4	7.2	4.8	7.1	4.8	7.1	4.8	7.1	4.8	7.0	4.7	7.0	4.7	6.9	4.6	59.4
59.7	7.5	5.1	7.5	5.0	7.5	5.0	7.5	5.0	7.4	4.9	7.3	4.8	7.2	4.8	59.7
60.0	7.9	5.3	7.9	5.3	7.9	5.2	7.8	5.2	7.8	5.1	7.7	5.0	7.6	4.9	60.0
60.3	8.3	5.5	8.3	5.5	8.2	5.4	8.2	5.4	8.1	5.3	8.0	5.2	7.9	5.1	60.3
60.6	8.7	5.7	8.7	5.7	8.6	5.7	8.6	5.6	8.5	5.5	8.4	5.4	8.2	5.3	60.6
60.9	9.1	5.9	9.0	5.9	9.0	5.9	8.9	5.8	8.8	5.7	8.7	5.6	8.6	5.4	60.9
61.2	9.5	6.2	9.4	6.1	9.4	6.1	9.3	6.0	9.2	5.9	9.1	5.8	8.9	5.6	61.2
61.5	9.8	6.4	9.8	6.3	9.7	6.3	9.7	6.2	9.5	6.1	9.4	5.9	9.2	5.8	61.5

DIP					
Ht. of Eye	Corr ⁿ	Ht. of Eye	Ht. of Eye	Corr ⁿ	Ht. of Eye
m		ft	m		ft
2.4	-2.8	7.9	9.5	-5.5	31.2
2.6	-2.9	8.5	9.9	-5.6	32.5
2.8	-3.0	9.2	10.3	-5.7	33.8
3.0	-3.1	9.8	10.6	-5.8	34.8
3.2	-3.2	10.5	11.0	-5.9	36.1
3.4	-3.3	11.2	11.4	-6.0	37.4
3.6	-3.4	11.8	11.8	-6.1	38.7
3.8	-3.5	12.5	12.2	-6.2	40.0
4.0	-3.6	13.1	12.6	-6.3	41.3
4.3	-3.7	14.1	13.0	-6.4	42.7
4.5	-3.8	14.8	13.4	-6.5	44.0
4.7	-3.9	15.4	13.8	-6.6	45.3
5.0	-4.0	16.4	14.2	-6.7	46.6
5.2	-4.1	17.1	14.7	-6.8	48.2
5.5	-4.2	18.0	15.1	-6.9	49.5
5.8	-4.3	19.0	15.5	-7.0	50.9
6.1	-4.4	20.0	16.0	-7.1	52.5
6.3	-4.5	20.7	16.5	-7.2	54.1
6.6	-4.6	21.7	16.9	-7.3	55.4
6.9	-4.7	22.6	17.4	-7.4	57.1
7.2	-4.8	23.6	17.9	-7.5	58.7
7.5	-4.9	24.6	18.4	-7.6	60.4
7.9	-5.0	25.9	18.8	-7.7	61.7
8.2	-5.1	26.9	19.3	-7.8	63.3
8.5	-5.2	27.9	19.8	-7.9	65.0
8.8	-5.3	28.9	20.4	-8.0	66.9
9.2	-5.4	30.2	20.9	-8.1	68.6
9.5		31.2	21.4		70.2

MOON CORRECTION TABLE

The correction is in two parts; the first correction is taken from the upper part of the table with argument apparent altitude, and the second from the lower part, with argument HP, in the same column as that from which the first correction was taken. Separate corrections are given in the lower part for lower (L) and upper (U) limbs. All corrections are to be **added** to apparent altitude, *but 30' is to be subtracted from the altitude of the upper limb.*

For corrections for pressure and temperature see page A4.

For bubble sextant observations ignore dip, take the mean of upper and lower limb corrections and subtract 15' from the altitude.

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

ALTITUDE CORRECTION TABLES 35° – 90° — MOON

App. Alt.	35° – 39°			40° – 44°		45° – 49°		50° – 54°		55° – 59°		60° – 64°		65° – 69°		70° – 74°		75° – 79°		80° – 84°		85° – 89°		App. Alt.											
	Corr ⁿ			Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ													
00	35°	56.5		40°	53.7		45°	50.5		50°	46.9		55°	43.1		60°	38.9		65°	34.6		70°	30.0		75°	25.3		80°	20.5		85°	15.6		00	
10		56.4			53.6			50.4			46.8			42.9			38.8			34.4			29.9			25.2			20.4			15.5		10	
20		56.3			53.5			50.2			46.7			42.8			38.7			34.3			29.7			25.0			20.2			15.3		20	
30		56.2			53.4			50.1			46.5			42.7			38.5			34.1			29.6			24.9			20.0			15.1		30	
40		56.2			53.3			50.0			46.4			42.5			38.4			34.0			29.4			24.7			19.9			15.0		40	
50		56.1			53.2			49.9			46.3			42.4			38.2			33.8			29.3			24.5			19.7			14.8		50	
00	36°	56.0		41°	53.1		46°	49.8		51°	46.2		56°	42.3		61°	38.1		66°	33.7		71°	29.1		76°	24.4		81°	19.6		86°	14.6		00	
10		55.9			53.0			49.7			46.0			42.1			37.9			33.5			29.0			24.2			19.4			14.5		10	
20		55.8			52.9			49.5			45.9			42.0			37.8			33.4			28.8			24.1			19.2			14.3		20	
30		55.7			52.8			49.4			45.8			41.9			37.7			33.2			28.7			23.9			19.1			14.2		30	
40		55.6			52.6			49.3			45.7			41.7			37.5			33.1			28.5			23.8			18.9			14.0		40	
50		55.5			52.5			49.2			45.5			41.6			37.4			32.9			28.3			23.6			18.7			13.8		50	
00	37°	55.4		42°	52.4		47°	49.1		52°	45.4		57°	41.4		62°	37.2		67°	32.8		72°	28.2		77°	23.4		82°	18.6		87°	13.7		00	
10		55.3			52.3			49.0			45.3			41.3			37.1			32.6			28.0			23.3			18.4			13.5		10	
20		55.2			52.2			48.8			45.2			41.2			36.9			32.5			27.9			23.1			18.2			13.3		20	
30		55.1			52.1			48.7			45.0			41.0			36.8			32.3			27.7			22.9			18.1			13.2		30	
40		55.0			52.0			48.6			44.9			40.9			36.6			32.2			27.6			22.8			17.9			13.0		40	
50		55.0			51.9			48.5			44.8			40.8			36.5			32.0			27.4			22.6			17.8			12.8		50	
00	38°	54.9		43°	51.8		48°	48.4		53°	44.6		58°	40.6		63°	36.4		68°	31.9		73°	27.2		78°	22.5		83°	17.6		88°	12.7		00	
10		54.8			51.7			48.3			44.5			40.5			36.2			31.7			27.1			22.3			17.4			12.5		10	
20		54.7			51.6			48.1			44.4			40.3			36.1			31.6			26.9			22.1			17.3			12.3		20	
30		54.6			51.5			48.0			44.2			40.2			35.9			31.4			26.8			22.0			17.1			12.2		30	
40		54.5			51.4			47.9			44.1			40.1			35.8			31.3			26.6			21.8			16.9			12.0		40	
50		54.4			51.2			47.8			44.0			39.9			35.6			31.1			26.5			21.7			16.8			11.8		50	
00	39°	54.3		44°	51.1		49°	47.7		54°	43.9		59°	39.8		64°	35.5		69°	31.0		74°	26.3		79°	21.5		84°	16.6		89°	11.7		00	
10		54.2			51.0			47.5			43.7			39.6			35.3			30.8			26.1			21.3			16.4			11.5		10	
20		54.1			50.9			47.4			43.6			39.5			35.2			30.7			26.0			21.2			16.3			11.4		20	
30		54.0			50.8			47.3			43.5			39.4			35.0			30.5			25.8			21.0			16.1			11.2		30	
40		53.9			50.7			47.2			43.3			39.2			34.9			30.4			25.7			20.9			16.0			11.0		40	
50		53.8			50.6			47.0			43.2			39.1			34.7			30.2			25.5			20.7			15.8			10.9		50	
HP	L	U		L	U		L	U		L	U		L	U		L	U		L	U		L	U		L	U		L	U		L	U	HP		
54.0	1.1	1.7		1.3	1.9		1.5	2.1		1.7	2.4		2.0	2.6		2.3	2.9		2.6	3.2		2.9	3.5		3.2	3.8		3.5	4.1		3.8	4.5		54.0	
54.3	1.4	1.8		1.6	2.0		1.8	2.2		2.0	2.5		2.2	2.7		2.5	3.0		2.8	3.2		3.1	3.5		3.3	3.8		3.6	4.1		3.9	4.4		54.3	
54.6	1.7	2.0		1.9	2.2		2.1	2.4		2.3	2.6		2.5	2.8		2.7	3.0		3.0	3.3		3.2	3.5		3.5	3.8		3.8	4.0		4.0	4.3		54.6	
54.9	2.0	2.2		2.2	2.3		2.4	2.5		2.5	2.7		2.7	2.9		2.9	3.1		3.2	3.3		3.4	3.5		3.6	3.8		3.9	4.0		4.1	4.3		54.9	
55.2	2.3	2.3		2.5	2.4		2.6	2.6		2.8	2.8		3.0	2.9		3.2	3.1		3.4	3.3		3.6	3.5		3.8	3.7		4.0	4.0		4.2	4.2		55.2	
55.5	2.7	2.5		2.8	2.6		2.9	2.7		3.1	2.9		3.2	3.0		3.4	3.2		3.6	3.4		3.7	3.5		3.9	3.7		4.1	3.9		4.3	4.1		55.5	
55.8	3.0	2.6		3.1	2.7		3.2	2.8		3.3	3.0		3.5	3.1		3.6	3.3		3.8	3.4		3.9	3.6		4.1	3.7		4.2	3.9		4.4	4.0		55.8	
56.1	3.3	2.8		3.4	2.9		3.5	3.0		3.6	3.1		3.7	3.2		3.8	3.3		4.0	3.4		4.1	3.6		4.2	3.7		4.4	3.8		4.5	4.0		56.1	
56.4	3.6	2.9		3.7	3.0		3.8	3.1		3.9	3.2		3.9	3.3		4.0	3.4		4.1	3.5		4.3	3.6		4.4	3.7		4.5	3.8		4.6	3.9		56.4	
56.7	3.9	3.1		4.0	3.1		4.1	3.2		4.1	3.3		4.2	3.3		4.3	3.4		4.3	3.5		4.4	3.6		4.5	3.7		4.6	3.8		4.7	3.8		56.7	
57.0	4.3	3.2		4.3	3.3		4.3	3.3		4.4	3.4		4.4	3.4		4.5	3.5		4.5	3.5		4.6	3.6		4.7	3.6		4.7	3.7		4.8	3.8		57.0	
57.3	4.6	3.4		4.6	3.4		4.6	3.4		4.6	3.5		4.7	3.5		4.7	3.5		4.7	3.6		4.8	3.6		4.8	3.6		4.8	3.7		4.9	3.7		57.3	
57.6	4.9	3.6		4.9	3.6		4.9	3.6		4.9	3.6		4.9	3.6		4.9	3.6		4.9	3.6		4.9	3.6		5.0	3.6		5.0	3.6		5.0	3.6		57.6	
57.9	5.2	3.7		5.2	3.7		5.2	3.7		5.2	3.7		5.2	3.7		5.1	3.6		5.1	3.6		5.1	3.6		5.1	3.6		5.1	3.6		5.1	3.6		57.9	
58.2	5.5	3.9		5.5	3.8		5.5	3.8		5.4	3.8		5.4	3.7		5.4	3.7		5.3	3.7		5.3	3.6		5.2	3.6		5.2	3.5		5.2	3.5		58.2	
58.5	5.9	4.0		5.8	4.0		5.8	3.9		5.7	3.9		5.6	3.8		5.6	3.8		5.5	3.7		5.5	3.6		5.4	3.6		5.3	3.5		5.3	3.4		58.5	
58.8	6.2	4.2		6.1	4.1		6.0	4.1		6.0	4.0		5.9	3.9		5.8	3.8		5.7	3.7		5.6	3.6		5.5	3.5		5.4	3.5		5.3	3.4		58.8	
59.1	6.5	4.3		6.4	4.3		6.3	4.2		6.2	4.1		6.1	4.0		6.0	3.9		5.9	3.8		5.8	3.6		5.7	3.5		5.6	3.4		5.4	3.3		59.1	
59.4	6.8	4.5		6.7	4.4		6.6	4.3		6.5	4.2		6.4	4.1		6.2	3.9		6.1	3.8		6.0	3.7		5.8	3.5		5.7	3.4		5.5	3.2		59.4	
59.7	7.1	4.7		7.0	4.5		6.9	4.4		6.8	4.3		6.6	4.1		6.5	4.0		6.3	3.8		6.1	3.7		6.0	3.5		5.8	3.3		5.6	3.2		59.7	
60.0	7.5	4.8		7.3	4.7		7.2	4.5		7.0	4.4		6.9	4.2		6.7	4.0		6.5	3.9		6.3	3.7		6.1	3.5		5.9	3.3		5.7	3.1		60.0	
60.3	7.8	5.0		7.6	4.8		7.5	4.7		7.3	4.5		7.1	4.3		6.9	4.1																		

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Total Lunar Eclipse of 2025 Mar 14

Ecliptic Conjunction = 06:55:48.0 TD (= 06:54:33.5 UT)

Greatest Eclipse = 06:59:56.2 TD (= 06:58:41.7 UT)

Penumbral Magnitude = 2.2595

P. Radius = 1.1899°

Gamma = 0.3484

Umbral Magnitude = 1.1784

U. Radius = 0.6537°

Axis = 0.3171°

Saros Series = 123

Member = 53 of 73

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 23h37m46.0s

Dec. = -02°24'16.8"

S.D. = 00°16'05.2"

H.P. = 00°00'08.8"

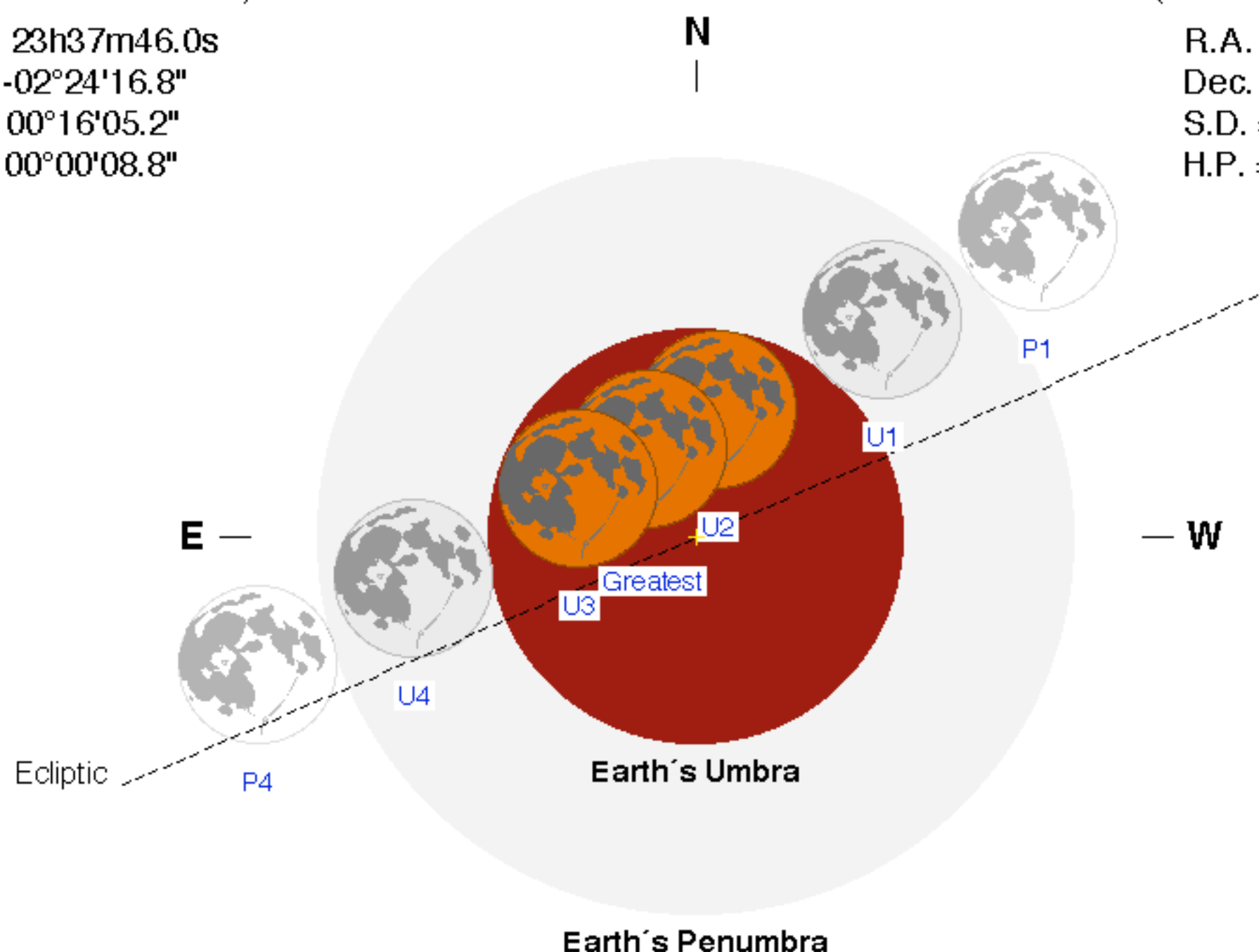
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 11h38m23.0s

Dec. = +02°40'54.6"

S.D. = 00°14'52.8"

H.P. = 00°54'36.8"



Eclipse Durations

Penumbral = 06h02m37s

Umbral = 03h38m15s

Total = 01h05m24s

$\Delta T = 75$ s

Rule = CdT (Danjon)

Eph. = VSOP87/ELP2000-85

Eclipse Contacts

P1 = 03:57:24 UT

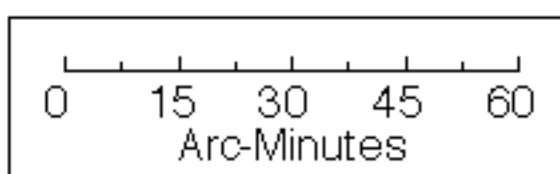
U1 = 05:09:33 UT

U2 = 06:25:59 UT

U3 = 07:31:23 UT

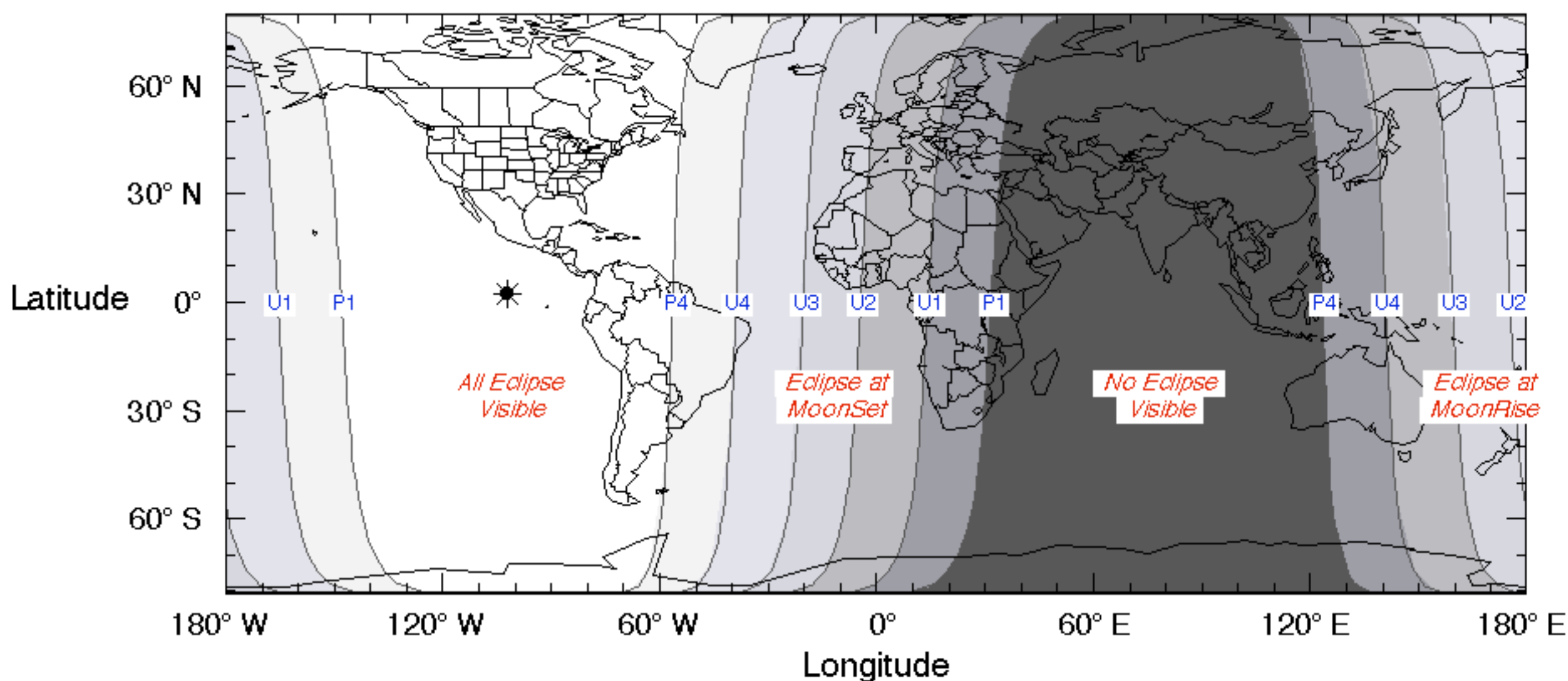
U4 = 08:47:48 UT

P4 = 10:00:01 UT



F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html



Total Lunar Eclipse of 2025 Sep 07

Ecliptic Conjunction = 18:10:03.1 TD (= 18:08:48.3 UT)

Greatest Eclipse = 18:12:57.9 TD (= 18:11:43.1 UT)

Penumbral Magnitude = 2.3440

P. Radius = 1.2655°

Gamma = -0.2752

Umbral Magnitude = 1.3619

U. Radius = 0.7364°

Axis = 0.2720°

Saros Series = 128 Member = 41 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 11h06m09.1s

Dec. = +05°45'47.5"

S.D. = 00°15'52.4"

H.P. = 00°00'08.7"

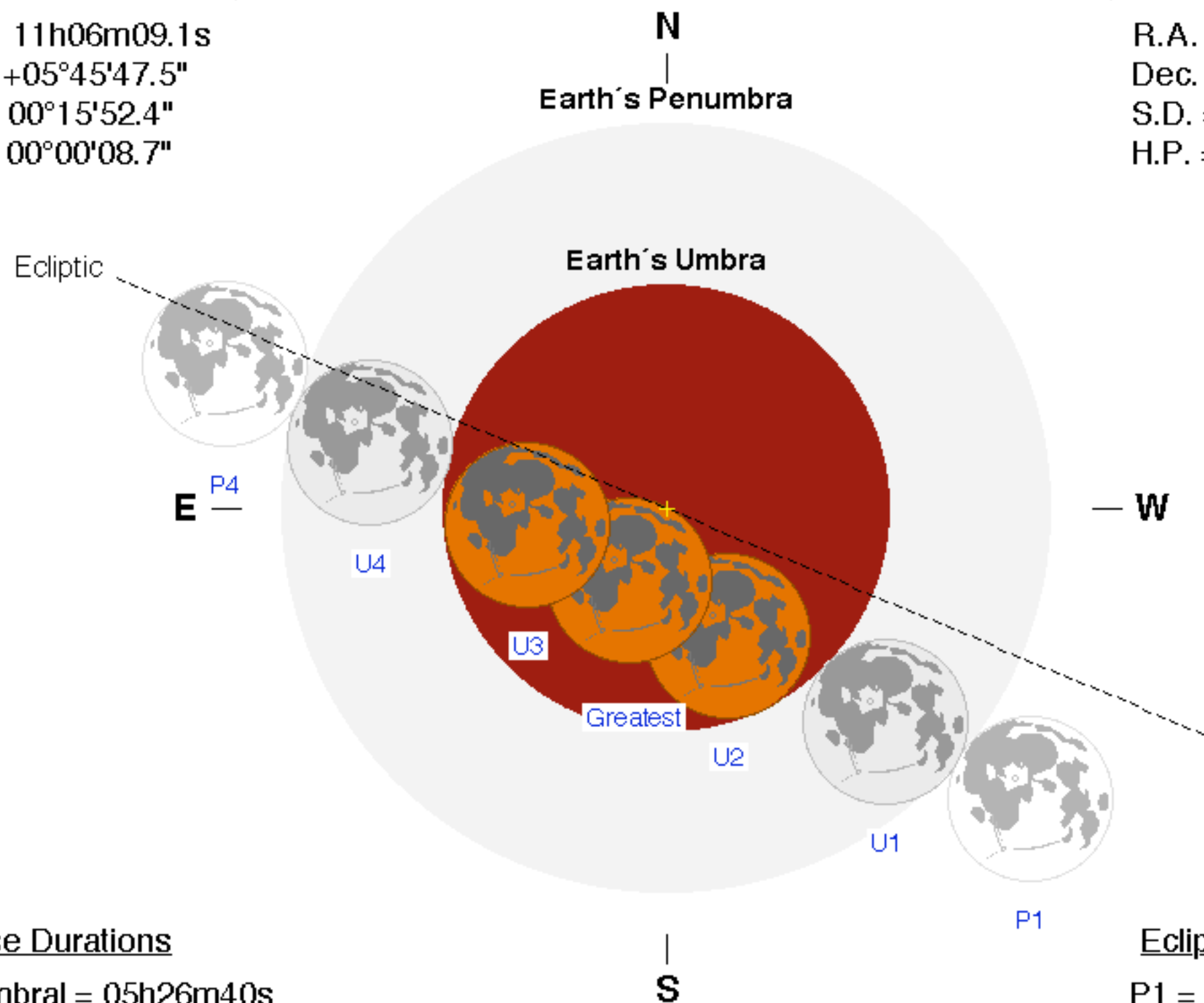
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 23h06m40.4s

Dec. = -06°00'08.9"

S.D. = 00°16'09.8"

H.P. = 00°59'19.1"



Eclipse Durations

Penumbral = 05h26m40s

Umbral = 03h29m24s

Total = 01h22m06s

$\Delta T = 75$ s

Rule = CdT (Danjon)

Eph. = VSOP87/ELP2000-85

Eclipse Contacts

P1 = 15:28:21 UT

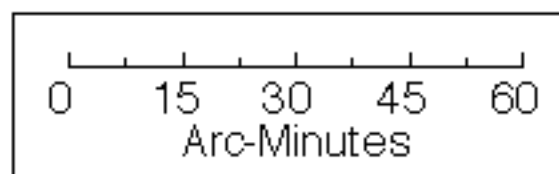
U1 = 16:27:02 UT

U2 = 17:30:41 UT

U3 = 18:52:47 UT

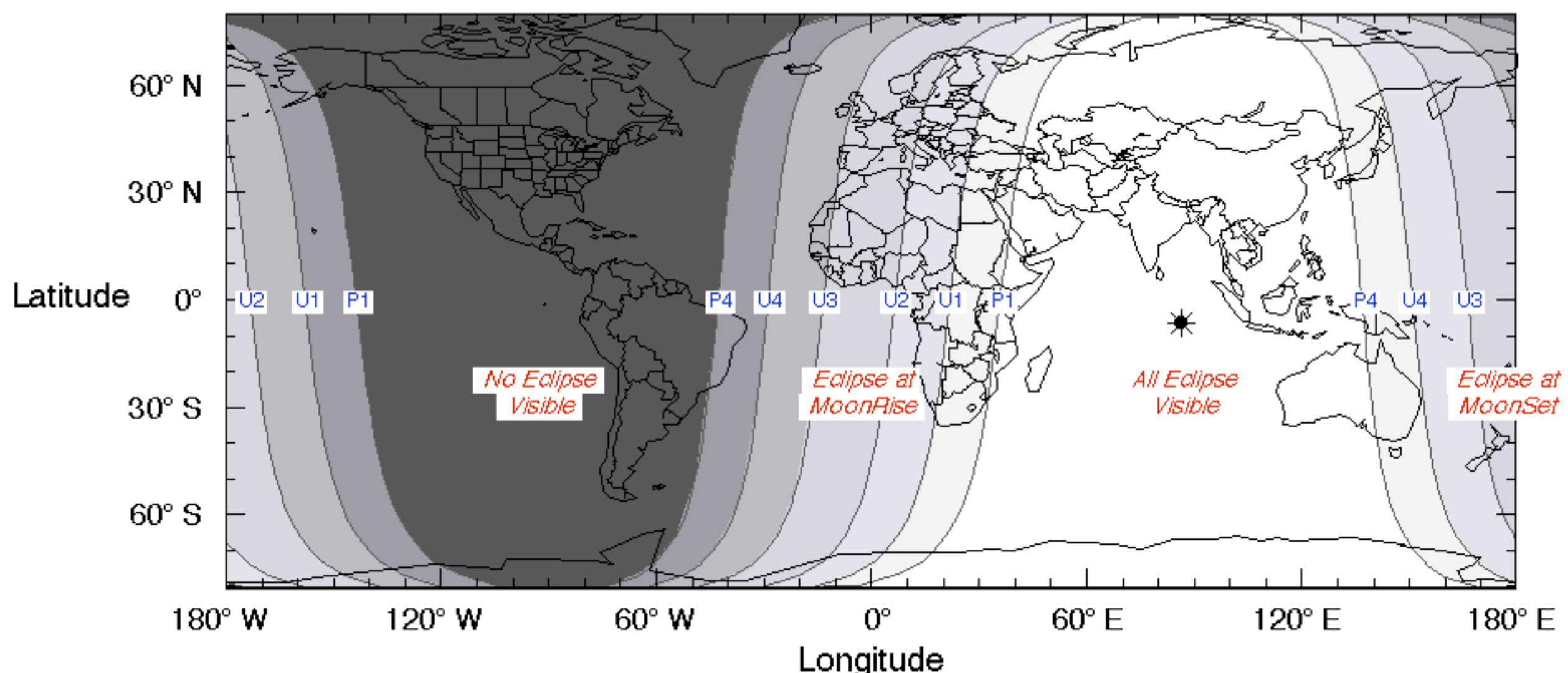
U4 = 19:56:26 UT

P4 = 20:55:00 UT



F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html



Partial Solar Eclipse of 2025 Mar 29

Geocentric Conjunction = 11:46:09.2 UT J.D. = 2460763.990384

Greatest Eclipse = 10:47:18.4 UT J.D. = 2460763.949519

Eclipse Magnitude = 0.9361 Gamma = 1.0405

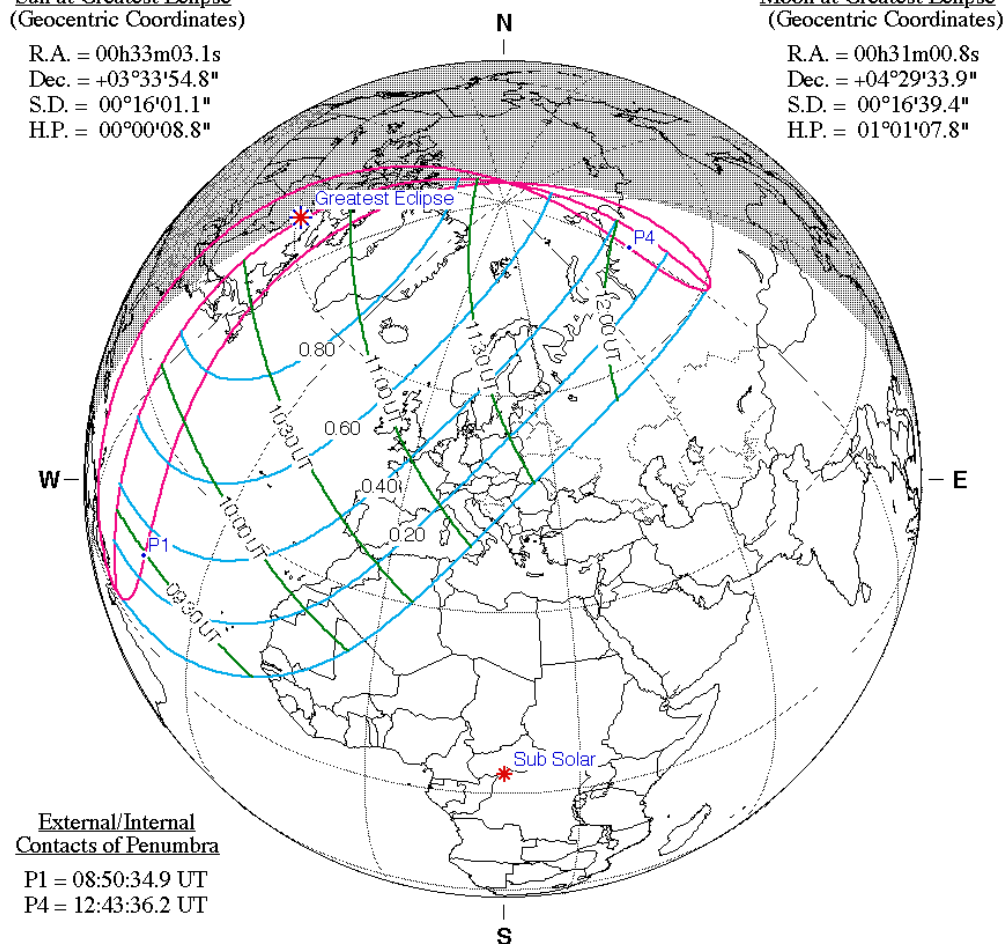
Saros Series = 149 Member = 21 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 00h33m03.1s
Dec. = +03°33'54.8"
S.D. = 00°16'01.1"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 00h31m00.8s
Dec. = +04°29'33.9"
S.D. = 00°16'39.4"
H.P. = 01°01'07.8"



External/Internal Contacts of Penumbra

P1 = 08:50:34.9 UT
P4 = 12:43:36.2 UT

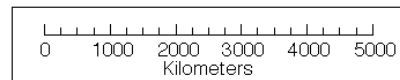
Ephemeris & Constants

Eph. = Newcomb/ILE
 $\Delta T = 82.3$ s
 $k1 = 0.2724880$
 $k2 = 0.2722810$
 $\Delta b = 0.0''$ $\Delta l = 0.0''$

Geocentric Libration (Optical + Physical)

$l = -2.00^\circ$
 $b = -1.35^\circ$
 $c = -21.73^\circ$

Brown Lun. No. = 1265



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Partial Solar Eclipse of 2025 Sep 21

Geocentric Conjunction = 20:50:18.4 UT J.D. = 2460940.368269
 Greatest Eclipse = 19:41:43.6 UT J.D. = 2460940.320643

Eclipse Magnitude = 0.8535 Gamma = -1.0652

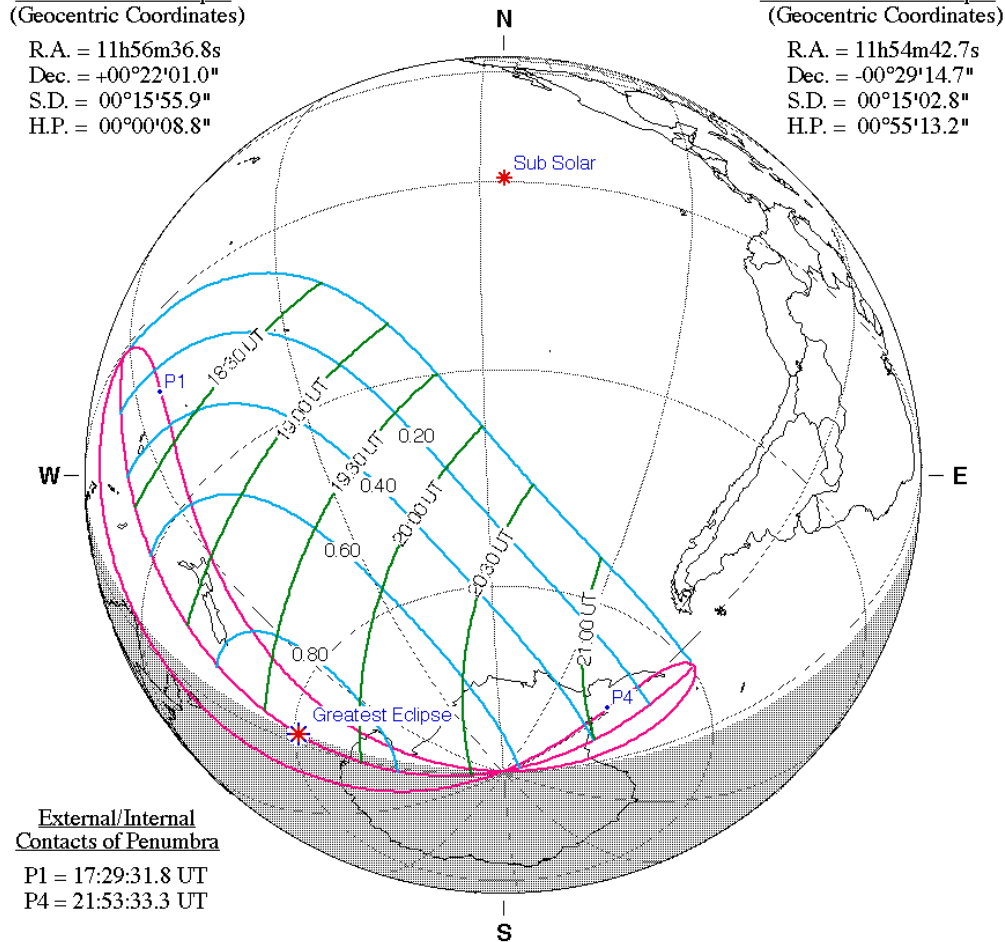
Saros Series = 154 Member = 7 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 11h56m36.8s
 Dec. = +00°22'01.0"
 S.D. = 00°15'55.9"
 H.P. = 00°00'08.8"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 11h54m42.7s
 Dec. = -00°29'14.7"
 S.D. = 00°15'02.8"
 H.P. = 00°55'13.2"



External/Internal Contacts of Penumbra

P1 = 17:29:31.8 UT
 P4 = 21:53:33.3 UT

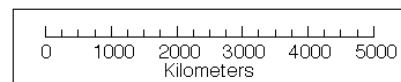
Ephemeris & Constants

Eph. = Newcomb/ILE
 $\Delta T = 82.8$ s
 $k1 = 0.2724880$
 $k2 = 0.2722810$
 $\Delta b = 0.0''$ $\Delta l = 0.0''$

Geocentric Libration (Optical + Physical)

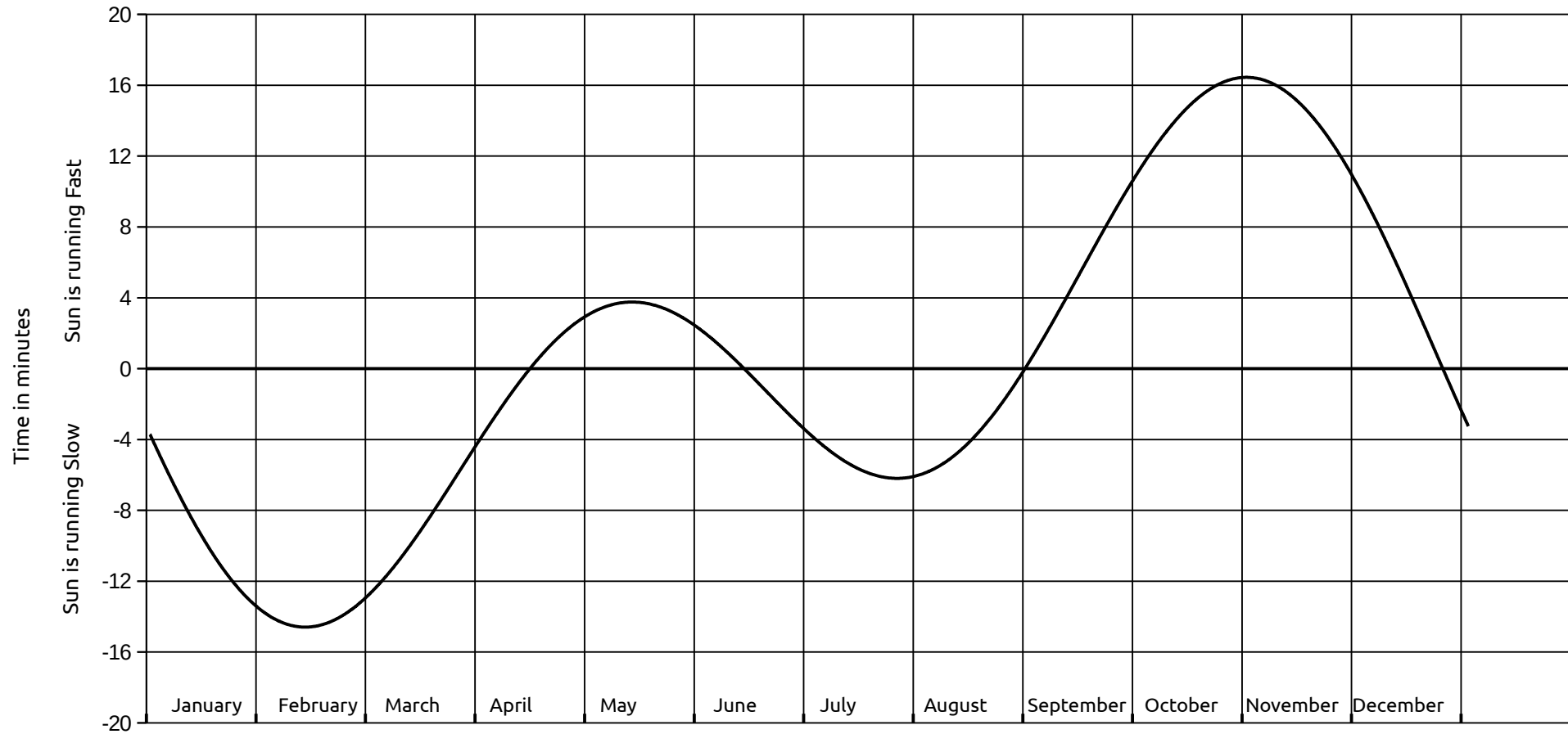
$l = 4.15^\circ$
 $b = 1.31^\circ$
 $c = 21.92^\circ$

Brown Lun. No. = 1271



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Equation of Time *for the Sun*

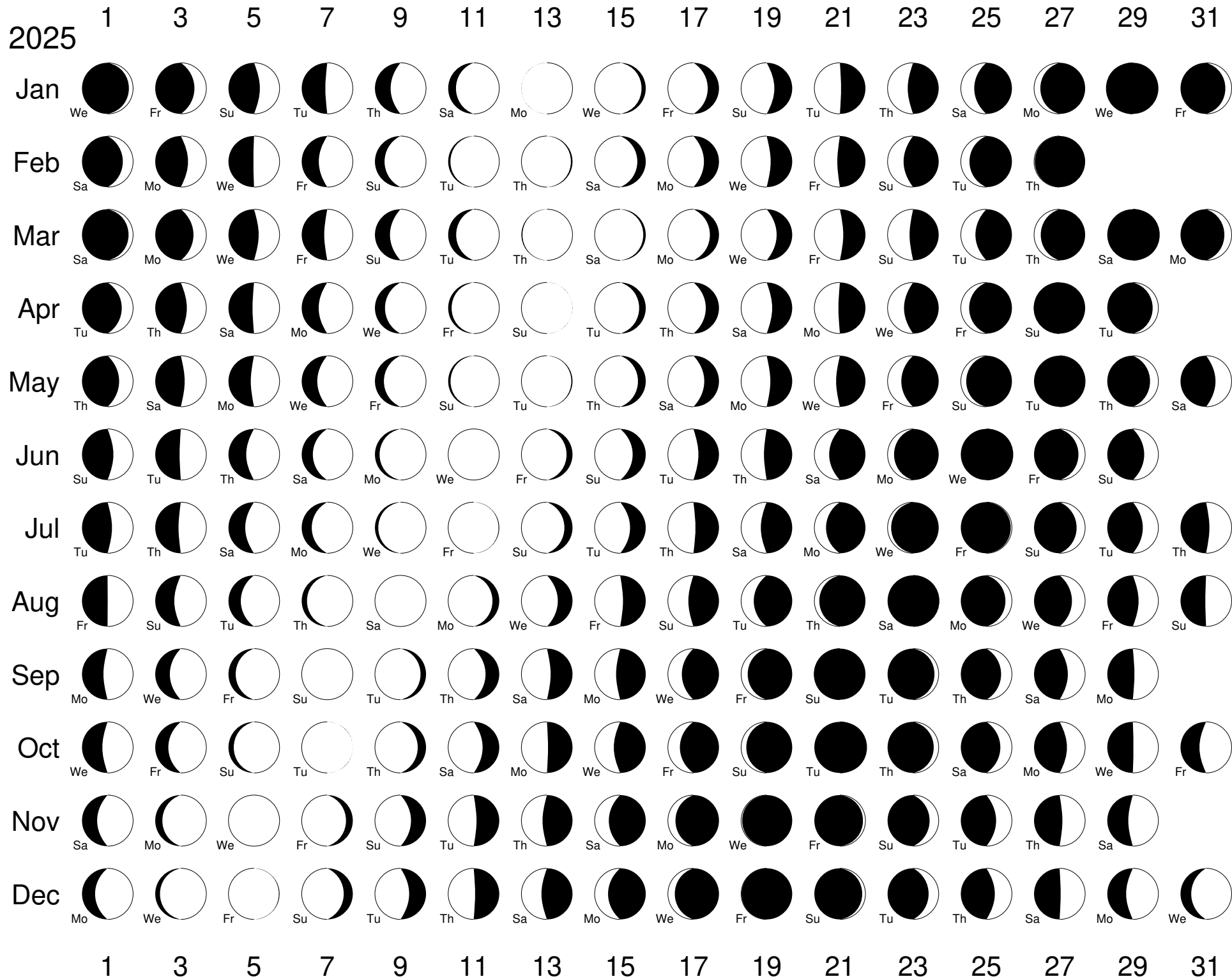


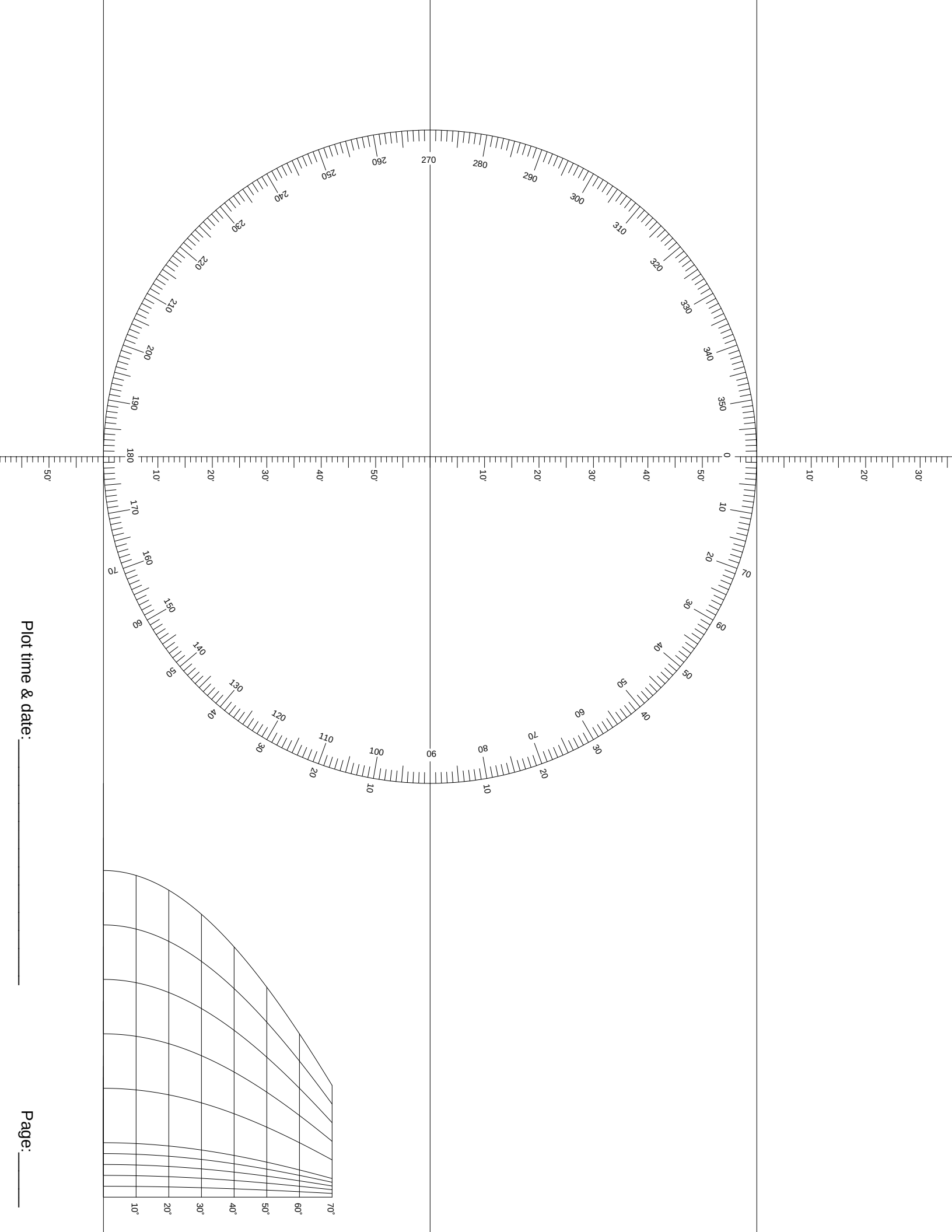
2025 Moon Phases

Date and Time (GMT/Universal Time)

New Moon	First Quarter	Full Moon	Last Quarter
--	January 06 23:56	January 13 22:27	January 21 20:31
January 29 12:36	February 05 08:02	February 12 13:53	February 20 17:32
February 28 00:45	March 06 16:31	March 14 06:55	March 22 11:29
March 29 10:58	April 05 02:15	April 13 00:22	April 21 01:35
April 27 19:31	May 04 13:52	May 12 16:56	May 20 11:59
May 27 03:02	June 03 03:41	June 11 07:44	June 18 19:19
June 25 10:31	July 02 19:30	July 10 20:37	July 18 00:38
July 24 19:11	August 01 12:41	August 09 07:55	August 16 05:12
August 23 06:06	August 31 06:25	September 07 18:09	September 14 10:33
September 21 19:54	September 29 23:54	October 07 03:47	October 13 18:13
October 21 12:25	October 29 16:21	November 05 13:19	November 12 05:28
November 20 06:47	November 28 06:59	December 04 23:14	December 11 20:52
December 20 01:43	December 27 19:10	--	--

Add or subtract your time difference from Greenwich to determine local time and date of Moon phase.





Plot time & date: _____

Page: _____

