

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	9°42.5'	182°32.5'	S 3°05.8'	187°13.7'	N 0°28.3'	6°11.3'	S 0°14.5'	47°51.7'	S 16°22.8'	290°26.9'	N 22°25.5'
1	24°45.0'	197°32.7'	S 3°06.7'	202°13.3'	N 0°27.0'	21°14.1'	S 0°14.6'	62°54.2'	S 16°22.8'	305°28.4'	N 22°25.7'
2	39°47.4'	212°32.9'	S 3°07.7'	217°13.0'	N 0°25.7'	36°16.8'	S 0°14.7'	77°56.8'	S 16°22.8'	320°30.0'	N 22°25.8'
3	54°49.9'	227°33.1'	S 3°08.7'	232°12.6'	N 0°24.5'	51°19.6'	S 0°14.9'	92°59.3'	S 16°22.9'	335°31.5'	N 22°25.9'
4	69°52.4'	242°33.3'	S 3°09.6'	247°12.2'	N 0°23.2'	66°22.4'	S 0°15.0'	108°01.9'	S 16°22.9'	350°33.1'	N 22°26.1'
5	84°54.8'	257°33.5'	S 3°10.6'	262°11.8'	N 0°22.0'	81°25.2'	S 0°15.1'	123°04.4'	S 16°22.9'	5°34.6'	N 22°26.2'
6	99°57.3'	272°33.7'	S 3°11.6'	277°11.4'	N 0°20.7'	96°27.9'	S 0°15.3'	138°07.0'	S 16°22.9'	20°36.1'	N 22°26.3'
7	114°59.8'	287°33.9'	S 3°12.6'	292°11.0'	N 0°19.5'	111°30.7'	S 0°15.4'	153°09.5'	S 16°23.0'	35°37.7'	N 22°26.5'
8	130°02.2'	302°34.1'	S 3°13.5'	307°10.6'	N 0°18.2'	126°33.5'	S 0°15.5'	168°12.1'	S 16°23.0'	50°39.2'	N 22°26.6'
9	145°04.7'	317°34.3'	S 3°14.5'	322°10.2'	N 0°17.0'	141°36.2'	S 0°15.7'	183°14.6'	S 16°23.0'	65°40.8'	N 22°26.7'
10	160°07.2'	332°34.5'	S 3°15.5'	337°09.8'	N 0°15.7'	156°39.0'	S 0°15.8'	198°17.2'	S 16°23.1'	80°42.3'	N 22°26.9'
11	175°09.6'	347°34.7'	S 3°16.4'	352°09.4'	N 0°14.5'	171°41.8'	S 0°15.9'	213°19.7'	S 16°23.1'	95°43.9'	N 22°27.0'
12	190°12.1'	2°34.9'	S 3°17.4'	7°09.0'	N 0°13.2'	186°44.5'	S 0°16.0'	228°22.3'	S 16°23.1'	110°45.5'	N 22°27.1'
13	205°14.5'	17°35.1'	S 3°18.4'	22°08.7'	N 0°12.0'	201°47.3'	S 0°16.2'	243°24.8'	S 16°23.1'	125°47.0'	N 22°27.3'
14	220°17.0'	32°35.3'	S 3°19.3'	37°08.3'	N 0°10.7'	216°50.1'	S 0°16.3'	258°27.4'	S 16°23.2'	140°48.6'	N 22°27.4'
15	235°19.5'	47°35.5'	S 3°20.3'	52°07.9'	N 0°09.5'	231°52.8'	S 0°16.4'	273°29.9'	S 16°23.2'	155°50.1'	N 22°27.5'
16	250°21.9'	62°35.7'	S 3°21.3'	67°07.5'	N 0°08.2'	246°55.6'	S 0°16.6'	288°32.5'	S 16°23.2'	170°51.7'	N 22°27.7'
17	265°24.4'	77°35.9'	S 3°22.2'	82°07.1'	N 0°07.0'	261°58.4'	S 0°16.7'	303°35.0'	S 16°23.2'	185°53.2'	N 22°27.8'
18	280°26.9'	92°36.1'	S 3°23.2'	97°06.7'	N 0°05.7'	277°01.2'	S 0°16.8'	318°37.6'	S 16°23.3'	200°54.8'	N 22°27.9'
19	295°29.3'	107°36.3'	S 3°24.2'	112°06.3'	N 0°04.4'	292°03.9'	S 0°17.0'	333°40.1'	S 16°23.3'	215°56.4'	N 22°28.1'
20	310°31.8'	122°36.5'	S 3°25.2'	127°05.9'	N 0°03.2'	307°06.7'	S 0°17.1'	348°42.7'	S 16°23.3'	230°57.9'	N 22°28.2'
21	325°34.3'	137°36.7'	S 3°26.1'	142°05.5'	N 0°01.9'	322°09.5'	S 0°17.2'	3°45.3'	S 16°23.3'	245°59.5'	N 22°28.3'
22	340°36.7'	152°36.9'	S 3°27.1'	157°05.1'	N 0°00.7'	337°12.2'	S 0°17.4'	18°47.8'	S 16°23.4'	261°01.0'	N 22°28.5'
23	355°39.2'	167°37.1'	S 3°28.1'	172°04.7'	N 0°00.6'	352°15.0'	S 0°17.5'	33°50.4'	S 16°23.4'	276°02.6'	N 22°28.6'
		SD 16.0'	<i>d</i> -1.0'	<i>v</i> -0.4'	<i>d</i> -1.3'	<i>v</i> 2.8'	<i>d</i> -0.1'	<i>v</i> 2.6'	<i>d</i> -0.0'	<i>v</i> 1.6'	<i>d</i> 0.1'
Mer. pass.		11 h 49 m 42 s		11 h 31 m		23 h 31 m		20 h 45 m		4 h 38 m	

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	+Antares	+Hadar	+Spica	+Sun
0	120°04.6'	S 24°33.8'	6.0'	-7.5'	58.7'	90°00.5'	82°16.6'	67°26.0'	57°48.7'			47°20.5'	63°45.0'
1	134°29.6'	S 24°41.3'	5.9'	-7.4'	58.7'	89°40.4'	81°43.1'	66°51.1'	57°22.8'			47°55.3'	64°17.4'
2	148°54.4'	S 24°48.6'	5.8'	-7.2'	58.8'	89°20.3'	81°09.6'	66°16.2'	56°56.9'			48°30.0'	64°49.8'
3	163°19.2'	S 24°55.9'	5.7'	-7.1'	58.8'	89°00.2'	80°36.1'	65°41.3'	56°31.1'			49°04.8'	65°22.2'
4	177°43.9'	S 25°02.9'	5.6'	-6.9'	58.8'	88°40.1'	80°02.6'	65°06.3'	56°05.5'			49°39.7'	65°54.6'
5	192°08.5'	S 25°09.8'	5.5'	-6.7'	58.8'	88°20.0'	79°29.1'	64°31.4'	55°39.9'			50°14.5'	66°27.1'
6	206°33.1'	S 25°16.5'	5.4'	-6.6'	58.8'	87°59.9'	78°55.6'	63°56.4'	55°14.5'	5°16.6'		50°49.3'	66°59.5'
7	220°57.5'	S 25°23.1'	5.4'	-6.4'	58.8'	87°39.8'	78°22.0'	63°21.4'	54°49.1'	5°48.5'		51°24.2'	67°32.0'
8	235°21.9'	S 25°29.5'	5.3'	-6.3'	58.8'	87°19.7'	77°48.5'	62°46.5'	54°23.9'	6°21.0'		51°59.1'	68°04.5'
9	249°46.2'	S 25°35.8'	5.2'	-6.1'	58.8'	86°59.6'	77°15.0'	62°11.5'	53°58.8'	6°53.9'		52°33.9'	68°37.0'
10	264°10.4'	S 25°41.9'	5.1'	-5.9'	58.8'	86°39.5'	76°41.4'	61°36.5'	53°33.8'	7°27.1'		53°08.8'	69°09.5'
11	278°34.5'	S 25°47.8'	5.1'	-5.8'	58.9'	86°19.4'	76°07.9'	61°01.4'	53°08.9'	8°00.6'		53°43.8'	69°42.0'
12	292°58.6'	S 25°53.6'	5.0'	-5.6'	58.9'	85°59.3'	75°34.3'	60°26.4'	52°44.1'	8°34.3'		54°18.7'	70°14.6'
13	307°22.5'	S 25°59.2'	4.9'	-5.4'	58.9'	85°39.3'	75°00.8'	59°51.4'	52°19.5'	9°08.1'		54°53.6'	70°47.1'
14	321°46.5'	S 26°04.6'	4.8'	-5.3'	58.9'	85°19.2'	74°27.2'	59°16.3'	51°55.0'	9°42.2'		55°28.6'	71°19.6'
15	336°10.3'	S 26°09.9'	4.8'	-5.1'	58.9'	84°59.2'	73°53.7'	58°41.3'	51°30.7'	10°16.3'		56°03.5'	71°52.2'
16	350°34.1'	S 26°15.0'	4.7'	-4.9'	58.9'	84°39.2'	73°20.1'	58°06.2'	51°06.4'	10°50.6'		56°38.5'	72°24.8'
17	4°57.8'	S 26°19.9'	4.6'	-4.7'	58.9'	84°19.2'	72°46.6'	57°31.2'	50°42.4'	11°24.9'		57°13.5'	72°57.4'
18	19°21.4'	S 26°24.6'	4.6'	-4.6'	58.9'	83°59.2'	72°13.0'	56°56.1'	50°18.5'	11°59.4'		57°48.5'	73°30.0'
19	33°45.0'	S 26°29.2'	4.5'	-4.4'	58.9'	83°39.2'	71°39.4'	56°21.0'	49°54.7'	12°33.9'		58°23.5'	74°02.6'
20	48°08.5'	S 26°33.6'	4.5'	-4.2'	58.9'	83°19.3'	71°05.9'	55°45.9'	49°31.1'	13°08.4'		58°58.5'	74°35.2'
21	62°32.0'	S 26°37.8'	4.4'	-4.0'	59.0'	82°59.3'	70°32.3'	55°10.8'	49°07.6'	13°43.0'		59°33.5'	75°07.8'
22	76°55.4'	S 26°41.9'	4.3'	-3.9'	59.0'	82°39.4'	69°58.8'	54°35.7'	48°44.4'	14°17.7'		60°08.6'	75°40.5'
23	91°18.7'	S 26°45.7'	4.3'	-3.7'	59.0'	82°19.6'	69°25.2'	54°00.6'	48°21.3'	14°52.4'	48°57.5'	60°43.6'	76°13.1'
Mer. pass.		16 h 39 m SD 16.0'		phase 28%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.1'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.4'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.6'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°33.9'	N 89°21.4'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.4'	S 28°59.9'	Achernar	+0.5	335°21.1'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.1'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars			
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec		
0	10°41.7'	S 3°29.0'	182°37.3'	S 3°29.0'	187°04.4'	S 0°01.8'	77°17.8'	S 0°17.6'	48°52.9'	S 16°23.4'	291°04.2'	N 22°28.7'		
1	25°44.1'	S 3°30.0'	197°37.5'	S 3°30.0'	202°04.0'	S 0°03.1'	22°20.5'	S 0°17.7'	63°55.4'	S 16°23.4'	306°05.7'	N 22°28.9'		
2	40°46.6'	S 3°31.0'	212°37.7'	S 3°31.0'	217°03.6'	S 0°04.3'	37°23.3'	S 0°17.9'	78°58.0'	S 16°23.5'	321°07.3'	N 22°29.0'		
3	55°49.0'	S 3°31.9'	227°37.9'	S 3°31.9'	232°03.2'	S 0°05.6'	52°26.1'	S 0°18.0'	94°00.5'	S 16°23.5'	336°08.9'	N 22°29.1'		
4	70°51.5'	S 3°32.9'	242°38.1'	S 3°32.9'	247°02.8'	S 0°06.8'	67°28.8'	S 0°18.1'	109°03.1'	S 16°23.5'	351°10.4'	N 22°29.3'		
5	85°54.0'	S 3°33.9'	257°38.3'	S 3°33.9'	262°02.4'	S 0°08.1'	82°31.6'	S 0°18.3'	124°05.6'	S 16°23.5'	6°12.0'	N 22°29.4'		
6	100°56.4'	S 3°34.8'	272°38.5'	S 3°34.8'	277°02.0'	S 0°09.3'	97°34.4'	S 0°18.4'	139°08.2'	S 16°23.6'	21°13.6'	N 22°29.5'		
7	115°58.9'	S 3°35.8'	287°38.7'	S 3°35.8'	292°01.6'	S 0°10.6'	112°37.1'	S 0°18.5'	154°10.7'	S 16°23.6'	36°15.2'	N 22°29.7'		
8	131°01.4'	S 3°36.8'	302°38.9'	S 3°36.8'	307°01.2'	S 0°11.9'	127°39.9'	S 0°18.7'	169°13.3'	S 16°23.6'	51°16.7'	N 22°29.8'		
9	146°03.8'	S 3°37.7'	317°39.1'	S 3°37.7'	322°00.8'	S 0°13.1'	142°42.7'	S 0°18.8'	184°15.8'	S 16°23.6'	66°18.3'	N 22°29.9'		
10	161°06.3'	S 3°38.7'	332°39.3'	S 3°38.7'	337°00.4'	S 0°14.4'	157°45.5'	S 0°18.9'	199°18.4'	S 16°23.7'	81°19.9'	N 22°30.0'		
11	176°08.8'	S 3°39.7'	347°39.5'	S 3°39.7'	352°00.1'	S 0°15.6'	172°48.2'	S 0°19.0'	214°20.9'	S 16°23.7'	96°21.4'	N 22°30.2'		
12	191°11.2'	S 3°40.6'	2°39.7'	S 3°40.6'	6°59.7'	S 0°16.9'	187°51.0'	S 0°19.2'	229°23.5'	S 16°23.7'	111°23.0'	N 22°30.3'		
13	206°13.7'	S 3°41.6'	17°39.9'	S 3°41.6'	21°59.3'	S 0°18.1'	202°53.8'	S 0°19.3'	244°26.0'	S 16°23.7'	126°24.6'	N 22°30.4'		
14	221°16.2'	S 3°42.6'	32°40.1'	S 3°42.6'	36°58.9'	S 0°19.4'	217°56.5'	S 0°19.4'	259°28.6'	S 16°23.8'	141°26.2'	N 22°30.6'		
15	236°18.6'	S 3°43.5'	47°40.3'	S 3°43.5'	51°58.5'	S 0°20.6'	232°59.3'	S 0°19.6'	274°31.1'	S 16°23.8'	156°27.8'	N 22°30.7'		
16	251°21.1'	S 3°44.5'	62°40.5'	S 3°44.5'	66°58.1'	S 0°21.9'	248°02.1'	S 0°19.7'	289°33.7'	S 16°23.8'	171°29.3'	N 22°30.8'		
17	266°23.5'	S 3°45.5'	77°40.7'	S 3°45.5'	81°57.7'	S 0°23.1'	263°04.8'	S 0°19.8'	304°36.2'	S 16°23.8'	186°30.9'	N 22°31.0'		
18	281°26.0'	S 3°46.4'	92°40.9'	S 3°46.4'	96°57.3'	S 0°24.4'	278°07.6'	S 0°20.0'	319°38.8'	S 16°23.9'	201°32.5'	N 22°31.1'		
19	296°28.5'	S 3°47.4'	107°41.1'	S 3°47.4'	111°56.9'	S 0°25.6'	293°10.4'	S 0°20.1'	334°41.3'	S 16°23.9'	216°34.1'	N 22°31.2'		
20	311°30.9'	S 3°48.4'	122°41.3'	S 3°48.4'	126°56.5'	S 0°26.9'	308°13.1'	S 0°20.2'	349°43.9'	S 16°23.9'	231°35.7'	N 22°31.4'		
21	326°33.4'	S 3°49.3'	137°41.5'	S 3°49.3'	141°56.1'	S 0°28.2'	323°15.9'	S 0°20.3'	4°46.4'	S 16°23.9'	246°37.3'	N 22°31.5'		
22	341°35.9'	S 3°50.3'	152°41.7'	S 3°50.3'	156°55.8'	S 0°29.4'	338°18.7'	S 0°20.5'	19°49.0'	S 16°24.0'	261°38.8'	N 22°31.6'		
23	356°38.3'	S 3°51.3'	167°41.9'	S 3°51.3'	171°55.4'	S 0°30.7'	353°21.4'	S 0°20.6'	34°51.5'	S 16°24.0'	276°40.4'	N 22°31.7'		
		<i>d</i> -1.0'		<i>v</i> -0.4'	<i>d</i> -1.3'		<i>v</i> 2.8'	<i>d</i> -0.1'		<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 1.6'	<i>d</i> 0.1'	
Mer. pass.		11 h 49 m 22 s			11 h 32 m			23 h 27 m				20 h 41 m		4 h 35 m

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigil Kent	+Hadar	+Sun
0	105°42.0'	S 26°49.4'	4.2'	-3.5'	59.0'	81°59.7'	68°51.7'	53°25.5'	47°58.3'	15°27.2'		49°12.6'	76°45.8'
1	120°05.3'	S 26°52.9'	4.2'	-3.3'	59.0'	81°39.9'	68°18.1'	52°50.3'	47°35.6'	16°02.0'		49°28.0'	77°18.4'
2	134°28.4'	S 26°56.3'	4.1'	-3.2'	59.0'	81°20.1'	67°44.6'	52°15.2'	47°13.0'	16°36.8'		49°43.6'	77°51.1'
3	148°51.6'	S 26°59.4'	4.1'	-3.0'	59.0'	81°00.4'	67°11.1'	51°40.0'	46°50.6'	17°11.7'		49°59.5'	78°23.8'
4	163°14.7'	S 27°02.4'	4.0'	-2.8'	59.0'	80°40.6'	66°37.5'	51°04.9'	46°28.5'	17°46.6'		50°15.7'	78°56.5'
5	177°37.7'	S 27°05.2'	4.0'	-2.6'	59.0'	80°21.0'	66°04.0'	50°29.7'	46°06.5'	18°21.5'	46°34.2'	50°32.1'	79°29.2'
6	192°00.7'	S 27°07.8'	4.0'	-2.4'	59.0'	80°01.3'	65°30.5'	49°54.5'	45°44.7'	18°56.5'	46°49.5'	50°48.7'	80°01.9'
7	206°23.7'	S 27°10.2'	3.9'	-2.2'	59.0'	79°41.7'	64°57.0'	49°19.4'	45°23.2'	19°31.4'	47°05.0'	51°05.5'	80°34.6'
8	220°46.6'	S 27°12.4'	3.9'	-2.1'	59.1'	79°22.1'	64°23.5'	48°44.2'	45°01.8'	20°06.4'	47°20.9'	51°22.6'	81°07.4'
9	235°09.5'	S 27°14.5'	3.9'	-1.9'	59.1'	79°02.6'	63°50.0'	48°09.0'	44°40.7'	20°41.4'	47°36.9'	51°39.9'	81°40.1'
10	249°32.4'	S 27°16.3'	3.8'	-1.7'	59.1'	78°43.1'	63°16.5'	47°33.8'	44°19.9'	21°16.5'	47°53.3'	51°57.4'	82°12.9'
11	263°55.2'	S 27°18.0'	3.8'	-1.5'	59.1'	78°23.7'	62°43.0'	46°58.6'	43°59.2'	21°51.5'	48°09.9'	52°15.2'	82°45.6'
12	278°18.0'	S 27°19.5'	3.8'	-1.3'	59.1'	78°04.3'	62°09.5'	46°23.4'	43°38.8'	22°26.6'	48°26.7'	52°33.1'	83°18.4'
13	292°40.8'	S 27°20.8'	3.8'	-1.1'	59.1'	77°45.0'	61°36.1'	45°48.2'	43°18.7'	23°01.7'	48°43.8'	52°51.3'	83°51.2'
14	307°03.6'	S 27°22.0'	3.7'	-0.9'	59.1'	77°25.7'	61°02.6'	45°13.0'	42°58.8'	23°36.8'	49°01.2'	53°09.6'	84°24.0'
15	321°26.3'	S 27°22.9'	3.7'	-0.7'	59.1'	77°06.4'	60°29.2'	44°37.8'	42°39.2'	24°12.0'	49°18.8'	53°28.2'	84°56.8'
16	335°49.0'	S 27°23.6'	3.7'	-0.6'	59.1'	76°47.2'	59°55.8'	44°02.5'	42°19.8'	24°47.1'	49°36.6'	53°47.0'	85°29.6'
17	350°11.7'	S 27°24.2'	3.7'	-0.4'	59.1'	76°28.1'	59°22.4'	43°27.3'	42°00.7'	25°22.3'	49°54.7'	54°05.9'	86°02.4'
18	4°34.4'	S 27°24.6'	3.7'	-0.2'	59.1'	76°09.0'	58°49.0'	42°52.1'	41°41.9'	25°57.4'	50°13.0'	54°25.1'	86°35.2'
19	18°57.0'	S 27°24.8'	3.7'	0.0'	59.1'	75°50.0'	58°15.6'	42°16.8'	41°23.4'	26°32.6'	50°31.5'	54°44.4'	87°08.0'
20	33°19.7'	S 27°24.8'	3.6'	0.2'	59.1'	75°31.1'	57°42.2'	41°41.6'	41°05.2'	27°07.8'	50°50.2'	55°03.9'	87°40.9'
21	47°42.3'	S 27°24.6'	3.6'	0.4'	59.1'	75°12.2'	57°08.9'	41°06.4'	40°47.3'	27°43.0'	51°09.2'	55°23.6'	88°13.7'
22	62°05.0'	S 27°24.2'	3.6'	0.6'	59.2'	74°53.4'	56°35.6'	40°31.1'	40°29.7'	28°18.3'	51°28.4'	55°43.5'	88°46.6'
23	76°27.6'	S 27°23.6'	3.6'	0.8'	59.2'	74°34.6'	56°02.3'	39°55.9'	40°12.4'	28°53.5'	51°47.7'	56°03.6'	89°19.4'
Mer. pass.		17 h 41 m SD 16.1'		phase 39%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.1'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.6'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°33.4'	N 89°21.4'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.4'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.1'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	11°40.8'	182°42.1'	S 3°52.2'	186°55.0'	S 0°31.9'	8°24.2'	S 0°20.7'	49°54.0'	S 16°24.0'	291°42.0'	N 22°31.9'
1	26°43.3'	197°42.3'	S 3°53.2'	201°54.6'	S 0°33.2'	23°27.0'	S 0°20.9'	64°56.6'	S 16°24.0'	306°43.6'	N 22°32.0'
2	41°45.7'	212°42.5'	S 3°54.2'	216°54.2'	S 0°34.4'	38°29.7'	S 0°21.0'	79°59.1'	S 16°24.1'	321°45.2'	N 22°32.1'
3	56°48.2'	227°42.7'	S 3°55.1'	231°53.8'	S 0°35.7'	53°32.5'	S 0°21.1'	95°01.7'	S 16°24.1'	336°46.8'	N 22°32.3'
4	71°50.6'	242°42.9'	S 3°56.1'	246°53.4'	S 0°36.9'	68°35.3'	S 0°21.3'	110°04.2'	S 16°24.1'	351°48.4'	N 22°32.4'
5	86°53.1'	257°43.1'	S 3°57.1'	261°53.0'	S 0°38.2'	83°38.0'	S 0°21.4'	125°06.8'	S 16°24.1'	6°50.0'	N 22°32.5'
6	101°55.6'	272°43.3'	S 3°58.0'	276°52.6'	S 0°39.4'	98°40.8'	S 0°21.5'	140°09.3'	S 16°24.2'	21°51.6'	N 22°32.7'
7	116°58.0'	287°43.5'	S 3°59.0'	291°52.2'	S 0°40.7'	113°43.6'	S 0°21.6'	155°11.9'	S 16°24.2'	36°53.2'	N 22°32.8'
8	132°00.5'	302°43.7'	S 3°60.0'	306°51.8'	S 0°42.0'	128°46.3'	S 0°21.8'	170°14.4'	S 16°24.2'	51°54.8'	N 22°32.9'
9	147°03.0'	317°43.8'	S 4°00.9'	321°51.4'	S 0°43.2'	143°49.1'	S 0°21.9'	185°17.0'	S 16°24.2'	66°56.4'	N 22°33.0'
10	162°05.4'	332°44.0'	S 4°01.9'	336°51.1'	S 0°44.5'	158°51.9'	S 0°22.0'	200°19.5'	S 16°24.3'	81°58.0'	N 22°33.2'
11	177°07.9'	347°44.2'	S 4°02.9'	351°50.7'	S 0°45.7'	173°54.6'	S 0°22.2'	215°22.0'	S 16°24.3'	96°59.6'	N 22°33.3'
12	192°10.4'	2°44.4'	S 4°03.8'	6°50.3'	S 0°47.0'	188°57.4'	S 0°22.3'	230°24.6'	S 16°24.3'	112°01.2'	N 22°33.4'
13	207°12.8'	17°44.6'	S 4°04.8'	21°49.9'	S 0°48.2'	204°00.2'	S 0°22.4'	245°27.1'	S 16°24.3'	127°02.8'	N 22°33.6'
14	222°15.3'	32°44.8'	S 4°05.8'	36°49.5'	S 0°49.5'	219°02.9'	S 0°22.5'	260°29.7'	S 16°24.3'	142°04.4'	N 22°33.7'
15	237°17.8'	47°45.0'	S 4°06.7'	51°49.1'	S 0°50.7'	234°05.7'	S 0°22.7'	275°32.2'	S 16°24.4'	157°06.0'	N 22°33.8'
16	252°20.2'	62°45.2'	S 4°07.7'	66°48.7'	S 0°52.0'	249°08.5'	S 0°22.8'	290°34.8'	S 16°24.4'	172°07.6'	N 22°33.9'
17	267°22.7'	77°45.4'	S 4°08.7'	81°48.3'	S 0°53.3'	264°11.2'	S 0°22.9'	305°37.3'	S 16°24.4'	187°09.2'	N 22°34.1'
18	282°25.1'	92°45.6'	S 4°09.6'	96°47.9'	S 0°54.5'	279°14.0'	S 0°23.1'	320°39.8'	S 16°24.4'	202°10.8'	N 22°34.2'
19	297°27.6'	107°45.8'	S 4°10.6'	111°47.5'	S 0°55.8'	294°16.8'	S 0°23.2'	335°42.4'	S 16°24.5'	217°12.4'	N 22°34.3'
20	312°30.1'	122°46.0'	S 4°11.6'	126°47.1'	S 0°57.0'	309°19.5'	S 0°23.3'	350°44.9'	S 16°24.5'	232°14.0'	N 22°34.5'
21	327°32.5'	137°46.2'	S 4°12.5'	141°46.7'	S 0°58.3'	324°22.3'	S 0°23.4'	5°47.5'	S 16°24.5'	247°15.6'	N 22°34.6'
22	342°35.0'	152°46.4'	S 4°13.5'	156°46.4'	S 0°59.5'	339°25.1'	S 0°23.6'	20°50.0'	S 16°24.5'	262°17.2'	N 22°34.7'
23	357°37.5'	167°46.6'	S 4°14.5'	171°46.0'	S 1°00.8'	354°27.8'	S 0°23.7'	35°52.6'	S 16°24.6'	277°18.8'	N 22°34.8'
		SD 16.0'	<i>d</i> -1.0'	<i>v</i> -0.4'	<i>d</i> -1.3'	<i>v</i> 2.8'	<i>d</i> -0.1'	<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 1.6'	<i>d</i> 0.1'
Mer. pass.		11 h 49 m 4 s		11 h 33 m		23 h 22 m		20 h 37 m		4 h 33 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Achernar	-Fomalhaut	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Sun
0	90°50.3'	S 27°22.9'	3.6'	0.9'	59.2'	74°15.9'	55°29.0'	39°55.4'	39°20.6'	29°28.8'	52°07.3'	56°23.8'	89°52.3'
1	105°12.9'	S 27°21.9'	3.6'	1.1'	59.2'	73°57.3'	54°55.8'	39°38.8'	38°45.4'	30°04.0'	52°27.1'	56°44.2'	90°25.2'
2	119°35.6'	S 27°20.8'	3.7'	1.3'	59.2'	73°38.7'	54°22.5'	39°22.5'	38°10.1'	30°39.3'	52°47.1'	57°04.7'	90°58.1'
3	133°58.2'	S 27°19.5'	3.7'	1.5'	59.2'	73°20.3'	53°49.3'	39°06.6'	37°34.9'	31°14.6'	53°07.2'	57°25.4'	91°31.0'
4	148°20.9'	S 27°17.9'	3.7'	1.7'	59.2'	73°01.9'	53°16.1'	38°51.0'	36°59.6'	31°49.9'	53°27.6'	57°46.3'	92°03.9'
5	162°43.6'	S 27°16.2'	3.7'	1.9'	59.2'	72°43.6'	52°43.0'		36°24.3'	32°25.2'	53°48.1'	58°07.3'	92°36.8'
6	177°06.2'	S 27°14.4'	3.7'	2.1'	59.2'	72°25.3'	52°09.8'		35°49.1'	33°00.5'	54°08.8'	58°28.5'	93°09.7'
7	191°28.9'	S 27°12.3'	3.7'	2.3'	59.2'	72°07.2'	51°36.7'		35°13.8'	33°35.8'	54°29.7'	58°49.8'	93°42.6'
8	205°51.7'	S 27°10.0'	3.7'	2.4'	59.2'	71°49.1'	51°03.7'		34°38.6'	34°11.2'	54°50.8'	59°11.2'	94°15.5'
9	220°14.4'	S 27°07.6'	3.8'	2.6'	59.2'	71°31.1'	50°30.6'		34°03.3'	34°46.5'	55°12.0'	59°32.8'	94°48.4'
10	234°37.2'	S 27°04.9'	3.8'	2.8'	59.2'	71°13.2'	49°57.6'		33°28.1'	35°21.9'	55°33.4'	59°54.6'	95°21.4'
11	248°60.0'	S 27°02.1'	3.8'	3.0'	59.2'	70°55.4'	49°24.7'		32°52.8'	35°57.2'	55°55.0'	60°16.5'	95°54.3'
12	263°22.8'	S 26°59.1'	3.9'	3.2'	59.2'	70°37.7'	48°51.7'		32°17.6'	36°32.6'	56°16.7'	60°38.5'	96°27.3'
13	277°45.6'	S 26°55.9'	3.9'	3.4'	59.2'	70°20.0'	48°18.8'		31°42.3'	37°08.0'	56°38.6'	61°00.6'	97°00.2'
14	292°08.5'	S 26°52.5'	3.9'	3.6'	59.2'	70°02.5'	47°46.0'		31°07.1'	37°43.3'	57°00.6'	61°22.9'	97°33.2'
15	306°31.4'	S 26°49.0'	4.0'	3.7'	59.2'	69°45.1'	47°13.2'		30°31.8'	38°18.7'	57°22.8'	61°45.2'	98°06.2'
16	320°54.4'	S 26°45.2'	4.0'	3.9'	59.2'	69°27.7'	46°40.4'		29°56.6'	38°54.1'	57°45.1'	62°07.8'	98°39.1'
17	335°17.4'	S 26°41.3'	4.0'	4.1'	59.3'	69°10.5'	46°07.7'		29°21.4'	39°29.5'	58°07.6'	62°30.4'	99°12.1'
18	349°40.4'	S 26°37.2'	4.1'	4.3'	59.3'	68°53.4'	45°35.0'		28°46.2'	40°05.0'	58°30.2'	62°53.1'	99°45.1'
19	4°03.5'	S 26°32.9'	4.1'	4.5'	59.3'	68°36.4'	45°02.4'		28°11.0'	40°40.4'	58°52.9'	63°16.0'	100°18.1'
20	18°26.6'	S 26°28.4'	4.2'	4.7'	59.3'	68°19.4'	44°29.8'		27°35.8'	41°15.8'	59°15.8'	63°38.9'	100°51.1'
21	32°49.8'	S 26°23.8'	4.2'	4.8'	59.3'	68°02.6'	43°57.3'		27°00.6'	41°51.2'	59°38.8'	64°02.0'	101°24.1'
22	47°13.0'	S 26°18.9'	4.3'	5.0'	59.3'	67°45.9'	43°24.9'		26°25.4'	42°26.7'	60°01.9'	64°25.2'	101°57.1'
23	61°36.3'	S 26°13.9'	4.3'	5.2'	59.3'	67°29.4'	42°52.5'		25°50.2'	43°02.1'	60°25.2'	64°48.5'	102°30.1'
Mer. pass.		18 h 43 m SD 16.1'	phase 50%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.1'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.6'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°33.0'	N 89°21.4'
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.4'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.1'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	12°39.9'	182°46.8'	S 4°15.4'	186°45.6'	S 1°02.0'	9°30.6'	S 0°23.8'	50°55.1'	S 16°24.6'	292°20.4'	N 22°35.0'
1	27°42.4'	197°47.0'	S 4°16.4'	201°45.2'	S 1°03.3'	24°33.4'	S 0°24.0'	65°57.6'	S 16°24.6'	307°22.1'	N 22°35.1'
2	42°44.9'	212°47.2'	S 4°17.3'	216°44.8'	S 1°04.5'	39°36.1'	S 0°24.1'	81°00.2'	S 16°24.6'	322°23.7'	N 22°35.2'
3	57°47.3'	227°47.3'	S 4°18.3'	231°44.4'	S 1°05.8'	54°38.9'	S 0°24.2'	96°02.7'	S 16°24.6'	337°25.3'	N 22°35.4'
4	72°49.8'	242°47.5'	S 4°19.3'	246°44.0'	S 1°07.1'	69°41.7'	S 0°24.3'	111°05.3'	S 16°24.7'	352°26.9'	N 22°35.5'
5	87°52.3'	257°47.7'	S 4°20.2'	261°43.6'	S 1°08.3'	84°44.4'	S 0°24.5'	126°07.8'	S 16°24.7'	7°28.5'	N 22°35.6'
6	102°54.7'	272°47.9'	S 4°21.2'	276°43.2'	S 1°09.6'	99°47.2'	S 0°24.6'	141°10.4'	S 16°24.7'	22°30.1'	N 22°35.7'
7	117°57.2'	287°48.1'	S 4°22.2'	291°42.8'	S 1°10.8'	114°50.0'	S 0°24.7'	156°12.9'	S 16°24.7'	37°31.8'	N 22°35.9'
8	132°59.6'	302°48.3'	S 4°23.1'	306°42.4'	S 1°12.1'	129°52.7'	S 0°24.9'	171°15.4'	S 16°24.8'	52°33.4'	N 22°36.0'
9	148°02.1'	317°48.5'	S 4°24.1'	321°42.0'	S 1°13.3'	144°55.5'	S 0°25.0'	186°18.0'	S 16°24.8'	67°35.0'	N 22°36.1'
10	163°04.6'	332°48.7'	S 4°25.1'	336°41.6'	S 1°14.6'	159°58.2'	S 0°25.1'	201°20.5'	S 16°24.8'	82°36.6'	N 22°36.3'
11	178°07.0'	347°48.9'	S 4°26.0'	351°41.2'	S 1°15.8'	175°01.0'	S 0°25.2'	216°23.1'	S 16°24.8'	97°38.2'	N 22°36.4'
12	193°09.5'	2°49.1'	S 4°27.0'	6°40.9'	S 1°17.1'	190°03.8'	S 0°25.4'	231°25.6'	S 16°24.9'	112°39.9'	N 22°36.5'
13	208°12.0'	17°49.3'	S 4°27.9'	21°40.5'	S 1°18.3'	205°06.5'	S 0°25.5'	246°28.1'	S 16°24.9'	127°41.5'	N 22°36.6'
14	223°14.4'	32°49.5'	S 4°28.9'	36°40.1'	S 1°19.6'	220°09.3'	S 0°25.6'	261°30.7'	S 16°24.9'	142°43.1'	N 22°36.8'
15	238°16.9'	47°49.7'	S 4°29.9'	51°39.7'	S 1°20.9'	235°12.1'	S 0°25.8'	276°33.2'	S 16°24.9'	157°44.7'	N 22°36.9'
16	253°19.4'	62°49.8'	S 4°30.8'	66°39.3'	S 1°22.1'	250°14.8'	S 0°25.9'	291°35.8'	S 16°24.9'	172°46.4'	N 22°37.0'
17	268°21.8'	77°50.0'	S 4°31.8'	81°38.9'	S 1°23.4'	265°17.6'	S 0°26.0'	306°38.3'	S 16°25.0'	187°48.0'	N 22°37.1'
18	283°24.3'	92°50.2'	S 4°32.8'	96°38.5'	S 1°24.6'	280°20.4'	S 0°26.1'	321°40.8'	S 16°25.0'	202°49.6'	N 22°37.3'
19	298°26.8'	107°50.4'	S 4°33.7'	111°38.1'	S 1°25.9'	295°23.1'	S 0°26.3'	336°43.4'	S 16°25.0'	217°51.3'	N 22°37.4'
20	313°29.2'	122°50.6'	S 4°34.7'	126°37.7'	S 1°27.1'	310°25.9'	S 0°26.4'	351°45.9'	S 16°25.0'	232°52.9'	N 22°37.5'
21	328°31.7'	137°50.8'	S 4°35.6'	141°37.3'	S 1°28.4'	325°28.7'	S 0°26.5'	6°48.5'	S 16°25.1'	247°54.5'	N 22°37.6'
22	343°34.1'	152°51.0'	S 4°36.6'	156°36.9'	S 1°29.6'	340°31.4'	S 0°26.7'	21°51.0'	S 16°25.1'	262°56.2'	N 22°37.8'
23	358°36.6'	167°51.2'	S 4°37.6'	171°36.5'	S 1°30.9'	355°34.2'	S 0°26.8'	36°53.5'	S 16°25.1'	277°57.8'	N 22°37.9'
		SD 16.0'	<i>d</i> -1.0'	<i>v</i> -0.4'	<i>d</i> -1.3'	<i>v</i> 2.8'	<i>d</i> -0.1'	<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 1.6'	<i>d</i> 0.1'
Mer. pass.		11 h 48 m 45 s		11 h 33 m		23 h 18 m		20 h 33 m		4 h 30 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Jupiter	-Achernar	-Fomalhaut	-Saturn	+Antares	+Rigel Kent	+Hadar	+Sun
0	75°59.6'	S 26°08.7'	4.4'	5.4'	59.3'	68°49.4'	67°12.9'	42°20.1'	25°15.1'	43°37.6'	60°48.5'	65°11.9'	103°03.1'
1	90°22.9'	S 26°03.4'	4.4'	5.5'	59.3'	68°13.6'	66°56.6'	41°47.9'	24°39.9'	44°13.0'	61°12.0'	65°35.4'	103°36.1'
2	104°46.4'	S 25°57.8'	4.5'	5.7'	59.3'	67°37.8'	66°40.4'	41°15.7'	24°04.8'	44°48.5'	61°35.7'	65°58.9'	104°09.1'
3	119°09.9'	S 25°52.1'	4.5'	5.9'	59.3'	67°01.9'	66°24.3'	40°43.5'	23°29.7'	45°24.0'	61°59.4'	66°22.6'	104°42.2'
4	133°33.4'	S 25°46.2'	4.6'	6.1'	59.3'	66°26.1'	66°08.3'	40°11.5'	22°54.6'	45°59.4'	62°23.2'	66°46.4'	105°15.2'
5	147°57.0'	S 25°40.2'	4.7'	6.2'	59.3'	65°50.3'	65°52.5'	39°39.5'	22°19.6'	46°34.9'	62°47.2'	67°10.2'	105°48.2'
6	162°20.7'	S 25°33.9'	4.7'	6.4'	59.3'	65°14.4'	65°36.8'	39°07.6'	21°44.6'	47°10.4'	63°11.2'	67°34.2'	106°21.3'
7	176°44.4'	S 25°27.5'	4.8'	6.6'	59.3'	64°38.6'	65°21.2'	38°35.8'	21°09.6'	47°45.9'	63°35.4'	67°58.2'	106°54.3'
8	191°08.2'	S 25°20.9'	4.9'	6.7'	59.3'	64°02.7'	65°05.7'	38°04.1'	20°34.6'	48°21.4'	63°59.6'	68°22.3'	107°27.4'
9	205°32.1'	S 25°14.2'	4.9'	6.9'	59.3'	63°26.9'	64°50.4'	37°32.5'	19°59.6'	48°56.9'	64°24.0'	68°46.5'	108°00.4'
10	219°56.0'	S 25°07.3'	5.0'	7.1'	59.3'	62°51.0'	64°35.3'	37°00.9'	19°24.7'	49°32.4'	64°48.4'	69°10.8'	108°33.5'
11	234°20.0'	S 25°00.2'	5.1'	7.2'	59.3'	62°15.2'		36°29.5'	18°49.9'	50°07.9'	65°12.9'	69°35.1'	109°06.5'
12	248°44.1'	S 24°53.0'	5.1'	7.4'	59.3'	61°39.3'		35°58.2'	18°15.0'	50°43.4'	65°37.6'	69°59.6'	109°39.6'
13	263°08.2'	S 24°45.5'	5.2'	7.6'	59.3'	61°03.5'		35°27.0'	17°40.3'	51°18.9'	66°02.3'	70°24.1'	110°12.6'
14	277°32.4'	S 24°38.0'	5.3'	7.7'	59.3'	60°27.6'		34°55.9'	17°05.6'	51°54.4'	66°27.1'	70°48.6'	110°45.7'
15	291°56.7'	S 24°30.2'	5.4'	7.9'	59.3'	59°51.8'		34°25.0'	16°30.9'	52°29.9'	66°52.0'	71°13.3'	111°18.7'
16	306°21.1'	S 24°22.4'	5.5'	8.1'	59.3'	59°15.9'		33°54.1'	15°56.3'	53°05.4'	67°16.9'	71°38.0'	111°51.8'
17	320°45.6'	S 24°14.3'	5.5'	8.2'	59.3'	58°40.0'		33°23.4'	15°21.8'	53°41.0'	67°42.0'	72°02.7'	112°24.9'
18	335°10.1'	S 24°06.1'	5.6'	8.4'	59.3'	58°04.2'		32°52.9'	14°47.4'	54°16.5'	68°07.1'	72°27.5'	112°57.9'
19	349°34.7'	S 23°57.7'	5.7'	8.5'	59.3'	57°28.3'		32°22.5'	14°13.1'	54°52.0'	68°32.3'	72°52.4'	113°31.0'
20	3°59.4'	S 23°49.2'	5.8'	8.7'	59.3'	56°52.4'		31°52.2'	13°38.8'	55°27.5'	68°57.6'	73°17.4'	114°04.1'
21	18°24.2'	S 23°40.5'	5.9'	8.8'	59.3'	56°16.5'		31°22.2'	13°04.8'	56°03.1'	69°22.9'	73°42.4'	114°37.1'
22	32°49.0'	S 23°31.7'	5.9'	9.0'	59.3'	55°40.7'		30°52.3'	12°30.8'	56°38.6'	69°48.3'	74°07.4'	115°10.2'
23	47°14.0'	S 23°22.7'	6.0'	9.1'	59.3'	55°04.8'		30°22.5'	11°57.0'	57°14.1'	70°13.8'	74°32.6'	115°43.3'
Mer. pass.		19 h 43 m SD 16.2'			phase 61%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.1'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.6'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°32.6'	N 89°21.4'
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.4'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.1'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	13°39.1'	182°51.4'	S 4°38.5'	186°36.1'	S 1°32.2'	10°37.0'	S 0°26.9'	51°56.1'	S 16°25.1'	292°59.4'	N 22°38.0'
1	28°41.5'	197°51.6'	S 4°39.5'	201°35.7'	S 1°33.4'	25°39.7'	S 0°27.0'	66°58.6'	S 16°25.1'	308°01.1'	N 22°38.1'
2	43°44.0'	212°51.8'	S 4°40.5'	216°35.4'	S 1°34.7'	40°42.5'	S 0°27.2'	82°01.1'	S 16°25.2'	323°02.7'	N 22°38.3'
3	58°46.5'	227°51.9'	S 4°41.4'	231°35.0'	S 1°35.9'	55°45.2'	S 0°27.3'	97°03.7'	S 16°25.2'	338°04.4'	N 22°38.4'
4	73°48.9'	242°52.1'	S 4°42.4'	246°34.6'	S 1°37.2'	70°48.0'	S 0°27.4'	112°06.2'	S 16°25.2'	353°06.0'	N 22°38.5'
5	88°51.4'	257°52.3'	S 4°43.3'	261°34.2'	S 1°38.4'	85°50.8'	S 0°27.5'	127°08.8'	S 16°25.2'	8°07.6'	N 22°38.7'
6	103°53.9'	272°52.5'	S 4°44.3'	276°33.8'	S 1°39.7'	100°53.5'	S 0°27.7'	142°11.3'	S 16°25.2'	23°09.3'	N 22°38.8'
7	118°56.3'	287°52.7'	S 4°45.3'	291°33.4'	S 1°40.9'	115°56.3'	S 0°27.8'	157°13.8'	S 16°25.3'	38°10.9'	N 22°38.9'
8	133°58.8'	302°52.9'	S 4°46.2'	306°33.0'	S 1°42.2'	130°59.1'	S 0°27.9'	172°16.4'	S 16°25.3'	53°12.6'	N 22°39.0'
9	149°01.2'	317°53.1'	S 4°47.2'	321°32.6'	S 1°43.4'	146°01.8'	S 0°28.1'	187°18.9'	S 16°25.3'	68°14.2'	N 22°39.2'
10	164°03.7'	332°53.3'	S 4°48.2'	336°32.2'	S 1°44.7'	161°04.6'	S 0°28.2'	202°21.4'	S 16°25.3'	83°15.9'	N 22°39.3'
11	179°06.2'	347°53.5'	S 4°49.1'	351°31.8'	S 1°46.0'	176°07.4'	S 0°28.3'	217°24.0'	S 16°25.4'	98°17.5'	N 22°39.4'
12	194°08.6'	2°53.6'	S 4°50.1'	6°31.4'	S 1°47.2'	191°10.1'	S 0°28.4'	232°26.5'	S 16°25.4'	113°19.2'	N 22°39.5'
13	209°11.1'	17°53.8'	S 4°51.0'	21°31.0'	S 1°48.5'	206°12.9'	S 0°28.6'	247°29.1'	S 16°25.4'	128°20.8'	N 22°39.7'
14	224°13.6'	32°54.0'	S 4°52.0'	36°30.6'	S 1°49.7'	221°15.6'	S 0°28.7'	262°31.6'	S 16°25.4'	143°22.5'	N 22°39.8'
15	239°16.0'	47°54.2'	S 4°53.0'	51°30.2'	S 1°51.0'	236°18.4'	S 0°28.8'	277°34.1'	S 16°25.4'	158°24.1'	N 22°39.9'
16	254°18.5'	62°54.4'	S 4°53.9'	66°29.8'	S 1°52.2'	251°21.2'	S 0°28.9'	292°36.7'	S 16°25.5'	173°25.8'	N 22°40.0'
17	269°21.0'	77°54.6'	S 4°54.9'	81°29.4'	S 1°53.5'	266°23.9'	S 0°29.1'	307°39.2'	S 16°25.5'	188°27.4'	N 22°40.2'
18	284°23.4'	92°54.8'	S 4°55.8'	96°29.0'	S 1°54.7'	281°26.7'	S 0°29.2'	322°41.7'	S 16°25.5'	203°29.1'	N 22°40.3'
19	299°25.9'	107°55.0'	S 4°56.8'	111°28.6'	S 1°56.0'	296°29.5'	S 0°29.3'	337°44.3'	S 16°25.5'	218°30.7'	N 22°40.4'
20	314°28.4'	122°55.1'	S 4°57.8'	126°28.3'	S 1°57.2'	311°32.2'	S 0°29.4'	352°46.8'	S 16°25.5'	233°32.4'	N 22°40.5'
21	329°30.8'	137°55.3'	S 4°58.7'	141°27.9'	S 1°58.5'	326°35.0'	S 0°29.6'	7°49.3'	S 16°25.6'	248°34.0'	N 22°40.7'
22	344°33.3'	152°55.5'	S 4°59.7'	156°27.5'	S 1°59.8'	341°37.7'	S 0°29.7'	22°51.9'	S 16°25.6'	263°35.7'	N 22°40.8'
23	359°35.7'	167°55.7'	S 5°00.6'	171°27.1'	S 2°01.0'	356°40.5'	S 0°29.8'	37°54.4'	S 16°25.6'	278°37.4'	N 22°40.9'
		SD 16.0'	d -1.0'	v -0.4'	d -1.3'	v 2.8'	d -0.1'	v 2.5'	d -0.0'	v 1.6'	d 0.1'
Mer. pass.		11 h 48 m 27 s		11 h 34 m		23 h 13 m		20 h 29 m		4 h 28 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigel	-Jupiter	-Fomalhaut	-Saturn	+Altair	+Antares	+Rigel Kent	+Sun
0	61°39.0'	S 23°13.6'	6.1'	9.3'	59.3'	119°21.1'	54°28.9'	29°53.0'	11°23.4'		57°49.7'	70°39.4'	116°16.4'
1	76°04.1'	S 23°04.3'	6.2'	9.4'	59.3'	118°53.7'	53°53.1'	29°23.7'	10°50.0'		58°25.2'	71°05.0'	116°49.4'
2	90°29.3'	S 22°54.9'	6.3'	9.6'	59.3'	118°26.3'	53°17.2'	28°54.6'	10°16.9'		59°00.7'	71°30.6'	117°22.5'
3	104°54.6'	S 22°45.4'	6.4'	9.7'	59.3'	117°58.7'	52°41.3'	28°25.7'	9°44.0'		59°36.3'	71°56.4'	117°55.6'
4	119°20.0'	S 22°35.6'	6.5'	9.8'	59.3'	117°31.1'	52°05.4'	27°57.0'	9°11.5'		60°11.8'	72°22.1'	118°28.7'
5	133°45.4'	S 22°25.8'	6.5'	10.0'	59.3'	117°03.3'	51°29.6'	27°28.6'	8°39.4'		60°47.4'	72°48.0'	119°01.7'
6	148°11.0'	S 22°15.8'	6.6'	10.1'	59.3'	116°35.6'	50°53.7'	27°00.5'	8°07.8'		61°22.9'	73°13.9'	119°34.8'
7	162°36.6'	S 22°05.7'	6.7'	10.3'	59.3'	116°07.7'	50°17.8'	26°32.6'	7°36.8'		61°58.4'	73°39.8'	
8	177°02.3'	S 21°55.4'	6.8'	10.4'	59.3'	115°39.8'	49°42.0'	26°05.0'			62°34.0'	74°05.8'	
9	191°28.2'	S 21°45.0'	6.9'	10.5'	59.3'	115°11.8'	49°06.1'	25°37.7'			63°09.5'	74°31.9'	
10	205°54.1'	S 21°34.5'	7.0'	10.7'	59.3'	114°43.7'	48°30.3'	25°10.8'			63°45.0'	74°57.9'	
11	220°20.1'	S 21°23.8'	7.1'	10.8'	59.3'	114°15.6'	47°54.4'	24°44.2'			64°20.6'	75°24.1'	
12	234°46.2'	S 21°13.0'	7.2'	10.9'	59.3'	113°47.4'	47°18.5'	24°17.9'			64°56.1'	75°50.2'	
13	249°12.3'	S 21°02.1'	7.3'	11.1'	59.3'	113°19.2'	46°42.7'	23°52.0'			65°31.6'	76°16.5'	
14	263°38.6'	S 20°51.1'	7.4'	11.2'	59.3'	112°50.9'	46°06.8'	23°26.6'			66°07.2'	76°42.7'	
15	278°05.0'	S 20°39.9'	7.5'	11.3'	59.3'	112°22.6'	45°31.0'	23°01.5'			66°42.7'	77°09.0'	
16	292°31.4'	S 20°28.6'	7.5'	11.4'	59.2'	111°54.2'	44°55.1'	22°36.9'			67°18.2'	77°35.3'	
17	306°58.0'	S 20°17.1'	7.6'	11.5'	59.2'	111°25.7'	44°19.3'	22°12.8'			67°53.8'	78°01.7'	
18	321°24.6'	S 20°05.6'	7.7'	11.7'	59.2'	110°57.2'	43°43.5'	21°49.1'			68°29.3'	78°28.1'	
19	335°51.3'	S 19°53.9'	7.8'	11.8'	59.2'	110°28.7'	43°07.6'	21°26.0'			69°04.8'	78°54.5'	
20	350°18.2'	S 19°42.2'	7.9'	11.9'	59.2'	110°00.1'	42°31.8'	21°03.4'			69°40.3'	79°21.0'	
21	4°45.1'	S 19°30.3'	8.0'	12.0'	59.2'	109°31.4'	41°56.0'	20°41.4'		38°32.5'	70°15.8'	79°47.5'	
22	19°12.1'	S 19°18.2'	8.1'	12.1'	59.2'	109°02.8'	41°20.2'	20°20.1'		38°47.6'	70°51.3'	80°14.0'	
23	33°39.2'	S 19°06.1'	8.2'	12.2'	59.2'	108°34.0'	40°44.3'	19°59.3'		39°03.2'	71°26.8'	80°40.5'	
Mer. pass.		20 h 40 m SD 16.2'	phase 72%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'		
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'		
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.3'		
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'		
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°32.3'	N 89°21.4'		
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.4'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'		
Arcturus	-0.1	145°50.0'	N 19°04.1'	Sirius	-1.4	258°27.9'	S 16°44.6'						
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'						

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	14°38.2'	182°55.9'	S 5°01.6'	186°26.7'	S 2°02.3'	11°43.3'	S 0°30.0'	52°56.9'	S 16°25.6'	293°39.0'	N 22°41.0'
1	29°40.7'	197°56.1'	S 5°02.6'	201°26.3'	S 2°03.5'	26°46.0'	S 0°30.1'	67°59.5'	S 16°25.6'	308°40.7'	N 22°41.1'
2	44°43.1'	212°56.3'	S 5°03.5'	216°25.9'	S 2°04.8'	41°48.8'	S 0°30.2'	83°02.0'	S 16°25.7'	323°42.4'	N 22°41.3'
3	59°45.6'	227°56.4'	S 5°04.5'	231°25.5'	S 2°06.0'	56°51.5'	S 0°30.3'	98°04.6'	S 16°25.7'	338°44.0'	N 22°41.4'
4	74°48.1'	242°56.6'	S 5°05.4'	246°25.1'	S 2°07.3'	71°54.3'	S 0°30.5'	113°07.1'	S 16°25.7'	353°45.7'	N 22°41.5'
5	89°50.5'	257°56.8'	S 5°06.4'	261°24.7'	S 2°08.5'	86°57.1'	S 0°30.6'	128°09.6'	S 16°25.7'	8°47.4'	N 22°41.6'
6	104°53.0'	272°57.0'	S 5°07.4'	276°24.3'	S 2°09.8'	101°59.8'	S 0°30.7'	143°12.2'	S 16°25.7'	23°49.0'	N 22°41.8'
7	119°55.5'	287°57.2'	S 5°08.3'	291°23.9'	S 2°11.0'	117°02.6'	S 0°30.8'	158°14.7'	S 16°25.8'	38°50.7'	N 22°41.9'
8	134°57.9'	302°57.4'	S 5°09.3'	306°23.5'	S 2°12.3'	132°05.4'	S 0°31.0'	173°17.2'	S 16°25.8'	53°52.4'	N 22°42.0'
9	150°00.4'	317°57.6'	S 5°10.2'	321°23.1'	S 2°13.5'	147°08.1'	S 0°31.1'	188°19.8'	S 16°25.8'	68°54.0'	N 22°42.1'
10	165°02.9'	332°57.7'	S 5°11.2'	336°22.7'	S 2°14.8'	162°10.9'	S 0°31.2'	203°22.3'	S 16°25.8'	83°55.7'	N 22°42.3'
11	180°05.3'	347°57.9'	S 5°12.1'	351°22.3'	S 2°16.1'	177°13.6'	S 0°31.3'	218°24.8'	S 16°25.8'	98°57.4'	N 22°42.4'
12	195°07.8'	2°58.1'	S 5°13.1'	6°21.9'	S 2°17.3'	192°16.4'	S 0°31.5'	233°27.4'	S 16°25.9'	113°59.1'	N 22°42.5'
13	210°10.2'	17°58.3'	S 5°14.1'	21°21.5'	S 2°18.6'	207°19.2'	S 0°31.6'	248°29.9'	S 16°25.9'	129°00.7'	N 22°42.6'
14	225°12.7'	32°58.5'	S 5°15.0'	36°21.1'	S 2°19.8'	222°21.9'	S 0°31.7'	263°32.4'	S 16°25.9'	144°02.4'	N 22°42.8'
15	240°15.2'	47°58.7'	S 5°16.0'	51°20.7'	S 2°21.1'	237°24.7'	S 0°31.8'	278°34.9'	S 16°25.9'	159°04.1'	N 22°42.9'
16	255°17.6'	62°58.9'	S 5°16.9'	66°20.3'	S 2°22.3'	252°27.4'	S 0°32.0'	293°37.5'	S 16°25.9'	174°05.8'	N 22°43.0'
17	270°20.1'	77°59.0'	S 5°17.9'	81°19.9'	S 2°23.6'	267°30.2'	S 0°32.1'	308°40.0'	S 16°26.0'	189°07.4'	N 22°43.1'
18	285°22.6'	92°59.2'	S 5°18.8'	96°19.5'	S 2°24.8'	282°33.0'	S 0°32.2'	323°42.5'	S 16°26.0'	204°09.1'	N 22°43.2'
19	300°25.0'	107°59.4'	S 5°19.8'	111°19.1'	S 2°26.1'	297°35.7'	S 0°32.3'	338°45.1'	S 16°26.0'	219°10.8'	N 22°43.4'
20	315°27.5'	122°59.6'	S 5°20.8'	126°18.7'	S 2°27.3'	312°38.5'	S 0°32.5'	353°47.6'	S 16°26.0'	234°12.5'	N 22°43.5'
21	330°30.0'	137°59.8'	S 5°21.7'	141°18.3'	S 2°28.6'	327°41.2'	S 0°32.6'	8°50.1'	S 16°26.0'	249°14.2'	N 22°43.6'
22	345°32.4'	152°60.0'	S 5°22.7'	156°18.0'	S 2°29.8'	342°44.0'	S 0°32.7'	23°52.7'	S 16°26.1'	264°15.9'	N 22°43.7'
23	0°34.9'	168°00.1'	S 5°23.6'	171°17.6'	S 2°31.1'	357°46.8'	S 0°32.8'	38°55.2'	S 16°26.1'	279°17.5'	N 22°43.9'
		SD 16.0'	d -1.0'	v -0.4'	d -1.3'	v 2.8'	d -0.1'	v 2.5'	d -0.0'	v 1.7'	d 0.1'
Mer. pass.		11 h 48 m 9 s		11 h 35 m		23 h 9 m		20 h 25 m		4 h 25 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Jupiter	-Fomalhaut	+Saturn	+Altair	+Antares	+Rigel Kent
0	48°06.4'	S 18°53.9'	8.3'	12.3'	59.2'	108°05.3'	107°01.7'	40°08.5'	19°39.3'	19°39.3'	39°35.4'	72°02.3'	81°07.1'
1	62°33.6'	S 18°41.5'	8.4'	12.5'	59.2'	107°36.5'	106°26.5'	39°32.7'	19°20.0'	19°20.0'	39°52.0'	72°37.8'	81°33.7'
2	77°01.0'	S 18°29.1'	8.5'	12.6'	59.2'	107°07.7'	105°51.3'	38°56.9'	19°01.4'	19°01.4'	40°09.0'	73°13.3'	82°00.3'
3	91°28.5'	S 18°16.5'	8.5'	12.7'	59.2'	106°38.8'	105°16.2'	38°21.1'			40°26.3'	73°48.8'	82°26.9'
4	105°56.0'	S 18°03.9'	8.6'	12.8'	59.2'	106°09.9'	104°41.0'	37°45.4'			40°43.9'	74°24.3'	82°53.5'
5	120°23.7'	S 17°51.1'	8.7'	12.9'	59.2'	105°41.0'	104°05.9'	37°09.6'		7°33.3'	41°01.8'	74°59.7'	83°20.2'
6	134°51.4'	S 17°38.2'	8.8'	13.0'	59.2'	105°12.0'	103°30.7'	36°33.8'		8°04.2'	41°20.1'	75°35.2'	83°46.9'
7	149°19.2'	S 17°25.3'	8.9'	13.1'	59.2'	104°43.0'	102°55.6'	35°58.1'		8°35.7'	41°38.6'	76°10.7'	84°13.5'
8	163°47.1'	S 17°12.2'	9.0'	13.2'	59.2'	104°14.0'	102°20.4'	35°22.3'		9°07.6'	41°57.4'	76°46.1'	84°40.2'
9	178°15.1'	S 16°59.0'	9.1'	13.3'	59.1'	103°45.0'	101°45.3'	34°46.6'		9°40.0'	42°16.6'	77°21.6'	85°06.9'
10	192°43.2'	S 16°45.8'	9.2'	13.3'	59.1'	103°15.9'	101°10.1'	34°10.8'		10°12.7'	42°36.0'	77°57.0'	85°33.7'
11	207°11.4'	S 16°32.4'	9.3'	13.4'	59.1'	102°46.8'	100°35.0'	33°35.1'		10°45.7'	42°55.6'	78°32.4'	86°00.4'
12	221°39.6'	S 16°19.0'	9.3'	13.5'	59.1'	102°17.7'	99°59.9'	32°59.4'		11°19.0'	43°15.6'	79°07.9'	86°27.1'
13	236°08.0'	S 16°05.5'	9.4'	13.6'	59.1'	101°48.6'	99°24.8'	32°23.7'		11°52.4'	43°35.8'	79°43.3'	86°53.8'
14	250°36.4'	S 15°51.9'	9.5'	13.7'	59.1'	101°19.4'	98°49.7'	31°48.0'		12°26.1'	43°56.2'	80°18.7'	87°20.6'
15	265°04.9'	S 15°38.2'	9.6'	13.8'	59.1'	100°50.3'	98°14.6'	31°12.3'		12°59.9'	44°16.9'	80°54.1'	87°47.3'
16	279°33.5'	S 15°24.4'	9.7'	13.9'	59.1'	100°21.1'	97°39.5'	30°36.6'		13°33.8'	44°37.9'	81°29.5'	88°14.0'
17	294°02.2'	S 15°10.5'	9.8'	13.9'	59.1'	99°51.9'	97°04.4'	30°01.0'		14°07.8'	44°59.0'	82°04.9'	88°40.8'
18	308°30.9'	S 14°56.6'	9.8'	14.0'	59.1'	99°22.7'	96°29.3'	29°25.3'		14°42.0'	45°20.4'	82°40.3'	89°07.5'
19	322°59.8'	S 14°42.6'	9.9'	14.1'	59.1'	98°53.5'	95°54.2'	28°49.7'		15°16.2'	45°42.1'	83°15.6'	89°34.2'
20	337°28.7'	S 14°28.5'	10.0'	14.2'	59.0'	98°24.3'	95°19.2'	28°14.0'		15°50.5'	46°03.9'	83°51.0'	90°00.9'
21	351°57.7'	S 14°14.3'	10.1'	14.2'	59.0'	97°55.0'	94°44.1'	27°38.4'		16°24.9'	46°25.9'	84°26.3'	90°27.6'
22	6°26.8'	S 14°00.1'	10.2'	14.3'	59.0'	97°25.8'	94°09.1'	27°02.8'		16°59.4'	46°48.2'	85°01.7'	90°54.3'
23	20°56.0'	S 13°45.8'	10.2'	14.4'	59.0'	96°56.5'	93°34.1'	26°27.2'		17°33.9'	47°10.6'	85°37.0'	91°21.0'
Mer. pass.		21 h 33 m SD 16.1'	phase 82%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°32.0'	N 89°21.4'
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.2'	S 52°42.1'				

Friday 07 October 2022 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	15°37.3'	183°00.3'	S 5°24.6'	186°17.2'	S 2°32.3'	12°49.5'	S 0°33.0'	53°57.7'	S 16°26.1'	294°19.2'	N 22°44.0'
1	30°39.8'	198°00.5'	S 5°25.5'	201°16.8'	S 2°33.6'	27°52.3'	S 0°33.1'	69°00.3'	S 16°26.1'	309°20.9'	N 22°44.1'
2	45°42.3'	213°00.7'	S 5°26.5'	216°16.4'	S 2°34.9'	42°55.0'	S 0°33.2'	84°02.8'	S 16°26.1'	324°22.6'	N 22°44.2'
3	60°44.7'	228°00.9'	S 5°27.5'	231°16.0'	S 2°36.1'	57°57.8'	S 0°33.3'	99°05.3'	S 16°26.2'	339°24.3'	N 22°44.4'
4	75°47.2'	243°01.0'	S 5°28.4'	246°15.6'	S 2°37.4'	73°00.6'	S 0°33.5'	114°07.9'	S 16°26.2'	354°26.0'	N 22°44.5'
5	90°49.7'	258°01.2'	S 5°29.4'	261°15.2'	S 2°38.6'	88°03.3'	S 0°33.6'	129°10.4'	S 16°26.2'	9°27.7'	N 22°44.6'
6	105°52.1'	273°01.4'	S 5°30.3'	276°14.8'	S 2°39.9'	103°06.1'	S 0°33.7'	144°12.9'	S 16°26.2'	24°29.4'	N 22°44.7'
7	120°54.6'	288°01.6'	S 5°31.3'	291°14.4'	S 2°41.1'	118°08.8'	S 0°33.8'	159°15.4'	S 16°26.2'	39°31.1'	N 22°44.8'
8	135°57.1'	303°01.8'	S 5°32.2'	306°14.0'	S 2°42.4'	133°11.6'	S 0°34.0'	174°18.0'	S 16°26.3'	54°32.8'	N 22°45.0'
9	150°59.5'	318°02.0'	S 5°33.2'	321°13.6'	S 2°43.6'	148°14.4'	S 0°34.1'	189°20.5'	S 16°26.3'	69°34.5'	N 22°45.1'
10	166°02.0'	333°02.1'	S 5°34.2'	336°13.2'	S 2°44.9'	163°17.1'	S 0°34.2'	204°23.0'	S 16°26.3'	84°36.2'	N 22°45.2'
11	181°04.5'	348°02.3'	S 5°35.1'	351°12.8'	S 2°46.1'	178°19.9'	S 0°34.3'	219°25.6'	S 16°26.3'	99°37.9'	N 22°45.3'
12	196°06.9'	3°02.5'	S 5°36.1'	6°12.4'	S 2°47.4'	193°22.6'	S 0°34.5'	234°28.1'	S 16°26.3'	114°39.6'	N 22°45.5'
13	211°09.4'	18°02.7'	S 5°37.0'	21°12.0'	S 2°48.6'	208°25.4'	S 0°34.6'	249°30.6'	S 16°26.3'	129°41.3'	N 22°45.6'
14	226°11.8'	33°02.9'	S 5°38.0'	36°11.6'	S 2°49.9'	223°28.2'	S 0°34.7'	264°33.1'	S 16°26.4'	144°43.0'	N 22°45.7'
15	241°14.3'	48°03.0'	S 5°38.9'	51°11.2'	S 2°51.1'	238°30.9'	S 0°34.8'	279°35.7'	S 16°26.4'	159°44.7'	N 22°45.8'
16	256°16.8'	63°03.2'	S 5°39.9'	66°10.8'	S 2°52.4'	253°33.7'	S 0°35.0'	294°38.2'	S 16°26.4'	174°46.4'	N 22°45.9'
17	271°19.2'	78°03.4'	S 5°40.8'	81°10.4'	S 2°53.6'	268°36.4'	S 0°35.1'	309°40.7'	S 16°26.4'	189°48.1'	N 22°46.1'
18	286°21.7'	93°03.6'	S 5°41.8'	96°10.0'	S 2°54.9'	283°39.2'	S 0°35.2'	324°43.3'	S 16°26.4'	204°49.8'	N 22°46.2'
19	301°24.2'	108°03.8'	S 5°42.7'	111°09.6'	S 2°56.1'	298°41.9'	S 0°35.3'	339°45.8'	S 16°26.5'	219°51.5'	N 22°46.3'
20	316°26.6'	123°03.9'	S 5°43.7'	126°09.2'	S 2°57.4'	313°44.7'	S 0°35.5'	354°48.3'	S 16°26.5'	234°53.2'	N 22°46.4'
21	331°29.1'	138°04.1'	S 5°44.7'	141°08.8'	S 2°58.6'	328°47.5'	S 0°35.6'	9°50.8'	S 16°26.5'	249°54.9'	N 22°46.5'
22	346°31.6'	153°04.3'	S 5°45.6'	156°08.4'	S 2°59.9'	343°50.2'	S 0°35.7'	24°53.4'	S 16°26.5'	264°56.6'	N 22°46.7'
23	1°34.0'	168°04.5'	S 5°46.6'	171°08.0'	S 3°01.1'	358°53.0'	S 0°35.8'	39°55.9'	S 16°26.5'	279°58.3'	N 22°46.8'
		SD 16.0'	d -1.0'	v -0.4'	d -1.3'	v 2.8'	d -0.1'	v 2.5'	d -0.0'	v 1.7'	d 0.1'
Mer. pass.		11 h 47 m 51 s		11 h 35 m		23 h 4 m		20 h 21 m		4 h 22 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Polaris	-Rigel	-Aldebaran	-Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares
0	35°25.2'	S 13°31.4'	10.3'	14.5'	59.0'		96°27.3'	92°59.1'	25°51.7'		18°08.4'	47°33.3'	86°12.3'
1	49°54.5'	S 13°16.9'	10.4'	14.5'	59.0'		95°58.0'	92°24.0'	25°16.1'		18°43.0'	47°56.1'	86°47.6'
2	64°23.9'	S 13°02.4'	10.5'	14.6'	59.0'		95°28.8'	91°49.0'	24°40.6'		19°17.6'	48°19.1'	87°22.9'
3	78°53.4'	S 12°47.8'	10.5'	14.7'	59.0'		94°59.5'	91°14.1'	24°05.1'		19°52.3'	48°42.3'	87°58.2'
4	93°22.9'	S 12°33.1'	10.6'	14.7'	59.0'	102°15.6'	94°30.3'	90°39.1'	23°29.5'		20°26.9'	49°05.7'	88°33.5'
5	107°52.6'	S 12°18.4'	10.7'	14.8'	58.9'	102°00.6'	94°01.0'	90°04.1'	22°54.1'		21°01.6'	49°29.2'	89°08.7'
6	122°22.2'	S 12°03.7'	10.8'	14.8'	58.9'	101°45.5'	93°31.7'	89°29.2'	22°18.6'		21°36.4'	49°52.9'	89°44.0'
7	136°52.0'	S 11°48.8'	10.8'	14.9'	58.9'	101°30.3'	93°02.5'	88°54.2'	21°43.1'		22°11.1'	50°16.8'	90°19.2'
8	151°21.9'	S 11°33.9'	10.9'	14.9'	58.9'	101°15.1'	92°33.2'	88°19.3'	21°07.7'		22°45.9'	50°40.8'	90°54.5'
9	165°51.8'	S 11°19.0'	11.0'	15.0'	58.9'	100°59.9'	92°04.0'	87°44.4'	20°32.3'		23°20.6'	51°04.9'	91°29.7'
10	180°21.7'	S 11°04.0'	11.0'	15.0'	58.9'	100°44.6'	91°34.8'	87°09.5'	19°56.9'		23°55.4'	51°29.2'	92°04.9'
11	194°51.8'	S 10°49.0'	11.1'	15.1'	58.9'	100°29.2'	91°05.5'	86°34.6'	19°21.5'		24°30.2'	51°53.6'	92°40.0'
12	209°21.9'	S 10°33.9'	11.2'	15.1'	58.8'	100°13.8'	90°36.3'	85°59.7'	18°46.2'	19°01.9'	25°05.0'	52°18.2'	93°15.2'
13	223°52.1'	S 10°18.7'	11.2'	15.2'	58.8'	99°58.3'	90°07.1'	85°24.9'	18°10.9'	19°20.3'	25°39.8'	52°42.9'	93°50.4'
14	238°22.3'	S 10°03.5'	11.3'	15.2'	58.8'	99°42.8'	89°37.9'	84°50.0'	17°35.6'	19°39.5'	26°14.6'	53°07.7'	94°25.5'
15	252°52.6'	S 9°48.3'	11.4'	15.3'	58.8'	99°27.3'	89°08.8'	84°15.2'	17°00.3'	19°59.3'	26°49.4'	53°32.7'	95°00.6'
16	267°23.0'	S 9°33.0'	11.4'	15.3'	58.8'	99°11.7'	88°39.6'	83°40.4'	16°25.1'	20°19.8'	27°24.3'	53°57.8'	95°35.7'
17	281°53.4'	S 9°17.7'	11.5'	15.4'	58.8'	98°56.1'	88°10.5'	83°05.6'	15°49.9'	20°40.9'	27°59.1'	54°22.9'	96°10.8'
18	296°23.9'	S 9°02.3'	11.6'	15.4'	58.8'	98°40.4'	87°41.3'	82°30.9'	15°14.7'	21°02.6'	28°33.9'	54°48.2'	96°45.9'
19	310°54.5'	S 8°46.9'	11.6'	15.4'	58.7'	98°24.7'	87°12.2'	81°56.1'	14°39.6'	21°24.9'	29°08.7'	55°13.7'	97°20.9'
20	325°25.1'	S 8°31.4'	11.7'	15.5'	58.7'	98°09.0'	86°43.1'	81°21.4'	14°04.5'	21°47.7'	29°43.5'	55°39.2'	97°56.0'
21	339°55.8'	S 8°16.0'	11.7'	15.5'	58.7'	97°53.2'	86°14.0'	80°46.6'	13°29.5'	22°10.9'	30°18.3'	56°04.8'	98°31.0'
22	354°26.5'	S 8°00.4'	11.8'	15.5'	58.7'	97°37.4'	85°45.0'	80°11.9'	12°54.5'	22°34.7'	30°53.1'	56°30.5'	99°06.0'
23	8°57.3'	S 7°44.9'	11.8'	15.6'	58.7'	97°21.6'	85°16.0'	79°37.2'	12°19.5'	22°58.9'	31°27.8'	56°56.3'	99°41.0'
Mer. pass.		22 h 23 m SD 16.1'		phase 90%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.9'	N 5°10.1'	Polaris	+2.0	314°31.7'	N 89°21.4'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.1'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	16°36.5'	183°04.6'	S 5°47.5'	186°07.6'	S 3°02.4'	13°55.7'	S 0°36.0'	54°58.4'	S 16°26.5'	295°00.0'	N 22°46.9'	
1	31°39.0'	198°04.8'	S 5°48.5'	201°07.2'	S 3°03.7'	28°58.5'	S 0°36.1'	70°01.0'	S 16°26.6'	310°01.8'	N 22°47.0'	
2	46°41.4'	213°05.0'	S 5°49.4'	216°06.8'	S 3°04.9'	44°01.2'	S 0°36.2'	85°03.5'	S 16°26.6'	325°03.5'	N 22°47.1'	
3	61°43.9'	228°05.2'	S 5°50.4'	231°06.4'	S 3°06.2'	59°04.0'	S 0°36.3'	100°06.0'	S 16°26.6'	340°05.2'	N 22°47.3'	
4	76°46.3'	243°05.4'	S 5°51.3'	246°06.0'	S 3°07.4'	74°06.8'	S 0°36.5'	115°08.5'	S 16°26.6'	355°06.9'	N 22°47.4'	
5	91°48.8'	258°05.5'	S 5°52.3'	261°05.6'	S 3°08.7'	89°09.5'	S 0°36.6'	130°11.1'	S 16°26.6'	10°08.6'	N 22°47.5'	
6	106°51.3'	273°05.7'	S 5°53.2'	276°05.2'	S 3°09.9'	104°12.3'	S 0°36.7'	145°13.6'	S 16°26.7'	25°10.4'	N 22°47.6'	
7	121°53.7'	288°05.9'	S 5°54.2'	291°04.8'	S 3°11.2'	119°15.0'	S 0°36.8'	160°16.1'	S 16°26.7'	40°12.1'	N 22°47.8'	
8	136°56.2'	303°06.1'	S 5°55.1'	306°04.4'	S 3°12.4'	134°17.8'	S 0°36.9'	175°18.6'	S 16°26.7'	55°13.8'	N 22°47.9'	
9	151°58.7'	318°06.2'	S 5°56.1'	321°04.0'	S 3°13.7'	149°20.5'	S 0°37.1'	190°21.2'	S 16°26.7'	70°15.5'	N 22°48.0'	
10	167°01.1'	333°06.4'	S 5°57.0'	336°03.6'	S 3°14.9'	164°23.3'	S 0°37.2'	205°23.7'	S 16°26.7'	85°17.2'	N 22°48.1'	
11	182°03.6'	348°06.6'	S 5°58.0'	351°03.2'	S 3°16.2'	179°26.1'	S 0°37.3'	220°26.2'	S 16°26.7'	100°19.0'	N 22°48.2'	
12	197°06.1'	3°06.8'	S 5°58.9'	6°02.8'	S 3°17.4'	194°28.8'	S 0°37.4'	235°28.7'	S 16°26.8'	115°20.7'	N 22°48.4'	
13	212°08.5'	18°06.9'	S 5°59.9'	21°02.4'	S 3°18.7'	209°31.6'	S 0°37.6'	250°31.3'	S 16°26.8'	130°22.4'	N 22°48.5'	
14	227°11.0'	33°07.1'	S 6°00.9'	36°02.0'	S 3°19.9'	224°34.3'	S 0°37.7'	265°33.8'	S 16°26.8'	145°24.2'	N 22°48.6'	
15	242°13.4'	48°07.3'	S 6°01.8'	51°01.6'	S 3°21.2'	239°37.1'	S 0°37.8'	280°36.3'	S 16°26.8'	160°25.9'	N 22°48.7'	
16	257°15.9'	63°07.5'	S 6°02.8'	66°01.2'	S 3°22.4'	254°39.8'	S 0°37.9'	295°38.8'	S 16°26.8'	175°27.6'	N 22°48.8'	
17	272°18.4'	78°07.6'	S 6°03.7'	81°00.8'	S 3°23.7'	269°42.6'	S 0°38.1'	310°41.4'	S 16°26.8'	190°29.3'	N 22°49.0'	
18	287°20.8'	93°07.8'	S 6°04.7'	96°00.4'	S 3°24.9'	284°45.3'	S 0°38.2'	325°43.9'	S 16°26.9'	205°31.1'	N 22°49.1'	
19	302°23.3'	108°08.0'	S 6°05.6'	110°60.0'	S 3°26.2'	299°48.1'	S 0°38.3'	340°46.4'	S 16°26.9'	220°32.8'	N 22°49.2'	
20	317°25.8'	123°08.2'	S 6°06.6'	125°59.6'	S 3°27.4'	314°50.9'	S 0°38.4'	355°48.9'	S 16°26.9'	235°34.5'	N 22°49.3'	
21	332°28.2'	138°08.3'	S 6°07.5'	140°59.2'	S 3°28.7'	329°53.6'	S 0°38.5'	10°51.5'	S 16°26.9'	250°36.3'	N 22°49.4'	
22	347°30.7'	153°08.5'	S 6°08.5'	155°58.7'	S 3°29.9'	344°56.4'	S 0°38.7'	25°54.0'	S 16°26.9'	265°38.0'	N 22°49.6'	
23	2°33.2'	168°08.7'	S 6°09.4'	170°58.3'	S 3°31.2'	359°59.1'	S 0°38.8'	40°56.5'	S 16°26.9'	280°39.8'	N 22°49.7'	
		SD 16.0'	d -1.0'	v -0.4'	d -1.3'	v 2.8'	d -0.1'	v 2.5'	d -0.0'	v 1.7'	d 0.1'	
Mer. pass.		11 h 47 m 34 s		11 h 36 m		23 h 0 m		20 h 17 m		4 h 20 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Mars	-Rigel	-Aldebaran	-Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares
0	23°28.1'	S 7°29.3'	11.9'	15.6'	58.7'	91°29.5'	84°47.0'	79°02.6'	11°44.6'	23°23.5'	32°02.6'	57°22.2'	100°16.0'
1	37°59.0'	S 7°13.7'	12.0'	15.6'	58.6'	90°55.3'	84°18.0'	78°27.9'	11°09.8'	23°48.5'	32°37.4'	57°48.2'	100°50.9'
2	52°30.0'	S 6°58.1'	12.0'	15.7'	58.6'	90°21.1'	83°49.0'	77°53.3'	10°35.0'	24°13.9'	33°12.1'	58°14.3'	101°25.9'
3	67°01.0'	S 6°42.4'	12.1'	15.7'	58.6'	89°46.9'	83°20.1'	77°18.7'	10°00.3'	24°39.6'	33°46.9'	58°40.5'	102°00.8'
4	81°32.0'	S 6°26.7'	12.1'	15.7'	58.6'	89°12.8'	82°51.2'	76°44.1'	9°25.7'	25°05.7'	34°21.6'	59°06.7'	102°35.7'
5	96°03.1'	S 6°11.0'	12.2'	15.7'	58.6'	88°38.6'	82°22.3'	76°09.5'	8°51.2'	25°32.1'	34°56.3'	59°33.0'	103°10.6'
6	110°34.3'	S 5°55.3'	12.2'	15.8'	58.6'	88°04.5'	81°53.5'	75°35.0'	8°16.8'	25°58.8'	35°31.0'	59°59.4'	103°45.4'
7	125°05.5'	S 5°39.5'	12.2'	15.8'	58.5'	87°30.4'	81°24.7'	75°00.5'	7°42.6'	26°25.7'	36°05.7'	60°25.9'	104°20.3'
8	139°36.7'	S 5°23.7'	12.3'	15.8'	58.5'	86°56.3'	80°55.9'	74°26.0'	7°08.5'	26°53.0'	36°40.4'	60°52.4'	104°55.1'
9	154°08.0'	S 5°08.0'	12.3'	15.8'	58.5'	86°22.3'	80°27.2'	73°51.5'	6°34.7'	27°20.5'	37°15.1'	61°19.0'	105°29.9'
10	168°39.4'	S 4°52.1'	12.4'	15.8'	58.5'	85°48.2'	79°58.5'	73°17.0'	6°01.1'	27°48.2'	37°49.7'	61°45.7'	106°04.7'
11	183°10.7'	S 4°36.3'	12.4'	15.8'	58.5'	85°14.2'	79°29.8'	72°42.6'	5°27.8'	28°16.1'	38°24.4'	62°12.4'	106°39.4'
12	197°42.2'	S 4°20.5'	12.5'	15.8'	58.4'	84°40.2'	79°01.2'	72°08.2'	4°55.0'	28°44.3'	38°59.0'	62°39.2'	107°14.2'
13	212°13.6'	S 4°04.6'	12.5'	15.9'	58.4'	84°06.2'	78°32.6'	71°33.8'		29°12.6'	39°33.6'	63°06.0'	107°48.9'
14	226°45.1'	S 3°48.8'	12.5'	15.9'	58.4'	83°32.2'	78°04.1'	70°59.4'		29°41.2'	40°08.2'	63°32.9'	108°23.6'
15	241°16.7'	S 3°32.9'	12.6'	15.9'	58.4'	82°58.3'	77°35.6'	70°25.1'		30°09.9'	40°42.8'	63°59.9'	108°58.2'
16	255°48.2'	S 3°17.0'	12.6'	15.9'	58.4'	82°24.4'	77°07.1'	69°50.7'		30°38.8'	41°17.3'	64°26.9'	109°32.9'
17	270°19.9'	S 3°01.2'	12.6'	15.9'	58.3'	81°50.5'	76°38.7'	69°16.5'		31°07.9'	41°51.9'	64°53.9'	110°07.5'
18	284°51.5'	S 2°45.3'	12.7'	15.9'	58.3'	81°16.6'	76°10.4'	68°42.2'		31°37.1'	42°26.4'	65°21.0'	110°42.1'
19	299°23.2'	S 2°29.4'	12.7'	15.9'	58.3'	80°42.7'	75°42.0'	68°07.9'		32°06.4'	43°00.9'	65°48.2'	111°16.7'
20	313°54.9'	S 2°13.5'	12.7'	15.9'	58.3'	80°08.9'	75°13.8'	67°33.7'		32°35.9'	43°35.4'	66°15.4'	111°51.3'
21	328°26.6'	S 1°57.6'	12.8'	15.9'	58.3'	79°35.1'	74°45.5'	66°59.5'		33°05.5'	44°09.8'	66°42.6'	112°25.8'
22	342°58.4'	S 1°41.7'	12.8'	15.9'	58.2'	79°01.3'	74°17.4'	66°25.4'		33°35.2'	44°44.2'	67°09.8'	113°00.3'
23	357°30.2'	S 1°25.9'	12.8'	15.9'	58.2'	78°27.6'	73°49.3'	65°51.2'		34°05.1'	45°18.7'	67°37.1'	113°34.8'
Mer. pass.		23 h 10 m SD 16.0'	phase 96%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.5'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.3'
Vega	+0.0	80°34.5'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°31.5'	N 89°21.4'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.1'	S 52°42.1'				



Table with 12 columns: h, Aries GHA, Sun GHA dec, Venus GHA dec, Jupiter GHA dec, Saturn GHA dec, Mars GHA dec. Rows include hourly data and planetary passes for Mer.

Table with 13 columns: h, Moon GHA dec v d HP, Lunar distance (-Capella, -Mars, -Rigel, -Aldebaran, +Jupiter, +Fomalhaut, +Saturn, +Altair). Rows include hourly data and Mer. pass details.

Table with 12 columns: Star, mag, SHA, dec. Lists stars such as Fomalhaut, Deneb, Altair, Vega, Antares, Rigel, etc.

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	18°34.8'	183°13.0'	S 6°33.1'	185°48.2'	S 4°02.4'	16°08.0'	S 0°41.8'	56°59.5'	S 16°27.3'	296°23.6'	N 22°52.6'	
1	33°37.2'	198°13.2'	S 6°34.1'	200°47.8'	S 4°03.6'	31°10.7'	S 0°41.9'	72°02.0'	S 16°27.4'	311°25.4'	N 22°52.8'	
2	48°39.7'	213°13.3'	S 6°35.0'	215°47.4'	S 4°04.8'	46°13.5'	S 0°42.1'	87°04.6'	S 16°27.4'	326°27.1'	N 22°52.9'	
3	63°42.2'	228°13.5'	S 6°36.0'	230°47.0'	S 4°06.1'	61°16.2'	S 0°42.2'	102°07.1'	S 16°27.4'	341°28.9'	N 22°53.0'	
4	78°44.6'	243°13.7'	S 6°36.9'	245°46.6'	S 4°07.3'	76°19.0'	S 0°42.3'	117°09.6'	S 16°27.4'	356°30.7'	N 22°53.1'	
5	93°47.1'	258°13.8'	S 6°37.9'	260°46.2'	S 4°08.6'	91°21.7'	S 0°42.4'	132°12.1'	S 16°27.4'	11°32.4'	N 22°53.2'	
6	108°49.5'	273°14.0'	S 6°38.8'	275°45.8'	S 4°09.8'	106°24.5'	S 0°42.6'	147°14.6'	S 16°27.4'	26°34.2'	N 22°53.4'	
7	123°52.0'	288°14.2'	S 6°39.8'	290°45.4'	S 4°11.1'	121°27.2'	S 0°42.7'	162°17.2'	S 16°27.4'	41°36.0'	N 22°53.5'	
8	138°54.5'	303°14.3'	S 6°40.7'	305°45.0'	S 4°12.3'	136°30.0'	S 0°42.8'	177°19.7'	S 16°27.5'	56°37.8'	N 22°53.6'	
9	153°56.9'	318°14.5'	S 6°41.6'	320°44.6'	S 4°13.6'	151°32.7'	S 0°42.9'	192°22.2'	S 16°27.5'	71°39.6'	N 22°53.7'	
10	168°59.4'	333°14.7'	S 6°42.6'	335°44.1'	S 4°14.8'	166°35.5'	S 0°43.0'	207°24.7'	S 16°27.5'	86°41.3'	N 22°53.8'	
11	184°01.9'	348°14.8'	S 6°43.5'	350°43.7'	S 4°16.1'	181°38.2'	S 0°43.2'	222°27.2'	S 16°27.5'	101°43.1'	N 22°53.9'	
12	199°04.3'	3°15.0'	S 6°44.5'	5°43.3'	S 4°17.3'	196°41.0'	S 0°43.3'	237°29.7'	S 16°27.5'	116°44.9'	N 22°54.1'	
13	214°06.8'	18°15.2'	S 6°45.4'	20°42.9'	S 4°18.5'	211°43.7'	S 0°43.4'	252°32.3'	S 16°27.5'	131°46.7'	N 22°54.2'	
14	229°09.3'	33°15.3'	S 6°46.4'	35°42.5'	S 4°19.8'	226°46.5'	S 0°43.5'	267°34.8'	S 16°27.5'	146°48.5'	N 22°54.3'	
15	244°11.7'	48°15.5'	S 6°47.3'	50°42.1'	S 4°21.0'	241°49.2'	S 0°43.6'	282°37.3'	S 16°27.6'	161°50.2'	N 22°54.4'	
16	259°14.2'	63°15.7'	S 6°48.3'	65°41.7'	S 4°22.3'	256°52.0'	S 0°43.8'	297°39.8'	S 16°27.6'	176°52.0'	N 22°54.5'	
17	274°16.6'	78°15.8'	S 6°49.2'	80°41.3'	S 4°23.5'	271°54.7'	S 0°43.9'	312°42.3'	S 16°27.6'	191°53.8'	N 22°54.6'	
18	289°19.1'	93°16.0'	S 6°50.1'	95°40.9'	S 4°24.8'	286°57.5'	S 0°44.0'	327°44.8'	S 16°27.6'	206°55.6'	N 22°54.8'	
19	304°21.6'	108°16.2'	S 6°51.1'	110°40.5'	S 4°26.0'	302°00.2'	S 0°44.1'	342°47.4'	S 16°27.6'	221°57.4'	N 22°54.9'	
20	319°24.0'	123°16.3'	S 6°52.0'	125°40.1'	S 4°27.3'	317°03.0'	S 0°44.2'	357°49.9'	S 16°27.6'	236°59.2'	N 22°55.0'	
21	334°26.5'	138°16.5'	S 6°53.0'	140°39.6'	S 4°28.5'	332°05.7'	S 0°44.3'	12°52.4'	S 16°27.6'	252°01.0'	N 22°55.1'	
22	349°29.0'	153°16.7'	S 6°53.9'	155°39.2'	S 4°29.7'	347°08.5'	S 0°44.5'	27°54.9'	S 16°27.7'	267°02.8'	N 22°55.2'	
23	4°31.4'	168°16.8'	S 6°54.9'	170°38.8'	S 4°31.0'	2°11.2'	S 0°44.6'	42°57.4'	S 16°27.7'	282°04.6'	N 22°55.4'	
		SD 16.0'	d -0.9'	v -0.4'	d -1.2'	v 2.8'	d -0.1'	v 2.5'	d -0.0'	v 1.8'	d 0.1'	
Mer. pass.		11 h 47 m 1 s		11 h 37 m		22 h 51 m		20 h 9 m		4 h 14 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Capella	-Mars	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Achernar
0	0°52.0'	N 5°06.3'	13.2'	15.3'	57.6'	67°02.6'	64°31.7'	62°27.5'	51°47.8'	16°18.9'	46°53.7'	59°31.3'	
1	15°24.2'	N 5°21.7'	13.2'	15.3'	57.6'	66°31.1'	63°58.7'	62°01.3'	51°14.5'	16°52.8'	47°25.0'	60°05.0'	
2	29°56.4'	N 5°37.0'	13.2'	15.3'	57.6'	65°59.7'	63°25.6'	61°35.1'	50°41.2'	17°26.7'	47°56.2'	60°38.8'	
3	44°28.6'	N 5°52.2'	13.2'	15.2'	57.6'	65°28.3'	62°52.6'	61°09.1'	50°08.0'	18°00.5'	48°27.5'	61°12.5'	
4	59°00.8'	N 6°07.5'	13.2'	15.2'	57.5'	64°56.9'	62°19.6'	60°43.1'	49°34.8'	18°34.4'	48°58.8'	61°46.1'	
5	73°33.1'	N 6°22.6'	13.2'	15.1'	57.5'	64°25.6'	61°46.7'	60°17.2'	49°01.6'	19°08.2'	49°30.1'	62°19.8'	
6	88°05.3'	N 6°37.8'	13.2'	15.1'	57.5'	63°54.4'	61°13.8'	59°51.5'	48°28.5'	19°42.0'	50°01.4'	62°53.4'	
7	102°37.5'	N 6°52.9'	13.2'	15.0'	57.5'	63°23.2'	60°40.9'	59°25.8'	47°55.5'	20°15.8'	50°32.8'	63°27.0'	
8	117°09.7'	N 7°07.9'	13.2'	15.0'	57.4'	62°52.1'	60°08.0'	59°00.3'	47°22.4'	20°49.6'	51°04.1'	64°00.5'	
9	131°41.9'	N 7°22.9'	13.2'	15.0'	57.4'	62°21.0'	59°35.2'	58°34.8'	46°49.5'	21°23.3'	51°35.4'	64°34.1'	
10	146°14.1'	N 7°37.9'	13.2'	14.9'	57.4'	61°49.9'	59°02.4'	58°09.5'	46°16.5'	21°57.0'	52°06.8'	65°07.5'	
11	160°46.2'	N 7°52.8'	13.2'	14.9'	57.4'	61°18.9'	58°29.6'	57°44.3'	45°43.6'	22°30.7'	52°38.1'	65°41.0'	
12	175°18.4'	N 8°07.6'	13.2'	14.8'	57.3'	60°48.0'	57°56.9'	57°19.2'	45°10.8'	23°04.4'	53°09.4'	66°14.4'	
13	189°50.6'	N 8°22.4'	13.2'	14.7'	57.3'	60°17.1'	57°24.2'	56°54.2'	44°37.9'	23°38.0'	53°40.8'	66°47.8'	
14	204°22.7'	N 8°37.2'	13.1'	14.7'	57.3'	59°46.3'	56°51.5'	56°29.3'	44°05.2'	24°11.6'	54°12.1'	67°21.2'	
15	218°54.9'	N 8°51.9'	13.1'	14.6'	57.2'	59°15.6'	56°18.8'	56°04.6'	43°32.4'	24°45.2'	54°43.5'	67°54.5'	
16	233°27.0'	N 9°06.5'	13.1'	14.6'	57.2'	58°44.9'	55°46.2'	55°39.9'	42°59.8'	25°18.8'	55°14.8'	68°27.8'	66°14.1'
17	247°59.2'	N 9°21.1'	13.1'	14.5'	57.2'	58°14.2'	55°13.6'	55°15.4'	42°27.1'	25°52.3'	55°46.1'	69°01.1'	66°29.2'
18	262°31.3'	N 9°35.6'	13.1'	14.5'	57.2'	57°43.7'	54°41.1'	54°51.0'	41°54.5'	26°25.8'	56°17.5'	69°34.4'	66°44.3'
19	277°03.4'	N 9°50.1'	13.1'	14.4'	57.1'	57°13.1'	54°08.6'	54°26.8'	41°22.0'	26°59.3'	56°48.8'	70°07.6'	66°59.5'
20	291°35.5'	N 10°04.5'	13.1'	14.4'	57.1'	56°42.7'	53°36.1'	54°02.7'	40°49.5'	27°32.7'	57°20.1'	70°40.7'	67°14.8'
21	306°07.5'	N 10°18.9'	13.1'	14.3'	57.1'	56°12.3'	53°03.7'	53°38.7'	40°17.0'	28°06.1'	57°51.4'	71°13.9'	67°30.2'
22	320°39.6'	N 10°33.1'	13.0'	14.2'	57.1'	55°42.0'	52°31.2'	53°14.8'	39°44.6'	28°39.5'	58°22.7'	71°47.0'	67°45.6'
23	335°11.6'	N 10°47.4'	13.0'	14.2'	57.0'	55°11.7'	51°58.9'	52°51.1'	39°12.3'	29°12.8'	58°54.0'	72°20.1'	68°01.2'
Mer. pass.		0 h 42 m SD 15.7'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.4'	N 46°01.1'
Altair	+0.8	62°01.7'	N 8°55.8'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.7'	N 27°58.3'	Aldebaran	+0.9	290°41.6'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°30.9'	N 89°21.4'
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.2'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.9'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.1'	S 52°42.1'				







h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	22°31.3'	183°28.2'	S 8°03.3'	185°08.3'	S 6°01.3'	20°31.5'	S 0°53.1'	61°00.6'	S 16°28.6'	299°18.7'	N 23°03.8'
1	37°33.8'	198°28.4'	S 8°04.2'	200°07.9'	S 6°02.6'	35°34.3'	S 0°53.2'	76°03.1'	S 16°28.6'	314°20.6'	N 23°03.9'
2	52°36.2'	213°28.5'	S 8°05.1'	215°07.5'	S 6°03.8'	50°37.0'	S 0°53.3'	91°05.6'	S 16°28.6'	329°22.5'	N 23°04.0'
3	67°38.7'	228°28.7'	S 8°06.1'	230°07.0'	S 6°05.0'	65°39.7'	S 0°53.4'	106°08.1'	S 16°28.6'	344°24.4'	N 23°04.1'
4	82°41.2'	243°28.8'	S 8°07.0'	245°06.6'	S 6°06.2'	80°42.5'	S 0°53.5'	121°10.6'	S 16°28.6'	359°26.3'	N 23°04.2'
5	97°43.6'	258°29.0'	S 8°07.9'	260°06.2'	S 6°07.5'	95°45.2'	S 0°53.7'	136°13.1'	S 16°28.6'	14°28.2'	N 23°04.4'
6	112°46.1'	273°29.1'	S 8°08.8'	275°05.8'	S 6°08.7'	110°48.0'	S 0°53.8'	151°15.6'	S 16°28.6'	29°30.1'	N 23°04.5'
7	127°48.6'	288°29.3'	S 8°09.8'	290°05.3'	S 6°09.9'	125°50.7'	S 0°53.9'	166°18.1'	S 16°28.6'	44°32.0'	N 23°04.6'
8	142°51.0'	303°29.4'	S 8°10.7'	305°04.9'	S 6°11.2'	140°53.4'	S 0°54.0'	181°20.6'	S 16°28.6'	59°33.9'	N 23°04.7'
9	157°53.5'	318°29.6'	S 8°11.6'	320°04.5'	S 6°12.4'	155°56.2'	S 0°54.1'	196°23.1'	S 16°28.6'	74°35.7'	N 23°04.8'
10	172°56.0'	333°29.7'	S 8°12.6'	335°04.1'	S 6°13.6'	170°58.9'	S 0°54.2'	211°25.6'	S 16°28.6'	89°37.6'	N 23°04.9'
11	187°58.4'	348°29.8'	S 8°13.5'	350°03.6'	S 6°14.8'	186°01.6'	S 0°54.3'	226°28.1'	S 16°28.7'	104°39.5'	N 23°05.0'
12	203°00.9'	3°30.0'	S 8°14.4'	5°03.2'	S 6°16.1'	201°04.4'	S 0°54.5'	241°30.6'	S 16°28.7'	119°41.4'	N 23°05.2'
13	218°03.3'	18°30.1'	S 8°15.3'	20°02.8'	S 6°17.3'	216°07.1'	S 0°54.6'	256°33.1'	S 16°28.7'	134°43.3'	N 23°05.3'
14	233°05.8'	33°30.3'	S 8°16.3'	35°02.3'	S 6°18.5'	231°09.8'	S 0°54.7'	271°35.6'	S 16°28.7'	149°45.2'	N 23°05.4'
15	248°08.3'	48°30.4'	S 8°17.2'	50°01.9'	S 6°19.8'	246°12.6'	S 0°54.8'	286°38.1'	S 16°28.7'	164°47.1'	N 23°05.5'
16	263°10.7'	63°30.6'	S 8°18.1'	65°01.5'	S 6°21.0'	261°15.3'	S 0°54.9'	301°40.6'	S 16°28.7'	179°49.0'	N 23°05.6'
17	278°13.2'	78°30.7'	S 8°19.1'	80°01.1'	S 6°22.2'	276°18.1'	S 0°55.0'	316°43.1'	S 16°28.7'	194°50.9'	N 23°05.7'
18	293°15.7'	93°30.9'	S 8°20.0'	95°00.6'	S 6°23.4'	291°20.8'	S 0°55.1'	331°45.6'	S 16°28.7'	209°52.8'	N 23°05.8'
19	308°18.1'	108°31.0'	S 8°20.9'	110°00.2'	S 6°24.7'	306°23.5'	S 0°55.2'	346°48.1'	S 16°28.7'	224°54.8'	N 23°06.0'
20	323°20.6'	123°31.1'	S 8°21.8'	124°59.8'	S 6°25.9'	321°26.3'	S 0°55.3'	1°50.6'	S 16°28.7'	239°56.7'	N 23°06.1'
21	338°23.1'	138°31.3'	S 8°22.8'	139°59.3'	S 6°27.1'	336°29.0'	S 0°55.5'	16°53.1'	S 16°28.7'	254°58.6'	N 23°06.2'
22	353°25.5'	153°31.4'	S 8°23.7'	154°58.9'	S 6°28.3'	351°31.7'	S 0°55.6'	31°55.6'	S 16°28.8'	270°00.5'	N 23°06.3'
23	8°28.0'	168°31.6'	S 8°24.6'	169°58.5'	S 6°29.6'	6°34.5'	S 0°55.7'	46°58.1'	S 16°28.8'	285°02.4'	N 23°06.4'
		SD 16.0' d -0.9'		v -0.4' d -1.2'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 1.9' d 0.1'	
Mer. pass.		11 h 46 m 1 s		11 h 40 m		22 h 34 m		19 h 53 m		4 h 2 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Mars	+Aldebaran	+Jupiter	+Achernar	+Fomalhaut
0	314°49.5'	N 24°12.5'	10.6'	7.1'	55.1'	43°51.5'	26°29.8'	23°49.2'	14°15.0'		68°21.0'	89°00.0'	96°00.9'
1	329°19.1'	N 24°19.6'	10.6'	6.9'	55.1'	43°20.8'	26°09.8'	23°32.1'	13°45.8'		68°52.0'	89°17.7'	96°30.4'
2	343°48.7'	N 24°26.6'	10.6'	6.8'	55.1'	42°50.1'	25°50.2'	23°15.5'	13°16.7'		69°23.1'	89°35.4'	96°59.9'
3	358°18.2'	N 24°33.4'	10.5'	6.7'	55.1'	42°19.4'	25°31.0'	22°59.4'	12°47.7'		69°54.0'	89°53.1'	97°29.3'
4	12°47.8'	N 24°40.1'	10.5'	6.6'	55.0'	41°48.7'	25°12.1'	22°43.7'	12°18.9'		70°25.0'	90°10.8'	97°58.8'
5	27°17.3'	N 24°46.6'	10.5'	6.4'	55.0'	41°18.1'	24°53.6'		11°50.1'		70°55.9'	90°28.4'	98°28.2'
6	41°46.7'	N 24°53.1'	10.4'	6.3'	55.0'	40°47.5'	24°35.5'		11°21.5'		71°26.8'	90°46.1'	98°57.6'
7	56°16.2'	N 24°59.4'	10.4'	6.2'	55.0'	40°16.9'	24°17.8'		10°53.1'		71°57.7'	91°03.7'	99°26.9'
8	70°45.6'	N 25°05.6'	10.4'	6.1'	55.0'	39°46.4'	24°00.6'		10°24.9'		72°28.6'	91°21.3'	99°56.3'
9	85°15.0'	N 25°11.7'	10.4'	5.9'	54.9'	39°15.9'	23°43.7'		9°56.8'		72°59.4'	91°38.9'	100°25.6'
10	99°44.3'	N 25°17.6'	10.3'	5.8'	54.9'	38°45.4'	23°27.3'		9°28.9'		73°30.2'	91°56.4'	100°54.8'
11	114°13.7'	N 25°23.4'	10.3'	5.7'	54.9'	38°14.9'	23°11.4'		9°01.3'		74°01.0'	92°14.0'	101°24.1'
12	128°43.0'	N 25°29.1'	10.3'	5.6'	54.9'	37°44.5'			8°34.0'		74°31.7'	92°31.5'	101°53.3'
13	143°12.2'	N 25°34.6'	10.3'	5.4'	54.9'	37°14.1'			8°07.0'		75°02.5'	92°49.0'	102°22.5'
14	157°41.5'	N 25°40.1'	10.2'	5.3'	54.9'	36°43.7'			7°40.4'	10°44.2'	75°33.2'	93°06.5'	102°51.6'
15	172°10.7'	N 25°45.4'	10.2'	5.2'	54.8'	36°13.3'			7°14.3'	11°05.4'	76°03.9'	93°23.9'	103°20.8'
16	186°39.9'	N 25°50.5'	10.2'	5.0'	54.8'	35°43.0'			6°48.6'	11°27.3'	76°34.5'	93°41.4'	103°49.9'
17	201°09.1'	N 25°55.6'	10.2'	4.9'	54.8'	35°12.6'			6°23.6'	11°49.8'	77°05.2'	93°58.8'	104°18.9'
18	215°38.3'	N 26°00.5'	10.1'	4.8'	54.8'	34°42.3'				12°12.8'	77°35.8'	94°16.2'	104°48.0'
19	230°07.4'	N 26°05.2'	10.1'	4.6'	54.8'	34°12.1'				12°36.3'	78°06.4'	94°33.5'	105°17.0'
20	244°36.5'	N 26°09.9'	10.1'	4.5'	54.7'	33°41.8'				13°00.3'	78°36.9'	94°50.9'	105°46.0'
21	259°05.6'	N 26°14.4'	10.1'	4.4'	54.7'	33°11.6'				13°24.6'	79°07.5'	95°08.2'	106°15.0'
22	273°34.7'	N 26°18.8'	10.1'	4.2'	54.7'	32°41.4'				13°49.4'	79°38.0'	95°25.4'	106°43.9'
23	288°03.8'	N 26°23.0'	10.0'	4.1'	54.7'	32°11.2'				14°14.4'	80°08.5'	95°42.7'	107°12.8'
Mer. pass. 3 h 7 m SD 15.0' phase 83%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°26.9'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.4'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°29.6'	N 89°21.4'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.1'	S 52°42.1'				







h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	25°28.7'	183°38.2'	S 9°09.7'	184°37.0'	S 7°29.3'	23°48.3'	S 1°01.1'	64°00.4'	S 16°29.1'	301°37.7'	N 23°12.0'	
1	40°31.2'	198°38.4'	S 9°10.6'	199°36.6'	S 7°30.5'	38°51.0'	S 1°01.2'	79°02.8'	S 16°29.1'	316°39.6'	N 23°12.1'	
2	55°33.7'	213°38.5'	S 9°11.6'	214°36.2'	S 7°31.8'	53°53.7'	S 1°01.3'	94°05.3'	S 16°29.1'	331°41.6'	N 23°12.2'	
3	70°36.1'	228°38.6'	S 9°12.5'	229°35.7'	S 7°33.0'	68°56.5'	S 1°01.4'	109°07.8'	S 16°29.1'	346°43.6'	N 23°12.3'	
4	85°38.6'	243°38.8'	S 9°13.4'	244°35.3'	S 7°34.2'	83°59.2'	S 1°01.5'	124°10.3'	S 16°29.1'	1°45.6'	N 23°12.4'	
5	100°41.1'	258°38.9'	S 9°14.3'	259°34.8'	S 7°35.4'	99°01.9'	S 1°01.6'	139°12.8'	S 16°29.2'	16°47.6'	N 23°12.5'	
6	115°43.5'	273°39.0'	S 9°15.2'	274°34.4'	S 7°36.6'	114°04.6'	S 1°01.7'	154°15.3'	S 16°29.2'	31°49.5'	N 23°12.6'	
7	130°46.0'	288°39.2'	S 9°16.1'	289°33.9'	S 7°37.8'	129°07.4'	S 1°01.8'	169°17.8'	S 16°29.2'	46°51.5'	N 23°12.7'	
8	145°48.4'	303°39.3'	S 9°17.0'	304°33.5'	S 7°39.0'	144°10.1'	S 1°01.9'	184°20.3'	S 16°29.2'	61°53.5'	N 23°12.9'	
9	160°50.9'	318°39.4'	S 9°18.0'	319°33.0'	S 7°40.2'	159°12.8'	S 1°02.0'	199°22.8'	S 16°29.2'	76°55.5'	N 23°13.0'	
10	175°53.4'	333°39.5'	S 9°18.9'	334°32.6'	S 7°41.4'	174°15.5'	S 1°02.1'	214°25.2'	S 16°29.2'	91°57.5'	N 23°13.1'	
11	190°55.8'	348°39.7'	S 9°19.8'	349°32.1'	S 7°42.7'	189°18.3'	S 1°02.2'	229°27.7'	S 16°29.2'	106°59.5'	N 23°13.2'	
12	205°58.3'	3°39.8'	S 9°20.7'	4°31.7'	S 7°43.9'	204°21.0'	S 1°02.3'	244°30.2'	S 16°29.2'	122°01.5'	N 23°13.3'	
13	221°00.8'	18°39.9'	S 9°21.6'	19°31.2'	S 7°45.1'	219°23.7'	S 1°02.5'	259°32.7'	S 16°29.2'	137°03.5'	N 23°13.4'	
14	236°03.2'	33°40.0'	S 9°22.5'	34°30.8'	S 7°46.3'	234°26.4'	S 1°02.6'	274°35.2'	S 16°29.2'	152°05.5'	N 23°13.5'	
15	251°05.7'	48°40.2'	S 9°23.4'	49°30.4'	S 7°47.5'	249°29.2'	S 1°02.7'	289°37.7'	S 16°29.2'	167°07.5'	N 23°13.6'	
16	266°08.2'	63°40.3'	S 9°24.3'	64°29.9'	S 7°48.7'	264°31.9'	S 1°02.8'	304°40.2'	S 16°29.2'	182°09.5'	N 23°13.8'	
17	281°10.6'	78°40.4'	S 9°25.3'	79°29.5'	S 7°49.9'	279°34.6'	S 1°02.9'	319°42.7'	S 16°29.2'	197°11.5'	N 23°13.9'	
18	296°13.1'	93°40.5'	S 9°26.2'	94°29.0'	S 7°51.1'	294°37.3'	S 1°03.0'	334°45.2'	S 16°29.2'	212°13.5'	N 23°14.0'	
19	311°15.6'	108°40.7'	S 9°27.1'	109°28.6'	S 7°52.3'	309°40.0'	S 1°03.1'	349°47.6'	S 16°29.2'	227°15.5'	N 23°14.1'	
20	326°18.0'	123°40.8'	S 9°28.0'	124°28.1'	S 7°53.5'	324°42.8'	S 1°03.2'	4°50.1'	S 16°29.2'	242°17.5'	N 23°14.2'	
21	341°20.5'	138°40.9'	S 9°28.9'	139°27.7'	S 7°54.7'	339°45.5'	S 1°03.3'	19°52.6'	S 16°29.2'	257°19.5'	N 23°14.3'	
22	356°22.9'	153°41.0'	S 9°29.8'	154°27.2'	S 7°56.0'	354°48.2'	S 1°03.4'	34°55.1'	S 16°29.2'	272°21.5'	N 23°14.4'	
23	11°25.4'	168°41.2'	S 9°30.7'	169°26.8'	S 7°57.2'	9°50.9'	S 1°03.5'	49°57.6'	S 16°29.2'	287°23.5'	N 23°14.5'	
		SD 16.0'	d -0.9'	v -0.4'	d -1.2'	v 2.7'	d -0.1'	v 2.5'	d -0.0'	v 2.0'	d 0.1'	
Mer. pass.		11 h 45 m 22 s		11 h 42 m		22 h 21 m		19 h 41 m		3 h 53 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	-Pollux	+Mars	+Betelgeuse	+Capella	+Aldebaran
0	277°44.7'	N 27°07.5'	10.3'	-2.4'	54.2'	109°23.5'	97°47.3'	44°29.8'	7°58.1'	21°56.1'	26°28.5'	29°11.0'	37°02.2'
1	292°14.0'	N 27°05.1'	10.4'	-2.5'	54.2'	109°07.6'	97°20.2'	44°00.4'	7°29.3'	22°24.9'	26°48.0'	29°32.6'	37°31.0'
2	306°43.4'	N 27°02.6'	10.4'	-2.7'	54.2'	108°51.6'	96°53.1'	43°31.0'	7°00.6'	22°53.6'	27°07.7'	29°54.5'	37°59.9'
3	321°12.7'	N 26°59.9'	10.4'	-2.8'	54.2'	108°35.5'	96°26.0'	43°01.6'	6°32.0'	23°22.4'	27°27.7'	30°16.5'	38°28.7'
4	335°42.2'	N 26°57.2'	10.5'	-2.9'	54.2'	108°19.4'	95°58.9'	42°32.3'	6°03.6'	23°51.1'	27°48.0'	30°38.8'	38°57.6'
5	350°11.6'	N 26°54.2'	10.5'	-3.0'	54.2'	108°03.2'	95°31.9'	42°02.9'	5°35.4'	24°19.9'	28°08.5'	31°01.2'	39°26.5'
6	4°41.1'	N 26°51.2'	10.5'	-3.2'	54.2'	107°47.0'	95°04.8'	41°33.5'	5°07.4'	24°48.7'	28°29.3'	31°23.8'	39°55.4'
7	19°10.6'	N 26°48.0'	10.5'	-3.3'	54.2'	107°30.7'	94°37.7'	41°04.2'	4°39.8'	25°17.5'	28°50.3'	31°46.6'	40°24.3'
8	33°40.2'	N 26°44.7'	10.6'	-3.4'	54.2'	107°14.4'	94°10.6'	40°34.8'	4°12.6'	25°46.3'	29°11.5'	32°09.5'	40°53.3'
9	48°09.7'	N 26°41.3'	10.6'	-3.6'	54.2'	106°58.0'	93°43.5'	40°05.5'		26°15.1'	29°33.0'	32°32.6'	41°22.2'
10	62°39.4'	N 26°37.7'	10.7'	-3.7'	54.2'	106°41.5'	93°16.4'	39°36.1'		26°44.0'	29°54.6'	32°55.9'	41°51.1'
11	77°09.0'	N 26°34.1'	10.7'	-3.8'	54.2'	106°25.0'	92°49.3'	39°06.8'		27°12.8'	30°16.5'	33°19.2'	42°20.1'
12	91°38.7'	N 26°30.3'	10.7'	-3.9'	54.2'	106°08.5'	92°22.2'	38°37.5'		27°41.7'	30°38.5'	33°42.8'	42°49.1'
13	106°08.4'	N 26°26.3'	10.8'	-4.1'	54.2'	105°51.9'	91°55.2'	38°08.1'		28°10.5'	31°00.8'	34°06.5'	43°18.0'
14	120°38.2'	N 26°22.3'	10.8'	-4.2'	54.2'	105°35.2'	91°28.1'	37°38.8'		28°39.4'	31°23.2'	34°30.3'	43°47.0'
15	135°08.0'	N 26°18.1'	10.8'	-4.3'	54.2'	105°18.5'	91°01.0'	37°09.5'		29°08.3'	31°45.8'	34°54.2'	44°16.0'
16	149°37.8'	N 26°13.8'	10.9'	-4.4'	54.2'	105°01.8'	90°33.9'	36°40.2'		29°37.2'	32°08.6'	35°18.3'	44°45.1'
17	164°07.7'	N 26°09.4'	10.9'	-4.5'	54.2'	104°45.0'	90°06.8'	36°10.9'		30°06.1'	32°31.5'	35°42.5'	45°14.1'
18	178°37.6'	N 26°04.8'	11.0'	-4.7'	54.2'	104°28.1'	89°39.7'	35°41.6'		30°35.0'	32°54.6'	36°06.8'	45°43.1'
19	193°07.6'	N 26°00.2'	11.0'	-4.8'	54.2'	104°11.2'	89°12.6'	35°12.3'		31°04.0'	33°17.8'	36°31.2'	46°12.2'
20	207°37.5'	N 25°55.4'	11.0'	-4.9'	54.2'	103°54.3'	88°45.5'	34°43.0'		31°32.9'	33°41.2'	36°55.7'	46°41.2'
21	222°07.6'	N 25°50.5'	11.1'	-5.0'	54.2'	103°37.3'	88°18.4'	34°13.7'		32°01.8'	34°04.8'	37°20.4'	47°10.3'
22	236°37.7'	N 25°45.4'	11.1'	-5.1'	54.2'	103°20.3'	87°51.3'	33°44.4'		32°30.8'	34°28.5'	37°45.1'	47°39.4'
23	251°07.8'	N 25°40.3'	11.2'	-5.3'	54.2'	103°03.2'	87°24.2'	33°15.1'	3°57.9'	32°59.8'	34°52.3'	38°09.9'	48°08.5'
Mer. pass.		5 h 41 m SD 14.8'		phase 57%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.4'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°28.6'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.0'	S 52°42.1'				

Tuesday 18 October 2022 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	26°27.9'	183°41.3'	S 9°31.6'	184°26.3'	S 7°58.4'	24°53.7'	S 1°03.6'	65°00.1'	S 16°29.3'	302°25.5'	N 23°14.7'
1	41°30.3'	198°41.4'	S 9°32.5'	199°25.9'	S 7°59.6'	39°56.4'	S 1°03.7'	80°02.6'	S 16°29.3'	317°27.5'	N 23°14.8'
2	56°32.8'	213°41.5'	S 9°33.5'	214°25.4'	S 8°00.8'	54°59.1'	S 1°03.8'	95°05.1'	S 16°29.3'	332°29.5'	N 23°14.9'
3	71°35.3'	228°41.7'	S 9°34.4'	229°25.0'	S 8°02.0'	70°01.8'	S 1°03.9'	110°07.5'	S 16°29.3'	347°31.5'	N 23°15.0'
4	86°37.7'	243°41.8'	S 9°35.3'	244°24.5'	S 8°03.2'	85°04.5'	S 1°04.0'	125°10.0'	S 16°29.3'	2°33.5'	N 23°15.1'
5	101°40.2'	258°41.9'	S 9°36.2'	259°24.0'	S 8°04.4'	100°07.3'	S 1°04.1'	140°12.5'	S 16°29.3'	17°35.6'	N 23°15.2'
6	116°42.7'	273°42.0'	S 9°37.1'	274°23.6'	S 8°05.6'	115°10.0'	S 1°04.2'	155°15.0'	S 16°29.3'	32°37.6'	N 23°15.3'
7	131°45.1'	288°42.1'	S 9°38.0'	289°23.1'	S 8°06.8'	130°12.7'	S 1°04.4'	170°17.5'	S 16°29.3'	47°39.6'	N 23°15.4'
8	146°47.6'	303°42.3'	S 9°38.9'	304°22.7'	S 8°08.0'	145°15.4'	S 1°04.5'	185°20.0'	S 16°29.3'	62°41.6'	N 23°15.6'
9	161°50.0'	318°42.4'	S 9°39.8'	319°22.2'	S 8°09.2'	160°18.1'	S 1°04.6'	200°22.4'	S 16°29.3'	77°43.6'	N 23°15.7'
10	176°52.5'	333°42.5'	S 9°40.7'	334°21.8'	S 8°10.4'	175°20.9'	S 1°04.7'	215°24.9'	S 16°29.3'	92°45.7'	N 23°15.8'
11	191°55.0'	348°42.6'	S 9°41.6'	349°21.3'	S 8°11.6'	190°23.6'	S 1°04.8'	230°27.4'	S 16°29.3'	107°47.7'	N 23°15.9'
12	206°57.4'	3°42.8'	S 9°42.5'	4°20.9'	S 8°12.8'	205°26.3'	S 1°04.9'	245°29.9'	S 16°29.3'	122°49.7'	N 23°16.0'
13	221°59.9'	18°42.9'	S 9°43.4'	19°20.4'	S 8°14.0'	220°29.0'	S 1°05.0'	260°32.4'	S 16°29.3'	137°51.7'	N 23°16.1'
14	237°02.4'	33°43.0'	S 9°44.4'	34°20.0'	S 8°15.2'	235°31.7'	S 1°05.1'	275°34.9'	S 16°29.3'	152°53.8'	N 23°16.2'
15	252°04.8'	48°43.1'	S 9°45.3'	49°19.5'	S 8°16.4'	250°34.5'	S 1°05.2'	290°37.4'	S 16°29.3'	167°55.8'	N 23°16.3'
16	267°07.3'	63°43.2'	S 9°46.2'	64°19.1'	S 8°17.6'	265°37.2'	S 1°05.3'	305°39.8'	S 16°29.3'	182°57.8'	N 23°16.4'
17	282°09.8'	78°43.4'	S 9°47.1'	79°18.6'	S 8°18.8'	280°39.9'	S 1°05.4'	320°42.3'	S 16°29.3'	197°59.9'	N 23°16.6'
18	297°12.2'	93°43.5'	S 9°48.0'	94°18.1'	S 8°20.0'	295°42.6'	S 1°05.5'	335°44.8'	S 16°29.3'	213°01.9'	N 23°16.7'
19	312°14.7'	108°43.6'	S 9°48.9'	109°17.7'	S 8°21.2'	310°45.3'	S 1°05.6'	350°47.3'	S 16°29.3'	228°03.9'	N 23°16.8'
20	327°17.2'	123°43.7'	S 9°49.8'	124°17.2'	S 8°22.4'	325°48.1'	S 1°05.7'	5°49.8'	S 16°29.3'	243°06.0'	N 23°16.9'
21	342°19.6'	138°43.8'	S 9°50.7'	139°16.8'	S 8°23.6'	340°50.8'	S 1°05.8'	20°52.3'	S 16°29.3'	258°08.0'	N 23°17.0'
22	357°22.1'	153°43.9'	S 9°51.6'	154°16.3'	S 8°24.8'	355°53.5'	S 1°05.9'	35°54.7'	S 16°29.3'	273°10.0'	N 23°17.1'
23	12°24.5'	168°44.1'	S 9°52.5'	169°15.9'	S 8°26.0'	10°56.2'	S 1°06.0'	50°57.2'	S 16°29.3'	288°12.1'	N 23°17.2'
		SD 16.0'	<i>d</i> -0.9'		<i>v</i> -0.5' <i>d</i> -1.2'		<i>v</i> 2.7' <i>d</i> -0.1'		<i>v</i> 2.5' <i>d</i> -0.0'		<i>v</i> 2.0' <i>d</i> 0.1'
Mer. pass.		11 h 45 m 10 s		11 h 43 m		22 h 16 m		19 h 37 m		3 h 50 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Mars	+Betelgeuse	+Capella
0	265°37.9'	N 25°35.0'	11.2'	-5.4'	54.2'	102°46.1'	86°57.1'	32°45.9'	4°24.8'		33°28.7'	35°16.2'	38°34.9'
1	280°08.1'	N 25°29.6'	11.2'	-5.5'	54.2'	102°29.0'	86°30.0'	32°16.6'	4°52.2'		33°57.7'	35°40.3'	38°59.9'
2	294°38.4'	N 25°24.1'	11.3'	-5.6'	54.2'	102°11.8'	86°02.9'	31°47.3'	5°20.0'		34°26.7'	36°04.5'	39°25.1'
3	309°08.7'	N 25°18.5'	11.3'	-5.7'	54.2'	101°54.5'	85°35.7'	31°18.0'	5°48.2'		34°55.7'	36°28.8'	39°50.3'
4	323°39.0'	N 25°12.8'	11.4'	-5.9'	54.2'	101°37.3'	85°08.6'	30°48.8'	6°16.5'		35°24.8'	36°53.3'	40°15.6'
5	338°09.4'	N 25°06.9'	11.4'	-6.0'	54.2'	101°20.0'	84°41.4'	30°19.5'	6°45.1'		35°53.8'	37°17.8'	40°41.0'
6	352°39.8'	N 25°00.9'	11.5'	-6.1'	54.2'	101°02.6'	84°14.3'	29°50.3'	7°13.7'		36°22.9'	37°42.5'	41°06.5'
7	7°10.3'	N 24°54.8'	11.5'	-6.2'	54.2'	100°45.2'	83°47.1'	29°21.0'	7°42.6'		36°51.9'	38°07.2'	41°32.0'
8	21°40.8'	N 24°48.6'	11.6'	-6.3'	54.2'	100°27.8'	83°20.0'	28°51.8'	8°11.5'		37°21.0'	38°32.1'	41°57.7'
9	36°11.3'	N 24°42.3'	11.6'	-6.4'	54.3'	100°10.4'	82°52.8'	28°22.5'	8°40.5'		37°50.1'	38°57.1'	42°23.4'
10	50°41.9'	N 24°35.9'	11.6'	-6.5'	54.3'	99°52.9'	82°25.6'	27°53.3'	9°09.6'		38°19.2'	39°22.1'	42°49.2'
11	65°12.6'	N 24°29.3'	11.7'	-6.7'	54.3'	99°35.3'	81°58.4'	27°24.1'	9°38.7'		38°48.3'	39°47.3'	43°15.1'
12	79°43.3'	N 24°22.7'	11.7'	-6.8'	54.3'	99°17.8'	81°31.2'	26°54.8'	10°07.9'		39°17.4'	40°12.5'	43°41.0'
13	94°14.0'	N 24°15.9'	11.8'	-6.9'	54.3'	99°00.2'	81°04.0'	26°25.6'	10°37.2'		39°46.5'	40°37.9'	44°07.0'
14	108°44.8'	N 24°09.0'	11.8'	-7.0'	54.3'	98°42.6'	80°36.8'	25°56.4'	11°06.5'		40°15.7'	41°03.3'	44°33.1'
15	123°15.7'	N 24°02.0'	11.9'	-7.1'	54.3'	98°24.9'	80°09.6'	25°27.2'	11°35.9'		40°44.9'	41°28.8'	44°59.3'
16	137°46.5'	N 23°54.9'	11.9'	-7.2'	54.3'	98°07.2'	79°42.4'	24°58.0'	12°05.3'		41°14.0'	41°54.4'	45°25.5'
17	152°17.5'	N 23°47.7'	12.0'	-7.3'	54.3'	97°49.5'	79°15.1'	24°28.8'	12°34.7'		41°43.2'	42°20.1'	45°51.8'
18	166°48.4'	N 23°40.4'	12.0'	-7.4'	54.3'	97°31.8'	78°47.8'	23°59.6'	13°04.1'		42°12.4'	42°45.9'	46°18.1'
19	181°19.5'	N 23°32.9'	12.1'	-7.5'	54.3'	97°14.0'	78°20.6'	23°30.5'	13°33.6'		42°41.7'	43°11.7'	46°44.5'
20	195°50.5'	N 23°25.4'	12.1'	-7.7'	54.3'	96°56.2'	77°53.3'	23°01.3'	14°03.2'		43°10.9'	43°37.7'	47°11.0'
21	210°21.6'	N 23°17.7'	12.2'	-7.8'	54.4'	96°38.4'	77°26.0'	22°32.2'	14°32.7'		43°40.2'	44°03.7'	47°37.5'
22	224°52.8'	N 23°10.0'	12.2'	-7.9'	54.4'	96°20.5'	76°58.7'	22°03.1'	15°02.3'	24°35.3'	44°09.4'	44°29.7'	48°04.1'
23	239°24.0'	N 23°02.1'	12.3'	-8.0'	54.4'	96°02.7'	76°31.4'	21°33.9'	15°31.9'	24°50.6'	44°38.7'	44°55.9'	48°30.8'
Mer. pass.		6 h 30 m SD 14.8'		phase 47%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.0'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.9'	S 63°13.3'	Capella	+0.1	280°24.4'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°28.3'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.3'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.9'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	27°27.0'	183°44.2'	S 9°53.4'	184°15.4'	S 8°27.2'	25°58.9'	S 1°06.1'	65°59.7'	S 16°29.4'	303°14.1'	N 23°17.3'			
1	42°29.5'	198°44.3'	S 9°54.3'	199°14.9'	S 8°28.4'	41°01.6'	S 1°06.2'	81°02.2'	S 16°29.4'	318°16.2'	N 23°17.5'			
2	57°31.9'	213°44.4'	S 9°55.2'	214°14.5'	S 8°29.6'	56°04.4'	S 1°06.3'	96°04.7'	S 16°29.4'	333°18.2'	N 23°17.6'			
3	72°34.4'	228°44.5'	S 9°56.1'	229°14.0'	S 8°30.8'	71°07.1'	S 1°06.4'	111°07.1'	S 16°29.4'	348°20.3'	N 23°17.7'			
4	87°36.9'	243°44.6'	S 9°57.0'	244°13.6'	S 8°32.0'	86°09.8'	S 1°06.5'	126°09.6'	S 16°29.4'	3°22.3'	N 23°17.8'			
5	102°39.3'	258°44.8'	S 9°57.9'	259°13.1'	S 8°33.2'	101°12.5'	S 1°06.6'	141°12.1'	S 16°29.4'	18°24.3'	N 23°17.9'			
6	117°41.8'	273°44.9'	S 9°58.8'	274°12.6'	S 8°34.4'	116°15.2'	S 1°06.7'	156°14.6'	S 16°29.4'	33°26.4'	N 23°18.0'			
7	132°44.3'	288°45.0'	S 9°59.7'	289°12.2'	S 8°35.6'	131°17.9'	S 1°06.8'	171°17.1'	S 16°29.4'	48°28.4'	N 23°18.1'			
8	147°46.7'	303°45.1'	S 10°00.6'	304°11.7'	S 8°36.8'	146°20.7'	S 1°06.9'	186°19.6'	S 16°29.4'	63°30.5'	N 23°18.2'			
9	162°49.2'	318°45.2'	S 10°01.5'	319°11.3'	S 8°38.0'	161°23.4'	S 1°07.0'	201°22.0'	S 16°29.4'	78°32.6'	N 23°18.4'			
10	177°51.7'	333°45.3'	S 10°02.4'	334°10.8'	S 8°39.2'	176°26.1'	S 1°07.1'	216°24.5'	S 16°29.4'	93°34.6'	N 23°18.5'			
11	192°54.1'	348°45.4'	S 10°03.3'	349°10.3'	S 8°40.4'	191°28.8'	S 1°07.2'	231°27.0'	S 16°29.4'	108°36.7'	N 23°18.6'			
12	207°56.6'	3°45.6'	S 10°04.2'	4°09.9'	S 8°41.6'	206°31.5'	S 1°07.3'	246°29.5'	S 16°29.4'	123°38.7'	N 23°18.7'			
13	222°59.0'	18°45.7'	S 10°05.1'	19°09.4'	S 8°42.8'	221°34.2'	S 1°07.4'	261°32.0'	S 16°29.4'	138°40.8'	N 23°18.8'			
14	238°01.5'	33°45.8'	S 10°06.0'	34°09.0'	S 8°44.0'	236°37.0'	S 1°07.6'	276°34.4'	S 16°29.4'	153°42.9'	N 23°18.9'			
15	253°04.0'	48°45.9'	S 10°06.9'	49°08.5'	S 8°45.2'	251°39.7'	S 1°07.7'	291°36.9'	S 16°29.4'	168°44.9'	N 23°19.0'			
16	268°06.4'	63°46.0'	S 10°07.8'	64°08.0'	S 8°46.4'	266°42.4'	S 1°07.8'	306°39.4'	S 16°29.4'	183°47.0'	N 23°19.1'			
17	283°08.9'	78°46.1'	S 10°08.7'	79°07.6'	S 8°47.6'	281°45.1'	S 1°07.9'	321°41.9'	S 16°29.4'	198°49.0'	N 23°19.2'			
18	298°11.4'	93°46.2'	S 10°09.6'	94°07.1'	S 8°48.8'	296°47.8'	S 1°08.0'	336°44.4'	S 16°29.4'	213°51.1'	N 23°19.4'			
19	313°13.8'	108°46.3'	S 10°10.5'	109°06.6'	S 8°49.9'	311°50.5'	S 1°08.1'	351°46.8'	S 16°29.4'	228°53.2'	N 23°19.5'			
20	328°16.3'	123°46.5'	S 10°11.4'	124°06.2'	S 8°51.1'	326°53.2'	S 1°08.2'	6°49.3'	S 16°29.4'	243°55.3'	N 23°19.6'			
21	343°18.8'	138°46.6'	S 10°12.3'	139°05.7'	S 8°52.3'	341°56.0'	S 1°08.3'	21°51.8'	S 16°29.4'	258°57.3'	N 23°19.7'			
22	358°21.2'	153°46.7'	S 10°13.2'	154°05.2'	S 8°53.5'	356°58.7'	S 1°08.4'	36°54.3'	S 16°29.4'	273°59.4'	N 23°19.8'			
23	13°23.7'	168°46.8'	S 10°14.1'	169°04.8'	S 8°54.7'	12°01.4'	S 1°08.5'	51°56.8'	S 16°29.4'	289°01.5'	N 23°19.9'			
		SD 16.0' d -0.9'		v -0.5' d -1.2'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 2.1' d 0.1'				
Mer. pass.		11 h 44 m 59 s		11 h 43 m		22 h 12 m		19 h 33 m		3 h 47 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Mars	+Betelgeuse	+Capella
0	253°55.3'	N 22°54.2'	12.3'	-8.1'	54.4'	95°44.7'	76°04.0'	21°04.8'	16°01.5'	25°06.3'	45°08.0'	45°22.1'	48°57.5'
1	268°26.6'	N 22°46.1'	12.4'	-8.2'	54.4'	95°26.8'	75°36.7'	20°35.8'	16°31.2'	25°22.4'	45°37.3'	45°48.4'	49°24.2'
2	282°57.9'	N 22°37.9'	12.4'	-8.3'	54.4'	95°08.9'	75°09.3'	20°06.7'	17°00.9'	25°38.9'	46°06.7'	46°14.8'	49°51.1'
3	297°29.3'	N 22°29.6'	12.4'	-8.4'	54.4'	94°50.9'	74°42.0'	19°37.7'	17°30.6'	25°55.7'	46°36.0'	46°41.2'	50°17.9'
4	312°00.8'	N 22°21.2'	12.5'	-8.5'	54.4'	94°32.9'	74°14.6'	19°08.7'	18°00.3'	26°13.0'	47°05.4'	47°07.7'	50°44.9'
5	326°32.3'	N 22°12.7'	12.5'	-8.6'	54.4'	94°14.9'	73°47.2'	18°39.7'	18°30.0'	26°30.6'	47°34.8'	47°34.2'	51°11.8'
6	341°03.8'	N 22°04.1'	12.6'	-8.7'	54.5'	93°56.8'	73°19.7'	18°10.8'	18°59.8'	26°48.5'	48°04.2'	48°00.8'	51°38.9'
7	355°35.4'	N 21°55.5'	12.6'	-8.8'	54.5'	93°38.7'	72°52.3'	17°41.9'	19°29.6'	27°06.8'	48°33.6'	48°27.5'	52°06.0'
8	10°07.0'	N 21°46.7'	12.7'	-8.9'	54.5'	93°20.7'	72°24.9'	17°13.0'	19°59.4'	27°25.4'	49°03.1'	48°54.2'	52°33.1'
9	24°38.7'	N 21°37.8'	12.7'	-9.0'	54.5'	93°02.6'	71°57.4'	16°44.2'	20°29.2'	27°44.4'	49°32.6'	49°21.0'	53°00.3'
10	39°10.4'	N 21°28.8'	12.8'	-9.1'	54.5'	92°44.4'	71°29.9'	16°15.5'	20°59.1'	28°03.6'	50°02.0'	49°47.9'	53°27.5'
11	53°42.2'	N 21°19.7'	12.8'	-9.2'	54.5'	92°26.3'	71°02.4'	15°46.7'	21°29.0'	28°23.1'	50°31.6'	50°14.8'	53°54.8'
12	68°14.0'	N 21°10.5'	12.9'	-9.3'	54.5'	92°08.1'	70°34.9'	15°18.1'	21°58.9'	28°42.9'	51°01.1'	50°41.8'	54°22.2'
13	82°45.9'	N 21°01.2'	12.9'	-9.4'	54.6'	91°49.9'	70°07.3'	14°49.5'	22°28.8'	29°03.0'	51°30.6'	51°08.8'	54°49.5'
14	97°17.8'	N 20°51.8'	13.0'	-9.5'	54.6'	91°31.7'	69°39.8'	14°21.0'	22°58.8'	29°23.4'	52°00.2'	51°35.9'	55°17.0'
15	111°49.7'	N 20°42.3'	13.0'	-9.6'	54.6'	91°13.5'	69°12.2'	13°52.6'	23°28.7'	29°44.0'	52°29.8'	52°03.1'	55°44.4'
16	126°21.7'	N 20°32.8'	13.0'	-9.7'	54.6'	90°55.3'	68°44.6'	13°24.3'	23°58.7'	30°04.9'	52°59.4'	52°30.3'	56°12.0'
17	140°53.8'	N 20°23.1'	13.1'	-9.8'	54.6'	90°37.1'	68°17.0'	12°56.1'	24°28.7'	30°26.0'	53°29.0'	52°57.5'	56°39.5'
18	155°25.9'	N 20°13.3'	13.1'	-9.9'	54.6'	90°18.8'	67°49.4'	12°28.1'	24°58.8'	30°47.4'	53°58.7'	53°24.8'	57°07.2'
19	169°58.0'	N 20°03.5'	13.2'	-10.0'	54.7'	90°00.5'	67°21.7'	12°00.1'	25°28.8'	31°09.0'	54°28.4'	53°52.2'	57°34.8'
20	184°30.2'	N 19°53.5'	13.2'	-10.0'	54.7'	89°42.3'	66°54.0'	11°32.4'	25°58.9'	31°30.8'	54°58.1'	54°19.6'	58°02.5'
21	199°02.4'	N 19°43.5'	13.3'	-10.1'	54.7'	89°24.0'	66°26.4'	11°04.8'	26°29.0'	31°52.9'	55°27.8'	54°47.1'	58°30.3'
22	213°34.6'	N 19°33.4'	13.3'	-10.2'	54.7'	89°05.7'	65°58.6'	10°37.4'	26°59.2'	32°15.1'	55°57.5'	55°14.6'	58°58.1'
23	228°06.9'	N 19°23.1'	13.3'	-10.3'	54.7'	88°47.4'	65°30.9'	10°10.3'	27°29.3'	32°37.6'	56°27.3'	55°42.1'	59°25.9'
Mer. pass.		7 h 18 m SD 14.8' phase 38%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.4'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.5'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°28.1'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	28°26.1'	183°46.9'	S 10°15.0'	184°04.3'	S 8°55.9'	27°04.1'	S 1°08.6'	66°59.2'	S 16°29.4'	304°03.5'	N 23°20.0'			
1	43°28.6'	198°47.0'	S 10°15.9'	199°03.8'	S 8°57.1'	42°06.8'	S 1°08.7'	82°01.7'	S 16°29.4'	319°05.6'	N 23°20.1'			
2	58°31.1'	213°47.1'	S 10°16.8'	214°03.4'	S 8°58.3'	57°09.5'	S 1°08.8'	97°04.2'	S 16°29.4'	334°07.7'	N 23°20.3'			
3	73°33.5'	228°47.2'	S 10°17.7'	229°02.9'	S 8°59.5'	72°12.2'	S 1°08.9'	112°06.7'	S 16°29.4'	349°09.8'	N 23°20.4'			
4	88°36.0'	243°47.3'	S 10°18.6'	244°02.4'	S 9°00.7'	87°14.9'	S 1°09.0'	127°09.1'	S 16°29.4'	4°11.9'	N 23°20.5'			
5	103°38.5'	258°47.5'	S 10°19.5'	259°02.0'	S 9°01.9'	102°17.7'	S 1°09.1'	142°11.6'	S 16°29.4'	19°13.9'	N 23°20.6'			
6	118°40.9'	273°47.6'	S 10°20.4'	274°01.5'	S 9°03.0'	117°20.4'	S 1°09.2'	157°14.1'	S 16°29.4'	34°16.0'	N 23°20.7'			
7	133°43.4'	288°47.7'	S 10°21.3'	289°01.0'	S 9°04.2'	132°23.1'	S 1°09.3'	172°16.6'	S 16°29.4'	49°18.1'	N 23°20.8'			
8	148°45.9'	303°47.8'	S 10°22.2'	304°00.6'	S 9°05.4'	147°25.8'	S 1°09.4'	187°19.0'	S 16°29.4'	64°20.2'	N 23°20.9'			
9	163°48.3'	318°47.9'	S 10°23.1'	319°00.1'	S 9°06.6'	162°28.5'	S 1°09.5'	202°21.5'	S 16°29.4'	79°22.3'	N 23°21.0'			
10	178°50.8'	333°48.0'	S 10°24.0'	333°59.6'	S 9°07.8'	177°31.2'	S 1°09.6'	217°24.0'	S 16°29.4'	94°24.4'	N 23°21.2'			
11	193°53.3'	348°48.1'	S 10°24.9'	348°59.2'	S 9°09.0'	192°33.9'	S 1°09.7'	232°26.5'	S 16°29.4'	109°26.5'	N 23°21.3'			
12	208°55.7'	3°48.2'	S 10°25.8'	3°58.7'	S 9°10.2'	207°36.6'	S 1°09.8'	247°29.0'	S 16°29.4'	124°28.6'	N 23°21.4'			
13	223°58.2'	18°48.3'	S 10°26.7'	18°58.2'	S 9°11.4'	222°39.3'	S 1°09.9'	262°31.4'	S 16°29.4'	139°30.7'	N 23°21.5'			
14	239°00.6'	33°48.4'	S 10°27.6'	33°57.8'	S 9°12.5'	237°42.0'	S 1°10.0'	277°33.9'	S 16°29.4'	154°32.8'	N 23°21.6'			
15	254°03.1'	48°48.5'	S 10°28.5'	48°57.3'	S 9°13.7'	252°44.8'	S 1°10.1'	292°36.4'	S 16°29.4'	169°34.9'	N 23°21.7'			
16	269°05.6'	63°48.6'	S 10°29.4'	63°56.8'	S 9°14.9'	267°47.5'	S 1°10.2'	307°38.9'	S 16°29.4'	184°37.0'	N 23°21.8'			
17	284°08.0'	78°48.7'	S 10°30.3'	78°56.3'	S 9°16.1'	282°50.2'	S 1°10.3'	322°41.3'	S 16°29.4'	199°39.1'	N 23°21.9'			
18	299°10.5'	93°48.8'	S 10°31.2'	93°55.9'	S 9°17.3'	297°52.9'	S 1°10.4'	337°43.8'	S 16°29.4'	214°41.2'	N 23°22.0'			
19	314°13.0'	108°48.9'	S 10°32.0'	108°55.4'	S 9°18.5'	312°55.6'	S 1°10.5'	352°46.3'	S 16°29.4'	229°43.3'	N 23°22.2'			
20	329°15.4'	123°49.1'	S 10°32.9'	123°54.9'	S 9°19.7'	327°58.3'	S 1°10.6'	7°48.8'	S 16°29.4'	244°45.4'	N 23°22.3'			
21	344°17.9'	138°49.2'	S 10°33.8'	138°54.4'	S 9°20.8'	343°01.0'	S 1°10.7'	22°51.2'	S 16°29.4'	259°47.5'	N 23°22.4'			
22	359°20.4'	153°49.3'	S 10°34.7'	153°54.0'	S 9°22.0'	358°03.7'	S 1°10.8'	37°53.7'	S 16°29.4'	274°49.6'	N 23°22.5'			
23	14°22.8'	168°49.4'	S 10°35.6'	168°53.5'	S 9°23.2'	13°06.4'	S 1°10.9'	52°56.2'	S 16°29.4'	289°51.7'	N 23°22.6'			
		SD 16.1' d -0.9'		v -0.5' d -1.2'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 2.1' d 0.1'				
Mer. pass.		11 h 44 m 49 s		11 h 44 m		22 h 8 m		19 h 29 m		3 h 43 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius	+Mars
0	242°39.3'	N 19°12.8'	13.4'	-10.4'	54.7'	88°29.0'	65°03.1'	9°43.5'	27°59.5'	33°00.2'	56°09.7'	56°25.7'	56°57.1'
1	257°11.7'	N 19°02.4'	13.4'	-10.5'	54.8'	88°10.7'	64°35.4'	9°17.0'	28°29.7'	33°23.1'	56°37.4'	56°42.3'	57°26.9'
2	271°44.1'	N 18°51.9'	13.5'	-10.6'	54.8'	87°52.4'	64°07.6'	8°50.9'	28°59.9'	33°46.1'	57°05.1'	56°59.1'	57°56.7'
3	286°16.6'	N 18°41.3'	13.5'	-10.7'	54.8'	87°34.0'	63°39.7'	8°25.2'	29°30.2'	34°09.3'	57°32.9'	57°16.1'	58°26.6'
4	300°49.1'	N 18°30.7'	13.5'	-10.8'	54.8'	87°15.7'	63°11.9'	8°00.0'	30°00.4'	34°32.8'	58°00.7'	57°33.1'	58°56.5'
5	315°21.6'	N 18°19.9'	13.6'	-10.8'	54.8'	86°57.3'	62°44.0'	7°35.5'	30°30.7'	34°56.3'	58°28.6'	57°50.3'	59°26.4'
6	329°54.2'	N 18°09.1'	13.6'	-10.9'	54.9'	86°38.9'	62°16.1'		31°01.0'	35°20.1'	58°56.5'	58°07.7'	59°56.4'
7	344°26.8'	N 17°58.1'	13.7'	-11.0'	54.9'	86°20.6'	61°48.2'		31°31.4'	35°44.0'	59°24.4'	58°25.1'	60°26.3'
8	358°59.5'	N 17°47.1'	13.7'	-11.1'	54.9'	86°02.2'	61°20.3'		32°01.8'	36°08.1'	59°52.4'	58°42.7'	60°56.3'
9	13°32.2'	N 17°36.0'	13.7'	-11.2'	54.9'	85°43.8'	60°52.3'		32°32.2'	36°32.3'	60°20.4'	59°00.4'	61°26.3'
10	28°04.9'	N 17°24.9'	13.8'	-11.3'	54.9'	85°25.5'	60°24.3'		33°02.6'	36°56.7'	60°48.5'	59°18.2'	61°56.4'
11	42°37.7'	N 17°13.6'	13.8'	-11.3'	55.0'	85°07.1'	59°56.3'		33°33.0'	37°21.2'	61°16.7'	59°36.1'	62°26.5'
12	57°10.5'	N 17°02.3'	13.8'	-11.4'	55.0'	84°48.7'	59°28.3'		34°03.5'	37°45.9'	61°44.8'	59°54.2'	62°56.6'
13	71°43.4'	N 16°50.8'	13.9'	-11.5'	55.0'	84°30.3'	59°00.2'		34°34.0'	38°10.7'	62°13.1'	60°12.4'	63°26.7'
14	86°16.2'	N 16°39.3'	13.9'	-11.6'	55.0'	84°11.9'	58°32.1'		35°04.6'	38°35.6'	62°41.3'	60°30.7'	63°56.8'
15	100°49.2'	N 16°27.7'	13.9'	-11.7'	55.0'	83°53.6'	58°04.0'		35°35.1'	39°00.7'	63°09.7'	60°49.1'	64°27.0'
16	115°22.1'	N 16°16.1'	14.0'	-11.7'	55.1'	83°35.2'	57°35.9'		36°05.7'	39°25.9'	63°38.0'	61°07.6'	64°57.2'
17	129°55.1'	N 16°04.3'	14.0'	-11.8'	55.1'	83°16.8'	57°07.7'		36°36.3'	39°51.3'	64°06.4'	61°26.2'	65°27.5'
18	144°28.1'	N 15°52.5'	14.0'	-11.9'	55.1'	82°58.5'	56°39.5'		37°07.0'	40°16.7'	64°34.9'	61°44.9'	65°57.7'
19	159°01.1'	N 15°40.6'	14.1'	-12.0'	55.1'	82°40.1'	56°11.3'		37°37.6'	40°42.3'	65°03.4'	62°03.8'	66°28.0'
20	173°34.2'	N 15°28.7'	14.1'	-12.0'	55.1'	82°21.8'	55°43.0'		38°08.3'	41°08.0'	65°31.9'	62°22.7'	66°58.4'
21	188°07.3'	N 15°16.6'	14.1'	-12.1'	55.2'	82°03.4'	55°14.8'		38°39.1'	41°33.9'	66°00.5'	62°41.8'	67°28.7'
22	202°40.5'	N 15°04.5'	14.2'	-12.2'	55.2'	81°45.1'	54°46.5'		39°09.8'	41°59.8'	66°29.1'	63°01.0'	67°59.1'
23	217°13.6'	N 14°52.3'	14.2'	-12.3'	55.2'	81°26.7'	54°18.1'		39°40.6'	42°25.9'	66°57.7'	63°20.2'	68°29.5'
Mer. pass.		8 h 4 m SD 14.9'		phase 29%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°27.9'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars		
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	29°25.3'	183°49.5'	S 10°36.5'		183°53.0'	S 9°24.4'	28°09.1'	S 1°11.0'	67°58.7'	S 16°29.4'	304°53.8'	N 23°22.7'	
1	44°27.8'	198°49.6'	S 10°37.4'		198°52.6'	S 9°25.6'	43°11.8'	S 1°11.1'	83°01.1'	S 16°29.4'	319°55.9'	N 23°22.8'	
2	59°30.2'	213°49.7'	S 10°38.3'		213°52.1'	S 9°26.8'	58°14.5'	S 1°11.1'	98°03.6'	S 16°29.4'	334°58.0'	N 23°22.9'	
3	74°32.7'	228°49.8'	S 10°39.2'		228°51.6'	S 9°27.9'	73°17.3'	S 1°11.2'	113°06.1'	S 16°29.4'	350°00.1'	N 23°23.1'	
4	89°35.1'	243°49.9'	S 10°40.1'		243°51.1'	S 9°29.1'	88°20.0'	S 1°11.3'	128°08.5'	S 16°29.4'	5°02.2'	N 23°23.2'	
5	104°37.6'	258°50.0'	S 10°41.0'		258°50.7'	S 9°30.3'	103°22.7'	S 1°11.4'	143°11.0'	S 16°29.4'	20°04.4'	N 23°23.3'	
6	119°40.1'	273°50.1'	S 10°41.9'		273°50.2'	S 9°31.5'	118°25.4'	S 1°11.5'	158°13.5'	S 16°29.4'	35°06.5'	N 23°23.4'	
7	134°42.5'	288°50.2'	S 10°42.7'		288°49.7'	S 9°32.7'	133°28.1'	S 1°11.6'	173°16.0'	S 16°29.4'	50°08.6'	N 23°23.5'	
8	149°45.0'	303°50.3'	S 10°43.6'		303°49.2'	S 9°33.8'	148°30.8'	S 1°11.7'	188°18.4'	S 16°29.5'	65°10.7'	N 23°23.6'	
9	164°47.5'	318°50.4'	S 10°44.5'		318°48.7'	S 9°35.0'	163°33.5'	S 1°11.8'	203°20.9'	S 16°29.5'	80°12.9'	N 23°23.7'	
10	179°49.9'	333°50.5'	S 10°45.4'		333°48.3'	S 9°36.2'	178°36.2'	S 1°11.9'	218°23.4'	S 16°29.5'	95°15.0'	N 23°23.8'	
11	194°52.4'	348°50.6'	S 10°46.3'		348°47.8'	S 9°37.4'	193°38.9'	S 1°12.0'	233°25.9'	S 16°29.5'	110°17.1'	N 23°23.9'	
12	209°54.9'	3°50.7'	S 10°47.2'		3°47.3'	S 9°38.6'	208°41.6'	S 1°12.1'	248°28.3'	S 16°29.5'	125°19.2'	N 23°24.1'	
13	224°57.3'	18°50.8'	S 10°48.1'		18°46.8'	S 9°39.7'	223°44.3'	S 1°12.2'	263°30.8'	S 16°29.5'	140°21.4'	N 23°24.2'	
14	239°59.8'	33°50.9'	S 10°49.0'		33°46.4'	S 9°40.9'	238°47.0'	S 1°12.3'	278°33.3'	S 16°29.5'	155°23.5'	N 23°24.3'	
15	255°02.2'	48°51.0'	S 10°49.9'		48°45.9'	S 9°42.1'	253°49.7'	S 1°12.4'	293°35.7'	S 16°29.5'	170°25.6'	N 23°24.4'	
16	270°04.7'	63°51.1'	S 10°50.7'		63°45.4'	S 9°43.3'	268°52.4'	S 1°12.5'	308°38.2'	S 16°29.5'	185°27.8'	N 23°24.5'	
17	285°07.2'	78°51.2'	S 10°51.6'		78°44.9'	S 9°44.4'	283°55.1'	S 1°12.6'	323°40.7'	S 16°29.4'	200°29.9'	N 23°24.6'	
18	300°09.6'	93°51.3'	S 10°52.5'		93°44.4'	S 9°45.6'	298°57.8'	S 1°12.7'	338°43.2'	S 16°29.4'	215°32.0'	N 23°24.7'	
19	315°12.1'	108°51.4'	S 10°53.4'		108°44.0'	S 9°46.8'	314°00.5'	S 1°12.8'	353°45.6'	S 16°29.4'	230°34.2'	N 23°24.8'	
20	330°14.6'	123°51.5'	S 10°54.3'		123°43.5'	S 9°48.0'	329°03.2'	S 1°12.9'	8°48.1'	S 16°29.4'	245°36.3'	N 23°25.0'	
21	345°17.0'	138°51.6'	S 10°55.2'		138°43.0'	S 9°49.1'	344°05.9'	S 1°13.0'	23°50.6'	S 16°29.4'	260°38.4'	N 23°25.1'	
22	0°19.5'	153°51.7'	S 10°56.1'		153°42.5'	S 9°50.3'	359°08.6'	S 1°13.1'	38°53.0'	S 16°29.4'	275°40.6'	N 23°25.2'	
23	15°22.0'	168°51.8'	S 10°56.9'		168°42.0'	S 9°51.5'	14°11.4'	S 1°13.2'	53°55.5'	S 16°29.4'	290°42.7'	N 23°25.3'	
		SD 16.1'	d -0.9'		v -0.5'	d -1.2'		v 2.7'	d -0.1'		v 2.5'	d 0.0'	
Mer. pass.		11 h 44 m 39 s			11 h 45 m			22 h 3 m			19 h 25 m		3 h 40 m

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Sun	+Regulus	+Pollux	+Procyon	+Sirius	+Adhara	+Betelgeuse
0	231°46.8'	N 14°40.0'	14.2'	-12.3'	55.2'	81°08.4'	53°49.8'		40°11.4'	42°52.0'	63°39.6'		67°26.4'
1	246°20.0'	N 14°27.7'	14.2'	-12.4'	55.3'	80°50.1'	53°21.4'		40°42.2'	43°18.3'	63°59.1'		67°55.2'
2	260°53.3'	N 14°15.3'	14.3'	-12.5'	55.3'	80°31.8'	52°53.0'		41°13.1'	43°44.7'	64°18.6'		68°24.0'
3	275°26.6'	N 14°02.8'	14.3'	-12.6'	55.3'	80°13.5'	52°24.5'		41°44.0'	44°11.2'	64°38.3'		68°52.8'
4	289°59.9'	N 13°50.2'	14.3'	-12.6'	55.3'	79°55.3'	51°56.0'		42°14.9'	44°37.7'	64°58.1'		69°21.7'
5	304°33.2'	N 13°37.6'	14.3'	-12.7'	55.4'	79°37.0'	51°27.5'	7°42.0'	42°45.9'	45°04.4'	65°17.9'		69°50.6'
6	319°06.5'	N 13°24.9'	14.4'	-12.8'	55.4'	79°18.8'	50°59.0'	8°07.3'	43°16.9'	45°31.2'	65°37.9'		70°19.5'
7	333°39.9'	N 13°12.2'	14.4'	-12.8'	55.4'	79°00.6'	50°30.4'	8°33.2'	43°47.9'	45°58.1'	65°57.9'		70°48.5'
8	348°13.3'	N 12°59.3'	14.4'	-12.9'	55.4'	78°42.4'	50°01.8'	8°59.7'	44°19.0'	46°25.0'	66°18.1'		71°17.6'
9	2°46.7'	N 12°46.4'	14.4'	-13.0'	55.5'	78°24.2'	49°33.2'	9°26.7'	44°50.1'	46°52.1'	66°38.3'		71°46.6'
10	17°20.2'	N 12°33.5'	14.5'	-13.0'	55.5'	78°06.0'	49°04.5'	9°54.1'	45°21.2'	47°19.2'	66°58.6'		72°15.7'
11	31°53.6'	N 12°20.4'	14.5'	-13.1'	55.5'	77°47.9'	48°35.9'	10°21.9'	45°52.3'	47°46.5'	67°19.0'		72°44.9'
12	46°27.1'	N 12°07.4'	14.5'	-13.2'	55.5'	77°29.7'	48°07.1'	10°50.0'	46°23.5'	48°13.8'	67°39.5'		73°14.1'
13	61°00.6'	N 11°54.2'	14.5'	-13.2'	55.6'	77°11.6'	47°38.4'	11°18.4'	46°54.7'	48°41.2'	68°00.1'		73°43.3'
14	75°34.1'	N 11°41.0'	14.5'	-13.3'	55.6'	76°53.6'	47°09.6'	11°47.1'	47°26.0'	49°08.7'	68°20.8'		74°12.6'
15	90°07.6'	N 11°27.7'	14.5'	-13.3'	55.6'	76°35.5'	46°40.8'	12°16.0'	47°57.2'	49°36.3'	68°41.5'		74°41.9'
16	104°41.2'	N 11°14.4'	14.6'	-13.4'	55.6'	76°17.5'	46°11.9'	12°45.2'	48°28.5'	50°04.0'	69°02.4'		75°11.3'
17	119°14.7'	N 11°01.0'	14.6'	-13.5'	55.7'	75°59.5'	45°43.1'	13°14.5'	48°59.9'	50°31.7'	69°23.3'	71°06.9'	75°40.7'
18	133°48.3'	N 10°47.5'	14.6'	-13.5'	55.7'	75°41.5'	45°14.2'	13°44.0'	49°31.3'	50°59.5'	69°44.3'	71°22.0'	76°10.1'
19	148°21.9'	N 10°34.0'	14.6'	-13.6'	55.7'	75°23.6'	44°45.2'	14°13.7'	50°02.7'	51°27.4'	70°05.4'	71°37.2'	76°39.6'
20	162°55.5'	N 10°20.4'	14.6'	-13.6'	55.7'	75°05.7'	44°16.2'	14°43.5'	50°34.1'	51°55.4'	70°26.6'	71°52.4'	77°09.1'
21	177°29.1'	N 10°06.8'	14.6'	-13.7'	55.8'	74°47.8'	43°47.2'	15°13.5'	51°05.6'	52°23.5'	70°47.8'	72°07.8'	77°38.6'
22	192°02.7'	N 9°53.1'	14.6'	-13.7'	55.8'	74°30.0'	43°18.2'	15°43.5'	51°37.1'	52°51.6'	71°09.1'	72°23.2'	78°08.2'
23	206°36.4'	N 9°39.4'	14.6'	-13.8'	55.8'	74°12.2'	42°49.1'	16°13.8'	52°08.6'	53°19.8'	71°30.5'	72°38.7'	78°37.9'
Mer. pass.		8 h 49 m SD 15.1'	phase 20%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.8'	N 5°10.1'	Polaris	+2.0	314°27.7'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	30°24.4'	183°51.9'	S 10°57.8'	183°41.5'	S 9°52.7'	29°14.1'	S 1°13.3'	68°58.0'	S 16°29.4'	305°44.9'	N 23°25.4'	
1	45°26.9'	198°52.0'	S 10°58.7'	198°41.1'	S 9°53.8'	44°16.8'	S 1°13.4'	84°00.5'	S 16°29.4'	320°47.0'	N 23°25.5'	
2	60°29.4'	213°52.1'	S 10°59.6'	213°40.6'	S 9°55.0'	59°19.5'	S 1°13.5'	99°02.9'	S 16°29.4'	335°49.2'	N 23°25.6'	
3	75°31.8'	228°52.2'	S 11°00.5'	228°40.1'	S 9°56.2'	74°22.2'	S 1°13.6'	114°05.4'	S 16°29.4'	350°51.3'	N 23°25.7'	
4	90°34.3'	243°52.2'	S 11°01.4'	243°39.6'	S 9°57.4'	89°24.9'	S 1°13.7'	129°07.9'	S 16°29.4'	5°53.5'	N 23°25.8'	
5	105°36.7'	258°52.3'	S 11°02.3'	258°39.1'	S 9°58.5'	104°27.6'	S 1°13.8'	144°10.3'	S 16°29.4'	20°55.6'	N 23°26.0'	
6	120°39.2'	273°52.4'	S 11°03.1'	273°38.6'	S 9°59.7'	119°30.3'	S 1°13.9'	159°12.8'	S 16°29.4'	35°57.8'	N 23°26.1'	
7	135°41.7'	288°52.5'	S 11°04.0'	288°38.2'	S 10°00.9'	134°33.0'	S 1°14.0'	174°15.3'	S 16°29.4'	50°59.9'	N 23°26.2'	
8	150°44.1'	303°52.6'	S 11°04.9'	303°37.7'	S 10°02.0'	149°35.7'	S 1°14.0'	189°17.7'	S 16°29.4'	66°02.1'	N 23°26.3'	
9	165°46.6'	318°52.7'	S 11°05.8'	318°37.2'	S 10°03.2'	164°38.4'	S 1°14.1'	204°20.2'	S 16°29.4'	81°04.3'	N 23°26.4'	
10	180°49.1'	333°52.8'	S 11°06.7'	333°36.7'	S 10°04.4'	179°41.1'	S 1°14.2'	219°22.7'	S 16°29.4'	96°06.4'	N 23°26.5'	
11	195°51.5'	348°52.9'	S 11°07.6'	348°36.2'	S 10°05.5'	194°43.8'	S 1°14.3'	234°25.1'	S 16°29.4'	111°08.6'	N 23°26.6'	
12	210°54.0'	3°53.0'	S 11°08.4'	3°35.7'	S 10°06.7'	209°46.5'	S 1°14.4'	249°27.6'	S 16°29.4'	126°10.7'	N 23°26.7'	
13	225°56.5'	18°53.1'	S 11°09.3'	18°35.2'	S 10°07.9'	224°49.2'	S 1°14.5'	264°30.1'	S 16°29.4'	141°12.9'	N 23°26.9'	
14	240°58.9'	33°53.2'	S 11°10.2'	33°34.8'	S 10°09.0'	239°51.9'	S 1°14.6'	279°32.5'	S 16°29.4'	156°15.1'	N 23°27.0'	
15	256°01.4'	48°53.3'	S 11°11.1'	48°34.3'	S 10°10.2'	254°54.6'	S 1°14.7'	294°35.0'	S 16°29.4'	171°17.2'	N 23°27.1'	
16	271°03.8'	63°53.4'	S 11°12.0'	63°33.8'	S 10°11.4'	269°57.3'	S 1°14.8'	309°37.5'	S 16°29.4'	186°19.4'	N 23°27.2'	
17	286°06.3'	78°53.5'	S 11°12.8'	78°33.3'	S 10°12.6'	284°60.0'	S 1°14.9'	324°39.9'	S 16°29.4'	201°21.6'	N 23°27.3'	
18	301°08.8'	93°53.6'	S 11°13.7'	93°32.8'	S 10°13.7'	300°02.7'	S 1°15.0'	339°42.4'	S 16°29.4'	216°23.8'	N 23°27.4'	
19	316°11.2'	108°53.6'	S 11°14.6'	108°32.3'	S 10°14.9'	315°05.4'	S 1°15.1'	354°44.9'	S 16°29.4'	231°25.9'	N 23°27.5'	
20	331°13.7'	123°53.7'	S 11°15.5'	123°31.8'	S 10°16.0'	330°08.1'	S 1°15.2'	9°47.3'	S 16°29.4'	246°28.1'	N 23°27.6'	
21	346°16.2'	138°53.8'	S 11°16.4'	138°31.3'	S 10°17.2'	345°10.8'	S 1°15.3'	24°49.8'	S 16°29.4'	261°30.3'	N 23°27.7'	
22	1°18.6'	153°53.9'	S 11°17.2'	153°30.8'	S 10°18.4'	0°13.5'	S 1°15.4'	39°52.3'	S 16°29.4'	276°32.5'	N 23°27.9'	
23	16°21.1'	168°54.0'	S 11°18.1'	168°30.4'	S 10°19.5'	15°16.1'	S 1°15.5'	54°54.7'	S 16°29.4'	291°34.6'	N 23°28.0'	
		SD 16.1' d -0.9'		v -0.5' d -1.2'		v 2.7' d -0.1'		v 2.5' d 0.0'		v 2.2' d 0.1'		
Mer. pass.		11 h 44 m 29 s		11 h 46 m		21 h 59 m		19 h 21 m		3 h 37 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	+Regulus	+Pollux	+Procyon	+Sirius	+Adhara	+Betelgeuse
0	221°10.0'	N 9°25.6'	14.6'	-13.9'	55.9'	73°54.5'	42°20.0'	16°44.1'	52°40.2'	53°48.1'	71°52.0'	72°54.3'	79°07.5'
1	235°43.6'	N 9°11.7'	14.7'	-13.9'	55.9'	73°36.7'	41°50.9'	17°14.5'	53°11.8'	54°16.4'	72°13.5'	73°10.0'	79°37.2'
2	250°17.3'	N 8°57.8'	14.7'	-14.0'	55.9'	73°19.1'	41°21.7'	17°45.0'	53°43.5'	54°44.9'	72°35.1'	73°25.8'	80°07.0'
3	264°51.0'	N 8°43.8'	14.7'	-14.0'	55.9'	73°01.4'	40°52.5'	18°15.7'	54°15.1'	55°13.3'	72°56.8'	73°41.6'	80°36.7'
4	279°24.6'	N 8°29.8'	14.7'	-14.1'	56.0'	72°43.8'	40°23.2'	18°46.4'	54°46.8'	55°41.9'	73°18.6'	73°57.5'	81°06.6'
5	293°58.3'	N 8°15.8'	14.7'	-14.1'	56.0'	72°26.3'		19°17.2'	55°18.6'	56°10.5'	73°40.4'	74°13.5'	81°36.4'
6	308°32.0'	N 8°01.7'	14.7'	-14.2'	56.0'	72°08.8'		19°48.1'	55°50.4'	56°39.2'	74°02.3'	74°29.6'	82°06.3'
7	323°05.6'	N 7°47.5'	14.7'	-14.2'	56.0'	71°51.3'		20°19.0'	56°22.2'	57°08.0'	74°24.3'	74°45.8'	82°36.2'
8	337°39.3'	N 7°33.3'	14.7'	-14.3'	56.1'	71°33.9'		20°50.1'	56°54.0'	57°36.8'	74°46.3'	75°02.0'	83°06.2'
9	352°13.0'	N 7°19.0'	14.7'	-14.3'	56.1'	71°16.5'		21°21.2'	57°25.9'	58°05.7'	75°08.4'	75°18.4'	83°36.2'
10	6°46.7'	N 7°04.7'	14.7'	-14.3'	56.1'	70°59.2'		21°52.4'	57°57.8'	58°34.7'	75°30.6'	75°34.7'	84°06.2'
11	21°20.4'	N 6°50.4'	14.7'	-14.4'	56.2'	70°42.0'		22°23.6'	58°29.8'	59°03.7'	75°52.8'	75°51.2'	84°36.3'
12	35°54.0'	N 6°36.0'	14.7'	-14.4'	56.2'	70°24.8'		22°54.9'	59°01.8'	59°32.8'	76°15.1'	76°07.8'	85°06.4'
13	50°27.7'	N 6°21.6'	14.7'	-14.5'	56.2'	70°07.6'		23°26.3'	59°33.8'	60°01.9'	76°37.4'	76°24.4'	85°36.6'
14	65°01.4'	N 6°07.1'	14.7'	-14.5'	56.2'	69°50.5'		23°57.8'	60°05.9'	60°31.2'	76°59.8'	76°41.1'	86°06.8'
15	79°35.0'	N 5°52.6'	14.7'	-14.6'	56.3'	69°33.5'		24°29.3'	60°38.0'	61°00.4'	77°22.3'	76°57.8'	86°37.0'
16	94°08.7'	N 5°38.0'	14.6'	-14.6'	56.3'	69°16.5'		25°00.8'	61°10.1'	61°29.8'	77°44.9'	77°14.6'	87°07.2'
17	108°42.3'	N 5°23.4'	14.6'	-14.6'	56.3'	68°59.6'		25°32.5'	61°42.3'	61°59.2'	78°07.4'	77°31.5'	87°37.5'
18	123°15.9'	N 5°08.8'	14.6'	-14.7'	56.4'	68°42.8'		26°04.1'	62°14.5'	62°28.6'	78°30.1'	77°48.5'	88°07.9'
19	137°49.6'	N 4°54.1'	14.6'	-14.7'	56.4'	68°26.0'		26°35.9'	62°46.7'	62°58.1'	78°52.8'	78°05.5'	88°38.2'
20	152°23.2'	N 4°39.4'	14.6'	-14.7'	56.4'	68°09.3'		27°07.7'	63°19.0'	63°27.7'	79°15.6'	78°22.6'	89°08.6'
21	166°56.8'	N 4°24.7'	14.6'	-14.8'	56.4'	67°52.7'		27°39.5'	63°51.3'	63°57.3'	79°38.4'	78°39.7'	89°39.0'
22	181°30.4'	N 4°09.9'	14.6'	-14.8'	56.5'	67°36.1'		28°11.4'	64°23.6'	64°27.0'	80°01.2'	78°57.0'	90°09.5'
23	196°03.9'	N 3°55.1'	14.6'	-14.8'	56.5'	67°19.7'		28°43.3'	64°56.0'	64°56.7'	80°24.2'	79°14.2'	90°40.0'
Mer. pass.		9 h 32 m SD 15.2'		phase 13%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.6'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°27.5'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries	Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	31°23.6'	183°54.1'	S 11°19.0'	183°29.9'	S 10°20.7'	30°18.8'	S 1°15.6'	69°57.2'	S 16°29.4'	306°36.8'	N 23°28.1'	
1	46°26.0'	198°54.2'	S 11°19.9'	198°29.4'	S 10°21.9'	45°21.5'	S 1°15.6'	84°59.7'	S 16°29.4'	321°39.0'	N 23°28.2'	
2	61°28.5'	213°54.3'	S 11°20.8'	213°28.9'	S 10°23.0'	60°24.2'	S 1°15.7'	100°02.1'	S 16°29.4'	336°41.2'	N 23°28.3'	
3	76°31.0'	228°54.4'	S 11°21.6'	228°28.4'	S 10°24.2'	75°26.9'	S 1°15.8'	115°04.6'	S 16°29.4'	351°43.4'	N 23°28.4'	
4	91°33.4'	243°54.4'	S 11°22.5'	243°27.9'	S 10°25.4'	90°29.6'	S 1°15.9'	130°07.1'	S 16°29.4'	6°45.6'	N 23°28.5'	
5	106°35.9'	258°54.5'	S 11°23.4'	258°27.4'	S 10°26.5'	105°32.3'	S 1°16.0'	145°09.5'	S 16°29.4'	21°47.7'	N 23°28.6'	
6	121°38.3'	273°54.6'	S 11°24.3'	273°26.9'	S 10°27.7'	120°35.0'	S 1°16.1'	160°12.0'	S 16°29.4'	36°49.9'	N 23°28.8'	
7	136°40.8'	288°54.7'	S 11°25.1'	288°26.4'	S 10°28.8'	135°37.7'	S 1°16.2'	175°14.5'	S 16°29.4'	51°52.1'	N 23°28.9'	
8	151°43.3'	303°54.8'	S 11°26.0'	303°25.9'	S 10°30.0'	150°40.4'	S 1°16.3'	190°16.9'	S 16°29.4'	66°54.3'	N 23°29.0'	
9	166°45.7'	318°54.9'	S 11°26.9'	318°25.4'	S 10°31.2'	165°43.1'	S 1°16.4'	205°19.4'	S 16°29.4'	81°56.5'	N 23°29.1'	
10	181°48.2'	333°55.0'	S 11°27.8'	333°24.9'	S 10°32.3'	180°45.8'	S 1°16.5'	220°21.9'	S 16°29.4'	96°58.7'	N 23°29.2'	
11	196°50.7'	348°55.1'	S 11°28.6'	348°24.4'	S 10°33.5'	195°48.5'	S 1°16.6'	235°24.3'	S 16°29.4'	112°00.9'	N 23°29.3'	
12	211°53.1'	3°55.1'	S 11°29.5'	3°23.9'	S 10°34.6'	210°51.2'	S 1°16.7'	250°26.8'	S 16°29.4'	127°03.1'	N 23°29.4'	
13	226°55.6'	18°55.2'	S 11°30.4'	18°23.4'	S 10°35.8'	225°53.9'	S 1°16.8'	265°29.2'	S 16°29.4'	142°05.3'	N 23°29.5'	
14	241°58.1'	33°55.3'	S 11°31.3'	33°22.9'	S 10°37.0'	240°56.6'	S 1°16.8'	280°31.7'	S 16°29.4'	157°07.5'	N 23°29.6'	
15	257°00.5'	48°55.4'	S 11°32.1'	48°22.5'	S 10°38.1'	255°59.3'	S 1°16.9'	295°34.2'	S 16°29.4'	172°09.7'	N 23°29.8'	
16	272°03.0'	63°55.5'	S 11°33.0'	63°22.0'	S 10°39.3'	271°02.0'	S 1°17.0'	310°36.6'	S 16°29.4'	187°11.9'	N 23°29.9'	
17	287°05.4'	78°55.6'	S 11°33.9'	78°21.5'	S 10°40.4'	286°04.7'	S 1°17.1'	325°39.1'	S 16°29.4'	202°14.1'	N 23°30.0'	
18	302°07.9'	93°55.6'	S 11°34.8'	93°21.0'	S 10°41.6'	301°07.4'	S 1°17.2'	340°41.6'	S 16°29.4'	217°16.3'	N 23°30.1'	
19	317°10.4'	108°55.7'	S 11°35.6'	108°20.5'	S 10°42.7'	316°10.0'	S 1°17.3'	355°44.0'	S 16°29.4'	232°18.5'	N 23°30.2'	
20	332°12.8'	123°55.8'	S 11°36.5'	123°20.0'	S 10°43.9'	331°12.7'	S 1°17.4'	10°46.5'	S 16°29.4'	247°20.8'	N 23°30.3'	
21	347°15.3'	138°55.9'	S 11°37.4'	138°19.5'	S 10°45.1'	346°15.4'	S 1°17.5'	25°48.9'	S 16°29.4'	262°23.0'	N 23°30.4'	
22	2°17.8'	153°56.0'	S 11°38.2'	153°19.0'	S 10°46.2'	1°18.1'	S 1°17.6'	40°51.4'	S 16°29.4'	277°25.2'	N 23°30.5'	
23	17°20.2'	168°56.1'	S 11°39.1'	168°18.5'	S 10°47.4'	16°20.8'	S 1°17.7'	55°53.9'	S 16°29.4'	292°27.4'	N 23°30.7'	
		SD 16.1'	d -0.9'		v -0.5' d -1.2'		v 2.7' d -0.1'		v 2.5' d 0.0'		v 2.2' d 0.1'	
Mer. pass.		11 h 44 m 21 s		11 h 46 m		21 h 55 m		19 h 17 m		3 h 33 m		

h	Moon				HP	Lunar distance							
	GHA	dec	v	d		-AcruX	+Regulus	+Procyon	+Pollux	+Adhara	+Sirius	+Polaris	+Betelgeuse
0	210°37.5'	N 3°40.2'	14.5'	-14.9'	56.5'	67°03.3'	29°15.3'	65°26.5'	65°28.5'	79°31.6'	80°47.1'	86°47.1'	91°10.5'
1	225°11.0'	N 3°25.3'	14.5'	-14.9'	56.6'	66°46.9'	29°47.4'	65°56.4'	66°00.9'	79°49.0'	81°10.1'	87°02.2'	91°41.1'
2	239°44.6'	N 3°10.4'	14.5'	-14.9'	56.6'	66°30.7'	30°19.5'	66°26.3'	66°33.4'	80°06.4'	81°33.2'	87°17.4'	92°11.7'
3	254°18.1'	N 2°55.5'	14.5'	-15.0'	56.6'	66°14.5'	30°51.6'	66°56.2'	67°05.9'	80°23.9'	81°56.3'	87°32.5'	92°42.3'
4	268°51.6'	N 2°40.5'	14.5'	-15.0'	56.7'	65°58.4'	31°23.8'	67°26.2'	67°38.5'	80°41.5'	82°19.5'	87°47.7'	93°13.0'
5	283°25.0'	N 2°25.5'	14.4'	-15.0'	56.7'	65°42.5'	31°56.1'	67°56.3'	68°11.1'	80°59.1'	82°42.7'	88°02.9'	93°43.7'
6	297°58.5'	N 2°10.5'	14.4'	-15.1'	56.7'	65°26.6'	32°28.3'	68°26.4'	68°43.7'	81°16.8'	83°06.0'	88°18.2'	94°14.4'
7	312°31.9'	N 1°55.4'	14.4'	-15.1'	56.7'	65°10.7'	33°00.7'	68°56.6'	69°16.4'	81°34.6'	83°29.3'	88°33.5'	94°45.2'
8	327°05.3'	N 1°40.4'	14.4'	-15.1'	56.8'	64°55.0'	33°33.1'	69°26.8'	69°49.1'	81°52.3'	83°52.6'	88°48.7'	95°15.9'
9	341°38.7'	N 1°25.3'	14.4'	-15.1'	56.8'	64°39.4'	34°05.5'	69°57.1'	70°21.9'	82°10.2'	84°16.0'	89°04.1'	95°46.8'
10	356°12.0'	N 1°10.1'	14.3'	-15.1'	56.8'	64°23.9'	34°38.0'	70°27.4'	70°54.7'	82°28.1'	84°39.4'	89°19.4'	96°17.6'
11	10°45.4'	N 0°55.0'	14.3'	-15.2'	56.9'	64°08.4'	35°10.5'	70°57.8'	71°27.5'	82°46.0'	85°02.9'	89°34.7'	96°48.5'
12	25°18.7'	N 0°39.8'	14.3'	-15.2'	56.9'	63°53.1'	35°43.0'	71°28.2'	72°00.3'	83°04.0'	85°26.4'	89°50.1'	97°19.4'
13	39°51.9'	N 0°24.6'	14.2'	-15.2'	56.9'	63°37.9'	36°15.6'	71°58.6'	72°33.2'	83°22.0'	85°49.9'	90°05.5'	97°50.3'
14	54°25.2'	N 0°09.4'	14.2'	-15.2'	56.9'	63°22.8'	36°48.3'	72°29.2'	73°06.2'	83°40.1'	86°13.5'	90°20.9'	98°21.3'
15	68°58.4'	S 0°05.8'	14.2'	-15.2'	57.0'		37°21.0'	72°59.7'	73°39.1'	83°58.2'	86°37.1'	90°36.3'	98°52.3'
16	83°31.6'	S 0°21.0'	14.1'	-15.3'	57.0'		37°53.7'	73°30.3'	74°12.1'	84°16.4'	87°00.8'	90°51.8'	99°23.3'
17	98°04.7'	S 0°36.3'	14.1'	-15.3'	57.0'		38°26.5'	74°01.0'	74°45.2'	84°34.6'	87°24.5'	91°07.2'	99°54.4'
18	112°37.8'	S 0°51.6'	14.1'	-15.3'	57.1'		38°59.3'	74°31.7'	75°18.2'	84°52.8'	87°48.2'	91°22.7'	100°25.5'
19	127°10.9'	S 1°06.8'	14.0'	-15.3'	57.1'		39°32.2'	75°02.4'	75°51.3'	85°11.1'	88°11.9'	91°38.2'	100°56.6'
20	141°43.9'	S 1°22.1'	14.0'	-15.3'	57.1'		40°05.1'	75°33.2'	76°24.5'	85°29.4'	88°35.7'	91°53.6'	101°27.7'
21	156°16.9'	S 1°37.4'	14.0'	-15.3'	57.2'		40°38.0'	76°04.1'	76°57.7'	85°47.8'	88°59.5'	92°09.1'	101°58.8'
22	170°49.8'	S 1°52.8'	13.9'	-15.3'	57.2'		41°11.0'	76°34.9'	77°30.9'	86°06.2'	89°23.4'	92°24.6'	102°30.0'
23	185°22.8'	S 2°08.1'	13.9'	-15.3'	57.2'		41°44.0'	77°05.9'	78°04.1'	86°24.6'	89°47.2'	92°40.1'	103°01.2'
Mer. pass.		10 h 16 m SD 15.4'	phase 7%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	AcruX	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°27.4'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.8'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

Monday 24 October 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	32°22.7'	183°56.1'	S 11°40.0'	183°18.0'	S 10°48.5'	31°23.5'	S 1°17.8'	70°56.3'	S 16°29.3'	307°29.6'	N 23°30.8'	
1	47°25.2'	198°56.2'	S 11°40.9'	198°17.5'	S 10°49.7'	46°26.2'	S 1°17.8'	85°58.8'	S 16°29.3'	322°31.8'	N 23°30.9'	
2	62°27.6'	213°56.3'	S 11°41.7'	213°17.0'	S 10°50.8'	61°28.9'	S 1°17.9'	101°01.2'	S 16°29.3'	337°34.1'	N 23°31.0'	
3	77°30.1'	228°56.4'	S 11°42.6'	228°16.5'	S 10°52.0'	76°31.6'	S 1°18.0'	116°03.7'	S 16°29.3'	352°36.3'	N 23°31.1'	
4	92°32.6'	243°56.5'	S 11°43.5'	243°16.0'	S 10°53.1'	91°34.3'	S 1°18.1'	131°06.2'	S 16°29.3'	7°38.5'	N 23°31.2'	
5	107°35.0'	258°56.5'	S 11°44.3'	258°15.5'	S 10°54.3'	106°37.0'	S 1°18.2'	146°08.6'	S 16°29.3'	22°40.7'	N 23°31.3'	
6	122°37.5'	273°56.6'	S 11°45.2'	273°15.0'	S 10°55.4'	121°39.7'	S 1°18.3'	161°11.1'	S 16°29.3'	37°43.0'	N 23°31.4'	
7	137°39.9'	288°56.7'	S 11°46.1'	288°14.4'	S 10°56.6'	136°42.3'	S 1°18.4'	176°13.6'	S 16°29.3'	52°45.2'	N 23°31.5'	
8	152°42.4'	303°56.8'	S 11°46.9'	303°13.9'	S 10°57.7'	151°45.0'	S 1°18.5'	191°16.0'	S 16°29.3'	67°47.4'	N 23°31.7'	
9	167°44.9'	318°56.9'	S 11°47.8'	318°13.4'	S 10°58.9'	166°47.7'	S 1°18.6'	206°18.5'	S 16°29.3'	82°49.6'	N 23°31.8'	
10	182°47.3'	333°56.9'	S 11°48.7'	333°12.9'	S 11°00.0'	181°50.4'	S 1°18.7'	221°20.9'	S 16°29.3'	97°51.9'	N 23°31.9'	
11	197°49.8'	348°57.0'	S 11°49.5'	348°12.4'	S 11°01.2'	196°53.1'	S 1°18.7'	236°23.4'	S 16°29.3'	112°54.1'	N 23°32.0'	
12	212°52.3'	3°57.1'	S 11°50.4'	3°11.9'	S 11°02.3'	211°55.8'	S 1°18.8'	251°25.8'	S 16°29.3'	127°56.4'	N 23°32.1'	
13	227°54.7'	18°57.2'	S 11°51.3'	18°11.4'	S 11°03.5'	226°58.5'	S 1°18.9'	266°28.3'	S 16°29.3'	142°58.6'	N 23°32.2'	
14	242°57.2'	33°57.3'	S 11°52.2'	33°10.9'	S 11°04.6'	242°01.2'	S 1°19.0'	281°30.8'	S 16°29.3'	158°00.8'	N 23°32.3'	
15	257°59.7'	48°57.3'	S 11°53.0'	48°10.4'	S 11°05.8'	257°03.9'	S 1°19.1'	296°33.2'	S 16°29.3'	173°03.1'	N 23°32.4'	
16	273°02.1'	63°57.4'	S 11°53.9'	63°09.9'	S 11°06.9'	272°06.5'	S 1°19.2'	311°35.7'	S 16°29.3'	188°05.3'	N 23°32.6'	
17	288°04.6'	78°57.5'	S 11°54.7'	78°09.4'	S 11°08.1'	287°09.2'	S 1°19.3'	326°38.1'	S 16°29.3'	203°07.6'	N 23°32.7'	
18	303°07.1'	93°57.6'	S 11°55.6'	93°08.9'	S 11°09.2'	302°11.9'	S 1°19.4'	341°40.6'	S 16°29.3'	218°09.8'	N 23°32.8'	
19	318°09.5'	108°57.6'	S 11°56.5'	108°08.4'	S 11°10.4'	317°14.6'	S 1°19.5'	356°43.1'	S 16°29.3'	233°12.0'	N 23°32.9'	
20	333°12.0'	123°57.7'	S 11°57.3'	123°07.9'	S 11°11.5'	332°17.3'	S 1°19.5'	11°45.5'	S 16°29.3'	248°14.3'	N 23°33.0'	
21	348°14.4'	138°57.8'	S 11°58.2'	138°07.4'	S 11°12.6'	347°20.0'	S 1°19.6'	26°48.0'	S 16°29.3'	263°16.5'	N 23°33.1'	
22	3°16.9'	153°57.9'	S 11°59.1'	153°06.9'	S 11°13.8'	2°22.7'	S 1°19.7'	41°50.4'	S 16°29.3'	278°18.8'	N 23°33.2'	
23	18°19.4'	168°57.9'	S 11°59.9'	168°06.3'	S 11°14.9'	17°25.4'	S 1°19.8'	56°52.9'	S 16°29.3'	293°21.0'	N 23°33.3'	
		SD 16.1' d -0.9'		v -0.5' d -1.1'		v 2.7' d -0.1'		v 2.5' d 0.0'		v 2.2' d 0.1'		
Mer. pass.		11 h 44 m 13 s		11 h 47 m		21 h 51 m		19 h 13 m		3 h 30 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Regulus	+Procyon	+Pollux	+Adhara	+Sirius	+Polaris	+Betelgeuse	+Mars
0	199°55.6'	S 2°23.4'	13.8'	-15.3'	57.2'	42°17.1'	77°36.8'	78°37.4'	86°43.1'	90°11.1'	92°55.7'	103°32.5'	107°02.8'
1	214°28.5'	S 2°38.7'	13.8'	-15.3'	57.3'	42°50.2'	78°07.8'	79°10.7'	87°01.6'	90°35.1'	93°11.2'	104°03.7'	107°35.8'
2	229°01.3'	S 2°54.1'	13.7'	-15.3'	57.3'	43°23.3'	78°38.9'	79°44.1'	87°20.1'	90°59.0'	93°26.7'	104°35.0'	108°08.9'
3	243°34.0'	S 3°09.4'	13.7'	-15.3'	57.3'	43°56.5'	79°10.0'	80°17.5'	87°38.7'	91°23.0'	93°42.2'	105°06.3'	108°42.0'
4	258°06.7'	S 3°24.8'	13.6'	-15.3'	57.4'	44°29.8'	79°41.1'	80°50.9'	87°57.3'	91°46.9'	93°57.7'	105°37.6'	109°15.2'
5	272°39.3'	S 3°40.1'	13.6'	-15.3'	57.4'	45°03.0'	80°12.3'	81°24.4'	88°15.9'	92°10.9'	94°13.2'	106°09.0'	109°48.4'
6	287°11.9'	S 3°55.5'	13.6'	-15.3'	57.4'	45°36.3'	80°43.5'	81°57.9'	88°34.5'	92°35.0'	94°28.8'	106°40.3'	110°21.6'
7	301°44.5'	S 4°10.8'	13.5'	-15.3'	57.4'	46°09.7'	81°14.8'	82°31.4'	88°53.2'	92°59.0'	94°44.3'	107°11.7'	110°54.9'
8	316°17.0'	S 4°26.1'	13.4'	-15.3'	57.5'	46°43.1'	81°46.1'	83°05.0'	89°11.9'	93°23.1'	94°59.8'	107°43.1'	111°28.2'
9	330°49.4'	S 4°41.5'	13.4'	-15.3'	57.5'	47°16.5'	82°17.4'	83°38.6'	89°30.6'	93°47.1'	95°15.3'	108°14.6'	112°01.5'
10	345°21.8'	S 4°56.8'	13.3'	-15.3'	57.5'	47°49.9'	82°48.8'	84°12.3'	89°49.3'	94°11.2'	95°30.8'	108°46.0'	112°34.9'
11	359°54.2'	S 5°12.1'	13.3'	-15.3'	57.6'	48°23.4'	83°20.2'	84°45.9'	90°08.1'	94°35.3'	95°46.2'	109°17.5'	113°08.3'
12	14°26.5'	S 5°27.5'	13.2'	-15.3'	57.6'	48°57.0'	83°51.6'	85°19.6'	90°26.8'	94°59.4'	96°01.7'	109°49.0'	113°41.7'
13	28°58.7'	S 5°42.8'	13.2'	-15.3'	57.6'	49°30.5'	84°23.1'	85°53.4'	90°45.6'	95°23.6'	96°17.2'	110°20.5'	114°15.2'
14	43°30.9'	S 5°58.1'	13.1'	-15.3'	57.6'	50°04.1'	84°54.6'	86°27.2'	91°04.4'	95°47.7'	96°32.6'	110°52.0'	114°48.7'
15	58°03.0'	S 6°13.3'	13.1'	-15.3'	57.7'	50°37.8'	85°26.2'	87°01.0'	91°23.2'	96°11.8'	96°48.0'	111°23.5'	115°22.2'
16	72°35.0'	S 6°28.6'	13.0'	-15.3'	57.7'	51°11.5'	85°57.8'	87°34.8'	91°42.1'	96°36.0'	97°03.5'	111°55.0'	115°55.8'
17	87°07.0'	S 6°43.9'	12.9'	-15.2'	57.7'								
18	101°39.0'	S 6°59.1'	12.9'	-15.2'	57.8'								
19	116°10.8'	S 7°14.3'	12.8'	-15.2'	57.8'								
20	130°42.6'	S 7°29.5'	12.7'	-15.2'	57.8'								
21	145°14.4'	S 7°44.7'	12.7'	-15.2'	57.8'								
22	159°46.1'	S 7°59.9'	12.6'	-15.1'	57.9'								
23	174°17.7'	S 8°15.0'	12.5'	-15.1'	57.9'								
Mer. pass.		11 h 0 m SD 15.6'	phase 3%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.6'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.3'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°27.2'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				



Tuesday 25 October 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	33°21.8'	183°58.0' S	12°00.8'	183°05.8' S	11°16.1'	32°28.0' S	1°19.9'	71°55.3' S	16°29.2'	308°23.3' N	23°33.5'	
1	48°24.3'	198°58.1' S	12°01.7'	198°05.3' S	11°17.2'	47°30.7' S	1°20.0'	86°57.8' S	16°29.2'	323°25.6' N	23°33.6'	
2	63°26.8'	213°58.2' S	12°02.5'	213°04.8' S	11°18.4'	62°33.4' S	1°20.1'	102°00.3' S	16°29.2'	338°27.8' N	23°33.7'	
3	78°29.2'	228°58.2' S	12°03.4'	228°04.3' S	11°19.5'	77°36.1' S	1°20.2'	117°02.7' S	16°29.2'	353°30.1' N	23°33.8'	
4	93°31.7'	243°58.3' S	12°04.3'	243°03.8' S	11°20.6'	92°38.8' S	1°20.2'	132°05.2' S	16°29.2'	8°32.3' N	23°33.9'	
5	108°34.2'	258°58.4' S	12°05.1'	258°03.3' S	11°21.8'	107°41.5' S	1°20.3'	147°07.6' S	16°29.2'	23°34.6' N	23°34.0'	
6	123°36.6'	273°58.5' S	12°06.0'	273°02.8' S	11°22.9'	122°44.1' S	1°20.4'	162°10.1' S	16°29.2'	38°36.9' N	23°34.1'	
7	138°39.1'	288°58.5' S	12°06.8'	288°02.3' S	11°24.1'	137°46.8' S	1°20.5'	177°12.5' S	16°29.2'	53°39.1' N	23°34.2'	
8	153°41.5'	303°58.6' S	12°07.7'	303°01.7' S	11°25.2'	152°49.5' S	1°20.6'	192°15.0' S	16°29.2'	68°41.4' N	23°34.3'	
9	168°44.0'	318°58.7' S	12°08.6'	318°01.2' S	11°26.3'	167°52.2' S	1°20.7'	207°17.5' S	16°29.2'	83°43.7' N	23°34.5'	
10	183°46.5'	333°58.7' S	12°09.4'	333°00.7' S	11°27.5'	182°54.9' S	1°20.8'	222°19.9' S	16°29.2'	98°45.9' N	23°34.6'	
11	198°48.9'	348°58.8' S	12°10.3'	348°00.2' S	11°28.6'	197°57.6' S	1°20.9'	237°22.4' S	16°29.2'	113°48.2' N	23°34.7'	
12	213°51.4'	3°58.9' S	12°11.1'	2°59.7' S	11°29.8'	213°00.2' S	1°20.9'	252°24.8' S	16°29.2'	128°50.5' N	23°34.8'	
13	228°53.9'	18°59.0' S	12°12.0'	17°59.2' S	11°30.9'	228°02.9' S	1°21.0'	267°27.3' S	16°29.2'	143°52.8' N	23°34.9'	
14	243°56.3'	33°59.0' S	12°12.9'	32°58.7' S	11°32.0'	243°05.6' S	1°21.1'	282°29.7' S	16°29.2'	158°55.0' N	23°35.0'	
15	258°58.8'	48°59.1' S	12°13.7'	47°58.1' S	11°33.2'	258°08.3' S	1°21.2'	297°32.2' S	16°29.2'	173°57.3' N	23°35.1'	
16	274°01.3'	63°59.2' S	12°14.6'	62°57.6' S	11°34.3'	273°11.0' S	1°21.3'	312°34.6' S	16°29.2'	188°59.6' N	23°35.2'	
17	289°03.7'	78°59.2' S	12°15.4'	77°57.1' S	11°35.4'	288°13.7' S	1°21.4'	327°37.1' S	16°29.2'	204°01.9' N	23°35.4'	
18	304°06.2'	93°59.3' S	12°16.3'	92°56.6' S	11°36.6'	303°16.3' S	1°21.5'	342°39.5' S	16°29.2'	219°04.2' N	23°35.5'	
19	319°08.7'	108°59.4' S	12°17.2'	107°56.1' S	11°37.7'	318°19.0' S	1°21.5'	357°42.0' S	16°29.1'	234°06.4' N	23°35.6'	
20	334°11.1'	123°59.4' S	12°18.0'	122°55.6' S	11°38.8'	333°21.7' S	1°21.6'	12°44.5' S	16°29.1'	249°08.7' N	23°35.7'	
21	349°13.6'	138°59.5' S	12°18.9'	137°55.0' S	11°40.0'	348°24.4' S	1°21.7'	27°46.9' S	16°29.1'	264°11.0' N	23°35.8'	
22	4°16.0'	153°59.6' S	12°19.7'	152°54.5' S	11°41.1'	3°27.1' S	1°21.8'	42°49.4' S	16°29.1'	279°13.3' N	23°35.9'	
23	19°18.5'	168°59.7' S	12°20.6'	167°54.0' S	11°42.2'	18°29.7' S	1°21.9'	57°51.8' S	16°29.1'	294°15.6' N	23°36.0'	
		SD 16.1' d -0.9'		v -0.5' d -1.1'		v 2.7' d -0.1'		v 2.5' d 0.0'		v 2.3' d 0.1'		
Mer. pass.		11 h 44 m 6 s		11 h 48 m		21 h 46 m		19 h 9 m		3 h 26 m		

h	Moon				
	GHA	dec	v	d	HP
0	188°49.2'	S 8°30.1'	12.5'	-15.1'	57.9'
1	203°20.7'	S 8°45.2'	12.4'	-15.1'	57.9'
2	217°52.1'	S 9°00.2'	12.3'	-15.0'	58.0'
3	232°23.4'	S 9°15.3'	12.3'	-15.0'	58.0'
4	246°54.7'	S 9°30.3'	12.2'	-15.0'	58.0'
5	261°25.8'	S 9°45.2'	12.1'	-14.9'	58.0'
6	275°56.9'	S 10°00.2'	12.0'	-14.9'	58.1'
7	290°28.0'	S 10°15.0'	12.0'	-14.9'	58.1'
8	304°58.9'	S 10°29.9'	11.9'	-14.8'	58.1'
9	319°29.8'	S 10°44.7'	11.8'	-14.8'	58.1'
10	334°00.6'	S 10°59.5'	11.7'	-14.7'	58.2'
11	348°31.3'	S 11°14.2'	11.6'	-14.7'	58.2'
12	3°01.9'	S 11°28.9'	11.6'	-14.6'	58.2'
13	17°32.5'	S 11°43.6'	11.5'	-14.6'	58.2'
14	32°02.9'	S 11°58.2'	11.4'	-14.6'	58.3'
15	46°33.3'	S 12°12.7'	11.3'	-14.5'	58.3'
16	61°03.6'	S 12°27.2'	11.2'	-14.4'	58.3'
17	75°33.8'	S 12°41.7'	11.1'	-14.4'	58.3'
18	90°04.0'	S 12°56.1'	11.0'	-14.3'	58.4'
19	104°34.0'	S 13°10.4'	10.9'	-14.3'	58.4'
20	119°03.9'	S 13°24.7'	10.9'	-14.2'	58.4'
21	133°33.8'	S 13°38.9'	10.8'	-14.2'	58.4'
22	148°03.6'	S 13°53.1'	10.7'	-14.1'	58.5'
23	162°33.2'	S 14°07.2'	10.6'	-14.0'	58.5'
Mer. pass.	11 h 47 m	SD 15.8'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.7'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.2'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°27.0'	N 89°21.5'
Rigel Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	34°21.0'	183°59.7'	S 12°21.4'	182°53.5'	S 11°43.4'	33°32.4'	S 1°22.0'	72°54.3'	S 16°29.1'	309°17.9'	N 23°36.1'	
1	49°23.4'	198°59.8'	S 12°22.3'	197°53.0'	S 11°44.5'	48°35.1'	S 1°22.1'	87°56.7'	S 16°29.1'	324°20.2'	N 23°36.3'	
2	64°25.9'	213°59.9'	S 12°23.1'	212°52.4'	S 11°45.6'	63°37.8'	S 1°22.1'	102°59.2'	S 16°29.1'	339°22.5'	N 23°36.4'	
3	79°28.4'	228°59.9'	S 12°24.0'	227°51.9'	S 11°46.8'	78°40.5'	S 1°22.2'	118°01.6'	S 16°29.1'	354°24.8'	N 23°36.5'	
4	94°30.8'	243°60.0'	S 12°24.9'	242°51.4'	S 11°47.9'	93°43.1'	S 1°22.3'	133°04.1'	S 16°29.1'	9°27.1'	N 23°36.6'	
5	109°33.3'	259°00.0'	S 12°25.7'	257°50.9'	S 11°49.0'	108°45.8'	S 1°22.4'	148°06.5'	S 16°29.1'	24°29.4'	N 23°36.7'	
6	124°35.8'	274°00.1'	S 12°26.6'	272°50.4'	S 11°50.2'	123°48.5'	S 1°22.5'	163°09.0'	S 16°29.1'	39°31.7'	N 23°36.8'	
7	139°38.2'	289°00.2'	S 12°27.4'	287°49.8'	S 11°51.3'	138°51.2'	S 1°22.6'	178°11.4'	S 16°29.1'	54°34.0'	N 23°36.9'	
8	154°40.7'	304°00.2'	S 12°28.3'	302°49.3'	S 11°52.4'	153°53.9'	S 1°22.6'	193°13.9'	S 16°29.1'	69°36.3'	N 23°37.0'	
9	169°43.1'	319°00.3'	S 12°29.1'	317°48.8'	S 11°53.5'	168°56.5'	S 1°22.7'	208°16.3'	S 16°29.1'	84°38.6'	N 23°37.2'	
10	184°45.6'	334°00.4'	S 12°30.0'	332°48.3'	S 11°54.7'	183°59.2'	S 1°22.8'	223°18.8'	S 16°29.1'	99°40.9'	N 23°37.3'	
11	199°48.1'	349°00.4'	S 12°30.8'	347°47.7'	S 11°55.8'	199°01.9'	S 1°22.9'	238°21.2'	S 16°29.0'	114°43.2'	N 23°37.4'	
12	214°50.5'	4°00.5'	S 12°31.7'	2°47.2'	S 11°56.9'	214°04.6'	S 1°23.0'	253°23.7'	S 16°29.0'	129°45.5'	N 23°37.5'	
13	229°53.0'	19°00.6'	S 12°32.5'	17°46.7'	S 11°58.0'	229°07.2'	S 1°23.1'	268°26.1'	S 16°29.0'	144°47.8'	N 23°37.6'	
14	244°55.5'	34°00.6'	S 12°33.4'	32°46.2'	S 11°59.2'	244°09.9'	S 1°23.2'	283°28.6'	S 16°29.0'	159°50.1'	N 23°37.7'	
15	259°57.9'	49°00.7'	S 12°34.2'	47°45.6'	S 12°00.3'	259°12.6'	S 1°23.2'	298°31.0'	S 16°29.0'	174°52.4'	N 23°37.8'	
16	275°00.4'	64°00.7'	S 12°35.1'	62°45.1'	S 12°01.4'	274°15.3'	S 1°23.3'	313°33.5'	S 16°29.0'	189°54.8'	N 23°37.9'	
17	290°02.9'	79°00.8'	S 12°35.9'	77°44.6'	S 12°02.5'	289°17.9'	S 1°23.4'	328°35.9'	S 16°29.0'	204°57.1'	N 23°38.1'	
18	305°05.3'	94°00.9'	S 12°36.8'	92°44.1'	S 12°03.7'	304°20.6'	S 1°23.5'	343°38.4'	S 16°29.0'	219°59.4'	N 23°38.2'	
19	320°07.8'	109°00.9'	S 12°37.6'	107°43.5'	S 12°04.8'	319°23.3'	S 1°23.6'	358°40.8'	S 16°29.0'	235°01.7'	N 23°38.3'	
20	335°10.3'	124°01.0'	S 12°38.5'	122°43.0'	S 12°05.9'	334°26.0'	S 1°23.7'	13°43.3'	S 16°29.0'	250°04.0'	N 23°38.4'	
21	350°12.7'	139°01.1'	S 12°39.3'	137°42.5'	S 12°07.0'	349°28.6'	S 1°23.7'	28°45.7'	S 16°29.0'	265°06.4'	N 23°38.5'	
22	5°15.2'	154°01.2'	S 12°40.2'	152°41.9'	S 12°08.1'	4°31.3'	S 1°23.8'	43°48.2'	S 16°29.0'	280°08.7'	N 23°38.6'	
23	20°17.6'	169°01.2'	S 12°41.0'	167°41.4'	S 12°09.3'	19°34.0'	S 1°23.9'	58°50.6'	S 16°29.0'	295°11.0'	N 23°38.7'	
		SD 16.1'	d -0.9'	v -0.5'	d -1.1'	v 2.7'	d -0.1'	v 2.5'	d 0.0'	v 2.3'	d 0.1'	
Mer. pass.		11 h 43 m 59 s		11 h 49 m		21 h 42 m		19 h 5 m		3 h 22 m		

h	Moon				Lunar distance						
	GHA	dec	v	d	HP	-Fomalhaut	-Achernar	-Saturn	-Altair	-Antares	+Arcturus
0	177°02.8'	S 14°21.2'	10.5'	-14.0'	58.5'						
1	191°32.3'	S 14°35.2'	10.4'	-13.9'	58.5'						
2	206°01.7'	S 14°49.1'	10.3'	-13.8'	58.5'						
3	220°31.0'	S 15°02.9'	10.2'	-13.8'	58.6'						
4	235°00.2'	S 15°16.7'	10.1'	-13.7'	58.6'						
5	249°29.3'	S 15°30.4'	10.0'	-13.6'	58.6'						
6	263°58.4'	S 15°44.0'	9.9'	-13.5'	58.6'	109°38.6'	105°56.3'	95°31.8'	80°26.0'	27°22.0'	35°22.5'
7	278°27.3'	S 15°57.6'	9.8'	-13.5'	58.7'	109°05.2'	105°37.8'	94°56.9'	79°57.3'	26°47.2'	35°42.0'
8	292°56.1'	S 16°11.0'	9.7'	-13.4'	58.7'	108°31.7'	105°19.3'	94°22.0'	79°28.7'	26°12.3'	36°01.8'
9	307°24.8'	S 16°24.4'	9.6'	-13.3'	58.7'	107°58.2'	105°00.7'	93°47.0'	79°00.1'	25°37.3'	36°21.9'
10	321°53.4'	S 16°37.7'	9.5'	-13.2'	58.7'	107°24.7'	104°41.9'	93°12.0'	78°31.4'	25°02.4'	36°42.4'
11	336°22.0'	S 16°51.0'	9.4'	-13.1'	58.7'	106°51.1'	104°23.1'	92°37.0'	78°02.8'	24°27.5'	37°03.2'
12	350°50.4'	S 17°04.1'	9.3'	-13.1'	58.8'	106°17.5'	104°04.3'	92°02.0'	77°34.1'	23°52.5'	37°24.3'
13	5°18.7'	S 17°17.2'	9.2'	-13.0'	58.8'	105°43.9'	103°45.3'	91°27.0'	77°05.5'	23°17.5'	37°45.8'
14	19°46.9'	S 17°30.1'	9.1'	-12.9'	58.8'	105°10.3'	103°26.3'	90°51.9'	76°36.9'	22°42.5'	38°07.5'
15	34°15.0'	S 17°43.0'	9.0'	-12.8'	58.8'	104°36.6'	103°07.2'	90°16.9'	76°08.3'	22°07.5'	38°29.6'
16	48°43.0'	S 17°55.8'	8.9'	-12.7'	58.8'	104°02.9'	102°48.0'	89°41.8'	75°39.7'	21°32.5'	38°51.9'
17	63°10.9'	S 18°08.5'	8.8'	-12.6'	58.8'	103°29.1'	102°28.8'	89°06.6'	75°11.2'	20°57.5'	39°14.5'
18	77°38.8'	S 18°21.1'	8.7'	-12.5'	58.9'	102°55.4'	102°09.5'	88°31.5'	74°42.6'	20°22.5'	39°37.4'
19	92°06.5'	S 18°33.6'	8.6'	-12.4'	58.9'	102°21.6'	101°50.1'	87°56.3'	74°14.1'	19°47.4'	40°00.5'
20	106°34.1'	S 18°45.9'	8.5'	-12.3'	58.9'	101°47.8'	101°30.7'	87°21.1'	73°45.6'	19°12.4'	40°23.9'
21	121°01.6'	S 18°58.2'	8.4'	-12.2'	58.9'	101°13.9'	101°11.2'	86°45.9'	73°17.1'	18°37.3'	40°47.5'
22	135°28.9'	S 19°10.4'	8.3'	-12.1'	58.9'	100°40.1'	100°51.6'	86°10.7'	72°48.6'	18°02.3'	41°11.4'
23	149°56.2'	S 19°22.5'	8.2'	-12.0'	59.0'	100°06.2'	100°32.0'	85°35.5'	72°20.1'	17°27.2'	41°35.6'
Mer. pass.		12 h 38 m SD 16.0'	phase 0%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.3'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.7'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.2'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°26.7'	N 89°21.5'
Rigil Kent	-0.0	139°43.5'	S 60°55.7'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°53.0'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	35°20.1'	184°01.2'	S 12°41.9'	182°40.9'	S 12°10.4'	34°36.7'	S 1°24.0'	73°53.1'	S 16°29.0'	310°13.4'	N 23°38.8'	
1	50°22.6'	199°01.3'	S 12°42.7'	197°40.4'	S 12°11.5'	49°39.3'	S 1°24.1'	88°55.5'	S 16°28.9'	325°15.7'	N 23°39.0'	
2	65°25.0'	214°01.4'	S 12°43.6'	212°39.8'	S 12°12.6'	64°42.0'	S 1°24.1'	103°58.0'	S 16°28.9'	340°18.0'	N 23°39.1'	
3	80°27.5'	229°01.4'	S 12°44.4'	227°39.3'	S 12°13.7'	79°44.7'	S 1°24.2'	119°00.4'	S 16°28.9'	355°20.4'	N 23°39.2'	
4	95°30.0'	244°01.5'	S 12°45.3'	242°38.8'	S 12°14.9'	94°47.4'	S 1°24.3'	134°02.9'	S 16°28.9'	10°22.7'	N 23°39.3'	
5	110°32.4'	259°01.5'	S 12°46.1'	257°38.2'	S 12°16.0'	109°50.0'	S 1°24.4'	149°05.3'	S 16°28.9'	25°25.0'	N 23°39.4'	
6	125°34.9'	274°01.6'	S 12°47.0'	272°37.7'	S 12°17.1'	124°52.7'	S 1°24.5'	164°07.8'	S 16°28.9'	40°27.4'	N 23°39.5'	
7	140°37.4'	289°01.6'	S 12°47.8'	287°37.2'	S 12°18.2'	139°55.4'	S 1°24.6'	179°10.2'	S 16°28.9'	55°29.7'	N 23°39.6'	
8	155°39.8'	304°01.7'	S 12°48.6'	302°36.6'	S 12°19.3'	154°58.1'	S 1°24.6'	194°12.7'	S 16°28.9'	70°32.1'	N 23°39.7'	
9	170°42.3'	319°01.8'	S 12°49.5'	317°36.1'	S 12°20.4'	170°00.7'	S 1°24.7'	209°15.1'	S 16°28.9'	85°34.4'	N 23°39.9'	
10	185°44.8'	334°01.8'	S 12°50.3'	332°35.6'	S 12°21.6'	185°03.4'	S 1°24.8'	224°17.6'	S 16°28.9'	100°36.7'	N 23°40.0'	
11	200°47.2'	349°01.9'	S 12°51.2'	347°35.0'	S 12°22.7'	200°06.1'	S 1°24.9'	239°20.0'	S 16°28.9'	115°39.1'	N 23°40.1'	
12	215°49.7'	4°01.9'	S 12°52.0'	2°34.5'	S 12°23.8'	215°08.7'	S 1°25.0'	254°22.5'	S 16°28.9'	130°41.4'	N 23°40.2'	
13	230°52.1'	19°02.0'	S 12°52.9'	17°34.0'	S 12°24.9'	230°11.4'	S 1°25.0'	269°24.9'	S 16°28.9'	145°43.8'	N 23°40.3'	
14	245°54.6'	34°02.0'	S 12°53.7'	32°33.4'	S 12°26.0'	245°14.1'	S 1°25.1'	284°27.3'	S 16°28.8'	160°46.1'	N 23°40.4'	
15	260°57.1'	49°02.1'	S 12°54.6'	47°32.9'	S 12°27.1'	260°16.8'	S 1°25.2'	299°29.8'	S 16°28.8'	175°48.5'	N 23°40.5'	
16	275°59.5'	64°02.1'	S 12°55.4'	62°32.4'	S 12°28.2'	275°19.4'	S 1°25.3'	314°32.2'	S 16°28.8'	190°50.9'	N 23°40.6'	
17	291°02.0'	79°02.2'	S 12°56.2'	77°31.8'	S 12°29.3'	290°22.1'	S 1°25.4'	329°34.7'	S 16°28.8'	205°53.2'	N 23°40.8'	
18	306°04.5'	94°02.2'	S 12°57.1'	92°31.3'	S 12°30.5'	305°24.8'	S 1°25.4'	344°37.1'	S 16°28.8'	220°55.6'	N 23°40.9'	
19	321°06.9'	109°02.3'	S 12°57.9'	107°30.7'	S 12°31.6'	320°27.4'	S 1°25.5'	359°39.6'	S 16°28.8'	235°57.9'	N 23°41.0'	
20	336°09.4'	124°02.4'	S 12°58.8'	122°30.2'	S 12°32.7'	335°30.1'	S 1°25.6'	14°42.0'	S 16°28.8'	251°00.3'	N 23°41.1'	
21	351°11.9'	139°02.4'	S 12°59.6'	137°29.7'	S 12°33.8'	350°32.8'	S 1°25.7'	29°44.5'	S 16°28.8'	266°02.7'	N 23°41.2'	
22	6°14.3'	154°02.5'	S 13°00.4'	152°29.1'	S 12°34.9'	5°35.4'	S 1°25.8'	44°46.9'	S 16°28.8'	281°05.0'	N 23°41.3'	
23	21°16.8'	169°02.5'	S 13°01.3'	167°28.6'	S 12°36.0'	20°38.1'	S 1°25.8'	59°49.4'	S 16°28.8'	296°07.4'	N 23°41.4'	
Mer. pass.		SD 16.1' d -0.8'		v -0.5' d -1.1'		v 2.7' d -0.1'		v 2.4' d 0.0'		v 2.3' d 0.1'		
Mer. pass.		11 h 43 m 54 s		11 h 50 m		21 h 38 m		19 h 1 m		3 h 19 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Jupiter	-Achernar	-Fomalhaut	-Deneb	-Saturn	-Altair	-Antares	+Arcturus
0	164°23.4'	S 19°34.5'	8.1'	-11.9'	59.0'		100°12.3'	99°32.3'		85°00.2'	71°51.7'	16°52.1'	41°59.9'
1	178°50.5'	S 19°46.4'	8.0'	-11.8'	59.0'		99°52.6'	98°58.3'		84°25.0'	71°23.3'	16°17.1'	42°24.5'
2	193°17.5'	S 19°58.1'	7.9'	-11.6'	59.0'		99°32.8'	98°24.4'		83°49.7'	70°55.0'	15°42.0'	42°49.3'
3	207°44.3'	S 20°09.8'	7.8'	-11.5'	59.0'		99°13.0'	97°50.4'		83°14.4'	70°26.6'	15°07.0'	43°14.3'
4	222°11.1'	S 20°21.3'	7.7'	-11.4'	59.0'		98°53.1'	97°16.4'		82°39.0'	69°58.3'	14°32.0'	43°39.5'
5	236°37.7'	S 20°32.7'	7.5'	-11.3'	59.0'		98°33.2'	96°42.4'		82°03.7'	69°30.1'	13°57.0'	44°04.9'
6	251°04.3'	S 20°44.0'	7.4'	-11.2'	59.1'		98°13.2'	96°08.4'		81°28.3'	69°01.9'	13°22.0'	44°30.5'
7	265°30.7'	S 20°55.2'	7.3'	-11.1'	59.1'		97°53.2'	95°34.3'		80°53.0'	68°33.7'	12°47.0'	44°56.3'
8	279°57.1'	S 21°06.3'	7.2'	-10.9'	59.1'		97°33.1'	95°00.2'		80°17.6'	68°05.5'	12°12.1'	45°22.3'
9	294°23.3'	S 21°17.2'	7.1'	-10.8'	59.1'		97°13.0'	94°26.1'		79°42.2'	67°37.4'	11°37.2'	45°48.4'
10	308°49.4'	S 21°28.0'	7.0'	-10.7'	59.1'		96°52.8'	93°52.0'		79°06.8'	67°09.4'	11°02.3'	46°14.7'
11	323°15.5'	S 21°38.7'	6.9'	-10.6'	59.1'	119°56.4'	96°32.7'	93°17.9'	94°07.0'	78°31.4'	66°41.3'	10°27.6'	46°41.2'
12	337°41.4'	S 21°49.3'	6.8'	-10.4'	59.1'	119°20.7'	96°12.4'	92°43.8'	93°51.9'	77°55.9'	66°13.4'	9°52.9'	47°07.9'
13	352°07.2'	S 21°59.7'	6.7'	-10.3'	59.2'	118°44.9'	95°52.2'	92°09.6'	93°36.9'	77°20.5'	65°45.5'	9°18.2'	47°34.7'
14	6°32.9'	S 22°10.0'	6.6'	-10.2'	59.2'	118°09.2'	95°31.9'	91°35.5'	93°21.8'	76°45.0'	65°17.6'	8°43.7'	48°01.7'
15	20°58.5'	S 22°20.2'	6.5'	-10.0'	59.2'	117°33.4'	95°11.6'	91°01.3'	93°06.7'	76°09.5'	64°49.8'	8°09.4'	48°28.8'
16	35°24.1'	S 22°30.2'	6.4'	-9.9'	59.2'	116°57.6'	94°51.2'	90°27.1'	92°51.6'	75°34.0'	64°22.1'	7°35.2'	48°56.0'
17	49°49.5'	S 22°40.1'	6.3'	-9.7'	59.2'	116°21.8'	94°30.8'	89°52.9'	92°36.5'	74°58.5'	63°54.4'	7°01.2'	49°23.4'
18	64°14.8'	S 22°49.8'	6.2'	-9.6'	59.2'	115°46.0'	94°10.4'	89°18.7'	92°21.4'	74°23.0'	63°26.8'	6°27.5'	49°51.0'
19	78°40.0'	S 22°59.4'	6.1'	-9.5'	59.2'	115°10.2'	93°50.0'	88°44.5'	92°06.2'	73°47.5'	62°59.2'	5°54.2'	50°18.7'
20	93°05.1'	S 23°08.9'	6.0'	-9.3'	59.2'	114°34.3'	93°29.5'	88°10.3'	91°51.0'	73°12.0'	62°31.7'	5°21.4'	50°46.5'
21	107°30.1'	S 23°18.2'	5.9'	-9.2'	59.3'	113°58.5'	93°09.1'	87°36.0'	91°35.8'	72°36.4'	62°04.3'		51°14.4'
22	121°55.0'	S 23°27.4'	5.8'	-9.0'	59.3'	113°22.6'	92°48.6'	87°01.8'	91°20.6'	72°00.9'	61°37.0'		51°42.4'
23	136°19.8'	S 23°36.4'	5.7'	-8.9'	59.3'	112°46.8'	92°28.1'	86°27.5'	91°05.4'	71°25.3'	61°09.7'		52°10.6'
Mer. pass.		13 h 33 m SD 16.1' phase 3%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.7'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.2'	Aldebaran	+0.9	290°41.5'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°26.5'	N 89°21.5'
Rigel Kent	-0.0	139°43.5'	S 60°55.6'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°52.9'	S 52°42.1'				



h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	37°18.4'	184°03.7'	S 13°22.2'	182°15.0'	S 13°03.5'	36°44.7'	S 1°27.8'	75°50.4'	S 16°28.5'	312°07.1'	N 23°44.3'	
1	52°20.9'	199°03.8'	S 13°23.0'	197°14.4'	S 13°04.6'	51°47.4'	S 1°27.9'	90°52.8'	S 16°28.5'	327°09.5'	N 23°44.4'	
2	67°23.3'	214°03.8'	S 13°23.8'	212°13.9'	S 13°05.7'	66°50.0'	S 1°27.9'	105°55.3'	S 16°28.5'	342°11.9'	N 23°44.5'	
3	82°25.8'	229°03.8'	S 13°24.7'	227°13.3'	S 13°06.8'	81°52.7'	S 1°28.0'	120°57.7'	S 16°28.5'	357°14.3'	N 23°44.6'	
4	97°28.2'	244°03.9'	S 13°25.5'	242°12.8'	S 13°07.9'	96°55.4'	S 1°28.1'	136°00.2'	S 16°28.5'	12°16.7'	N 23°44.7'	
5	112°30.7'	259°03.9'	S 13°26.3'	257°12.2'	S 13°09.0'	111°58.0'	S 1°28.2'	151°02.6'	S 16°28.5'	27°19.1'	N 23°44.8'	
6	127°33.2'	274°04.0'	S 13°27.1'	272°11.7'	S 13°10.1'	127°00.7'	S 1°28.2'	166°05.0'	S 16°28.5'	42°21.5'	N 23°44.9'	
7	142°35.6'	289°04.0'	S 13°28.0'	287°11.1'	S 13°11.2'	142°03.3'	S 1°28.3'	181°07.5'	S 16°28.5'	57°24.0'	N 23°45.0'	
8	157°38.1'	304°04.1'	S 13°28.8'	302°10.5'	S 13°12.3'	157°06.0'	S 1°28.4'	196°09.9'	S 16°28.4'	72°26.4'	N 23°45.2'	
9	172°40.6'	319°04.1'	S 13°29.6'	317°10.0'	S 13°13.4'	172°08.7'	S 1°28.5'	211°12.4'	S 16°28.4'	87°28.8'	N 23°45.3'	
10	187°43.0'	334°04.1'	S 13°30.5'	332°09.4'	S 13°14.4'	187°11.3'	S 1°28.5'	226°14.8'	S 16°28.4'	102°31.2'	N 23°45.4'	
11	202°45.5'	349°04.2'	S 13°31.3'	347°08.9'	S 13°15.5'	202°14.0'	S 1°28.6'	241°17.2'	S 16°28.4'	117°33.6'	N 23°45.5'	
12	217°48.0'	4°04.2'	S 13°32.1'	2°08.3'	S 13°16.6'	217°16.6'	S 1°28.7'	256°19.7'	S 16°28.4'	132°36.1'	N 23°45.6'	
13	232°50.4'	19°04.3'	S 13°32.9'	17°07.8'	S 13°17.7'	232°19.3'	S 1°28.8'	271°22.1'	S 16°28.4'	147°38.5'	N 23°45.7'	
14	247°52.9'	34°04.3'	S 13°33.8'	32°07.2'	S 13°18.8'	247°22.0'	S 1°28.8'	286°24.6'	S 16°28.4'	162°40.9'	N 23°45.8'	
15	262°55.4'	49°04.3'	S 13°34.6'	47°06.7'	S 13°19.9'	262°24.6'	S 1°28.9'	301°27.0'	S 16°28.4'	177°43.4'	N 23°46.0'	
16	277°57.8'	64°04.4'	S 13°35.4'	62°06.1'	S 13°21.0'	277°27.3'	S 1°29.0'	316°29.4'	S 16°28.4'	192°45.8'	N 23°46.1'	
17	293°00.3'	79°04.4'	S 13°36.2'	77°05.5'	S 13°22.1'	292°29.9'	S 1°29.1'	331°31.9'	S 16°28.3'	207°48.2'	N 23°46.2'	
18	308°02.7'	94°04.4'	S 13°37.1'	92°05.0'	S 13°23.1'	307°32.6'	S 1°29.1'	346°34.3'	S 16°28.3'	222°50.7'	N 23°46.3'	
19	323°05.2'	109°04.5'	S 13°37.9'	107°04.4'	S 13°24.2'	322°35.2'	S 1°29.2'	1°36.7'	S 16°28.3'	237°53.1'	N 23°46.4'	
20	338°07.7'	124°04.5'	S 13°38.7'	122°03.9'	S 13°25.3'	337°37.9'	S 1°29.3'	16°39.2'	S 16°28.3'	252°55.5'	N 23°46.5'	
21	353°10.1'	139°04.6'	S 13°39.5'	137°03.3'	S 13°26.4'	352°40.6'	S 1°29.4'	31°41.6'	S 16°28.3'	267°58.0'	N 23°46.6'	
22	8°12.6'	154°04.6'	S 13°40.4'	152°02.7'	S 13°27.5'	7°43.2'	S 1°29.4'	46°44.0'	S 16°28.3'	283°00.4'	N 23°46.7'	
23	23°15.1'	169°04.6'	S 13°41.2'	167°02.2'	S 13°28.6'	22°45.9'	S 1°29.5'	61°46.5'	S 16°28.3'	298°02.9'	N 23°46.9'	
		SD 16.1'	d -0.8'		v -0.6'	d -1.1'		v 2.7'	d -0.1'		v 2.4'	d 0.1'
Mer. pass.		11 h 43 m 45 s		11 h 51 m		21 h 29 m		18 h 54 m		3 h 11 m		

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigel Kent	+Sun
0	136°12.3'	S 26°29.7'	3.8'	-4.7'	59.4'	83°54.3'	72°10.3'	56°34.3'	50°21.2'	11°59.7'	46°34.5'	64°24.8'
1	150°35.1'	S 26°34.4'	3.7'	-4.5'	59.4'	83°33.9'	71°36.0'	55°58.7'	49°57.0'	12°34.9'	47°07.9'	64°55.1'
2	164°57.8'	S 26°38.9'	3.7'	-4.3'	59.4'	83°13.5'	71°01.8'	55°23.0'	49°33.0'	13°10.2'	47°41.2'	65°25.4'
3	179°20.5'	S 26°43.2'	3.6'	-4.1'	59.4'	82°53.2'	70°27.6'	54°47.3'	49°09.1'	13°45.6'	48°14.5'	65°55.8'
4	193°43.1'	S 26°47.4'	3.6'	-3.9'	59.5'	82°32.9'	69°53.4'	54°11.6'	48°45.5'	14°21.0'	48°47.8'	66°26.2'
5	208°05.6'	S 26°51.3'	3.5'	-3.8'	59.5'	82°12.6'	69°19.2'	53°36.0'	48°22.0'	14°56.4'	49°21.2'	66°56.7'
6	222°28.2'	S 26°55.1'	3.5'	-3.6'	59.5'	81°52.4'	68°45.0'	53°00.3'	47°58.7'	15°31.8'	49°54.5'	67°27.2'
7	236°50.6'	S 26°58.6'	3.4'	-3.4'	59.5'	81°32.2'	68°10.8'	52°24.6'	47°35.6'	16°07.3'	50°27.8'	67°57.8'
8	251°13.1'	S 27°02.0'	3.4'	-3.2'	59.5'	81°12.1'	67°36.6'	51°49.0'	47°12.7'	16°42.8'	51°01.2'	68°28.4'
9	265°35.5'	S 27°05.2'	3.4'	-3.0'	59.5'	80°51.9'	67°02.5'	51°13.3'	46°50.0'	17°18.3'	51°34.5'	68°59.0'
10	279°57.8'	S 27°08.2'	3.3'	-2.8'	59.5'	80°31.9'	66°28.3'	50°37.7'	46°27.5'	17°53.8'	52°07.8'	69°29.7'
11	294°20.2'	S 27°11.0'	3.3'	-2.6'	59.5'	80°11.8'	65°54.2'	50°02.0'	46°05.2'	18°29.4'	52°41.2'	70°00.4'
12	308°42.5'	S 27°13.6'	3.3'	-2.4'	59.5'	79°51.8'	65°20.1'	49°26.4'	45°43.2'	19°04.9'	53°14.5'	70°31.1'
13	323°04.7'	S 27°16.1'	3.2'	-2.2'	59.5'	79°31.9'	64°46.1'	48°50.7'	45°21.4'	19°40.5'	53°47.8'	71°01.9'
14	337°27.0'	S 27°18.3'	3.2'	-2.0'	59.5'	79°12.0'	64°12.0'	48°15.1'	44°59.8'	20°16.1'	54°21.1'	71°32.7'
15	351°49.2'	S 27°20.3'	3.2'	-1.9'	59.5'	78°52.2'	63°37.9'	47°39.5'	44°38.5'	20°51.7'	54°54.4'	72°03.5'
16	6°11.4'	S 27°22.2'	3.2'	-1.7'	59.5'	78°32.4'	63°03.9'	47°03.9'	44°17.4'	21°27.3'	55°27.8'	72°34.4'
17	20°33.6'	S 27°23.9'	3.2'	-1.5'	59.5'	78°12.6'	62°29.9'	46°28.2'	43°56.5'	22°02.9'	56°01.1'	73°05.3'
18	34°55.7'	S 27°25.3'	3.2'	-1.3'	59.5'	77°53.0'	61°55.9'	45°52.6'	43°36.0'	22°38.6'	56°34.4'	73°36.2'
19	49°17.9'	S 27°26.6'	3.1'	-1.1'	59.5'	77°33.3'	61°22.0'	45°17.0'	43°15.7'	23°14.2'	57°07.7'	74°07.1'
20	63°40.0'	S 27°27.7'	3.1'	-0.9'	59.5'	77°13.8'	60°48.1'	44°41.4'	42°55.6'	23°49.8'	57°41.0'	74°38.1'
21	78°02.2'	S 27°28.6'	3.1'	-0.7'	59.5'	76°54.3'	60°14.1'	44°05.8'	42°35.9'	24°25.5'	58°14.3'	75°09.1'
22	92°24.3'	S 27°29.3'	3.1'	-0.5'	59.5'	76°34.8'	59°40.3'	43°30.3'	42°16.4'	25°01.1'	58°47.6'	75°40.1'
23	106°46.4'	S 27°29.8'	3.1'	-0.3'	59.5'	76°15.5'	59°06.4'	42°54.7'	41°57.2'	25°36.7'	59°20.9'	
Mer. pass.		15 h 34 m SD 16.2'		phase 16%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°24.3'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.5'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.7'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.2'	Aldebaran	+0.9	290°41.4'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°25.9'	N 89°21.5'
Rigel Kent	-0.0	139°43.5'	S 60°55.6'	Adhara	+1.5	255°07.2'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°50.0'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°52.9'	S 52°42.1'				

Table with columns for planets: Aries, Sun, Venus, Jupiter, Saturn, Mars. Each planet column has sub-columns for GHA, dec, and a second GHA/dec pair. Includes 'Mer. pass.' row at the bottom.

Table with columns for Moon, Jupiter, Achernar, Fomalhaut, Lunar distance (Saturn, Altair), Antares, Rigel Kent, +Sun. Includes 'Mer. pass.' row at the bottom.

Table with columns for Star, mag, SHA, dec. Lists various stars like Fomalhaut, Spica, Betelgeuse, Deneb, Acrux, Regulus, Vega, Pollux, Aldebaran, Antares, Procyon, Polaris, Rigel Kent, Adhara, Sirius, Achernar, Arcturus, Hadar, Canopus.

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	39°16.7'	184°05.4'	S 14°01.6'	181°48.0'	S 13°55.4'	38°52.2'	S 1°31.3'	77°47.3'	S 16°28.0'	314°04.5'	N 23°49.7'
1	54°19.1'	199°05.5'	S 14°02.4'	196°47.4'	S 13°56.5'	53°54.8'	S 1°31.4'	92°49.8'	S 16°28.0'	329°07.0'	N 23°49.8'
2	69°21.6'	214°05.5'	S 14°03.2'	211°46.9'	S 13°57.5'	68°57.5'	S 1°31.4'	107°52.2'	S 16°27.9'	344°09.5'	N 23°49.9'
3	84°24.1'	229°05.5'	S 14°04.0'	226°46.3'	S 13°58.6'	84°00.1'	S 1°31.5'	122°54.6'	S 16°27.9'	359°12.0'	N 23°50.0'
4	99°26.5'	244°05.6'	S 14°04.9'	241°45.7'	S 13°59.7'	99°02.7'	S 1°31.6'	137°57.0'	S 16°27.9'	14°14.5'	N 23°50.1'
5	114°29.0'	259°05.6'	S 14°05.7'	256°45.1'	S 14°00.7'	114°05.4'	S 1°31.6'	152°59.5'	S 16°27.9'	29°16.9'	N 23°50.3'
6	129°31.5'	274°05.6'	S 14°06.5'	271°44.6'	S 14°01.8'	129°08.0'	S 1°31.7'	168°01.9'	S 16°27.9'	44°19.4'	N 23°50.4'
7	144°33.9'	289°05.6'	S 14°07.3'	286°44.0'	S 14°02.9'	144°10.7'	S 1°31.8'	183°04.3'	S 16°27.9'	59°21.9'	N 23°50.5'
8	159°36.4'	304°05.7'	S 14°08.1'	301°43.4'	S 14°03.9'	159°13.3'	S 1°31.9'	198°06.8'	S 16°27.9'	74°24.4'	N 23°50.6'
9	174°38.9'	319°05.7'	S 14°08.9'	316°42.8'	S 14°05.0'	174°16.0'	S 1°31.9'	213°09.2'	S 16°27.9'	89°26.9'	N 23°50.7'
10	189°41.3'	334°05.7'	S 14°09.7'	331°42.3'	S 14°06.0'	189°18.6'	S 1°32.0'	228°11.6'	S 16°27.8'	104°29.4'	N 23°50.8'
11	204°43.8'	349°05.7'	S 14°10.5'	346°41.7'	S 14°07.1'	204°21.3'	S 1°32.1'	243°14.1'	S 16°27.8'	119°31.9'	N 23°50.9'
12	219°46.2'	4°05.8'	S 14°11.3'	1°41.1'	S 14°08.2'	219°23.9'	S 1°32.1'	258°16.5'	S 16°27.8'	134°34.4'	N 23°51.1'
13	234°48.7'	19°05.8'	S 14°12.1'	16°40.5'	S 14°09.2'	234°26.6'	S 1°32.2'	273°18.9'	S 16°27.8'	149°36.9'	N 23°51.2'
14	249°51.2'	34°05.8'	S 14°12.9'	31°39.9'	S 14°10.3'	249°29.2'	S 1°32.3'	288°21.3'	S 16°27.8'	164°39.5'	N 23°51.3'
15	264°53.6'	49°05.8'	S 14°13.7'	46°39.4'	S 14°11.3'	264°31.9'	S 1°32.3'	303°23.8'	S 16°27.8'	179°42.0'	N 23°51.4'
16	279°56.1'	64°05.8'	S 14°14.6'	61°38.8'	S 14°12.4'	279°34.5'	S 1°32.4'	318°26.2'	S 16°27.8'	194°44.5'	N 23°51.5'
17	294°58.6'	79°05.9'	S 14°15.4'	76°38.2'	S 14°13.5'	294°37.1'	S 1°32.5'	333°28.6'	S 16°27.7'	209°47.0'	N 23°51.6'
18	310°01.0'	94°05.9'	S 14°16.2'	91°37.6'	S 14°14.5'	309°39.8'	S 1°32.5'	348°31.1'	S 16°27.7'	224°49.5'	N 23°51.7'
19	325°03.5'	109°05.9'	S 14°17.0'	106°37.0'	S 14°15.6'	324°42.4'	S 1°32.6'	3°33.5'	S 16°27.7'	239°52.0'	N 23°51.9'
20	340°06.0'	124°05.9'	S 14°17.8'	121°36.5'	S 14°16.6'	339°45.1'	S 1°32.7'	18°35.9'	S 16°27.7'	254°54.5'	N 23°52.0'
21	355°08.4'	139°06.0'	S 14°18.6'	136°35.9'	S 14°17.7'	354°47.7'	S 1°32.7'	33°38.3'	S 16°27.7'	269°57.1'	N 23°52.1'
22	10°10.9'	154°06.0'	S 14°19.4'	151°35.3'	S 14°18.7'	9°50.4'	S 1°32.8'	48°40.8'	S 16°27.7'	284°59.6'	N 23°52.2'
23	25°13.4'	169°06.0'	S 14°20.2'	166°34.7'	S 14°19.8'	24°53.0'	S 1°32.9'	63°43.2'	S 16°27.7'	300°02.1'	N 23°52.3'
		SD 16.1' d -0.8'			v -0.6' d -1.1'			v 2.6' d -0.1'			v 2.4' d 0.0'
Mer. pass.		11 h 43 m 38 s	11 h 53 m		21 h 21 m		18 h 46 m		3 h 3 m		

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Achernar	-Fomalhaut	-Saturn	+Antares	+Rigel Kent	+Sun
0	106°06.4'	S 26°39.9'	4.0'	4.4'	59.3'	69°03.0'	68°37.8'	45°12.2'	28°09.5'	40°27.0'	58°40.3'	73°11.2'
1	120°29.3'	S 26°35.5'	4.0'	4.6'	59.3'	68°27.2'	68°20.8'	44°39.5'	27°34.3'	41°02.6'	59°03.2'	73°44.3'
2	134°52.3'	S 26°30.9'	4.1'	4.8'	59.3'	67°51.4'	68°03.9'	44°06.9'	26°59.2'	41°38.1'	59°26.3'	74°17.4'
3	149°15.4'	S 26°26.1'	4.1'	5.0'	59.3'	67°15.7'	67°47.2'	43°34.3'	26°24.1'	42°13.6'	59°49.4'	74°50.5'
4	163°38.6'	S 26°21.1'	4.2'	5.1'	59.3'	66°39.9'	67°30.5'	43°01.8'	25°49.0'	42°49.1'	60°12.7'	75°23.6'
5	178°01.8'	S 26°16.0'	4.3'	5.3'	59.3'	66°04.2'	67°14.0'	42°29.4'	25°13.9'	43°24.6'	60°36.1'	75°56.6'
6	192°25.1'	S 26°10.6'	4.4'	5.5'	59.3'	65°28.5'	66°57.6'	41°57.1'	24°38.9'	44°00.1'	60°59.6'	76°29.7'
7	206°48.4'	S 26°05.1'	4.4'	5.7'	59.3'	64°52.8'	66°41.3'	41°24.8'	24°03.9'	44°35.6'	61°23.2'	77°02.7'
8	221°11.8'	S 25°59.5'	4.5'	5.8'	59.3'	64°17.1'	66°25.2'	40°52.6'	23°28.9'	45°11.1'	61°46.9'	77°35.8'
9	235°35.3'	S 25°53.6'	4.6'	6.0'	59.3'	63°41.4'	66°09.2'	40°20.5'	22°54.0'	45°46.5'	62°10.7'	78°08.8'
10	249°58.9'	S 25°47.6'	4.7'	6.2'	59.3'	63°05.8'	65°53.3'	39°48.5'	22°19.1'	46°22.0'	62°34.6'	78°41.8'
11	264°22.6'	S 25°41.4'	4.7'	6.4'	59.3'	62°30.1'	65°37.6'	39°16.6'	21°44.2'	46°57.5'	62°58.7'	79°14.8'
12	278°46.3'	S 25°35.1'	4.8'	6.5'	59.3'	61°54.4'	65°22.0'	38°44.8'	21°09.4'	47°32.9'	63°22.8'	79°47.8'
13	293°10.1'	S 25°28.6'	4.9'	6.7'	59.2'	61°18.8'	65°06.5'	38°13.1'	20°34.7'	48°08.3'	63°46.9'	80°20.8'
14	307°34.0'	S 25°21.9'	5.0'	6.8'	59.2'	60°43.2'	64°51.2'	37°41.5'	19°60.0'	48°43.7'	64°11.2'	80°53.8'
15	321°58.0'	S 25°15.0'	5.1'	7.0'	59.2'	60°07.6'	64°36.0'	37°10.0'	19°25.3'	49°19.1'	64°35.6'	81°26.7'
16	336°22.1'	S 25°08.0'	5.2'	7.2'	59.2'	59°32.0'	64°20.8'	36°38.6'	18°50.7'	49°54.5'	65°00.0'	81°59.7'
17	350°46.2'	S 25°00.9'	5.2'	7.3'	59.2'	58°56.4'	64°05.1'	36°07.3'	18°16.1'	50°29.9'	65°24.6'	82°32.6'
18	5°10.5'	S 24°53.5'	5.3'	7.5'	59.2'	58°20.8'	63°50.4'	35°36.2'	17°41.7'	51°05.3'	65°49.2'	83°05.6'
19	19°34.8'	S 24°46.0'	5.4'	7.7'	59.2'	57°45.2'	63°35.5'	35°05.1'	17°07.2'	51°40.7'	66°13.9'	83°38.5'
20	33°59.3'	S 24°38.4'	5.5'	7.8'	59.2'	57°09.7'	63°20.8'	34°34.2'	16°32.9'	52°16.0'	66°38.6'	84°11.4'
21	48°23.8'	S 24°30.6'	5.6'	8.0'	59.2'	56°34.2'	63°06.1'	34°03.5'	15°58.7'	52°51.4'	67°03.5'	84°44.3'
22	62°48.4'	S 24°22.6'	5.7'	8.1'	59.2'	55°58.6'	62°51.4'	33°32.9'	15°24.5'	53°26.7'	67°28.4'	85°17.1'
23	77°13.1'	S 24°14.5'	5.8'	8.3'	59.2'	55°23.1'	62°36.7'	33°02.4'	14°50.5'	54°02.0'	67°53.3'	85°50.0'
Mer. pass.		17 h 38 m SD 16.2' phase 36%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.2'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°53.9'	N 7°24.8'
Deneb	+1.2	49°27.0'	N 45°21.9'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°24.2'	N 46°01.1'
Altair	+0.8	62°01.8'	N 8°55.8'	Regulus	+1.4	207°36.5'	N 11°51.5'	Rigel	+0.2	281°05.4'	S 8°10.4'
Vega	+0.0	80°34.7'	N 38°48.5'	Pollux	+1.2	243°19.5'	N 27°58.2'	Aldebaran	+0.9	290°41.4'	N 16°33.3'
Antares	+1.1	112°18.4'	S 26°28.9'	Procyon	+0.4	244°52.7'	N 5°10.1'	Polaris	+2.0	314°25.5'	N 89°21.5'
Rigel Kent	-0.0	139°43.5'	S 60°55.6'	Adhara	+1.5	255°07.1'	S 28°59.9'	Achernar	+0.5	335°21.0'	S 57°07.3'
Arcturus	-0.1	145°49.9'	N 19°04.0'	Sirius	-1.4	258°27.7'	S 16°44.6'				
Hadar	+0.6	148°39.3'	S 60°28.8'	Canopus	-0.6	263°52.9'	S 52°42.1'				