

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	9°56.8'	182°34.0'	S 3°11.2'	140°05.6'	S 20°36.2'	44°22.8'	S 15°01.3'	60°22.0'	S 19°19.4'	180°07.0'	S 3°28.0'
1	24°59.3'	197°34.2'	S 3°12.2'	155°05.2'	S 20°37.1'	59°25.4'	S 15°01.4'	75°24.5'	S 19°19.4'	195°08.0'	S 3°28.7'
2	40°01.7'	212°34.4'	S 3°13.2'	170°04.9'	S 20°37.9'	74°28.0'	S 15°01.4'	90°27.0'	S 19°19.4'	210°08.9'	S 3°29.3'
3	55°04.2'	227°34.6'	S 3°14.1'	185°04.5'	S 20°38.8'	89°30.6'	S 15°01.5'	105°29.5'	S 19°19.4'	225°09.9'	S 3°30.0'
4	70°06.6'	242°34.8'	S 3°15.1'	200°04.2'	S 20°39.7'	104°33.2'	S 15°01.5'	120°32.0'	S 19°19.4'	240°10.8'	S 3°30.6'
5	85°09.1'	257°35.0'	S 3°16.1'	215°03.8'	S 20°40.5'	119°35.8'	S 15°01.6'	135°34.5'	S 19°19.4'	255°11.8'	S 3°31.3'
6	100°11.6'	272°35.2'	S 3°17.0'	230°03.4'	S 20°41.4'	134°38.4'	S 15°01.6'	150°37.1'	S 19°19.4'	270°12.8'	S 3°32.0'
7	115°14.0'	287°35.4'	S 3°18.0'	245°03.1'	S 20°42.3'	149°41.0'	S 15°01.6'	165°39.6'	S 19°19.4'	285°13.7'	S 3°32.6'
8	130°16.5'	302°35.6'	S 3°19.0'	260°02.7'	S 20°43.1'	164°43.6'	S 15°01.7'	180°42.1'	S 19°19.5'	300°14.7'	S 3°33.3'
9	145°19.0'	317°35.8'	S 3°19.9'	275°02.3'	S 20°44.0'	179°46.2'	S 15°01.7'	195°44.6'	S 19°19.5'	315°15.7'	S 3°33.9'
10	160°21.4'	332°36.0'	S 3°20.9'	290°02.0'	S 20°44.9'	194°48.8'	S 15°01.8'	210°47.1'	S 19°19.5'	330°16.6'	S 3°34.6'
11	175°23.9'	347°36.2'	S 3°21.9'	305°01.6'	S 20°45.7'	209°51.4'	S 15°01.8'	225°49.6'	S 19°19.5'	345°17.6'	S 3°35.2'
12	190°26.4'	2°36.4'	S 3°22.9'	320°01.2'	S 20°46.6'	224°54.0'	S 15°01.8'	240°52.1'	S 19°19.5'	0°18.6'	S 3°35.9'
13	205°28.8'	17°36.6'	S 3°23.8'	335°00.9'	S 20°47.5'	239°56.6'	S 15°01.9'	255°54.6'	S 19°19.5'	15°19.5'	S 3°36.6'
14	220°31.3'	32°36.8'	S 3°24.8'	350°00.5'	S 20°48.3'	254°59.2'	S 15°01.9'	270°57.1'	S 19°19.5'	30°20.5'	S 3°37.2'
15	235°33.7'	47°37.0'	S 3°25.8'	5°00.1'	S 20°49.2'	270°01.8'	S 15°02.0'	285°59.6'	S 19°19.5'	45°21.4'	S 3°37.9'
16	250°36.2'	62°37.2'	S 3°26.7'	19°59.8'	S 20°50.1'	285°04.4'	S 15°02.0'	301°02.1'	S 19°19.5'	60°22.4'	S 3°38.5'
17	265°38.7'	77°37.4'	S 3°27.7'	34°59.4'	S 20°50.9'	300°07.0'	S 15°02.1'	316°04.6'	S 19°19.5'	75°23.4'	S 3°39.2'
18	280°41.1'	92°37.6'	S 3°28.7'	49°59.0'	S 20°51.8'	315°09.6'	S 15°02.1'	331°07.1'	S 19°19.6'	90°24.3'	S 3°39.8'
19	295°43.6'	107°37.8'	S 3°29.6'	64°58.7'	S 20°52.6'	330°12.2'	S 15°02.1'	346°09.6'	S 19°19.6'	105°25.3'	S 3°40.5'
20	310°46.1'	122°38.0'	S 3°30.6'	79°58.3'	S 20°53.5'	345°14.8'	S 15°02.2'	1°12.1'	S 19°19.6'	120°26.3'	S 3°41.2'
21	325°48.5'	137°38.2'	S 3°31.6'	94°57.9'	S 20°54.4'	0°17.4'	S 15°02.2'	16°14.6'	S 19°19.6'	135°27.2'	S 3°41.8'
22	340°51.0'	152°38.4'	S 3°32.5'	109°57.6'	S 20°55.2'	15°20.6'	S 15°02.3'	31°17.1'	S 19°19.6'	150°28.2'	S 3°42.5'
23	355°53.5'	167°38.6'	S 3°33.5'	124°57.2'	S 20°56.1'	30°22.6'	S 15°02.3'	46°19.6'	S 19°19.6'	165°29.1'	S 3°43.1'
		SD 16.0'	d -1.0'	v -0.4'	d -0.9'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 49 m 36 s		14 h 40 m		20 h 59 m		19 h 55 m		11 h 59 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella	+Sirius
0	247°16.3'	N 24°24.3'	9.8'	-5.2'	55.5'	100°59.5'	68°33.6'	30°47.3'	6°28.3'		36°20.2'	40°37.3'	
1	261°45.1'	N 24°19.0'	9.8'	-5.4'	55.6'	100°42.0'	68°05.0'	30°16.5'	6°56.7'		36°46.7'	41°03.2'	
2	276°13.9'	N 24°13.6'	9.8'	-5.5'	55.6'	100°24.6'	67°36.4'	29°45.8'	7°25.5'		37°13.3'	41°29.3'	
3	290°42.7'	N 24°08.1'	9.8'	-5.6'	55.6'	100°07.0'	67°07.8'	29°15.0'	7°54.6'		37°40.1'	41°55.6'	
4	305°11.5'	N 24°02.5'	9.8'	-5.8'	55.6'	99°49.4'	66°39.1'	28°44.2'	8°24.0'		38°07.0'	42°21.9'	
5	319°40.4'	N 23°56.7'	9.8'	-5.9'	55.7'	99°31.8'	66°10.4'	28°13.4'	8°53.6'		38°34.0'	42°48.3'	
6	334°09.2'	N 23°50.9'	9.9'	-6.0'	55.7'	99°14.1'	65°41.6'	27°42.6'	9°23.5'		39°01.2'	43°14.9'	
7	348°38.1'	N 23°44.8'	9.9'	-6.1'	55.7'	98°56.3'	65°12.8'	27°11.7'	9°53.5'		39°28.4'	43°41.6'	
8	3°06.9'	N 23°38.7'	9.9'	-6.3'	55.8'	98°38.5'	64°44.0'	26°40.9'	10°23.7'		39°55.8'	44°08.4'	
9	17°35.8'	N 23°32.4'	9.9'	-6.4'	55.8'	98°20.7'	64°15.2'	26°10.0'	10°54.0'		40°23.3'	44°35.3'	
10	32°04.7'	N 23°26.0'	9.9'	-6.5'	55.8'	98°02.8'	63°46.3'	25°39.1'	11°24.5'		40°50.9'	45°02.3'	
11	46°33.6'	N 23°19.5'	9.9'	-6.7'	55.8'	97°44.8'	63°17.4'	25°08.2'	11°55.1'		41°18.6'	45°29.5'	
12	61°02.6'	N 23°12.8'	10.0'	-6.8'	55.9'	97°26.8'	62°48.4'	24°37.3'	12°25.7'		41°46.4'	45°56.7'	
13	75°31.5'	N 23°06.0'	10.0'	-6.9'	55.9'	97°08.8'	62°19.4'	24°06.3'	12°56.5'	22°57.1'	42°14.3'	46°24.0'	
14	90°00.5'	N 22°59.1'	10.0'	-7.0'	55.9'	96°50.7'	61°50.4'	23°35.4'	13°27.4'	23°12.3'	42°42.3'	46°51.4'	
15	104°29.5'	N 22°52.1'	10.0'	-7.2'	56.0'	96°32.6'	61°21.3'	23°04.4'	13°58.4'	23°28.1'	43°10.4'	47°19.0'	
16	118°58.5'	N 22°44.9'	10.0'	-7.3'	56.0'	96°14.4'	60°52.2'	22°33.5'	14°29.4'	23°44.4'	43°38.6'	47°46.6'	
17	133°27.5'	N 22°37.7'	10.0'	-7.4'	56.0'	95°56.2'	60°23.1'	22°02.5'	15°00.5'	24°01.3'	44°06.9'	48°14.3'	
18	147°56.6'	N 22°30.2'	10.1'	-7.5'	56.1'	95°37.9'	59°53.9'	21°31.5'	15°31.8'	24°18.6'	44°35.3'	48°42.1'	
19	162°25.6'	N 22°22.7'	10.1'	-7.7'	56.1'	95°19.6'	59°24.7'	21°00.6'	16°03.0'	24°36.3'	45°03.8'	49°10.0'	
20	176°54.7'	N 22°15.1'	10.1'	-7.8'	56.1'	95°01.3'	58°55.5'	20°29.6'	16°34.4'	24°54.6'	45°32.4'	49°38.0'	
21	191°23.9'	N 22°07.3'	10.1'	-7.9'	56.2'	94°42.9'	58°26.2'	19°58.6'	17°05.8'	25°13.2'	46°01.0'	50°06.1'	50°28.3'
22	205°53.0'	N 21°59.4'	10.2'	-8.0'	56.2'	94°24.5'	57°56.8'	19°27.7'	17°37.2'	25°32.4'	46°29.8'	50°34.3'	50°43.4'
23	220°22.1'	N 21°51.4'	10.2'	-8.1'	56.2'	94°06.0'	57°27.5'	18°56.7'	18°08.8'	25°51.9'	46°58.6'	51°02.5'	50°58.8'
Mer. pass.		7 h 47 m SD 15.1'	phase 32%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'		
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'		
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'		
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'		
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°54.4'	N 89°21.1'		
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'		
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'						
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'						

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	10°55.9'	182°38.8'	S 3°34.5'	139°56.8'	S 20°56.9'	45°25.2'	S 15°02.3'	61°22.1'	S 19°19.6'	180°30.1'	S 3°43.8'
1	25°58.4'	197°39.0'	S 3°35.4'	154°56.5'	S 20°57.8'	60°27.7'	S 15°02.4'	76°24.6'	S 19°19.6'	195°31.1'	S 3°44.4'
2	41°00.9'	212°39.2'	S 3°36.4'	169°56.1'	S 20°58.6'	75°30.3'	S 15°02.4'	91°27.1'	S 19°19.6'	210°32.0'	S 3°45.1'
3	56°03.3'	227°39.4'	S 3°37.4'	184°55.7'	S 20°59.5'	90°32.9'	S 15°02.5'	106°29.6'	S 19°19.6'	225°33.0'	S 3°45.8'
4	71°05.8'	242°39.6'	S 3°38.3'	199°55.4'	S 21°00.3'	105°35.5'	S 15°02.5'	121°32.1'	S 19°19.7'	240°33.9'	S 3°46.4'
5	86°08.2'	257°39.8'	S 3°39.3'	214°55.0'	S 21°01.2'	120°38.1'	S 15°02.5'	136°34.6'	S 19°19.7'	255°34.9'	S 3°47.1'
6	101°10.7'	272°40.0'	S 3°40.3'	229°54.6'	S 21°02.0'	135°40.7'	S 15°02.6'	151°37.1'	S 19°19.7'	270°35.9'	S 3°47.7'
7	116°13.2'	287°40.2'	S 3°41.2'	244°54.2'	S 21°02.9'	150°43.3'	S 15°02.6'	166°39.7'	S 19°19.7'	285°36.8'	S 3°48.4'
8	131°15.6'	302°40.4'	S 3°42.2'	259°53.9'	S 21°03.7'	165°45.9'	S 15°02.7'	181°42.2'	S 19°19.7'	300°37.8'	S 3°49.0'
9	146°18.1'	317°40.6'	S 3°43.2'	274°53.5'	S 21°04.6'	180°48.5'	S 15°02.7'	196°44.7'	S 19°19.7'	315°38.8'	S 3°49.7'
10	161°20.6'	332°40.8'	S 3°44.1'	289°53.1'	S 21°05.4'	195°51.1'	S 15°02.7'	211°47.2'	S 19°19.7'	330°39.7'	S 3°50.4'
11	176°23.0'	347°41.0'	S 3°45.1'	304°52.8'	S 21°06.3'	210°53.7'	S 15°02.8'	226°49.7'	S 19°19.7'	345°40.7'	S 3°51.0'
12	191°25.5'	2°41.2'	S 3°46.1'	319°52.4'	S 21°07.1'	225°56.3'	S 15°02.8'	241°52.2'	S 19°19.7'	0°41.6'	S 3°51.7'
13	206°28.0'	17°41.4'	S 3°47.1'	334°52.0'	S 21°07.9'	240°58.9'	S 15°02.8'	256°54.7'	S 19°19.7'	15°42.6'	S 3°52.3'
14	221°30.4'	32°41.6'	S 3°48.0'	349°51.6'	S 21°08.8'	256°01.5'	S 15°02.9'	271°57.2'	S 19°19.7'	30°43.6'	S 3°53.0'
15	236°32.9'	47°41.8'	S 3°49.0'	4°51.3'	S 21°09.6'	271°04.1'	S 15°02.9'	286°59.7'	S 19°19.8'	45°44.5'	S 3°53.6'
16	251°35.4'	62°42.0'	S 3°50.0'	19°50.9'	S 21°10.5'	286°06.7'	S 15°03.0'	302°02.2'	S 19°19.8'	60°45.5'	S 3°54.3'
17	266°37.8'	77°42.2'	S 3°50.9'	34°50.5'	S 21°11.3'	301°09.2'	S 15°03.0'	317°04.7'	S 19°19.8'	75°46.4'	S 3°55.0'
18	281°40.3'	92°42.4'	S 3°51.9'	49°50.2'	S 21°12.2'	316°11.8'	S 15°03.0'	332°07.2'	S 19°19.8'	90°47.4'	S 3°55.6'
19	296°42.7'	107°42.6'	S 3°52.9'	64°49.8'	S 21°13.0'	331°14.4'	S 15°03.1'	347°09.7'	S 19°19.8'	105°48.4'	S 3°56.3'
20	311°45.2'	122°42.8'	S 3°53.8'	79°49.4'	S 21°13.8'	346°17.0'	S 15°03.1'	2°12.2'	S 19°19.8'	120°49.3'	S 3°56.9'
21	326°47.7'	137°43.0'	S 3°54.8'	94°49.0'	S 21°14.7'	1°19.6'	S 15°03.2'	17°14.7'	S 19°19.8'	135°50.3'	S 3°57.6'
22	341°50.1'	152°43.2'	S 3°55.8'	109°48.7'	S 21°15.5'	16°22.2'	S 15°03.2'	32°17.2'	S 19°19.8'	150°51.2'	S 3°58.2'
23	356°52.6'	167°43.3'	S 3°56.7'	124°48.3'	S 21°16.3'	31°24.8'	S 15°03.2'	47°19.7'	S 19°19.8'	165°52.2'	S 3°58.9'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 49 m 16 s		14 h 41 m		20 h 55 m		19 h 51 m		11 h 57 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius	+Capella
0	234°51.3'	N 21°43.2'	10.2'	-8.3'	56.3'	93°47.5'	56°58.1'	18°25.8'	18°40.4'	26°11.8'	47°27.6'	51°14.3'	51°30.9'
1	249°20.5'	N 21°34.9'	10.2'	-8.4'	56.3'	93°29.0'	56°28.7'	17°54.9'	19°12.0'	26°32.1'	47°56.6'	51°30.0'	51°59.3'
2	263°49.7'	N 21°26.6'	10.2'	-8.5'	56.3'	93°10.4'	55°59.2'	17°24.0'	19°43.7'	26°52.8'	48°25.7'	51°46.0'	52°27.8'
3	278°19.0'	N 21°18.1'	10.3'	-8.6'	56.4'	92°51.8'	55°29.7'	16°53.2'	20°15.5'	27°13.9'	48°54.8'	52°02.1'	52°56.4'
4	292°48.3'	N 21°09.4'	10.3'	-8.7'	56.4'	92°33.2'	55°00.1'	16°22.4'	20°47.3'	27°35.3'	49°24.1'	52°18.5'	53°25.1'
5	307°17.6'	N 21°00.7'	10.3'	-8.9'	56.4'	92°14.5'	54°30.5'	15°51.6'	21°19.2'	27°57.0'	49°53.4'	52°35.0'	53°53.9'
6	321°46.9'	N 20°51.8'	10.3'	-9.0'	56.5'	91°55.8'	54°00.9'	15°20.9'	21°51.1'	28°19.1'	50°22.9'	52°51.7'	54°22.7'
7	336°16.2'	N 20°42.8'	10.4'	-9.1'	56.5'	91°37.1'	53°31.2'	14°50.3'	22°23.1'	28°41.5'	50°52.4'	53°08.6'	54°51.6'
8	350°45.6'	N 20°33.7'	10.4'	-9.2'	56.5'	91°18.3'	53°01.5'	14°19.7'	22°55.1'	29°04.2'	51°21.9'	53°25.7'	55°20.6'
9	5°15.0'	N 20°24.5'	10.4'	-9.3'	56.6'	90°59.5'	52°31.8'	13°49.2'	23°27.2'	29°27.2'	51°51.6'	53°43.0'	55°49.7'
10	19°44.4'	N 20°15.2'	10.4'	-9.4'	56.6'	90°40.7'	52°02.0'	13°18.8'	23°59.3'	29°50.6'	52°21.3'	54°00.4'	56°18.9'
11	34°13.8'	N 20°05.8'	10.5'	-9.6'	56.6'	90°21.9'	51°32.2'	12°48.6'	24°31.5'	30°14.1'	52°51.1'	54°18.0'	56°48.1'
12	48°43.3'	N 19°56.2'	10.5'	-9.7'	56.7'	90°03.0'	51°02.3'	12°18.5'	25°03.8'	30°38.0'	53°21.0'	54°35.8'	57°17.4'
13	63°12.8'	N 19°46.5'	10.5'	-9.8'	56.7'	89°44.1'	50°32.4'	11°48.5'	25°36.0'	31°02.1'	53°50.9'	54°53.8'	57°46.8'
14	77°42.3'	N 19°36.7'	10.5'	-9.9'	56.7'	89°25.2'	50°02.5'	11°18.7'	26°08.4'	31°26.5'	54°20.9'	55°12.0'	58°16.2'
15	92°11.8'	N 19°26.8'	10.6'	-10.0'	56.8'	89°06.3'	49°32.5'	10°49.2'	26°40.8'	31°51.2'	54°51.0'	55°30.3'	58°45.7'
16	106°41.4'	N 19°16.8'	10.6'	-10.1'	56.8'	88°47.3'	49°02.5'	10°19.9'	27°13.2'	32°16.0'	55°21.2'	55°48.8'	59°15.3'
17	121°11.0'	N 19°06.7'	10.6'	-10.2'	56.8'	88°28.4'	48°32.4'	9°51.0'	27°45.7'	32°41.2'	55°51.4'	56°07.4'	59°45.0'
18	135°40.6'	N 18°56.5'	10.6'	-10.3'	56.9'	88°09.4'	48°02.3'	9°22.4'	28°18.2'	33°06.5'	56°21.7'	56°26.3'	60°14.7'
19	150°10.2'	N 18°46.1'	10.7'	-10.5'	56.9'	87°50.3'	47°32.2'	8°54.2'	28°50.8'	33°32.1'	56°52.1'	56°45.2'	60°44.5'
20	164°39.9'	N 18°35.7'	10.7'	-10.6'	56.9'	87°31.3'	47°02.0'	8°26.5'	29°23.4'	33°57.8'	57°22.5'	57°04.4'	61°14.4'
21	179°09.6'	N 18°25.1'	10.7'	-10.7'	57.0'	87°12.3'	46°31.7'	7°59.5'	29°56.1'	34°23.8'	57°53.0'	57°23.7'	61°44.3'
22	193°39.3'	N 18°14.4'	10.7'	-10.8'	57.0'	86°53.2'	46°01.5'		30°28.8'	34°50.0'	58°23.6'	57°43.1'	62°14.3'
23	208°09.0'	N 18°03.7'	10.8'	-10.9'	57.0'	86°34.1'	45°31.2'		31°01.6'	35°16.4'	58°54.2'	58°02.8'	62°44.4'
Mer. pass.		8 h 38 m SD 15.3'	phase 23%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°54.1'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	11°55.1'	182°43.5'	S 3°57.7'	139°47.9'	S 21°17.2'	46°27.4'	S 15°03.3'	62°22.2'	S 19°19.8'	180°53.2'	S 3°59.6'
1	26°57.5'	197°43.7'	S 3°58.7'	154°47.5'	S 21°18.0'	61°30.0'	S 15°03.3'	77°24.7'	S 19°19.8'	195°54.1'	S 4°00.2'
2	41°60.0'	212°43.9'	S 3°59.6'	169°47.2'	S 21°18.8'	76°32.5'	S 15°03.3'	92°27.2'	S 19°19.9'	210°55.1'	S 4°00.9'
3	57°02.5'	227°44.1'	S 4°00.6'	184°46.8'	S 21°19.7'	91°35.1'	S 15°03.4'	107°29.7'	S 19°19.9'	225°56.0'	S 4°01.5'
4	72°04.9'	242°44.3'	S 4°01.6'	199°46.4'	S 21°20.5'	106°37.7'	S 15°03.4'	122°32.2'	S 19°19.9'	240°57.0'	S 4°02.2'
5	87°07.4'	257°44.5'	S 4°02.5'	214°46.0'	S 21°21.3'	121°40.3'	S 15°03.4'	137°34.6'	S 19°19.9'	255°57.9'	S 4°02.8'
6	102°09.8'	272°44.7'	S 4°03.5'	229°45.7'	S 21°22.2'	136°42.9'	S 15°03.5'	152°37.1'	S 19°19.9'	270°58.9'	S 4°03.5'
7	117°12.3'	287°44.9'	S 4°04.4'	244°45.3'	S 21°23.0'	151°45.5'	S 15°03.5'	167°39.6'	S 19°19.9'	285°59.9'	S 4°04.2'
8	132°14.8'	302°45.1'	S 4°05.4'	259°44.9'	S 21°23.8'	166°48.1'	S 15°03.6'	182°42.1'	S 19°19.9'	301°00.8'	S 4°04.8'
9	147°17.2'	317°45.3'	S 4°06.4'	274°44.5'	S 21°24.6'	181°50.7'	S 15°03.6'	197°44.6'	S 19°19.9'	316°01.8'	S 4°05.5'
10	162°19.7'	332°45.5'	S 4°07.3'	289°44.1'	S 21°25.5'	196°53.2'	S 15°03.6'	212°47.1'	S 19°19.9'	331°02.7'	S 4°06.1'
11	177°22.2'	347°45.7'	S 4°08.3'	304°43.8'	S 21°26.3'	211°55.8'	S 15°03.7'	227°49.6'	S 19°19.9'	346°03.7'	S 4°06.8'
12	192°24.6'	2°45.9'	S 4°09.3'	319°43.4'	S 21°27.1'	226°58.4'	S 15°03.7'	242°52.1'	S 19°19.9'	1°04.7'	S 4°07.4'
13	207°27.1'	17°46.1'	S 4°10.2'	334°43.0'	S 21°27.9'	242°01.0'	S 15°03.7'	257°54.6'	S 19°19.9'	16°05.6'	S 4°08.1'
14	222°29.6'	32°46.3'	S 4°11.2'	349°42.6'	S 21°28.8'	257°03.6'	S 15°03.8'	272°57.1'	S 19°20.0'	31°06.6'	S 4°08.7'
15	237°32.0'	47°46.5'	S 4°12.2'	4°42.3'	S 21°29.6'	272°06.2'	S 15°03.8'	287°59.6'	S 19°20.0'	46°07.5'	S 4°09.4'
16	252°34.5'	62°46.6'	S 4°13.1'	19°41.9'	S 21°30.4'	287°08.7'	S 15°03.8'	303°02.1'	S 19°20.0'	61°08.5'	S 4°10.1'
17	267°37.0'	77°46.8'	S 4°14.1'	34°41.5'	S 21°31.2'	302°11.3'	S 15°03.9'	318°04.6'	S 19°20.0'	76°09.4'	S 4°10.7'
18	282°39.4'	92°47.0'	S 4°15.1'	49°41.1'	S 21°32.0'	317°13.9'	S 15°03.9'	333°07.1'	S 19°20.0'	91°10.4'	S 4°11.4'
19	297°41.9'	107°47.2'	S 4°16.0'	64°40.7'	S 21°32.9'	332°16.5'	S 15°04.0'	348°09.6'	S 19°20.0'	106°11.4'	S 4°12.0'
20	312°44.3'	122°47.4'	S 4°17.0'	79°40.4'	S 21°33.7'	347°19.1'	S 15°04.0'	3°12.1'	S 19°20.0'	121°12.3'	S 4°12.7'
21	327°46.8'	137°47.6'	S 4°18.0'	94°40.0'	S 21°34.5'	2°21.7'	S 15°04.0'	18°14.6'	S 19°20.0'	136°13.3'	S 4°13.3'
22	342°49.3'	152°47.8'	S 4°18.9'	109°39.6'	S 21°35.3'	17°24.2'	S 15°04.1'	33°17.1'	S 19°20.0'	151°14.2'	S 4°14.0'
23	357°51.7'	167°48.0'	S 4°19.9'	124°39.2'	S 21°36.1'	32°26.8'	S 15°04.1'	48°19.6'	S 19°20.0'	166°15.2'	S 4°14.7'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 48 m 58 s		14 h 41 m		20 h 51 m		19 h 47 m		11 h 56 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse	+Capella
0	222°38.8'	N 17°52.8'	10.8'	-11.0'	57.1'	86°15.0'	45°00.8'		31°34.4'	35°43.0'	58°22.5'	59°24.9'	63°14.5'
1	237°08.6'	N 17°41.8'	10.8'	-11.1'	57.1'	85°55.9'	44°30.4'		32°07.2'	36°09.8'	58°42.4'	59°55.7'	63°44.8'
2	251°38.4'	N 17°30.7'	10.8'	-11.2'	57.1'	85°36.8'	44°00.0'		32°40.1'	36°36.7'	59°02.5'	60°26.5'	64°15.0'
3	266°08.2'	N 17°19.5'	10.9'	-11.3'	57.2'	85°17.7'	43°29.6'		33°13.1'	37°03.8'	59°22.7'	60°57.4'	64°45.4'
4	280°38.1'	N 17°08.2'	10.9'	-11.4'	57.2'	84°58.6'	42°59.1'		33°46.1'	37°31.1'	59°43.1'	61°28.3'	65°15.7'
5	295°08.0'	N 16°56.8'	10.9'	-11.5'	57.2'	84°39.5'	42°28.5'		34°19.1'	37°58.6'	60°03.5'	61°59.3'	65°46.2'
6	309°37.9'	N 16°45.3'	10.9'	-11.6'	57.3'	84°20.3'	41°57.9'		34°52.2'	38°26.2'	60°24.2'	62°30.4'	66°16.7'
7	324°07.8'	N 16°33.7'	11.0'	-11.7'	57.3'	84°01.2'	41°27.3'		35°25.4'	38°54.0'	60°44.9'	63°01.5'	66°47.3'
8	338°37.8'	N 16°22.0'	11.0'	-11.8'	57.3'	83°42.0'	40°56.6'		35°58.6'	39°22.0'	61°05.9'	63°32.7'	67°18.0'
9	353°07.8'	N 16°10.2'	11.0'	-11.9'	57.4'	83°22.9'	40°25.9'		36°31.8'	39°50.0'	61°26.9'	64°04.0'	67°48.7'
10	7°37.8'	N 15°58.3'	11.0'	-12.0'	57.4'	83°03.7'			37°05.1'	40°18.3'	61°48.1'	64°35.3'	68°19.4'
11	22°07.8'	N 15°46.3'	11.0'	-12.1'	57.5'	82°44.6'			37°38.4'	40°46.7'	62°09.4'	65°06.7'	68°50.3'
12	36°37.8'	N 15°34.2'	11.1'	-12.2'	57.5'	82°25.4'			38°11.8'	41°15.2'	62°30.8'	65°38.1'	69°21.1'
13	51°07.9'	N 15°22.1'	11.1'	-12.3'	57.5'	82°06.3'			38°45.2'	41°43.9'	62°52.4'	66°09.6'	69°52.1'
14	65°38.0'	N 15°09.8'	11.1'	-12.4'	57.6'	81°47.2'			39°18.7'	42°12.7'	63°14.1'	66°41.2'	70°23.1'
15	80°08.1'	N 14°57.4'	11.1'	-12.5'	57.6'	81°28.1'			39°52.2'	42°41.6'	63°35.9'	67°12.8'	70°54.1'
16	94°38.2'	N 14°44.9'	11.1'	-12.6'	57.6'	81°08.9'			40°25.7'	43°10.7'	63°57.8'	67°44.4'	71°25.3'
17	109°08.4'	N 14°32.4'	11.2'	-12.6'	57.7'	80°49.8'			40°59.3'	43°39.9'	64°19.9'	68°16.2'	71°56.4'
18	123°38.5'	N 14°19.7'	11.2'	-12.7'	57.7'	80°30.7'			41°33.0'	44°09.2'	64°42.1'	68°47.9'	72°27.7'
19	138°08.7'	N 14°07.0'	11.2'	-12.8'	57.7'	80°11.6'			42°06.7'	44°38.6'	65°04.4'	69°19.8'	72°58.9'
20	152°38.9'	N 13°54.2'	11.2'	-12.9'	57.8'	79°52.6'			42°40.4'	45°08.2'	65°26.8'	69°51.7'	73°30.3'
21	167°09.2'	N 13°41.3'	11.2'	-13.0'	57.8'	79°33.5'		8°15.2'	43°14.2'	45°37.8'	65°49.3'	70°23.6'	74°01.7'
22	181°39.4'	N 13°28.3'	11.3'	-13.1'	57.8'	79°14.5'		8°43.5'	43°48.0'	46°07.6'	66°11.9'	70°55.6'	74°33.1'
23	196°09.7'	N 13°15.2'	11.3'	-13.2'	57.9'	78°55.5'		9°12.5'	44°21.9'	46°37.5'	66°34.7'	71°27.7'	75°04.6'
Mer. pass.		9 h 28 m SD 15.6'	phase 15%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°53.8'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	12°54.2'	182°48.2'	S 4°20.9'	139°38.8'	S 21°36.9'	47°29.4'	S 15°04.1'	63°22.1'	S 19°20.0'	181°16.2'	S 4°15.3'
1	27°56.7'	197°48.4'	S 4°21.8'	154°38.5'	S 21°37.8'	62°32.0'	S 15°04.2'	78°24.6'	S 19°20.0'	196°17.1'	S 4°16.0'
2	42°59.1'	212°48.6'	S 4°22.8'	169°38.1'	S 21°38.6'	77°34.6'	S 15°04.2'	93°27.1'	S 19°20.0'	211°18.1'	S 4°16.6'
3	58°01.6'	227°48.8'	S 4°23.7'	184°37.7'	S 21°39.4'	92°37.1'	S 15°04.2'	108°29.6'	S 19°20.1'	226°19.0'	S 4°17.3'
4	73°04.1'	242°49.0'	S 4°24.7'	199°37.3'	S 21°40.2'	107°39.7'	S 15°04.3'	123°32.1'	S 19°20.1'	241°20.0'	S 4°17.9'
5	88°06.5'	257°49.1'	S 4°25.7'	214°36.9'	S 21°41.0'	122°42.3'	S 15°04.3'	138°34.5'	S 19°20.1'	256°20.9'	S 4°18.6'
6	103°09.0'	272°49.3'	S 4°26.6'	229°36.5'	S 21°41.8'	137°44.9'	S 15°04.3'	153°37.0'	S 19°20.1'	271°21.9'	S 4°19.2'
7	118°11.5'	287°49.5'	S 4°27.6'	244°36.2'	S 21°42.6'	152°47.5'	S 15°04.4'	168°39.5'	S 19°20.1'	286°22.8'	S 4°19.9'
8	133°13.9'	302°49.7'	S 4°28.6'	259°35.8'	S 21°43.4'	167°50.0'	S 15°04.4'	183°42.0'	S 19°20.1'	301°23.8'	S 4°20.6'
9	148°16.4'	317°49.9'	S 4°29.5'	274°35.4'	S 21°44.2'	182°52.6'	S 15°04.4'	198°44.5'	S 19°20.1'	316°24.8'	S 4°21.2'
10	163°18.8'	332°50.1'	S 4°30.5'	289°35.0'	S 21°45.0'	197°55.2'	S 15°04.5'	213°47.0'	S 19°20.1'	331°25.7'	S 4°21.9'
11	178°21.3'	347°50.3'	S 4°31.5'	304°34.6'	S 21°45.8'	212°57.8'	S 15°04.5'	228°49.5'	S 19°20.1'	346°26.7'	S 4°22.5'
12	193°23.8'	2°50.5'	S 4°32.4'	319°34.2'	S 21°46.6'	228°00.4'	S 15°04.5'	243°52.0'	S 19°20.1'	1°27.6'	S 4°23.2'
13	208°26.2'	17°50.7'	S 4°33.4'	334°33.9'	S 21°47.5'	243°02.9'	S 15°04.6'	258°54.5'	S 19°20.1'	16°28.6'	S 4°23.8'
14	223°28.7'	32°50.9'	S 4°34.3'	349°33.5'	S 21°48.3'	258°05.5'	S 15°04.6'	273°57.0'	S 19°20.1'	31°29.5'	S 4°24.5'
15	238°31.2'	47°51.0'	S 4°35.3'	4°33.1'	S 21°49.1'	273°08.1'	S 15°04.6'	288°59.5'	S 19°20.1'	46°30.5'	S 4°25.1'
16	253°33.6'	62°51.2'	S 4°36.3'	19°32.7'	S 21°49.9'	288°10.7'	S 15°04.7'	304°02.0'	S 19°20.2'	61°31.5'	S 4°25.8'
17	268°36.1'	77°51.4'	S 4°37.2'	34°32.3'	S 21°50.7'	303°13.2'	S 15°04.7'	319°04.5'	S 19°20.2'	76°32.4'	S 4°26.5'
18	283°38.6'	92°51.6'	S 4°38.2'	49°31.9'	S 21°51.5'	318°15.8'	S 15°04.7'	334°07.0'	S 19°20.2'	91°33.4'	S 4°27.1'
19	298°41.0'	107°51.8'	S 4°39.2'	64°31.6'	S 21°52.3'	333°18.4'	S 15°04.8'	349°09.4'	S 19°20.2'	106°34.3'	S 4°27.8'
20	313°43.5'	122°52.0'	S 4°40.1'	79°31.2'	S 21°53.0'	348°21.0'	S 15°04.8'	4°11.9'	S 19°20.2'	121°35.3'	S 4°28.4'
21	328°45.9'	137°52.2'	S 4°41.1'	94°30.8'	S 21°53.8'	3°23.5'	S 15°04.8'	19°14.4'	S 19°20.2'	136°36.2'	S 4°29.1'
22	343°48.4'	152°52.4'	S 4°42.0'	109°30.4'	S 21°54.6'	18°26.1'	S 15°04.9'	34°16.9'	S 19°20.2'	151°37.2'	S 4°29.7'
23	358°50.9'	167°52.6'	S 4°43.0'	124°30.0'	S 21°55.4'	33°28.7'	S 15°04.9'	49°19.4'	S 19°20.2'	166°38.1'	S 4°30.4'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 48 m 39 s		14 h 42 m		20 h 46 m		19 h 43 m		11 h 54 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	+Regulus	+Pollux	+Procyon	+Sirius	+Adhara	+Betelgeuse	+Capella
0	210°39.9'	N 13°02.0'	11.3'	-13.3'	57.9'	78°36.5'	9°42.1'	44°55.8'	47°07.5'	66°57.5'	69°30.3'	71°59.8'	75°36.2'
1	225°10.2'	N 12°48.8'	11.3'	-13.3'	57.9'	78°17.5'	10°12.2'	45°29.8'	47°37.6'	67°20.5'	69°46.8'	72°31.9'	76°07.8'
2	239°40.5'	N 12°35.4'	11.3'	-13.4'	58.0'	77°58.5'	10°42.7'	46°03.8'	48°07.8'	67°43.5'	70°03.5'	73°04.1'	76°39.4'
3	254°10.9'	N 12°22.0'	11.3'	-13.5'	58.0'	77°39.6'	11°13.6'	46°37.8'	48°38.1'	68°06.7'	70°20.3'	73°36.4'	77°11.2'
4	268°41.2'	N 12°08.5'	11.4'	-13.6'	58.0'	77°20.7'	11°44.8'	47°11.9'	49°08.5'	68°30.0'	70°37.2'	74°08.7'	77°42.9'
5	283°11.6'	N 11°54.9'	11.4'	-13.7'	58.1'	77°01.9'	12°16.3'	47°46.1'	49°39.1'	68°53.4'	70°54.2'	74°41.1'	78°14.7'
6	297°41.9'	N 11°41.3'	11.4'	-13.7'	58.1'	76°43.0'	12°48.1'	48°20.2'	50°09.7'	69°16.8'	71°11.3'	75°13.5'	78°46.6'
7	312°12.3'	N 11°27.6'	11.4'	-13.8'	58.1'	76°24.2'	13°20.1'	48°54.5'	50°40.4'	69°40.4'	71°28.5'	75°45.9'	79°18.5'
8	326°42.7'	N 11°13.8'	11.4'	-13.9'	58.2'	76°05.4'	13°52.4'	49°28.8'	51°11.2'	70°04.1'	71°45.8'	76°18.4'	79°50.4'
9	341°13.1'	N 10°59.9'	11.4'	-14.0'	58.2'	75°46.7'	14°24.8'	50°03.1'	51°42.1'	70°27.8'	72°03.3'	76°51.0'	80°22.4'
10	355°43.5'	N 10°45.9'	11.4'	-14.0'	58.3'	75°28.0'	14°57.4'	50°37.4'	52°13.0'	70°51.7'	72°20.8'	77°23.6'	80°54.5'
11	10°13.9'	N 10°31.9'	11.4'	-14.1'	58.3'	75°09.4'	15°30.2'	51°11.8'	52°44.1'	71°15.6'	72°38.4'	77°56.3'	81°26.6'
12	24°44.4'	N 10°17.8'	11.4'	-14.2'	58.3'	74°50.7'	16°03.2'	51°46.3'	53°15.3'	71°39.7'	72°56.2'	78°29.0'	81°58.7'
13	39°14.8'	N 10°03.6'	11.5'	-14.2'	58.4'	74°32.2'	16°36.3'	52°20.8'	53°46.5'	72°03.8'	73°14.0'	79°01.7'	82°30.9'
14	53°45.3'	N 9°49.4'	11.5'	-14.3'	58.4'	74°13.7'	17°09.5'	52°55.3'	54°17.8'	72°28.0'	73°32.0'	79°34.5'	83°03.2'
15	68°15.7'	N 9°35.1'	11.5'	-14.4'	58.4'	73°55.2'	17°42.8'	53°29.9'	54°49.2'	72°52.3'	73°50.0'	80°07.4'	83°35.4'
16	82°46.2'	N 9°20.7'	11.5'	-14.4'	58.5'	73°36.7'	18°16.3'	54°04.5'	55°20.7'	73°16.7'	74°08.1'	80°40.3'	84°07.8'
17	97°16.7'	N 9°06.3'	11.5'	-14.5'	58.5'	73°18.4'	18°49.9'	54°39.1'	55°52.3'	73°41.1'	74°26.4'	81°13.2'	84°40.1'
18	111°47.2'	N 8°51.8'	11.5'	-14.6'	58.5'	73°00.1'	19°23.6'	55°13.8'	56°23.9'	74°05.7'	74°44.7'	81°46.2'	85°12.5'
19	126°17.7'	N 8°37.3'	11.5'	-14.6'	58.6'	72°41.8'	19°57.3'	55°48.6'	56°55.7'	74°30.3'	75°03.1'	82°19.2'	85°45.0'
20	140°48.1'	N 8°22.6'	11.5'	-14.7'	58.6'	72°23.6'	20°31.2'	56°23.4'	57°27.5'	74°55.0'	75°21.6'	82°52.2'	86°17.5'
21	155°18.6'	N 8°08.0'	11.5'	-14.7'	58.6'	72°05.4'	21°05.2'	56°58.2'	57°59.3'	75°19.7'	75°40.2'	83°25.4'	86°50.0'
22	169°49.1'	N 7°53.2'	11.5'	-14.8'	58.6'	71°47.4'	21°39.2'	57°33.1'	58°31.3'	75°44.6'	75°58.8'	83°58.5'	87°22.6'
23	184°19.6'	N 7°38.4'	11.5'	-14.9'	58.7'	71°29.3'	22°13.3'	58°08.0'	59°03.3'	76°09.5'	76°17.6'	84°31.7'	87°55.2'
Mer. pass.		10 h 18 m SD 15.8'		phase 8%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°53.5'	N 89°21.1'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	13°53.3'	182°52.7'	S 4°44.0'	139°29.6'	S 21°56.2'	48°31.3'	S 15°04.9'	64°21.9'	S 19°20.2'	181°39.1'	S 4°31.0'
1	28°55.8'	197°52.9'	S 4°44.9'	154°29.2'	S 21°57.0'	63°33.8'	S 15°05.0'	79°24.4'	S 19°20.2'	196°40.0'	S 4°31.7'
2	43°58.3'	212°53.1'	S 4°45.9'	169°28.9'	S 21°57.8'	78°36.4'	S 15°05.0'	94°26.9'	S 19°20.2'	211°41.0'	S 4°32.3'
3	59°00.7'	227°53.3'	S 4°46.9'	184°28.5'	S 21°58.6'	93°39.0'	S 15°05.0'	109°29.4'	S 19°20.2'	226°42.0'	S 4°33.0'
4	74°03.2'	242°53.5'	S 4°47.8'	199°28.1'	S 21°59.4'	108°41.5'	S 15°05.0'	124°31.9'	S 19°20.2'	241°42.9'	S 4°33.7'
5	89°05.7'	257°53.7'	S 4°48.8'	214°27.7'	S 22°00.2'	123°44.1'	S 15°05.1'	139°34.3'	S 19°20.2'	256°43.9'	S 4°34.3'
6	104°08.1'	272°53.9'	S 4°49.7'	229°27.3'	S 22°01.0'	138°46.7'	S 15°05.1'	154°36.8'	S 19°20.2'	271°44.8'	S 4°35.0'
7	119°10.6'	287°54.0'	S 4°50.7'	244°26.9'	S 22°01.8'	153°49.3'	S 15°05.1'	169°39.3'	S 19°20.2'	286°45.8'	S 4°35.6'
8	134°13.1'	302°54.2'	S 4°51.7'	259°26.5'	S 22°02.5'	168°51.8'	S 15°05.2'	184°41.8'	S 19°20.3'	301°46.7'	S 4°36.3'
9	149°15.5'	317°54.4'	S 4°52.6'	274°26.1'	S 22°03.3'	183°54.4'	S 15°05.2'	199°44.3'	S 19°20.3'	316°47.7'	S 4°36.9'
10	164°18.0'	332°54.6'	S 4°53.6'	289°25.8'	S 22°04.1'	198°57.0'	S 15°05.2'	214°46.8'	S 19°20.3'	331°48.6'	S 4°37.6'
11	179°20.4'	347°54.8'	S 4°54.5'	304°25.4'	S 22°04.9'	213°59.5'	S 15°05.3'	229°49.3'	S 19°20.3'	346°49.6'	S 4°38.2'
12	194°22.9'	2°55.0'	S 4°55.5'	319°25.0'	S 22°05.7'	229°02.1'	S 15°05.3'	244°51.8'	S 19°20.3'	1°50.5'	S 4°38.9'
13	209°25.4'	17°55.2'	S 4°56.5'	334°24.6'	S 22°06.5'	244°04.7'	S 15°05.3'	259°54.3'	S 19°20.3'	16°51.5'	S 4°39.6'
14	224°27.8'	32°55.4'	S 4°57.4'	349°24.2'	S 22°07.2'	259°07.2'	S 15°05.4'	274°56.7'	S 19°20.3'	31°52.4'	S 4°40.2'
15	239°30.3'	47°55.5'	S 4°58.4'	4°23.8'	S 22°08.0'	274°09.8'	S 15°05.4'	289°59.2'	S 19°20.3'	46°53.4'	S 4°40.9'
16	254°32.8'	62°55.7'	S 4°59.4'	19°23.4'	S 22°08.8'	289°12.4'	S 15°05.4'	305°01.7'	S 19°20.3'	61°54.4'	S 4°41.5'
17	269°35.2'	77°55.9'	S 5°00.3'	34°23.0'	S 22°09.6'	304°14.9'	S 15°05.4'	320°04.2'	S 19°20.3'	76°55.3'	S 4°42.2'
18	284°37.7'	92°56.1'	S 5°01.3'	49°22.6'	S 22°10.4'	319°17.5'	S 15°05.5'	335°06.7'	S 19°20.3'	91°56.3'	S 4°42.8'
19	299°40.2'	107°56.3'	S 5°02.2'	64°22.3'	S 22°11.1'	334°20.1'	S 15°05.5'	350°09.2'	S 19°20.3'	106°57.2'	S 4°43.5'
20	314°42.6'	122°56.5'	S 5°03.2'	79°21.9'	S 22°11.9'	349°22.6'	S 15°05.5'	5°11.7'	S 19°20.3'	121°58.2'	S 4°44.1'
21	329°45.1'	137°56.6'	S 5°04.2'	94°21.5'	S 22°12.7'	4°25.2'	S 15°05.6'	20°14.2'	S 19°20.3'	136°59.1'	S 4°44.8'
22	344°47.5'	152°56.8'	S 5°05.1'	109°21.1'	S 22°13.5'	19°27.8'	S 15°05.6'	35°16.6'	S 19°20.3'	152°00.1'	S 4°45.4'
23	359°50.0'	167°57.0'	S 5°06.1'	124°20.7'	S 22°14.2'	34°30.3'	S 15°05.6'	50°19.1'	S 19°20.3'	167°01.0'	S 4°46.1'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 48 m 21 s		14 h 42 m		20 h 42 m		19 h 39 m		11 h 53 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	+Regulus	+Pollux	+Procyon	+Sirius	+Adhara	+Polaris	+Betelgeuse
0	198°50.1'	N 7°23.6'	11.5'	-14.9'	58.7'	71°11.4'	22°47.6'	58°42.9'	59°35.4'	76°34.5'	76°36.4'	83°01.4'	85°04.9'
1	213°20.6'	N 7°08.6'	11.5'	-15.0'	58.7'	70°53.5'	23°21.8'	59°17.9'	60°07.5'	76°59.6'	76°55.3'	83°16.6'	85°38.2'
2	227°51.1'	N 6°53.7'	11.5'	-15.0'	58.8'	70°35.7'	23°56.2'	59°52.9'	60°39.8'	77°24.7'	77°14.3'	83°31.8'	86°11.5'
3	242°21.6'	N 6°38.7'	11.5'	-15.1'	58.8'	70°17.9'	24°30.6'	60°28.0'	61°12.1'	77°49.9'	77°33.4'	83°47.1'	86°44.9'
4	256°52.1'	N 6°23.6'	11.5'	-15.1'	58.8'	70°00.3'	25°05.1'	61°03.1'	61°44.4'	78°15.1'	77°52.6'	84°02.5'	87°18.2'
5	271°22.6'	N 6°08.5'	11.5'	-15.2'	58.9'	69°42.7'	25°39.7'	61°38.2'	62°16.8'	78°40.5'	78°11.8'	84°17.8'	87°51.7'
6	285°53.1'	N 5°53.3'	11.5'	-15.2'	58.9'	69°25.2'	26°14.3'	62°13.4'	62°49.3'	79°05.8'	78°31.1'	84°33.3'	88°25.1'
7	300°23.6'	N 5°38.1'	11.5'	-15.3'	58.9'	69°07.8'	26°49.0'	62°48.6'	63°21.9'	79°31.3'	78°50.5'	84°48.7'	88°58.6'
8	314°54.0'	N 5°22.9'	11.5'	-15.3'	59.0'	68°50.5'	27°23.7'	63°23.9'	63°54.5'	79°56.8'	79°09.9'	85°04.3'	89°32.2'
9	329°24.5'	N 5°07.6'	11.5'	-15.3'	59.0'	68°33.2'	27°58.5'	63°59.2'	64°27.2'	80°22.4'	79°29.4'	85°19.8'	90°05.7'
10	343°55.0'	N 4°52.2'	11.5'	-15.4'	59.0'	68°16.1'	28°33.4'	64°34.5'	64°59.9'	80°48.0'	79°49.0'	85°35.4'	90°39.4'
11	358°25.4'	N 4°36.8'	11.4'	-15.4'	59.0'	67°59.0'	29°08.3'	65°09.9'	65°32.7'	81°13.6'	80°08.6'	85°51.1'	91°13.0'
12	12°55.8'	N 4°21.4'	11.4'	-15.5'	59.1'	67°42.0'	29°43.3'	65°45.3'	66°05.5'	81°39.4'	80°28.3'	86°06.7'	91°46.7'
13	27°26.3'	N 4°05.9'	11.4'	-15.5'	59.1'	67°25.2'	30°18.3'	66°20.7'	66°38.4'	82°05.1'	80°48.1'	86°22.4'	92°20.4'
14	41°56.7'	N 3°50.4'	11.4'	-15.5'	59.1'	67°08.4'	30°53.4'	66°56.2'	67°11.4'	82°31.0'	81°07.9'	86°38.2'	92°54.1'
15	56°27.1'	N 3°34.9'	11.4'	-15.6'	59.2'	66°51.7'	31°28.5'	67°31.7'	67°44.4'	82°56.8'	81°27.8'	86°54.0'	93°27.9'
16	70°57.5'	N 3°19.3'	11.4'	-15.6'	59.2'	66°35.2'	32°03.7'	68°07.3'	68°17.5'	83°22.8'	81°47.8'	87°09.8'	94°01.7'
17	85°27.9'	N 3°03.7'	11.4'	-15.6'	59.2'	66°18.7'	32°38.9'	68°42.9'	68°50.6'	83°48.7'	82°07.8'	87°25.6'	94°35.5'
18	99°58.2'	N 2°48.1'	11.3'	-15.7'	59.2'	66°02.4'	33°14.2'	69°18.5'	69°23.7'	84°14.7'	82°27.8'	87°41.5'	95°09.4'
19	114°28.6'	N 2°32.4'	11.3'	-15.7'	59.3'	65°46.2'	33°49.5'	69°54.2'	69°56.9'	84°40.8'	82°47.9'	87°57.4'	95°43.3'
20	128°58.9'	N 2°16.7'	11.3'	-15.7'	59.3'								
21	143°29.2'	N 2°01.0'	11.3'	-15.7'	59.3'								
22	157°59.5'	N 1°45.3'	11.3'	-15.8'	59.4'								
23	172°29.8'	N 1°29.5'	11.3'	-15.8'	59.4'								
Mer. pass.		11 h 7 m SD 16.0'	phase 3%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°53.2'	N 89°21.1'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	14°52.5'	182°57.2'	S 5°07.0'	139°20.3'	S 22°15.0'	49°32.9'	S 15°05.7'	65°21.6'	S 19°20.3'	182°02.0'	S 4°46.7'
1	29°54.9'	197°57.4'	S 5°08.0'	154°19.9'	S 22°15.8'	64°35.5'	S 15°05.7'	80°24.1'	S 19°20.4'	197°02.9'	S 4°47.4'
2	44°57.4'	212°57.6'	S 5°09.0'	169°19.5'	S 22°16.6'	79°38.0'	S 15°05.7'	95°26.6'	S 19°20.4'	212°03.9'	S 4°48.1'
3	59°59.9'	227°57.7'	S 5°09.9'	184°19.1'	S 22°17.3'	94°40.6'	S 15°05.7'	110°29.1'	S 19°20.4'	227°04.8'	S 4°48.7'
4	75°02.3'	242°57.9'	S 5°10.9'	199°18.7'	S 22°18.1'	109°43.2'	S 15°05.8'	125°31.6'	S 19°20.4'	242°05.8'	S 4°49.4'
5	90°04.8'	257°58.1'	S 5°11.8'	214°18.3'	S 22°18.9'	124°45.7'	S 15°05.8'	140°34.0'	S 19°20.4'	257°06.7'	S 4°50.0'
6	105°07.3'	272°58.3'	S 5°12.8'	229°17.9'	S 22°19.6'	139°48.3'	S 15°05.8'	155°36.5'	S 19°20.4'	272°07.7'	S 4°50.7'
7	120°09.7'	287°58.5'	S 5°13.7'	244°17.6'	S 22°20.4'	154°50.9'	S 15°05.9'	170°39.0'	S 19°20.4'	287°08.6'	S 4°51.3'
8	135°12.2'	302°58.7'	S 5°14.7'	259°17.2'	S 22°21.2'	169°53.4'	S 15°05.9'	185°41.5'	S 19°20.4'	302°09.6'	S 4°52.0'
9	150°14.7'	317°58.8'	S 5°15.7'	274°16.8'	S 22°21.9'	184°56.0'	S 15°05.9'	200°44.0'	S 19°20.4'	317°10.5'	S 4°52.6'
10	165°17.1'	332°59.0'	S 5°16.6'	289°16.4'	S 22°22.7'	199°58.5'	S 15°05.9'	215°46.5'	S 19°20.4'	332°11.5'	S 4°53.3'
11	180°19.6'	347°59.2'	S 5°17.6'	304°16.0'	S 22°23.5'	215°01.1'	S 15°06.0'	230°49.0'	S 19°20.4'	347°12.4'	S 4°53.9'
12	195°22.0'	2°59.4'	S 5°18.5'	319°15.6'	S 22°24.2'	230°03.7'	S 15°06.0'	245°51.4'	S 19°20.4'	2°13.4'	S 4°54.6'
13	210°24.5'	17°59.6'	S 5°19.5'	334°15.2'	S 22°25.0'	245°06.2'	S 15°06.0'	260°53.9'	S 19°20.4'	17°14.3'	S 4°55.3'
14	225°27.0'	32°59.8'	S 5°20.5'	349°14.8'	S 22°25.7'	260°08.8'	S 15°06.0'	275°56.4'	S 19°20.4'	32°15.3'	S 4°55.9'
15	240°29.4'	47°59.9'	S 5°21.4'	4°14.4'	S 22°26.5'	275°11.4'	S 15°06.1'	290°58.9'	S 19°20.4'	47°16.2'	S 4°56.6'
16	255°31.9'	63°00.1'	S 5°22.4'	19°14.0'	S 22°27.3'	290°13.9'	S 15°06.1'	306°01.4'	S 19°20.4'	62°17.2'	S 4°57.2'
17	270°34.4'	78°00.3'	S 5°23.3'	34°13.6'	S 22°28.0'	305°16.5'	S 15°06.1'	321°03.9'	S 19°20.4'	77°18.1'	S 4°57.9'
18	285°36.8'	93°00.5'	S 5°24.3'	49°13.2'	S 22°28.8'	320°19.0'	S 15°06.2'	336°06.3'	S 19°20.4'	92°19.1'	S 4°58.5'
19	300°39.3'	108°00.7'	S 5°25.2'	64°12.8'	S 22°29.5'	335°21.6'	S 15°06.2'	351°08.8'	S 19°20.4'	107°20.0'	S 4°59.2'
20	315°41.8'	123°00.8'	S 5°26.2'	79°12.4'	S 22°30.3'	350°24.1'	S 15°06.2'	6°11.3'	S 19°20.4'	122°21.0'	S 4°59.8'
21	330°44.2'	138°01.0'	S 5°27.2'	94°12.0'	S 22°31.0'	5°26.7'	S 15°06.2'	21°13.8'	S 19°20.5'	137°21.9'	S 5°00.5'
22	345°46.7'	153°01.2'	S 5°28.1'	109°11.6'	S 22°31.8'	20°29.3'	S 15°06.3'	36°16.3'	S 19°20.5'	152°22.9'	S 5°01.1'
23	0°49.1'	168°01.4'	S 5°29.1'	124°11.2'	S 22°32.5'	35°31.8'	S 15°06.3'	51°18.8'	S 19°20.5'	167°23.8'	S 5°01.8'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 48 m 4 s		14 h 43 m		20 h 38 m		19 h 35 m		11 h 51 m	

h	Moon				
	GHA	dec	v	d	HP
0	187°00.1'	N 1°13.7'	11.2'	-15.8'	59.4'
1	201°30.3'	N 0°57.9'	11.2'	-15.8'	59.4'
2	216°00.5'	N 0°42.1'	11.2'	-15.8'	59.5'
3	230°30.7'	N 0°26.2'	11.2'	-15.9'	59.5'
4	245°00.9'	N 0°10.4'	11.1'	-15.9'	59.5'
5	259°31.0'	S 0°05.5'	11.1'	-15.9'	59.5'
6	274°01.1'	S 0°21.4'	11.1'	-15.9'	59.5'
7	288°31.2'	S 0°37.3'	11.1'	-15.9'	59.6'
8	303°01.2'	S 0°53.2'	11.0'	-15.9'	59.6'
9	317°31.3'	S 1°09.1'	11.0'	-15.9'	59.6'
10	332°01.2'	S 1°25.1'	11.0'	-15.9'	59.6'
11	346°31.2'	S 1°41.0'	10.9'	-15.9'	59.7'
12	1°01.1'	S 1°56.9'	10.9'	-15.9'	59.7'
13	15°31.0'	S 2°12.9'	10.9'	-15.9'	59.7'
14	30°00.9'	S 2°28.8'	10.8'	-15.9'	59.7'
15	44°30.7'	S 2°44.7'	10.8'	-15.9'	59.7'
16	59°00.5'	S 3°00.7'	10.8'	-15.9'	59.8'
17	73°30.3'	S 3°16.6'	10.7'	-15.9'	59.8'
18	87°60.0'	S 3°32.5'	10.7'	-15.9'	59.8'
19	102°29.6'	S 3°48.4'	10.6'	-15.9'	59.8'
20	116°59.3'	S 4°04.3'	10.6'	-15.9'	59.8'
21	131°28.9'	S 4°20.2'	10.5'	-15.9'	59.9'
22	145°58.4'	S 4°36.1'	10.5'	-15.9'	59.9'
23	160°27.9'	S 4°51.9'	10.5'	-15.8'	59.9'
Mer. pass.	11 h 56 m	SD 16.2'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°53.0'	N 89°21.1'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	15°51.6'	183°01.6'	S 5°30.0'	139°10.8'	S 22°33.3'	50°34.4'	S 15°06.3'	66°21.2'	S 19°20.5'	182°24.8'	S 5°02.4'
1	30°54.1'	198°01.7'	S 5°31.0'	154°10.5'	S 22°34.0'	65°36.9'	S 15°06.3'	81°23.7'	S 19°20.5'	197°25.7'	S 5°03.1'
2	45°56.5'	213°01.9'	S 5°31.9'	169°10.1'	S 22°34.8'	80°39.5'	S 15°06.4'	96°26.2'	S 19°20.5'	212°26.7'	S 5°03.7'
3	60°59.0'	228°02.1'	S 5°32.9'	184°09.7'	S 22°35.5'	95°42.1'	S 15°06.4'	111°28.7'	S 19°20.5'	227°27.6'	S 5°04.4'
4	76°01.5'	243°02.3'	S 5°33.9'	199°09.3'	S 22°36.3'	110°44.6'	S 15°06.4'	126°31.2'	S 19°20.5'	242°28.6'	S 5°05.1'
5	91°03.9'	258°02.5'	S 5°34.8'	214°08.9'	S 22°37.0'	125°47.2'	S 15°06.4'	141°33.6'	S 19°20.5'	257°29.5'	S 5°05.7'
6	106°06.4'	273°02.6'	S 5°35.8'	229°08.5'	S 22°37.8'	140°49.7'	S 15°06.5'	156°36.1'	S 19°20.5'	272°30.5'	S 5°06.4'
7	121°08.9'	288°02.8'	S 5°36.7'	244°08.1'	S 22°38.5'	155°52.3'	S 15°06.5'	171°38.6'	S 19°20.5'	287°31.4'	S 5°07.0'
8	136°11.3'	303°03.0'	S 5°37.7'	259°07.7'	S 22°39.3'	170°54.8'	S 15°06.5'	186°41.1'	S 19°20.5'	302°32.4'	S 5°07.7'
9	151°13.8'	318°03.2'	S 5°38.6'	274°07.3'	S 22°40.0'	185°57.4'	S 15°06.5'	201°43.6'	S 19°20.5'	317°33.3'	S 5°08.3'
10	166°16.3'	333°03.3'	S 5°39.6'	289°06.9'	S 22°40.8'	200°59.9'	S 15°06.6'	216°46.0'	S 19°20.5'	332°34.3'	S 5°09.0'
11	181°18.7'	348°03.5'	S 5°40.5'	304°06.5'	S 22°41.5'	216°02.5'	S 15°06.6'	231°48.5'	S 19°20.5'	347°35.2'	S 5°09.6'
12	196°21.2'	3°03.7'	S 5°41.5'	319°06.1'	S 22°42.2'	231°05.0'	S 15°06.6'	246°51.0'	S 19°20.5'	2°36.2'	S 5°10.3'
13	211°23.6'	18°03.9'	S 5°42.5'	334°05.7'	S 22°43.0'	246°07.6'	S 15°06.6'	261°53.5'	S 19°20.5'	17°37.1'	S 5°10.9'
14	226°26.1'	33°04.1'	S 5°43.4'	349°05.3'	S 22°43.7'	261°10.2'	S 15°06.7'	276°56.0'	S 19°20.5'	32°38.1'	S 5°11.6'
15	241°28.6'	48°04.2'	S 5°44.4'	4°04.9'	S 22°44.4'	276°12.7'	S 15°06.7'	291°58.4'	S 19°20.5'	47°39.0'	S 5°12.2'
16	256°31.0'	63°04.4'	S 5°45.3'	19°04.5'	S 22°45.2'	291°15.3'	S 15°06.7'	307°00.9'	S 19°20.5'	62°40.0'	S 5°12.9'
17	271°33.5'	78°04.6'	S 5°46.3'	34°04.1'	S 22°45.9'	306°17.8'	S 15°06.7'	322°03.4'	S 19°20.5'	77°40.9'	S 5°13.5'
18	286°36.0'	93°04.8'	S 5°47.2'	49°03.7'	S 22°46.7'	321°20.4'	S 15°06.8'	337°05.9'	S 19°20.5'	92°41.9'	S 5°14.2'
19	301°38.4'	108°04.9'	S 5°48.2'	64°03.3'	S 22°47.4'	336°22.9'	S 15°06.8'	352°08.4'	S 19°20.5'	107°42.8'	S 5°14.8'
20	316°40.9'	123°05.1'	S 5°49.1'	79°02.9'	S 22°48.1'	351°25.5'	S 15°06.8'	7°10.8'	S 19°20.5'	122°43.8'	S 5°15.5'
21	331°43.4'	138°05.3'	S 5°50.1'	94°02.5'	S 22°48.9'	6°28.0'	S 15°06.8'	22°13.3'	S 19°20.5'	137°44.7'	S 5°16.1'
22	346°45.8'	153°05.5'	S 5°51.0'	109°02.1'	S 22°49.6'	21°30.6'	S 15°06.9'	37°15.8'	S 19°20.6'	152°45.7'	S 5°16.8'
23	1°48.3'	168°05.6'	S 5°52.0'	124°01.7'	S 22°50.3'	36°33.1'	S 15°06.9'	52°18.3'	S 19°20.6'	167°46.6'	S 5°17.4'
		SD 16.0'	d -1.0'	v -0.4'	d -0.7'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.7'
Mer. pass.		11 h 47 m 46 s		14 h 44 m		20 h 34 m		19 h 31 m		11 h 50 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Achernar	-Saturn	-Rigil Kent	-Hadar	-Antares	-Venus
0	174°57.4'	S 5°07.8'	10.4'	-15.8'	59.9'								
1	189°26.8'	S 5°23.6'	10.4'	-15.8'	59.9'								
2	203°56.2'	S 5°39.4'	10.3'	-15.8'	59.9'								
3	218°25.5'	S 5°55.2'	10.3'	-15.8'	60.0'								
4	232°54.8'	S 6°10.9'	10.2'	-15.7'	60.0'								
5	247°24.0'	S 6°26.6'	10.2'	-15.7'	60.0'								
6	261°53.2'	S 6°42.3'	10.1'	-15.7'	60.0'								
7	276°22.3'	S 6°58.0'	10.1'	-15.6'	60.0'								
8	290°51.4'	S 7°13.6'	10.0'	-15.6'	60.0'								
9	305°20.4'	S 7°29.2'	10.0'	-15.6'	60.1'								
10	319°49.3'	S 7°44.8'	9.9'	-15.5'	60.1'								
11	334°18.2'	S 8°00.3'	9.9'	-15.5'	60.1'								
12	348°47.1'	S 8°15.8'	9.8'	-15.4'	60.1'								
13	3°15.9'	S 8°31.3'	9.7'	-15.4'	60.1'								
14	17°44.6'	S 8°46.7'	9.7'	-15.4'	60.1'								
15	32°13.3'	S 9°02.0'	9.6'	-15.3'	60.1'								
16	46°41.9'	S 9°17.4'	9.6'	-15.3'	60.1'								
17	61°10.5'	S 9°32.6'	9.5'	-15.2'	60.1'								
18	75°39.0'	S 9°47.8'	9.4'	-15.2'	60.2'								
19	90°07.5'	S 10°03.0'	9.4'	-15.1'	60.2'								
20	104°35.8'	S 10°18.1'	9.3'	-15.1'	60.2'								
21	119°04.2'	S 10°33.2'	9.3'	-15.0'	60.2'								
22	133°32.4'	S 10°48.2'	9.2'	-14.9'	60.2'								
23	148°00.6'	S 11°03.1'	9.1'	-14.9'	60.2'								
Mer. pass.		12 h 46 m SD 16.3'	phase 0%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'		
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'		
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'		
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'		
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°52.7'	N 89°21.1'		
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'		
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'						
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'						

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	16°50.7'	183°05.8'	S 5°53.0'	139°01.3'	S 22°51.0'	51°35.7'	S 15°06.9'	67°20.7'	S 19°20.6'	182°47.6'	S 5°18.1'
1	31°53.2'	198°06.0'	S 5°53.9'	154°00.9'	S 22°51.8'	66°38.2'	S 15°06.9'	82°23.2'	S 19°20.6'	197°48.5'	S 5°18.8'
2	46°55.7'	213°06.2'	S 5°54.9'	169°00.5'	S 22°52.5'	81°40.8'	S 15°07.0'	97°25.7'	S 19°20.6'	212°49.5'	S 5°19.4'
3	61°58.1'	228°06.3'	S 5°55.8'	184°00.1'	S 22°53.2'	96°43.3'	S 15°07.0'	112°28.2'	S 19°20.6'	227°50.4'	S 5°20.1'
4	77°00.6'	243°06.5'	S 5°56.8'	198°59.7'	S 22°54.0'	111°45.9'	S 15°07.0'	127°30.7'	S 19°20.6'	242°51.3'	S 5°20.7'
5	92°03.1'	258°06.7'	S 5°57.7'	213°59.3'	S 22°54.7'	126°48.4'	S 15°07.0'	142°33.1'	S 19°20.6'	257°52.3'	S 5°21.4'
6	107°05.5'	273°06.9'	S 5°58.7'	228°58.9'	S 22°55.4'	141°51.0'	S 15°07.1'	157°35.6'	S 19°20.6'	272°53.2'	S 5°22.0'
7	122°08.0'	288°07.0'	S 5°59.6'	243°58.5'	S 22°56.1'	156°53.5'	S 15°07.1'	172°38.1'	S 19°20.6'	287°54.2'	S 5°22.7'
8	137°10.5'	303°07.2'	S 6°00.6'	258°58.1'	S 22°56.8'	171°56.0'	S 15°07.1'	187°40.6'	S 19°20.6'	302°55.1'	S 5°23.3'
9	152°12.9'	318°07.4'	S 6°01.5'	273°57.7'	S 22°57.6'	186°58.6'	S 15°07.1'	202°43.0'	S 19°20.6'	317°56.1'	S 5°24.0'
10	167°15.4'	333°07.6'	S 6°02.5'	288°57.3'	S 22°58.3'	202°01.1'	S 15°07.1'	217°45.5'	S 19°20.6'	332°57.0'	S 5°24.6'
11	182°17.9'	348°07.7'	S 6°03.4'	303°56.9'	S 22°59.0'	217°03.7'	S 15°07.2'	232°48.0'	S 19°20.6'	347°58.0'	S 5°25.3'
12	197°20.3'	3°07.9'	S 6°04.4'	318°56.5'	S 22°59.7'	232°06.2'	S 15°07.2'	247°50.5'	S 19°20.6'	2°58.9'	S 5°25.9'
13	212°22.8'	18°08.1'	S 6°05.3'	333°56.1'	S 23°00.4'	247°08.8'	S 15°07.2'	262°52.9'	S 19°20.6'	17°59.9'	S 5°26.6'
14	227°25.2'	33°08.3'	S 6°06.3'	348°55.7'	S 23°01.2'	262°11.3'	S 15°07.2'	277°55.4'	S 19°20.6'	33°00.8'	S 5°27.2'
15	242°27.7'	48°08.4'	S 6°07.2'	3°55.3'	S 23°01.9'	277°13.9'	S 15°07.3'	292°57.9'	S 19°20.6'	48°01.8'	S 5°27.9'
16	257°30.2'	63°08.6'	S 6°08.2'	18°54.9'	S 23°02.6'	292°16.4'	S 15°07.3'	308°00.4'	S 19°20.6'	63°02.7'	S 5°28.5'
17	272°32.6'	78°08.8'	S 6°09.1'	33°54.5'	S 23°03.3'	307°19.0'	S 15°07.3'	323°02.8'	S 19°20.6'	78°03.6'	S 5°29.2'
18	287°35.1'	93°08.9'	S 6°10.1'	48°54.1'	S 23°04.0'	322°21.5'	S 15°07.3'	338°05.3'	S 19°20.6'	93°04.6'	S 5°29.8'
19	302°37.6'	108°09.1'	S 6°11.1'	63°53.6'	S 23°04.7'	337°24.0'	S 15°07.3'	353°07.8'	S 19°20.6'	108°05.5'	S 5°30.5'
20	317°40.0'	123°09.3'	S 6°12.0'	78°53.2'	S 23°05.4'	352°26.6'	S 15°07.4'	8°10.3'	S 19°20.6'	123°06.5'	S 5°31.1'
21	332°42.5'	138°09.5'	S 6°13.0'	93°52.8'	S 23°06.2'	7°29.1'	S 15°07.4'	23°12.7'	S 19°20.6'	138°07.4'	S 5°31.8'
22	347°45.0'	153°09.6'	S 6°13.9'	108°52.4'	S 23°06.9'	22°31.7'	S 15°07.4'	38°15.2'	S 19°20.6'	153°08.4'	S 5°32.4'
23	2°47.4'	168°09.8'	S 6°14.9'	123°52.0'	S 23°07.6'	37°34.2'	S 15°07.4'	53°17.7'	S 19°20.6'	168°09.3'	S 5°33.1'
		SD 16.0'	<i>d</i> -1.0'	<i>v</i> -0.4'	<i>d</i> -0.7'	<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 0.9'	<i>d</i> -0.7'
Mer. pass.		11 h 47 m 30 s		14 h 44 m		20 h 30 m		19 h 27 m		11 h 48 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Fomalhaut	-Achernar	-Jupiter	-Altair	-Rigel Kent	-Antares	-Venus	+Arcturus
0	162°28.7'	S 11°18.0'	9.1'	-14.8'	60.2'	117°07.7'	111°06.2'	106°38.5'	85°32.5'	49°48.8'	34°49.5'	25°10.1'	30°22.4'
1	176°56.8'	S 11°32.8'	9.0'	-14.8'	60.2'	116°32.7'	110°48.0'	106°01.7'	85°01.9'	49°31.9'	34°12.9'	24°36.2'	30°37.8'
2	191°24.8'	S 11°47.6'	8.9'	-14.7'	60.2'	115°57.6'	110°29.8'	105°24.8'	84°31.3'	49°15.3'	33°36.3'	24°02.3'	30°53.7'
3	205°52.7'	S 12°02.3'	8.9'	-14.6'	60.2'	115°22.6'	110°11.4'	104°48.0'	84°00.8'	48°58.9'	32°59.8'	23°28.5'	31°10.2'
4	220°20.6'	S 12°16.9'	8.8'	-14.5'	60.2'	114°47.5'	109°52.9'	104°11.1'	83°30.2'	48°42.8'	32°23.2'	22°54.6'	31°27.1'
5	234°48.3'	S 12°31.4'	8.7'	-14.5'	60.2'	114°12.3'	109°34.3'	103°34.3'	82°59.6'	48°27.0'	31°46.6'	22°20.7'	31°44.6'
6	249°16.1'	S 12°45.9'	8.7'	-14.4'	60.2'	113°37.2'	109°15.6'	102°57.4'	82°29.1'	48°11.5'	31°10.1'	21°46.9'	32°02.6'
7	263°43.7'	S 13°00.3'	8.6'	-14.3'	60.2'	113°02.0'	108°56.8'	102°20.6'	81°58.5'		30°33.5'	21°13.1'	32°21.0'
8	278°11.3'	S 13°14.6'	8.5'	-14.2'	60.3'	112°26.8'	108°37.9'	101°43.7'	81°28.0'		29°57.0'	20°39.2'	32°39.9'
9	292°38.8'	S 13°28.9'	8.4'	-14.2'	60.3'	111°51.6'	108°18.8'	101°06.8'	80°57.5'		29°20.5'	20°05.4'	32°59.3'
10	307°06.2'	S 13°43.0'	8.4'	-14.1'	60.3'	111°16.4'	107°59.7'	100°30.0'	80°27.0'		28°44.0'	19°31.6'	33°19.1'
11	321°33.6'	S 13°57.1'	8.3'	-14.0'	60.3'	110°41.2'	107°40.5'	99°53.1'	79°56.5'		28°07.5'	18°57.9'	33°39.3'
12	336°00.9'	S 14°11.1'	8.2'	-13.9'	60.3'	110°05.9'	107°21.2'	99°16.2'	79°26.0'		27°31.0'	18°24.1'	33°60.0'
13	350°28.1'	S 14°25.0'	8.1'	-13.8'	60.3'	109°30.7'	107°01.8'	98°39.4'	78°55.6'		26°54.5'	17°50.4'	34°21.0'
14	4°55.3'	S 14°38.9'	8.1'	-13.7'	60.3'	108°55.4'	106°42.3'	98°02.5'	78°25.2'		26°18.1'	17°16.6'	34°42.4'
15	19°22.3'	S 14°52.6'	8.0'	-13.7'	60.3'	108°20.1'	106°22.8'	97°25.6'	77°54.8'		25°41.6'	16°43.0'	35°04.3'
16	33°49.4'	S 15°06.3'	7.9'	-13.6'	60.3'	107°44.8'	106°03.1'	96°48.8'	77°24.5'		25°05.2'	16°09.3'	35°26.4'
17	48°16.3'	S 15°19.8'	7.9'	-13.5'	60.3'	107°09.5'	105°43.4'	96°11.9'	76°54.2'		24°28.8'	15°35.7'	35°48.9'
18	62°43.1'	S 15°33.3'	7.8'	-13.4'	60.3'	106°34.2'	105°23.6'	95°35.0'	76°23.9'		23°52.5'	15°02.1'	36°11.8'
19	77°09.9'	S 15°46.6'	7.7'	-13.3'	60.3'	105°58.9'	105°03.7'	94°58.2'	75°53.6'		23°16.1'	14°28.6'	36°35.0'
20	91°36.6'	S 15°59.9'	7.6'	-13.2'	60.3'	105°23.6'	104°43.8'	94°21.3'	75°23.4'		22°39.8'	13°55.1'	36°58.5'
21	106°03.2'	S 16°13.1'	7.6'	-13.1'	60.3'	104°48.2'	104°23.7'	93°44.4'	74°53.2'		22°03.5'	13°21.7'	37°22.3'
22	120°29.8'	S 16°26.2'	7.5'	-13.0'	60.3'	104°12.9'	104°03.6'	93°07.6'	74°23.1'		21°27.3'	12°48.3'	37°46.4'
23	134°56.3'	S 16°39.1'	7.4'	-12.9'	60.3'	103°37.6'	103°43.5'	92°30.8'	73°53.0'		20°51.1'	12°15.1'	38°10.8'
Mer. pass.		13 h 40 m SD 16.4'	phase 3%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°52.3'	N 89°21.1'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	17°49.9'	183°10.0'	S 6°15.8'	138°51.6'	S 23°08.3'	52°36.7'	S 15°07.4'	68°20.2'	S 19°20.6'	183°10.3'	S 5°33.7'
1	32°52.4'	198°10.1'	S 6°16.8'	153°51.2'	S 23°09.0'	67°39.3'	S 15°07.5'	83°22.6'	S 19°20.6'	198°11.2'	S 5°34.4'
2	47°54.8'	213°10.3'	S 6°17.7'	168°50.8'	S 23°09.7'	82°41.8'	S 15°07.5'	98°25.1'	S 19°20.6'	213°12.2'	S 5°35.0'
3	62°57.3'	228°10.5'	S 6°18.7'	183°50.4'	S 23°10.4'	97°44.4'	S 15°07.5'	113°27.6'	S 19°20.6'	228°13.1'	S 5°35.7'
4	77°59.7'	243°10.7'	S 6°19.6'	198°50.0'	S 23°11.1'	112°46.9'	S 15°07.5'	128°30.1'	S 19°20.6'	243°14.0'	S 5°36.3'
5	93°02.2'	258°10.8'	S 6°20.6'	213°49.6'	S 23°11.8'	127°49.5'	S 15°07.5'	143°32.5'	S 19°20.6'	258°15.0'	S 5°37.0'
6	108°04.7'	273°11.0'	S 6°21.5'	228°49.2'	S 23°12.5'	142°52.0'	S 15°07.6'	158°35.0'	S 19°20.6'	273°15.9'	S 5°37.6'
7	123°07.1'	288°11.2'	S 6°22.5'	243°48.8'	S 23°13.2'	157°54.5'	S 15°07.6'	173°37.5'	S 19°20.6'	288°16.9'	S 5°38.3'
8	138°09.6'	303°11.3'	S 6°23.4'	258°48.4'	S 23°13.9'	172°57.1'	S 15°07.6'	188°39.9'	S 19°20.6'	303°17.8'	S 5°39.0'
9	153°12.1'	318°11.5'	S 6°24.4'	273°48.0'	S 23°14.6'	187°59.6'	S 15°07.6'	203°42.4'	S 19°20.6'	318°18.8'	S 5°39.6'
10	168°14.5'	333°11.7'	S 6°25.3'	288°47.6'	S 23°15.3'	203°02.1'	S 15°07.6'	218°44.9'	S 19°20.6'	333°19.7'	S 5°40.3'
11	183°17.0'	348°11.8'	S 6°26.3'	303°47.2'	S 23°16.0'	218°04.7'	S 15°07.7'	233°47.4'	S 19°20.6'	348°20.6'	S 5°40.9'
12	198°19.5'	3°12.0'	S 6°27.2'	318°46.8'	S 23°16.7'	233°07.2'	S 15°07.7'	248°49.8'	S 19°20.6'	3°21.6'	S 5°41.6'
13	213°21.9'	18°12.2'	S 6°28.1'	333°46.4'	S 23°17.4'	248°09.8'	S 15°07.7'	263°52.3'	S 19°20.6'	18°22.5'	S 5°42.2'
14	228°24.4'	33°12.3'	S 6°29.1'	348°46.0'	S 23°18.1'	263°12.3'	S 15°07.7'	278°54.8'	S 19°20.7'	33°23.5'	S 5°42.9'
15	243°26.9'	48°12.5'	S 6°30.0'	3°45.5'	S 23°18.8'	278°14.8'	S 15°07.7'	293°57.2'	S 19°20.7'	48°24.4'	S 5°43.5'
16	258°29.3'	63°12.7'	S 6°31.0'	18°45.1'	S 23°19.5'	293°17.4'	S 15°07.8'	308°59.7'	S 19°20.7'	63°25.4'	S 5°44.2'
17	273°31.8'	78°12.9'	S 6°31.9'	33°44.7'	S 23°20.2'	308°19.9'	S 15°07.8'	324°02.2'	S 19°20.7'	78°26.3'	S 5°44.8'
18	288°34.2'	93°13.0'	S 6°32.9'	48°44.3'	S 23°20.9'	323°22.4'	S 15°07.8'	339°04.6'	S 19°20.7'	93°27.3'	S 5°45.5'
19	303°36.7'	108°13.2'	S 6°33.8'	63°43.9'	S 23°21.5'	338°25.0'	S 15°07.8'	354°07.1'	S 19°20.7'	108°28.2'	S 5°46.1'
20	318°39.2'	123°13.4'	S 6°34.8'	78°43.5'	S 23°22.2'	353°27.5'	S 15°07.8'	9°09.6'	S 19°20.7'	123°29.1'	S 5°46.8'
21	333°41.6'	138°13.5'	S 6°35.7'	93°43.1'	S 23°22.9'	8°30.0'	S 15°07.8'	24°12.1'	S 19°20.7'	138°30.1'	S 5°47.4'
22	348°44.1'	153°13.7'	S 6°36.7'	108°42.7'	S 23°23.6'	23°32.6'	S 15°07.9'	39°14.5'	S 19°20.7'	153°31.0'	S 5°48.1'
23	3°46.6'	168°13.9'	S 6°37.6'	123°42.3'	S 23°24.3'	38°35.1'	S 15°07.9'	54°17.0'	S 19°20.7'	168°32.0'	S 5°48.7'
		SD 16.0'	d -0.9'	v -0.4'	d -0.7'	v 2.5'	d -0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.7'
Mer. pass.		11 h 47 m 13 s		14 h 45 m		20 h 26 m		19 h 23 m		11 h 47 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	-Antares	+Venus	+Sun	+Arcturus
0	149°22.7'	S 16°52.0'	7.3'	-12.8'	60.3'	103°23.2'	103°02.2'	76°18.5'	73°22.9'	20°15.0'	11°41.9'		38°35.5'
1	163°49.0'	S 17°04.7'	7.2'	-12.6'	60.3'	103°03.0'	102°26.9'	75°41.7'	72°52.9'	19°38.8'	11°08.8'		39°00.4'
2	178°15.2'	S 17°17.4'	7.2'	-12.5'	60.3'	102°42.6'	101°51.5'	75°04.9'	72°22.9'	19°02.8'	10°35.8'		39°25.6'
3	192°41.4'	S 17°29.9'	7.1'	-12.4'	60.3'	102°22.2'	101°16.2'	74°28.2'	71°53.0'	18°26.8'	10°02.9'		39°51.0'
4	207°07.5'	S 17°42.3'	7.0'	-12.3'	60.2'	102°01.7'	100°40.8'	73°51.4'	71°23.2'	17°50.8'	9°30.2'		40°16.7'
5	221°33.5'	S 17°54.6'	6.9'	-12.2'	60.2'	101°41.2'	100°05.5'	73°14.7'	70°53.3'	17°15.0'	8°57.6'		40°42.6'
6	235°59.5'	S 18°06.8'	6.9'	-12.1'	60.2'	101°20.6'	99°30.2'	72°38.0'	70°23.6'	16°39.2'	8°25.3'		41°08.8'
7	250°25.3'	S 18°18.9'	6.8'	-12.0'	60.2'	101°00.0'	98°54.8'	72°01.3'	69°53.9'	16°03.4'	7°53.2'		41°35.1'
8	264°51.1'	S 18°30.9'	6.7'	-11.8'	60.2'	100°39.3'	98°19.5'	71°24.6'	69°24.2'	15°27.8'	7°21.5'		42°01.7'
9	279°16.8'	S 18°42.7'	6.6'	-11.7'	60.2'	100°18.6'	97°44.2'	70°47.9'	68°54.6'	14°52.3'	6°50.1'		42°28.5'
10	293°42.5'	S 18°54.4'	6.6'	-11.6'	60.2'	99°57.9'	97°08.8'	70°11.2'	68°25.1'	14°16.9'	6°19.1'	40°22.6'	42°55.4'
11	308°08.1'	S 19°06.0'	6.5'	-11.5'	60.2'	99°37.1'	96°33.5'	69°34.5'	67°55.6'	13°41.6'	5°48.8'	40°56.7'	43°22.6'
12	322°33.5'	S 19°17.5'	6.4'	-11.3'	60.2'	99°16.2'	95°58.2'	68°57.8'	67°26.2'	13°06.4'		41°30.8'	43°49.9'
13	336°59.0'	S 19°28.8'	6.3'	-11.2'	60.2'	98°55.3'	95°22.9'	68°21.2'	66°56.9'	12°31.4'		42°04.9'	44°17.4'
14	351°24.3'	S 19°40.0'	6.3'	-11.1'	60.2'	98°34.4'	94°47.6'	67°44.5'	66°27.6'	11°56.6'		42°39.0'	44°45.0'
15	5°49.6'	S 19°51.1'	6.2'	-10.9'	60.2'	98°13.5'	94°12.3'	67°07.9'	65°58.4'	11°22.1'		43°13.1'	45°12.9'
16	20°14.8'	S 20°02.0'	6.1'	-10.8'	60.2'	97°52.5'	93°37.0'	66°31.3'	65°29.3'	10°47.7'		43°47.2'	45°40.8'
17	34°39.9'	S 20°12.8'	6.1'	-10.7'	60.2'	97°31.5'	93°01.8'	65°54.7'	65°00.3'	10°13.6'		44°21.2'	46°09.0'
18	49°05.0'	S 20°23.5'	6.0'	-10.5'	60.2'	97°10.5'	92°26.5'	65°18.1'	64°31.3'	9°39.9'		44°55.3'	46°37.2'
19	63°29.9'	S 20°34.0'	5.9'	-10.4'	60.1'	96°49.4'	91°51.3'	64°41.6'	64°02.5'	9°06.5'		45°29.3'	47°05.6'
20	77°54.8'	S 20°44.4'	5.8'	-10.3'	60.1'	96°28.3'	91°16.0'	64°05.0'	63°33.7'	8°33.7'		46°03.3'	47°34.2'
21	92°19.7'	S 20°54.7'	5.8'	-10.1'	60.1'	96°07.2'	90°40.8'	63°28.5'	63°05.0'	8°01.3'		46°37.4'	48°02.9'
22	106°44.4'	S 21°04.8'	5.7'	-10.0'	60.1'	95°46.1'	90°05.6'	62°52.0'	62°36.3'			47°11.4'	48°31.7'
23	121°09.1'	S 21°14.8'	5.6'	-9.8'	60.1'	95°25.0'	89°30.4'	62°15.5'	62°07.8'			47°45.4'	49°00.6'
Mer. pass.		14 h 36 m SD 16.4'	phase 9%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°52.0'	N 89°21.1'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	18°49.0'	183°14.0'	S 6°38.6'	138°41.9'	S 23°25.0'	53°37.6'	S 15°07.9'	69°19.5'	S 19°20.7'	183°32.9'	S 5°49.4'
1	33°51.5'	198°14.2'	S 6°39.5'	153°41.5'	S 23°25.7'	68°40.2'	S 15°07.9'	84°21.9'	S 19°20.7'	198°33.8'	S 5°50.0'
2	48°54.0'	213°14.4'	S 6°40.5'	168°41.1'	S 23°26.3'	83°42.7'	S 15°07.9'	99°24.4'	S 19°20.7'	213°34.8'	S 5°50.7'
3	63°56.4'	228°14.5'	S 6°41.4'	183°40.7'	S 23°27.0'	98°45.2'	S 15°08.0'	114°26.9'	S 19°20.7'	228°35.7'	S 5°51.3'
4	78°58.9'	243°14.7'	S 6°42.4'	198°40.3'	S 23°27.7'	113°47.8'	S 15°08.0'	129°29.3'	S 19°20.7'	243°36.7'	S 5°52.0'
5	94°01.3'	258°14.9'	S 6°43.3'	213°39.8'	S 23°28.4'	128°50.3'	S 15°08.0'	144°31.8'	S 19°20.7'	258°37.6'	S 5°52.6'
6	109°03.8'	273°15.0'	S 6°44.3'	228°39.4'	S 23°29.1'	143°52.8'	S 15°08.0'	159°34.3'	S 19°20.7'	273°38.6'	S 5°53.3'
7	124°06.3'	288°15.2'	S 6°45.2'	243°39.0'	S 23°29.7'	158°55.4'	S 15°08.0'	174°36.7'	S 19°20.7'	288°39.5'	S 5°53.9'
8	139°08.7'	303°15.3'	S 6°46.1'	258°38.6'	S 23°30.4'	173°57.9'	S 15°08.0'	189°39.2'	S 19°20.7'	303°40.4'	S 5°54.6'
9	154°11.2'	318°15.5'	S 6°47.1'	273°38.2'	S 23°31.1'	189°00.4'	S 15°08.1'	204°41.7'	S 19°20.7'	318°41.4'	S 5°55.2'
10	169°13.7'	333°15.7'	S 6°48.0'	288°37.8'	S 23°31.8'	204°03.0'	S 15°08.1'	219°44.1'	S 19°20.7'	333°42.3'	S 5°55.9'
11	184°16.1'	348°15.8'	S 6°49.0'	303°37.4'	S 23°32.4'	219°05.5'	S 15°08.1'	234°46.6'	S 19°20.7'	348°43.3'	S 5°56.5'
12	199°18.6'	3°16.0'	S 6°49.9'	318°37.0'	S 23°33.1'	234°08.0'	S 15°08.1'	249°49.1'	S 19°20.7'	3°44.2'	S 5°57.2'
13	214°21.1'	18°16.2'	S 6°50.9'	333°36.6'	S 23°33.8'	249°10.5'	S 15°08.1'	264°51.5'	S 19°20.7'	18°45.1'	S 5°57.8'
14	229°23.5'	33°16.3'	S 6°51.8'	348°36.2'	S 23°34.5'	264°13.1'	S 15°08.1'	279°54.0'	S 19°20.7'	33°46.1'	S 5°58.5'
15	244°26.0'	48°16.5'	S 6°52.8'	3°35.8'	S 23°35.1'	279°15.6'	S 15°08.2'	294°56.5'	S 19°20.7'	48°47.0'	S 5°59.1'
16	259°28.5'	63°16.7'	S 6°53.7'	18°35.3'	S 23°35.8'	294°18.1'	S 15°08.2'	309°58.9'	S 19°20.7'	63°48.0'	S 5°59.8'
17	274°30.9'	78°16.8'	S 6°54.6'	33°34.9'	S 23°36.5'	309°20.7'	S 15°08.2'	325°01.4'	S 19°20.7'	78°48.9'	S 6°00.4'
18	289°33.4'	93°17.0'	S 6°55.6'	48°34.5'	S 23°37.1'	324°23.2'	S 15°08.2'	340°03.9'	S 19°20.7'	93°49.8'	S 6°01.1'
19	304°35.8'	108°17.1'	S 6°56.5'	63°34.1'	S 23°37.8'	339°25.7'	S 15°08.2'	355°06.3'	S 19°20.7'	108°50.8'	S 6°01.7'
20	319°38.3'	123°17.3'	S 6°57.5'	78°33.7'	S 23°38.5'	354°28.2'	S 15°08.2'	10°08.8'	S 19°20.7'	123°51.7'	S 6°02.3'
21	334°40.8'	138°17.5'	S 6°58.4'	93°33.3'	S 23°39.1'	9°30.8'	S 15°08.3'	25°11.3'	S 19°20.7'	138°52.7'	S 6°03.0'
22	349°43.2'	153°17.6'	S 6°59.4'	108°32.9'	S 23°39.8'	24°33.3'	S 15°08.3'	40°13.7'	S 19°20.7'	153°53.6'	S 6°03.6'
23	4°45.7'	168°17.8'	S 7°00.3'	123°32.5'	S 23°40.5'	39°35.8'	S 15°08.3'	55°16.2'	S 19°20.7'	168°54.5'	S 6°04.3'
		SD 16.0'	d -0.9'	v -0.4'	d -0.7'	v 2.5'	d -0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.6'
Mer. pass.		11 h 46 m 57 s		14 h 46 m		20 h 22 m		19 h 20 m		11 h 45 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Jupiter	-Altair	-Saturn	-Antares	+Venus	+Sun	+Arcturus
0	135°33.8'	S 21°24.6'	5.6'	-9.7'	60.1'	95°03.8'	77°12.6'	61°39.4'	61°39.0'			48°19.3'	49°29.6'
1	149°58.3'	S 21°34.3'	5.5'	-9.5'	60.1'	94°42.6'	76°36.1'	61°11.0'	61°02.5'			48°53.3'	49°58.7'
2	164°22.8'	S 21°43.8'	5.4'	-9.4'	60.1'	94°21.5'	75°59.6'	60°42.8'	60°26.1'			49°27.2'	50°28.0'
3	178°47.3'	S 21°53.2'	5.4'	-9.2'	60.1'	94°00.3'	75°23.1'	60°14.7'	59°49.6'			50°01.2'	50°57.3'
4	193°11.6'	S 22°02.4'	5.3'	-9.1'	60.0'	93°39.1'	74°46.6'	59°46.6'	59°13.2'			50°35.1'	51°26.8'
5	207°35.9'	S 22°11.5'	5.2'	-8.9'	60.0'	93°17.9'	74°10.1'	59°18.7'	58°36.8'		5°44.0'	51°09.0'	51°56.3'
6	222°00.2'	S 22°20.5'	5.2'	-8.8'	60.0'	92°56.7'	73°33.6'	58°50.9'	58°00.4'		6°14.1'	51°42.9'	52°25.9'
7	236°24.4'	S 22°29.2'	5.1'	-8.6'	60.0'	92°35.4'	72°57.2'	58°23.2'	57°24.1'		6°44.6'	52°16.8'	52°55.6'
8	250°48.5'	S 22°37.9'	5.1'	-8.5'	60.0'	92°14.2'	72°20.8'	57°55.6'	56°47.8'		7°15.7'	52°50.6'	53°25.4'
9	265°12.5'	S 22°46.3'	5.0'	-8.3'	60.0'	91°53.0'	71°44.4'	57°28.1'	56°11.4'		7°47.1'	53°24.5'	53°55.3'
10	279°36.5'	S 22°54.6'	4.9'	-8.2'	60.0'	91°31.8'	71°08.0'	57°00.8'	55°35.1'		8°18.7'	53°58.3'	54°25.2'
11	294°00.5'	S 23°02.8'	4.9'	-8.0'	59.9'	91°10.6'	70°31.6'	56°33.6'	54°58.9'		8°50.6'	54°32.1'	54°55.2'
12	308°24.4'	S 23°10.8'	4.8'	-7.8'	59.9'	90°49.4'	69°55.3'	56°06.5'	54°22.6'		9°22.7'	55°05.9'	55°25.3'
13	322°48.2'	S 23°18.6'	4.8'	-7.7'	59.9'	90°28.2'	69°19.0'	55°39.5'	53°46.4'		9°54.9'	55°39.6'	55°55.5'
14	337°12.0'	S 23°26.3'	4.7'	-7.5'	59.9'	90°07.0'	68°42.7'	55°12.7'	53°10.2'		10°27.3'	56°13.4'	56°25.7'
15	351°35.7'	S 23°33.8'	4.7'	-7.3'	59.9'	89°45.9'	68°06.4'	54°46.0'	52°34.0'		10°59.8'	56°47.1'	56°56.0'
16	5°59.4'	S 23°41.1'	4.6'	-7.2'	59.9'	89°24.7'	67°30.2'	54°19.4'	51°57.9'		11°32.3'	57°20.8'	57°26.3'
17	20°23.0'	S 23°48.3'	4.6'	-7.0'	59.9'	89°03.6'	66°53.9'	53°53.0'	51°21.7'		12°04.9'	57°54.5'	57°56.7'
18	34°46.6'	S 23°55.3'	4.5'	-6.8'	59.8'	88°42.4'	66°17.7'	53°26.8'	50°45.6'		12°37.6'	58°28.2'	58°27.2'
19	49°10.1'	S 24°02.1'	4.5'	-6.7'	59.8'	88°21.3'	65°41.6'	53°00.7'	50°09.5'	7°25.3'	13°10.3'	59°01.8'	58°57.6'
20	63°33.6'	S 24°08.8'	4.4'	-6.5'	59.8'	88°00.2'	65°05.4'	52°34.7'	49°33.5'	7°56.5'	13°43.1'	59°35.5'	59°28.2'
21	77°57.1'	S 24°15.3'	4.4'	-6.3'	59.8'	87°39.2'	64°29.3'	52°08.9'	48°57.4'	8°28.4'	14°15.9'	60°09.1'	59°58.8'
22	92°20.5'	S 24°21.6'	4.4'	-6.2'	59.8'	87°18.1'	63°53.2'	51°43.3'	48°21.4'	9°00.7'	14°48.7'	60°42.7'	60°29.4'
23	106°43.9'	S 24°27.8'	4.3'	-6.0'	59.8'	86°57.1'	63°17.1'	51°17.8'	47°45.4'	9°33.5'	15°21.6'	61°16.2'	61°00.1'
Mer. pass.		15 h 35 m SD 16.4'	phase 17%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°51.6'	N 89°21.1'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	19°48.2'	183°18.0'	S 7°01.3'	138°32.1'	S 23°41.1'	54°38.3'	S 15°08.3'	70°18.7'	S 19°20.7'	183°55.5'	S 6°04.9'
1	34°50.6'	198°18.1'	S 7°02.2'	153°31.7'	S 23°41.8'	69°40.9'	S 15°08.3'	85°21.1'	S 19°20.7'	198°56.4'	S 6°05.6'
2	49°53.1'	213°18.3'	S 7°03.1'	168°31.2'	S 23°42.5'	84°43.4'	S 15°08.3'	100°23.6'	S 19°20.7'	213°57.4'	S 6°06.2'
3	64°55.6'	228°18.4'	S 7°04.1'	183°30.8'	S 23°43.1'	99°45.9'	S 15°08.3'	115°26.1'	S 19°20.7'	228°58.3'	S 6°06.9'
4	79°58.0'	243°18.6'	S 7°05.0'	198°30.4'	S 23°43.8'	114°48.4'	S 15°08.4'	130°28.5'	S 19°20.7'	243°59.2'	S 6°07.5'
5	95°00.5'	258°18.8'	S 7°06.0'	213°30.0'	S 23°44.4'	129°51.0'	S 15°08.4'	145°31.0'	S 19°20.7'	259°00.2'	S 6°08.2'
6	110°03.0'	273°18.9'	S 7°06.9'	228°29.6'	S 23°45.1'	144°53.5'	S 15°08.4'	160°33.5'	S 19°20.7'	274°01.1'	S 6°08.8'
7	125°05.4'	288°19.1'	S 7°07.8'	243°29.2'	S 23°45.7'	159°56.0'	S 15°08.4'	175°35.9'	S 19°20.7'	289°02.1'	S 6°09.5'
8	140°07.9'	303°19.2'	S 7°08.8'	258°28.8'	S 23°46.4'	174°58.5'	S 15°08.4'	190°38.4'	S 19°20.7'	304°03.0'	S 6°10.1'
9	155°10.3'	318°19.4'	S 7°09.7'	273°28.4'	S 23°47.0'	190°01.1'	S 15°08.4'	205°40.8'	S 19°20.7'	319°03.9'	S 6°10.8'
10	170°12.8'	333°19.6'	S 7°10.7'	288°28.0'	S 23°47.7'	205°03.6'	S 15°08.4'	220°43.3'	S 19°20.7'	334°04.9'	S 6°11.4'
11	185°15.3'	348°19.7'	S 7°11.6'	303°27.5'	S 23°48.4'	220°06.1'	S 15°08.5'	235°45.8'	S 19°20.7'	349°05.8'	S 6°12.1'
12	200°17.7'	3°19.9'	S 7°12.6'	318°27.1'	S 23°49.0'	235°08.6'	S 15°08.5'	250°48.2'	S 19°20.7'	4°06.7'	S 6°12.7'
13	215°20.2'	18°20.0'	S 7°13.5'	333°26.7'	S 23°49.7'	250°11.1'	S 15°08.5'	265°50.7'	S 19°20.7'	19°07.7'	S 6°13.4'
14	230°22.7'	33°20.2'	S 7°14.4'	348°26.3'	S 23°50.3'	265°13.7'	S 15°08.5'	280°53.2'	S 19°20.7'	34°08.6'	S 6°14.0'
15	245°25.1'	48°20.4'	S 7°15.4'	3°25.9'	S 23°50.9'	280°16.2'	S 15°08.5'	295°55.6'	S 19°20.7'	49°09.6'	S 6°14.7'
16	260°27.6'	63°20.5'	S 7°16.3'	18°25.5'	S 23°51.6'	295°18.7'	S 15°08.5'	310°58.1'	S 19°20.7'	64°10.5'	S 6°15.3'
17	275°30.1'	78°20.7'	S 7°17.3'	33°25.1'	S 23°52.2'	310°21.2'	S 15°08.5'	326°00.5'	S 19°20.7'	79°11.4'	S 6°16.0'
18	290°32.5'	93°20.8'	S 7°18.2'	48°24.7'	S 23°52.9'	325°23.7'	S 15°08.5'	341°03.0'	S 19°20.7'	94°12.4'	S 6°16.6'
19	305°35.0'	108°21.0'	S 7°19.1'	63°24.3'	S 23°53.5'	340°26.3'	S 15°08.6'	356°05.5'	S 19°20.7'	109°13.3'	S 6°17.3'
20	320°37.5'	123°21.1'	S 7°20.1'	78°23.8'	S 23°54.2'	355°28.8'	S 15°08.6'	11°07.9'	S 19°20.7'	124°14.2'	S 6°17.9'
21	335°39.9'	138°21.3'	S 7°21.0'	93°23.4'	S 23°54.8'	10°31.3'	S 15°08.6'	26°10.4'	S 19°20.7'	139°15.2'	S 6°18.6'
22	350°42.4'	153°21.5'	S 7°22.0'	108°23.0'	S 23°55.5'	25°33.8'	S 15°08.6'	41°12.8'	S 19°20.7'	154°16.1'	S 6°19.2'
23	5°44.8'	168°21.6'	S 7°22.9'	123°22.6'	S 23°56.1'	40°36.3'	S 15°08.6'	56°15.3'	S 19°20.7'	169°17.0'	S 6°19.9'
		SD 16.0'	d -0.9'	v -0.4'	d -0.7'	v 2.5'	d -0.0'	v 2.5'	d 0.0'	v 0.9'	d -0.6'
Mer. pass.		11 h 46 m 42 s		14 h 46 m		20 h 18 m		19 h 16 m		11 h 44 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Venus	+Rigil Kent	+Sun
0	121°07.2'	S 24°33.8'	4.3'	-5.8'	59.7'	74°57.4'	62°41.0'	50°52.5'	47°09.5'	10°06.7'	15°54.4'		61°49.8'
1	135°30.5'	S 24°39.6'	4.3'	-5.6'	59.7'	74°22.8'	62°05.0'	50°27.4'	46°33.6'	10°40.1'	16°27.3'		62°23.3'
2	149°53.8'	S 24°45.3'	4.2'	-5.5'	59.7'	73°48.3'	61°29.0'	50°02.4'	45°57.7'	11°13.8'	17°00.2'		62°56.8'
3	164°17.0'	S 24°50.7'	4.2'	-5.3'	59.7'	73°13.8'	60°53.0'	49°37.7'	45°21.8'	11°47.7'	17°33.1'		63°30.3'
4	178°40.2'	S 24°56.0'	4.2'	-5.1'	59.7'	72°39.3'	60°17.0'	49°13.1'	44°45.9'	12°21.8'	18°06.0'		64°03.7'
5	193°03.4'	S 25°01.2'	4.1'	-4.9'	59.6'	72°04.8'	59°41.1'	48°48.7'	44°10.1'	12°56.0'	18°38.9'		64°37.1'
6	207°26.5'	S 25°06.1'	4.1'	-4.8'	59.6'	71°30.4'	59°05.2'	48°24.5'	43°34.3'	13°30.3'	19°11.7'		65°10.5'
7	221°49.6'	S 25°10.9'	4.1'	-4.6'	59.6'	70°56.0'	58°29.3'	48°00.6'	42°58.6'	14°04.8'	19°44.6'		65°43.9'
8	236°12.7'	S 25°15.5'	4.1'	-4.4'	59.6'	70°21.7'	57°53.5'	47°36.8'	42°22.8'	14°39.3'	20°17.5'		66°17.3'
9	250°35.8'	S 25°19.9'	4.1'	-4.2'	59.6'	69°47.4'	57°17.6'	47°13.2'	41°47.1'	15°14.0'	20°50.4'		66°50.6'
10	264°58.8'	S 25°24.1'	4.0'	-4.1'	59.6'	69°13.1'	56°41.8'	46°49.8'	41°11.4'	15°48.7'	21°23.2'		67°23.9'
11	279°21.9'	S 25°28.2'	4.0'	-3.9'	59.5'	68°38.8'	56°06.1'	46°26.7'	40°35.8'	16°23.4'	21°56.1'		67°57.2'
12	293°44.9'	S 25°32.1'	4.0'	-3.7'	59.5'	68°04.6'	55°30.3'	46°03.8'	40°00.2'	16°58.2'	22°28.9'		68°30.4'
13	308°07.9'	S 25°35.8'	4.0'	-3.5'	59.5'	67°30.5'	54°54.6'	45°41.1'	39°24.6'	17°33.1'	23°01.7'		69°03.7'
14	322°30.9'	S 25°39.3'	4.0'	-3.3'	59.5'	66°56.3'	54°18.9'	45°18.7'	38°49.0'	18°07.9'	23°34.5'		69°36.9'
15	336°53.9'	S 25°42.7'	4.0'	-3.2'	59.5'	66°22.3'	53°43.3'	44°56.5'	38°13.5'	18°42.8'	24°07.3'		70°10.1'
16	351°16.9'	S 25°45.8'	4.0'	-3.0'	59.4'	65°48.2'	53°07.6'	44°34.5'	37°38.0'	19°17.8'	24°40.1'		70°43.2'
17	5°39.9'	S 25°48.8'	4.0'	-2.8'	59.4'	65°14.2'	52°32.0'	44°12.8'	37°02.6'	19°52.7'	25°12.8'	48°22.6'	71°16.3'
18	20°02.8'	S 25°51.6'	4.0'	-2.6'	59.4'	64°40.2'	51°56.5'	43°51.4'	36°27.2'	20°27.7'	25°45.6'	48°37.8'	71°49.4'
19	34°25.8'	S 25°54.3'	4.0'	-2.4'	59.4'	64°06.3'	51°20.9'	43°30.2'	35°51.8'	21°02.6'	26°18.3'	48°53.3'	72°22.5'
20	48°48.8'	S 25°56.7'	4.0'	-2.3'	59.3'	63°32.4'	50°45.4'	43°09.3'	35°16.4'	21°37.6'	26°51.0'	49°09.0'	72°55.6'
21	63°11.8'	S 25°59.0'	4.0'	-2.1'	59.3'	62°58.6'	50°09.9'	42°48.6'	34°41.1'	22°12.6'	27°23.7'	49°24.9'	73°28.6'
22	77°34.8'	S 26°01.1'	4.0'	-1.9'	59.3'	62°24.8'	49°34.5'	42°28.3'	34°05.8'	22°47.6'	27°56.4'	49°41.1'	74°01.6'
23	91°57.8'	S 26°03.0'	4.0'	-1.7'	59.3'	61°51.0'	48°59.1'	42°08.2'	33°30.5'	23°22.5'	28°29.0'	49°57.5'	74°34.6'
Mer. pass.		16 h 36 m SD 16.3'	phase 26%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'		
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.6'	N 46°01.0'		
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'		
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'		
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°51.2'	N 89°21.1'		
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'		
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'						
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.5'	S 52°42.1'						

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	20°47.3'	183°21.8'	S 7°23.8'	138°22.2'	S 23°56.7'	55°38.8'	S 15°08.6'	71°17.8'	S 19°20.7'	184°18.0'	S 6°20.5'
1	35°49.8'	198°21.9'	S 7°24.8'	153°21.8'	S 23°57.4'	70°41.4'	S 15°08.6'	86°20.2'	S 19°20.7'	199°18.9'	S 6°21.1'
2	50°52.2'	213°22.1'	S 7°25.7'	168°21.4'	S 23°58.0'	85°43.9'	S 15°08.6'	101°22.7'	S 19°20.7'	214°19.9'	S 6°21.8'
3	65°54.7'	228°22.2'	S 7°26.6'	183°21.0'	S 23°58.6'	100°46.4'	S 15°08.7'	116°25.1'	S 19°20.7'	229°20.8'	S 6°22.4'
4	80°57.2'	243°22.4'	S 7°27.6'	198°20.5'	S 23°59.3'	115°48.9'	S 15°08.7'	131°27.6'	S 19°20.7'	244°21.7'	S 6°23.1'
5	95°59.6'	258°22.6'	S 7°28.5'	213°20.1'	S 23°59.9'	130°51.4'	S 15°08.7'	146°30.1'	S 19°20.7'	259°22.7'	S 6°23.7'
6	111°02.1'	273°22.7'	S 7°29.5'	228°19.7'	S 24°00.5'	145°53.9'	S 15°08.7'	161°32.5'	S 19°20.7'	274°23.6'	S 6°24.4'
7	126°04.6'	288°22.9'	S 7°30.4'	243°19.3'	S 24°01.2'	160°56.5'	S 15°08.7'	176°35.0'	S 19°20.7'	289°24.5'	S 6°25.0'
8	141°07.0'	303°23.0'	S 7°31.3'	258°18.9'	S 24°01.8'	175°59.0'	S 15°08.7'	191°37.4'	S 19°20.7'	304°25.5'	S 6°25.7'
9	156°09.5'	318°23.2'	S 7°32.3'	273°18.5'	S 24°02.4'	191°01.5'	S 15°08.7'	206°39.9'	S 19°20.7'	319°26.4'	S 6°26.3'
10	171°12.0'	333°23.3'	S 7°33.2'	288°18.1'	S 24°03.1'	206°04.0'	S 15°08.7'	221°42.4'	S 19°20.7'	334°27.3'	S 6°27.0'
11	186°14.4'	348°23.5'	S 7°34.1'	303°17.7'	S 24°03.7'	221°06.5'	S 15°08.7'	236°44.8'	S 19°20.6'	349°28.3'	S 6°27.6'
12	201°16.9'	3°23.6'	S 7°35.1'	318°17.2'	S 24°04.3'	236°09.0'	S 15°08.8'	251°47.3'	S 19°20.6'	4°29.2'	S 6°28.3'
13	216°19.3'	18°23.8'	S 7°36.0'	333°16.8'	S 24°05.0'	251°11.5'	S 15°08.8'	266°49.7'	S 19°20.6'	19°30.1'	S 6°28.9'
14	231°21.8'	33°23.9'	S 7°37.0'	348°16.4'	S 24°05.6'	266°14.0'	S 15°08.8'	281°52.2'	S 19°20.6'	34°31.1'	S 6°29.6'
15	246°24.3'	48°24.1'	S 7°37.9'	3°16.0'	S 24°06.2'	281°16.6'	S 15°08.8'	296°54.7'	S 19°20.6'	49°32.0'	S 6°30.2'
16	261°26.7'	63°24.3'	S 7°38.8'	18°15.6'	S 24°06.8'	296°19.1'	S 15°08.8'	311°57.1'	S 19°20.6'	64°33.0'	S 6°30.9'
17	276°29.2'	78°24.4'	S 7°39.8'	33°15.2'	S 24°07.5'	311°21.6'	S 15°08.8'	326°59.6'	S 19°20.6'	79°33.9'	S 6°31.5'
18	291°31.7'	93°24.6'	S 7°40.7'	48°14.8'	S 24°08.1'	326°24.1'	S 15°08.8'	342°02.0'	S 19°20.6'	94°34.8'	S 6°32.1'
19	306°34.1'	108°24.7'	S 7°41.6'	63°14.3'	S 24°08.7'	341°26.6'	S 15°08.8'	357°04.5'	S 19°20.6'	109°35.8'	S 6°32.8'
20	321°36.6'	123°24.9'	S 7°42.6'	78°13.9'	S 24°09.3'	356°29.1'	S 15°08.8'	12°06.9'	S 19°20.6'	124°36.7'	S 6°33.4'
21	336°39.1'	138°25.0'	S 7°43.5'	93°13.5'	S 24°09.9'	11°31.6'	S 15°08.9'	27°09.4'	S 19°20.6'	139°37.6'	S 6°34.1'
22	351°41.5'	153°25.2'	S 7°44.4'	108°13.1'	S 24°10.5'	26°34.1'	S 15°08.9'	42°11.9'	S 19°20.6'	154°38.6'	S 6°34.7'
23	6°44.0'	168°25.3'	S 7°45.4'	123°12.7'	S 24°11.2'	41°36.6'	S 15°08.9'	57°14.3'	S 19°20.6'	169°39.5'	S 6°35.4'
		SD 16.0'	d -0.9'	v -0.4'	d -0.6'	v 2.5'	d -0.0'	v 2.5'	d 0.0'	v 0.9'	d -0.6'
Mer. pass.		11 h 46 m 27 s		14 h 47 m		20 h 14 m		19 h 12 m		11 h 42 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Venus	+Rigel Kent	+Sun
0	106°20.8'	S 26°04.7'	4.0'	-1.5'	59.3'	61°17.3'	48°23.7'	41°48.4'	32°55.3'	23°57.5'	29°01.6'	50°14.2'	75°07.5'
1	120°43.8'	S 26°06.2'	4.0'	-1.4'	59.2'	60°43.7'	47°48.3'	41°28.9'	32°20.1'	24°32.5'	29°34.2'	50°31.1'	75°40.4'
2	135°06.8'	S 26°07.6'	4.0'	-1.2'	59.2'	60°10.0'	47°13.0'	41°09.7'	31°45.0'	25°07.5'	30°06.8'	50°48.1'	76°13.3'
3	149°29.9'	S 26°08.8'	4.1'	-1.0'	59.2'	59°36.5'	46°37.7'	40°50.9'	31°09.9'	25°42.4'	30°39.4'	51°05.5'	76°46.2'
4	163°52.9'	S 26°09.8'	4.1'	-0.8'	59.2'	59°03.0'	46°02.4'	40°32.3'	30°34.8'	26°17.4'	31°11.9'	51°23.0'	77°19.0'
5	178°16.0'	S 26°10.6'	4.1'	-0.7'	59.1'	58°29.5'	45°27.2'	40°14.1'	29°59.8'	26°52.3'	31°44.4'	51°40.7'	77°51.8'
6	192°39.1'	S 26°11.3'	4.1'	-0.5'	59.1'	57°56.1'	44°52.0'	39°56.2'	29°24.8'	27°27.3'	32°16.9'	51°58.6'	78°24.6'
7	207°02.3'	S 26°11.8'	4.2'	-0.3'	59.1'	57°22.7'	44°16.8'	39°38.7'	28°49.8'	28°02.2'	32°49.3'	52°16.7'	78°57.4'
8	221°25.4'	S 26°12.0'	4.2'	-0.1'	59.1'	56°49.4'	43°41.6'	39°21.5'	28°14.9'	28°37.1'	33°21.8'	52°35.0'	79°30.1'
9	235°48.6'	S 26°12.2'	4.2'	0.1'	59.1'	56°16.1'	43°06.5'	39°04.6'	27°40.1'	29°12.0'	33°54.2'	52°53.5'	80°02.8'
10	250°11.8'	S 26°12.1'	4.3'	0.2'	59.0'	55°42.9'	42°31.4'	38°48.1'	27°05.2'	29°46.8'	34°26.6'	53°12.2'	80°35.4'
11	264°35.1'	S 26°11.9'	4.3'	0.4'	59.0'	55°09.7'	41°56.4'	38°32.0'	26°30.4'	30°21.7'	34°59.0'	53°31.0'	81°08.1'
12	278°58.4'	S 26°11.4'	4.3'	0.6'	59.0'	54°36.6'	41°21.4'	38°16.2'	25°55.7'	30°56.5'	35°31.3'	53°50.1'	81°40.7'
13	293°21.7'	S 26°10.9'	4.4'	0.8'	59.0'	54°03.6'	40°46.4'		25°21.0'	31°31.4'	36°03.6'	54°09.3'	82°13.3'
14	307°45.1'	S 26°10.1'	4.4'	0.9'	58.9'	53°30.6'	40°11.5'		24°46.4'	32°06.2'	36°35.9'	54°28.6'	82°45.8'
15	322°08.5'	S 26°09.1'	4.5'	1.1'	58.9'	52°57.6'	39°36.5'		24°11.8'	32°41.0'	37°08.2'	54°48.1'	83°18.4'
16	336°31.9'	S 26°08.0'	4.5'	1.3'	58.9'	52°24.8'	39°01.7'		23°37.2'	33°15.7'	37°40.4'	55°07.8'	83°50.9'
17	350°55.4'	S 26°06.7'	4.5'	1.5'	58.9'	51°52.0'	38°26.8'		23°02.7'	33°50.5'	38°12.6'	55°27.6'	84°23.4'
18	5°19.0'	S 26°05.3'	4.6'	1.6'	58.8'	51°19.2'	37°52.0'		22°28.3'	34°25.2'	38°44.8'	55°47.6'	84°55.8'
19	19°42.6'	S 26°03.6'	4.6'	1.8'	58.8'	50°46.5'	37°17.2'		21°53.9'	34°59.9'	39°17.0'	56°07.8'	85°28.2'
20	34°06.2'	S 26°01.8'	4.7'	2.0'	58.8'	50°13.9'	36°42.5'		21°19.5'	35°34.6'	39°49.1'	56°28.0'	86°00.6'
21	48°29.9'	S 25°59.8'	4.8'	2.1'	58.8'	49°41.3'	36°07.8'		20°45.3'	36°09.3'	40°21.2'	56°48.4'	86°33.0'
22	62°53.7'	S 25°57.7'	4.8'	2.3'	58.8'	49°08.8'	35°33.1'		20°11.0'	36°43.9'	40°53.3'	57°09.0'	87°05.3'
23	77°17.5'	S 25°55.4'	4.9'	2.5'	58.7'	48°36.4'	34°58.5'		19°36.9'	37°18.5'	41°25.4'	57°29.7'	87°37.6'
Mer. pass.		17 h 38 m SD 16.2'		phase 37%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°50.8'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	21°46.4'	183°25.5'	S 7°46.3'	138°12.3'	S 24°11.8'	56°39.2'	S 15°08.9'	72°16.8'	S 19°20.6'	184°40.4'	S 6°36.0'
1	36°48.9'	198°25.6'	S 7°47.2'	153°11.9'	S 24°12.4'	71°41.7'	S 15°08.9'	87°19.2'	S 19°20.6'	199°41.4'	S 6°36.7'
2	51°51.4'	213°25.8'	S 7°48.2'	168°11.4'	S 24°13.0'	86°44.2'	S 15°08.9'	102°21.7'	S 19°20.6'	214°42.3'	S 6°37.3'
3	66°53.8'	228°25.9'	S 7°49.1'	183°11.0'	S 24°13.6'	101°46.7'	S 15°08.9'	117°24.1'	S 19°20.6'	229°43.2'	S 6°38.0'
4	81°56.3'	243°26.1'	S 7°50.0'	198°10.6'	S 24°14.2'	116°49.2'	S 15°08.9'	132°26.6'	S 19°20.6'	244°44.2'	S 6°38.6'
5	96°58.8'	258°26.2'	S 7°51.0'	213°10.2'	S 24°14.8'	131°51.7'	S 15°08.9'	147°29.0'	S 19°20.6'	259°45.1'	S 6°39.2'
6	112°01.2'	273°26.4'	S 7°51.9'	228°09.8'	S 24°15.5'	146°54.2'	S 15°08.9'	162°31.5'	S 19°20.6'	274°46.0'	S 6°39.9'
7	127°03.7'	288°26.5'	S 7°52.8'	243°09.4'	S 24°16.1'	161°56.7'	S 15°08.9'	177°34.0'	S 19°20.6'	289°47.0'	S 6°40.5'
8	142°06.2'	303°26.7'	S 7°53.8'	258°09.0'	S 24°16.7'	176°59.2'	S 15°09.0'	192°36.4'	S 19°20.6'	304°47.9'	S 6°41.2'
9	157°08.6'	318°26.8'	S 7°54.7'	273°08.5'	S 24°17.3'	192°01.7'	S 15°09.0'	207°38.9'	S 19°20.6'	319°48.8'	S 6°41.8'
10	172°11.1'	333°27.0'	S 7°55.6'	288°08.1'	S 24°17.9'	207°04.2'	S 15°09.0'	222°41.3'	S 19°20.6'	334°49.8'	S 6°42.5'
11	187°13.6'	348°27.1'	S 7°56.6'	303°07.7'	S 24°18.5'	222°06.7'	S 15°09.0'	237°43.8'	S 19°20.6'	349°50.7'	S 6°43.1'
12	202°16.0'	3°27.3'	S 7°57.5'	318°07.3'	S 24°19.1'	237°09.2'	S 15°09.0'	252°46.2'	S 19°20.6'	4°51.6'	S 6°43.8'
13	217°18.5'	18°27.4'	S 7°58.4'	333°06.9'	S 24°19.7'	252°11.7'	S 15°09.0'	267°48.7'	S 19°20.6'	19°52.6'	S 6°44.4'
14	232°20.9'	33°27.6'	S 7°59.4'	348°06.5'	S 24°20.3'	267°14.2'	S 15°09.0'	282°51.1'	S 19°20.6'	34°53.5'	S 6°45.1'
15	247°23.4'	48°27.7'	S 8°00.3'	3°06.1'	S 24°20.9'	282°16.7'	S 15°09.0'	297°53.6'	S 19°20.6'	49°54.4'	S 6°45.7'
16	262°25.9'	63°27.9'	S 8°01.2'	18°05.6'	S 24°21.5'	297°19.2'	S 15°09.0'	312°56.0'	S 19°20.6'	64°55.3'	S 6°46.3'
17	277°28.3'	78°28.0'	S 8°02.2'	33°05.2'	S 24°22.1'	312°21.8'	S 15°09.0'	327°58.5'	S 19°20.6'	79°56.3'	S 6°47.0'
18	292°30.8'	93°28.2'	S 8°03.1'	48°04.8'	S 24°22.7'	327°24.3'	S 15°09.0'	343°00.9'	S 19°20.6'	94°57.2'	S 6°47.6'
19	307°33.3'	108°28.3'	S 8°04.0'	63°04.4'	S 24°23.3'	342°26.8'	S 15°09.0'	358°03.4'	S 19°20.6'	109°58.1'	S 6°48.3'
20	322°35.7'	123°28.5'	S 8°05.0'	78°04.0'	S 24°23.9'	357°29.3'	S 15°09.0'	13°05.8'	S 19°20.6'	124°59.1'	S 6°48.9'
21	337°38.2'	138°28.6'	S 8°05.9'	93°03.6'	S 24°24.5'	12°31.8'	S 15°09.1'	28°08.3'	S 19°20.6'	140°00.0'	S 6°49.6'
22	352°40.7'	153°28.7'	S 8°06.8'	108°03.2'	S 24°25.1'	27°34.3'	S 15°09.1'	43°10.8'	S 19°20.6'	155°00.9'	S 6°50.2'
23	7°43.1'	168°28.9'	S 8°07.7'	123°02.7'	S 24°25.7'	42°36.8'	S 15°09.1'	58°13.2'	S 19°20.6'	170°01.9'	S 6°50.9'
		SD 16.0'	d -0.9'	v -0.4'	d -0.6'	v 2.5'	d -0.0'	v 2.5'	d 0.0'	v 0.9'	d -0.6'
Mer. pass.		11 h 46 m 12 s		14 h 48 m		20 h 10 m		19 h 8 m		11 h 41 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Venus	+Rigel Kent	+Sun
0	91°41.3'	S 25°52.9'	4.9'	2.7'	58.7'	70°51.7'	48°04.0'	34°23.9'	19°02.8'	37°53.1'	41°57.4'	57°50.5'	88°09.9'
1	106°05.3'	S 25°50.2'	5.0'	2.8'	58.7'	70°34.0'	47°31.7'	33°49.3'	18°28.8'	38°27.7'	42°29.4'	58°11.4'	88°42.1'
2	120°29.2'	S 25°47.4'	5.0'	3.0'	58.7'	70°16.4'	46°59.5'	33°14.8'	17°54.9'	39°02.2'	43°01.4'	58°32.4'	89°14.3'
3	134°53.3'	S 25°44.4'	5.1'	3.2'	58.6'	69°58.9'	46°27.3'	32°40.3'	17°21.0'	39°36.8'	43°33.3'	58°53.6'	89°46.5'
4	149°17.4'	S 25°41.3'	5.2'	3.3'	58.6'	69°41.5'	45°55.3'	32°05.8'	16°47.2'	40°11.3'	44°05.3'	59°14.9'	90°18.7'
5	163°41.6'	S 25°37.9'	5.2'	3.5'	58.6'	69°24.3'	45°23.3'	31°31.4'	16°13.6'	40°45.7'	44°37.2'	59°36.3'	90°50.8'
6	178°05.8'	S 25°34.5'	5.3'	3.6'	58.6'	69°07.1'	44°51.3'	30°57.1'	15°40.0'	41°20.2'	45°09.0'	59°57.8'	91°22.9'
7	192°30.2'	S 25°30.8'	5.4'	3.8'	58.5'	68°50.0'	44°19.5'	30°22.7'	15°06.5'	41°54.6'	45°40.9'	60°19.4'	91°55.0'
8	206°54.5'	S 25°27.0'	5.5'	4.0'	58.5'	68°33.1'	43°47.7'	29°48.4'	14°33.1'	42°29.0'	46°12.7'	60°41.1'	92°27.1'
9	221°19.0'	S 25°23.1'	5.5'	4.1'	58.5'	68°16.3'	43°16.1'	29°14.2'	13°59.9'	43°03.4'	46°44.5'	61°02.9'	92°59.1'
10	235°43.5'	S 25°18.9'	5.6'	4.3'	58.5'	67°59.6'	42°44.5'	28°40.0'	13°26.8'	43°37.8'	47°16.3'	61°24.8'	93°31.1'
11	250°08.1'	S 25°14.6'	5.7'	4.4'	58.4'	67°43.0'	42°13.0'	28°05.8'	12°53.8'	44°12.1'	47°48.0'	61°46.8'	94°03.0'
12	264°32.8'	S 25°10.2'	5.8'	4.6'	58.4'	67°26.6'	41°41.6'	27°31.6'	12°21.0'	44°46.4'	48°19.7'	62°08.9'	94°35.0'
13	278°57.6'	S 25°05.6'	5.8'	4.7'	58.4'	67°10.2'	41°10.2'	26°57.6'	11°48.4'	45°20.7'	48°51.4'	62°31.1'	95°06.9'
14	293°22.4'	S 25°00.9'	5.9'	4.9'	58.4'	66°54.0'	40°39.0'	26°23.5'	11°16.0'	45°54.9'	49°23.1'	62°53.4'	95°38.8'
15	307°47.4'	S 24°56.0'	6.0'	5.1'	58.3'	66°38.0'	40°07.9'	25°49.5'	10°43.8'	46°29.2'	49°54.7'	63°15.7'	96°10.6'
16	322°12.4'	S 24°50.9'	6.1'	5.2'	58.3'	66°22.0'	39°36.8'	25°15.6'	10°11.9'	47°03.4'	50°26.3'	63°38.1'	96°42.4'
17	336°37.4'	S 24°45.7'	6.2'	5.4'	58.3'	66°06.2'	39°05.9'	24°41.7'	9°40.3'	47°37.6'	50°57.9'	64°00.6'	97°14.2'
18	351°02.6'	S 24°40.3'	6.3'	5.5'	58.3'	65°50.5'	38°35.1'	24°07.8'	9°09.0'	48°11.7'	51°29.4'	64°23.2'	97°46.0'
19	5°27.9'	S 24°34.8'	6.3'	5.7'	58.2'	65°35.0'	38°04.4'	23°34.0'	8°38.2'	48°45.8'	52°00.9'	64°45.9'	98°17.7'
20	19°53.2'	S 24°29.2'	6.4'	5.8'	58.2'	65°19.6'	37°33.8'	23°00.2'	8°07.8'	49°19.9'	52°32.4'	65°08.6'	98°49.4'
21	34°18.6'	S 24°23.4'	6.5'	5.9'	58.2'	65°04.3'	37°03.3'	22°26.5'	7°37.9'	49°54.0'	53°03.9'	65°31.4'	99°21.1'
22	48°44.2'	S 24°17.4'	6.6'	6.1'	58.2'		36°32.9'	21°52.9'		50°28.1'	53°35.4'	65°54.3'	99°52.8'
23	63°09.8'	S 24°11.4'	6.7'	6.2'	58.1'		36°02.7'	21°19.3'		51°02.1'	54°06.8'	66°17.2'	100°24.4'
Mer. pass.		18 h 37 m SD 16.0'	phase 48%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.9'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°50.5'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	22°45.6'	183°29.0'	S 8°08.7'	138°02.3'	S 24°26.3'	57°39.3'	S 15°09.1'	73°15.7'	S 19°20.6'	185°02.8'	S 6°51.5'
1	37°48.1'	198°29.2'	S 8°09.6'	153°01.9'	S 24°26.9'	72°41.8'	S 15°09.1'	88°18.1'	S 19°20.6'	200°03.7'	S 6°52.1'
2	52°50.5'	213°29.3'	S 8°10.5'	168°01.5'	S 24°27.4'	87°44.3'	S 15°09.1'	103°20.6'	S 19°20.6'	215°04.7'	S 6°52.8'
3	67°53.0'	228°29.5'	S 8°11.5'	183°01.1'	S 24°28.0'	102°46.8'	S 15°09.1'	118°23.0'	S 19°20.6'	230°05.6'	S 6°53.4'
4	82°55.4'	243°29.6'	S 8°12.4'	198°00.7'	S 24°28.6'	117°49.3'	S 15°09.1'	133°25.5'	S 19°20.5'	245°06.5'	S 6°54.1'
5	97°57.9'	258°29.8'	S 8°13.3'	213°00.3'	S 24°29.2'	132°51.8'	S 15°09.1'	148°27.9'	S 19°20.5'	260°07.4'	S 6°54.7'
6	113°00.4'	273°29.9'	S 8°14.3'	227°59.8'	S 24°29.8'	147°54.3'	S 15°09.1'	163°30.4'	S 19°20.5'	275°08.4'	S 6°55.4'
7	128°02.8'	288°30.1'	S 8°15.2'	242°59.4'	S 24°30.4'	162°56.8'	S 15°09.1'	178°32.8'	S 19°20.5'	290°09.3'	S 6°56.0'
8	143°05.3'	303°30.2'	S 8°16.1'	257°59.0'	S 24°31.0'	177°59.3'	S 15°09.1'	193°35.3'	S 19°20.5'	305°10.2'	S 6°56.7'
9	158°07.8'	318°30.3'	S 8°17.0'	272°58.6'	S 24°31.5'	193°01.8'	S 15°09.1'	208°37.7'	S 19°20.5'	320°11.2'	S 6°57.3'
10	173°10.2'	333°30.5'	S 8°18.0'	287°58.2'	S 24°32.1'	208°04.3'	S 15°09.1'	223°40.2'	S 19°20.5'	335°12.1'	S 6°57.9'
11	188°12.7'	348°30.6'	S 8°18.9'	302°57.8'	S 24°32.7'	223°06.7'	S 15°09.1'	238°42.6'	S 19°20.5'	350°13.0'	S 6°58.6'
12	203°15.2'	3°30.8'	S 8°19.8'	317°57.3'	S 24°33.3'	238°09.2'	S 15°09.1'	253°45.1'	S 19°20.5'	5°14.0'	S 6°59.2'
13	218°17.6'	18°30.9'	S 8°20.7'	332°56.9'	S 24°33.9'	253°11.7'	S 15°09.2'	268°47.5'	S 19°20.5'	20°14.9'	S 6°59.9'
14	233°20.1'	33°31.1'	S 8°21.7'	347°56.5'	S 24°34.4'	268°14.2'	S 15°09.2'	283°50.0'	S 19°20.5'	35°15.8'	S 7°00.5'
15	248°22.6'	48°31.2'	S 8°22.6'	2°56.1'	S 24°35.0'	283°16.7'	S 15°09.2'	298°52.4'	S 19°20.5'	50°16.7'	S 7°01.2'
16	263°25.0'	63°31.3'	S 8°23.5'	17°55.7'	S 24°35.6'	298°19.2'	S 15°09.2'	313°54.9'	S 19°20.5'	65°17.7'	S 7°01.8'
17	278°27.5'	78°31.5'	S 8°24.5'	32°55.3'	S 24°36.2'	313°21.7'	S 15°09.2'	328°57.3'	S 19°20.5'	80°18.6'	S 7°02.5'
18	293°29.9'	93°31.6'	S 8°25.4'	47°54.9'	S 24°36.7'	328°24.2'	S 15°09.2'	343°59.8'	S 19°20.5'	95°19.5'	S 7°03.1'
19	308°32.4'	108°31.8'	S 8°26.3'	62°54.4'	S 24°37.3'	343°26.7'	S 15°09.2'	359°02.2'	S 19°20.5'	110°20.5'	S 7°03.7'
20	323°34.9'	123°31.9'	S 8°27.2'	77°54.0'	S 24°37.9'	358°29.2'	S 15°09.2'	14°04.7'	S 19°20.5'	125°21.4'	S 7°04.4'
21	338°37.3'	138°32.1'	S 8°28.2'	92°53.6'	S 24°38.5'	13°31.7'	S 15°09.2'	29°07.1'	S 19°20.5'	140°22.3'	S 7°05.0'
22	353°39.8'	153°32.2'	S 8°29.1'	107°53.2'	S 24°39.0'	28°34.2'	S 15°09.2'	44°09.5'	S 19°20.5'	155°23.2'	S 7°05.7'
23	8°42.3'	168°32.3'	S 8°30.0'	122°52.8'	S 24°39.6'	43°36.7'	S 15°09.2'	59°12.0'	S 19°20.5'	170°24.2'	S 7°06.3'
		SD 16.0'	<i>d</i> -0.9'	<i>v</i> -0.4'	<i>d</i> -0.6'	<i>v</i> 2.5'	<i>d</i> -0.0'	<i>v</i> 2.4'	<i>d</i> 0.0'	<i>v</i> 0.9'	<i>d</i> -0.6'
Mer. pass.		11 h 45 m 58 s		14 h 48 m		20 h 6 m		19 h 4 m		11 h 39 m	

h	Moon				Lunar distance									
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Rigel	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Venus	+Rigel Kent	+Sun	
0	77°35.4'	S 24°05.1'	6.8'	6.4'	58.1'			35°32.6'	20°45.7'		51°36.1'	54°38.2'	66°40.2'	100°56.0'
1	92°01.2'	S 23°58.8'	6.9'	6.5'	58.1'			35°02.6'	20°12.3'		52°10.1'	55°09.5'	67°03.3'	101°27.6'
2	106°27.1'	S 23°52.2'	7.0'	6.6'	58.1'			34°32.7'	19°38.9'		52°44.0'	55°40.9'	67°26.4'	101°59.1'
3	120°53.1'	S 23°45.6'	7.1'	6.8'	58.0'			34°03.0'	19°05.5'		53°18.0'	56°12.2'	67°49.6'	102°30.6'
4	135°19.1'	S 23°38.8'	7.1'	6.9'	58.0'			33°33.4'	18°32.2'		53°51.9'	56°43.5'	68°12.8'	103°02.1'
5	149°45.3'	S 23°31.9'	7.2'	7.1'	58.0'			33°04.0'	17°59.1'		54°25.7'	57°14.7'	68°36.1'	103°33.6'
6	164°11.5'	S 23°24.8'	7.3'	7.2'	58.0'			32°34.7'	17°25.9'		54°59.6'	57°46.0'	68°59.4'	104°05.0'
7	178°37.9'	S 23°17.6'	7.4'	7.3'	57.9'			32°05.6'	16°52.9'		55°33.4'	58°17.2'	69°22.8'	104°36.4'
8	193°04.3'	S 23°10.3'	7.5'	7.5'	57.9'			31°36.7'	16°19.9'		56°07.2'	58°48.3'	69°46.3'	105°07.8'
9	207°30.8'	S 23°02.9'	7.6'	7.6'	57.9'			31°07.9'	15°47.1'		56°41.0'	59°19.5'	70°09.7'	105°39.1'
10	221°57.4'	S 22°55.3'	7.7'	7.7'	57.9'			30°39.3'	15°14.3'		57°14.7'	59°50.6'	70°33.2'	106°10.5'
11	236°24.2'	S 22°47.6'	7.8'	7.8'	57.9'	119°41.0'		30°10.9'	14°41.7'		57°48.4'	60°21.7'	70°56.8'	106°41.8'
12	250°51.0'	S 22°39.7'	7.9'	8.0'	57.8'	119°14.3'		29°42.7'	14°09.2'		58°22.1'	60°52.8'	71°20.4'	107°13.0'
13	265°17.9'	S 22°31.8'	8.0'	8.1'	57.8'	118°47.5'		29°14.7'	13°36.8'		58°55.8'	61°23.9'	71°44.0'	107°44.3'
14	279°44.9'	S 22°23.7'	8.1'	8.2'	57.8'	118°20.8'		28°46.9'	13°04.5'		59°29.4'	61°54.9'	72°07.7'	108°15.5'
15	294°12.0'	S 22°15.5'	8.2'	8.3'	57.8'	117°53.9'		28°19.4'	12°32.5'		60°03.1'	62°25.9'	72°31.4'	108°46.7'
16	308°39.2'	S 22°07.2'	8.3'	8.4'	57.7'	117°27.0'		27°52.0'	12°00.5'		60°36.6'	62°56.8'	72°55.2'	109°17.8'
17	323°06.5'	S 21°58.7'	8.4'	8.6'	57.7'	117°00.1'		27°24.9'	11°28.8'		61°10.2'	63°27.8'	73°19.0'	109°49.0'
18	337°33.9'	S 21°50.2'	8.5'	8.7'	57.7'	116°33.2'		26°58.1'	10°57.3'		61°43.8'	63°58.7'	73°42.8'	110°20.1'
19	352°01.4'	S 21°41.5'	8.6'	8.8'	57.7'	116°06.2'		26°31.5'	10°26.1'	6°58.5'	62°17.3'	64°29.6'	74°06.6'	110°51.2'
20	6°29.0'	S 21°32.7'	8.7'	8.9'	57.6'	115°39.2'		26°05.1'	9°55.1'	7°26.9'	62°50.8'	65°00.5'	74°30.5'	111°22.2'
21	20°56.7'	S 21°23.8'	8.8'	9.0'	57.6'	115°12.1'		25°39.1'	9°24.5'	7°55.9'	63°24.2'	65°31.3'	74°54.4'	111°53.2'
22	35°24.5'	S 21°14.8'	8.9'	9.1'	57.6'	114°45.0'		25°13.3'	8°54.2'	8°25.5'	63°57.7'	66°02.1'	75°18.3'	112°24.2'
23	49°52.4'	S 21°05.6'	9.0'	9.2'	57.6'	114°17.9'		24°47.9'	8°24.3'	8°55.5'	64°31.1'	66°32.9'	75°42.2'	112°55.2'
Mer. pass.		19 h 33 m SD 15.8'	phase 59%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.3'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°50.2'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars				
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec			
0	23°44.7'	S 8°30.9'	183°32.5'	S 8°30.9'	137°52.4'	S 24°40.2'	58°39.2'	S 15°09.2'	74°14.4'	S 19°20.5'	185°25.1'	S 7°07.0'			
1	38°47.2'	S 8°31.9'	198°32.6'	S 8°31.9'	152°52.0'	S 24°40.7'	73°41.7'	S 15°09.2'	89°16.9'	S 19°20.5'	200°26.0'	S 7°07.6'			
2	53°49.7'	S 8°32.8'	213°32.8'	S 8°32.8'	167°51.5'	S 24°41.3'	88°44.2'	S 15°09.2'	104°19.3'	S 19°20.5'	215°27.0'	S 7°08.2'			
3	68°52.1'	S 8°33.7'	228°32.9'	S 8°33.7'	182°51.1'	S 24°41.9'	103°46.7'	S 15°09.2'	119°21.8'	S 19°20.5'	230°27.9'	S 7°08.9'			
4	83°54.6'	S 8°34.6'	243°33.0'	S 8°34.6'	197°50.7'	S 24°42.4'	118°49.1'	S 15°09.2'	134°24.2'	S 19°20.5'	245°28.8'	S 7°09.5'			
5	98°57.0'	S 8°35.5'	258°33.2'	S 8°35.5'	212°50.3'	S 24°43.0'	133°51.6'	S 15°09.2'	149°26.7'	S 19°20.4'	260°29.7'	S 7°10.2'			
6	113°59.5'	S 8°36.5'	273°33.3'	S 8°36.5'	227°49.9'	S 24°43.6'	148°54.1'	S 15°09.2'	164°29.1'	S 19°20.4'	275°30.7'	S 7°10.8'			
7	129°02.0'	S 8°37.4'	288°33.5'	S 8°37.4'	242°49.5'	S 24°44.1'	163°56.6'	S 15°09.2'	179°31.6'	S 19°20.4'	290°31.6'	S 7°11.4'			
8	144°04.4'	S 8°38.3'	303°33.6'	S 8°38.3'	257°49.0'	S 24°44.7'	178°59.1'	S 15°09.2'	194°34.0'	S 19°20.4'	305°32.5'	S 7°12.1'			
9	159°06.9'	S 8°39.2'	318°33.7'	S 8°39.2'	272°48.6'	S 24°45.2'	194°01.6'	S 15°09.2'	209°36.5'	S 19°20.4'	320°33.4'	S 7°12.7'			
10	174°09.4'	S 8°40.2'	333°33.9'	S 8°40.2'	287°48.2'	S 24°45.8'	209°04.1'	S 15°09.2'	224°38.9'	S 19°20.4'	335°34.4'	S 7°13.4'			
11	189°11.8'	S 8°41.1'	348°34.0'	S 8°41.1'	302°47.8'	S 24°46.4'	224°06.6'	S 15°09.2'	239°41.4'	S 19°20.4'	350°35.3'	S 7°14.0'			
12	204°14.3'	S 8°42.0'	3°34.2'	S 8°42.0'	317°47.4'	S 24°46.9'	239°09.1'	S 15°09.2'	254°43.8'	S 19°20.4'	5°36.2'	S 7°14.7'			
13	219°16.8'	S 8°42.9'	18°34.3'	S 8°42.9'	332°47.0'	S 24°47.5'	254°11.6'	S 15°09.2'	269°46.2'	S 19°20.4'	20°37.1'	S 7°15.3'			
14	234°19.2'	S 8°43.9'	33°34.4'	S 8°43.9'	347°46.6'	S 24°48.0'	269°14.0'	S 15°09.2'	284°48.7'	S 19°20.4'	35°38.1'	S 7°15.9'			
15	249°21.7'	S 8°44.8'	48°34.6'	S 8°44.8'	2°46.1'	S 24°48.6'	284°16.5'	S 15°09.2'	299°51.1'	S 19°20.4'	50°39.0'	S 7°16.6'			
16	264°24.2'	S 8°45.7'	63°34.7'	S 8°45.7'	17°45.7'	S 24°49.1'	299°19.0'	S 15°09.2'	314°53.6'	S 19°20.4'	65°39.9'	S 7°17.2'			
17	279°26.6'	S 8°46.6'	78°34.8'	S 8°46.6'	32°45.3'	S 24°49.7'	314°21.5'	S 15°09.2'	329°56.0'	S 19°20.4'	80°40.9'	S 7°17.9'			
18	294°29.1'	S 8°47.5'	93°35.0'	S 8°47.5'	47°44.9'	S 24°50.2'	329°24.0'	S 15°09.3'	344°58.5'	S 19°20.4'	95°41.8'	S 7°18.5'			
19	309°31.5'	S 8°48.5'	108°35.1'	S 8°48.5'	62°44.5'	S 24°50.8'	344°26.5'	S 15°09.3'	0°00.9'	S 19°20.4'	110°42.7'	S 7°19.2'			
20	324°34.0'	S 8°49.4'	123°35.2'	S 8°49.4'	77°44.1'	S 24°51.3'	359°29.0'	S 15°09.3'	15°03.4'	S 19°20.4'	125°43.6'	S 7°19.8'			
21	339°36.5'	S 8°50.3'	138°35.4'	S 8°50.3'	92°43.7'	S 24°51.9'	14°31.4'	S 15°09.3'	30°05.8'	S 19°20.4'	140°44.6'	S 7°20.4'			
22	354°38.9'	S 8°51.2'	153°35.5'	S 8°51.2'	107°43.2'	S 24°52.4'	29°33.9'	S 15°09.3'	45°08.2'	S 19°20.4'	155°45.5'	S 7°21.1'			
23	9°41.4'	S 8°52.1'	168°35.7'	S 8°52.1'	122°42.8'	S 24°53.0'	44°36.4'	S 15°09.3'	60°10.7'	S 19°20.4'	170°46.4'	S 7°21.7'			
		SD 16.0'	d -0.9'		v -0.4'	d -0.6'		v 2.5'	d -0.0'		v 2.4'	d 0.0'		v 0.9'	d -0.6'
Mer. pass.		11 h 45 m 45 s			14 h 49 m			20 h 2 m			19 h 0 m			11 h 38 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Sun
0	64°20.4'	S 20°56.4'	9.1'	9.3'	57.5'	113°58.5'	113°50.7'	24°22.8'	7°55.0'	9°25.8'		65°04.5'	113°26.2'
1	78°48.4'	S 20°47.0'	9.2'	9.5'	57.5'	113°25.3'	113°23.5'	23°58.0'	7°26.3'	9°56.5'		65°37.8'	113°57.1'
2	93°16.6'	S 20°37.6'	9.3'	9.6'	57.5'	112°52.1'	112°56.3'	23°33.6'		10°27.4'		66°11.2'	114°28.0'
3	107°44.9'	S 20°28.0'	9.4'	9.7'	57.5'	112°18.9'	112°29.1'	23°09.5'		10°58.6'		66°44.5'	114°58.9'
4	122°13.3'	S 20°18.4'	9.5'	9.8'	57.4'	111°45.7'	112°01.8'	22°45.8'		11°29.9'		67°17.8'	115°29.7'
5	136°41.8'	S 20°08.6'	9.6'	9.9'	57.4'	111°12.6'	111°34.5'	22°22.6'		12°01.4'		67°51.0'	116°00.5'
6	151°10.3'	S 19°58.7'	9.7'	10.0'	57.4'	110°39.5'	111°07.2'	21°59.8'		12°33.0'		68°24.3'	116°31.3'
7	165°39.0'	S 19°48.8'	9.8'	10.1'	57.4'	110°06.4'	110°39.9'	21°37.4'		13°04.7'		68°57.5'	117°02.1'
8	180°07.8'	S 19°38.7'	9.9'	10.2'	57.3'	109°33.4'	110°12.6'	21°15.5'		13°36.6'	38°21.5'	69°30.7'	117°32.8'
9	194°36.6'	S 19°28.5'	10.0'	10.3'	57.3'	109°00.3'	109°45.2'	20°54.1'		14°08.5'	38°36.5'	70°03.9'	118°03.5'
10	209°05.6'	S 19°18.3'	10.1'	10.4'	57.3'	108°27.3'	109°17.8'	20°33.2'		14°40.5'	38°51.9'	70°37.0'	118°34.2'
11	223°34.6'	S 19°07.9'	10.1'	10.4'	57.3'	107°54.3'	108°50.4'	20°12.8'		15°12.5'	39°07.5'	71°10.1'	119°04.9'
12	238°03.8'	S 18°57.5'	10.2'	10.5'	57.3'	107°21.3'	108°23.0'	19°53.0'		15°44.6'	39°23.4'	71°43.2'	119°35.5'
13	252°33.0'	S 18°46.9'	10.3'	10.6'	57.2'	106°48.4'	107°55.6'	19°33.8'		16°16.7'	39°39.6'	72°16.3'	
14	267°02.4'	S 18°36.3'	10.4'	10.7'	57.2'	106°15.5'	107°28.2'	19°15.2'		16°48.9'	39°56.1'	72°49.3'	
15	281°31.8'	S 18°25.6'	10.5'	10.8'	57.2'	105°42.6'	107°00.8'	18°57.3'		17°21.1'	40°12.8'	73°22.4'	
16	296°01.3'	S 18°14.8'	10.6'	10.9'	57.2'	105°09.7'	106°33.3'	18°40.1'		17°53.4'	40°29.8'	73°55.4'	
17	310°30.9'	S 18°03.9'	10.7'	11.0'	57.1'	104°36.8'	106°05.8'	18°23.5'		18°25.6'	40°47.1'	74°28.3'	
18	325°00.7'	S 17°52.9'	10.8'	11.1'	57.1'	104°04.0'	105°38.4'	18°07.7'		18°57.9'	41°04.6'	75°01.3'	
19	339°30.5'	S 17°41.9'	10.9'	11.1'	57.1'	103°31.2'	105°10.9'			19°30.2'	41°22.4'	75°34.2'	
20	354°00.4'	S 17°30.8'	11.0'	11.2'	57.1'	102°58.4'	104°43.4'			20°02.5'	41°40.4'	76°07.1'	
21	8°30.3'	S 17°19.5'	11.1'	11.3'	57.0'	102°25.7'	104°15.9'			20°34.8'	41°58.7'	76°40.0'	
22	23°00.4'	S 17°08.3'	11.2'	11.4'	57.0'	101°52.9'	103°48.4'			21°07.1'	42°17.2'	77°12.8'	
23	37°30.6'	S 16°56.9'	11.3'	11.4'	57.0'	101°20.2'	103°20.9'		7°03.1'	21°39.5'	42°35.9'	77°45.7'	
Mer. pass.		20 h 25 m SD 15.7'	phase 70%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°49.9'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	24°43.9'	183°35.8' S	8°53.1'	137°42.4' S	24°53.5'	59°38.9' S	15°09.3'	75°13.1' S	19°20.4'	185°47.3' S	7°22.4'	
1	39°46.3'	198°35.9' S	8°54.0'	152°42.0' S	24°54.0'	74°41.4' S	15°09.3'	90°15.6' S	19°20.3'	200°48.3' S	7°23.0'	
2	54°48.8'	213°36.1' S	8°54.9'	167°41.6' S	24°54.6'	89°43.9' S	15°09.3'	105°18.0' S	19°20.3'	215°49.2' S	7°23.6'	
3	69°51.3'	228°36.2' S	8°55.8'	182°41.2' S	24°55.1'	104°46.3' S	15°09.3'	120°20.5' S	19°20.3'	230°50.1' S	7°24.3'	
4	84°53.7'	243°36.3' S	8°56.7'	197°40.8' S	24°55.7'	119°48.8' S	15°09.3'	135°22.9' S	19°20.3'	245°51.0' S	7°24.9'	
5	99°56.2'	258°36.5' S	8°57.7'	212°40.3' S	24°56.2'	134°51.3' S	15°09.3'	150°25.3' S	19°20.3'	260°51.9' S	7°25.6'	
6	114°58.7'	273°36.6' S	8°58.6'	227°39.9' S	24°56.7'	149°53.8' S	15°09.3'	165°27.8' S	19°20.3'	275°52.9' S	7°26.2'	
7	130°01.1'	288°36.7' S	8°59.5'	242°39.5' S	24°57.3'	164°56.3' S	15°09.3'	180°30.2' S	19°20.3'	290°53.8' S	7°26.8'	
8	145°03.6'	303°36.9' S	9°00.4'	257°39.1' S	24°57.8'	179°58.8' S	15°09.3'	195°32.7' S	19°20.3'	305°54.7' S	7°27.5'	
9	160°06.0'	318°37.0' S	9°01.3'	272°38.7' S	24°58.4'	195°01.2' S	15°09.3'	210°35.1' S	19°20.3'	320°55.6' S	7°28.1'	
10	175°08.5'	333°37.1' S	9°02.2'	287°38.3' S	24°58.9'	210°03.7' S	15°09.3'	225°37.5' S	19°20.3'	335°56.6' S	7°28.8'	
11	190°11.0'	348°37.3' S	9°03.2'	302°37.9' S	24°59.4'	225°06.2' S	15°09.3'	240°40.0' S	19°20.3'	350°57.5' S	7°29.4'	
12	205°13.4'	3°37.4' S	9°04.1'	317°37.4' S	24°59.9'	240°08.7' S	15°09.3'	255°42.4' S	19°20.3'	5°58.4' S	7°30.0'	
13	220°15.9'	18°37.5' S	9°05.0'	332°37.0' S	25°00.5'	255°11.2' S	15°09.3'	270°44.9' S	19°20.3'	20°59.3' S	7°30.7'	
14	235°18.4'	33°37.6' S	9°05.9'	347°36.6' S	25°01.0'	270°13.6' S	15°09.3'	285°47.3' S	19°20.3'	36°00.3' S	7°31.3'	
15	250°20.8'	48°37.8' S	9°06.8'	2°36.2' S	25°01.5'	285°16.1' S	15°09.3'	300°49.8' S	19°20.3'	51°01.2' S	7°32.0'	
16	265°23.3'	63°37.9' S	9°07.7'	17°35.8' S	25°02.1'	300°18.6' S	15°09.3'	315°52.2' S	19°20.3'	66°02.1' S	7°32.6'	
17	280°25.8'	78°38.0' S	9°08.7'	32°35.4' S	25°02.6'	315°21.1' S	15°09.3'	330°54.6' S	19°20.3'	81°03.0' S	7°33.2'	
18	295°28.2'	93°38.2' S	9°09.6'	47°35.0' S	25°03.1'	330°23.6' S	15°09.3'	345°57.1' S	19°20.3'	96°03.9' S	7°33.9'	
19	310°30.7'	108°38.3' S	9°10.5'	62°34.5' S	25°03.6'	345°26.0' S	15°09.3'	0°59.5' S	19°20.2'	111°04.9' S	7°34.5'	
20	325°33.1'	123°38.4' S	9°11.4'	77°34.1' S	25°04.2'	0°28.5' S	15°09.3'	16°02.0' S	19°20.2'	126°05.8' S	7°35.2'	
21	340°35.6'	138°38.6' S	9°12.3'	92°33.7' S	25°04.7'	15°31.0' S	15°09.3'	31°04.4' S	19°20.2'	141°06.7' S	7°35.8'	
22	355°38.1'	153°38.7' S	9°13.2'	107°33.3' S	25°05.2'	30°33.5' S	15°09.3'	46°06.8' S	19°20.2'	156°07.6' S	7°36.4'	
23	10°40.5'	168°38.8' S	9°14.1'	122°32.9' S	25°05.7'	45°35.9' S	15°09.3'	61°09.3' S	19°20.2'	171°08.6' S	7°37.1'	
		SD 16.0' d -0.9'		v -0.4' d -0.5'		v 2.5' d 0.0'		v 2.4' d 0.0'		v 0.9' d -0.6'		
Mer. pass.		11 h 45 m 32 s		14 h 50 m		19 h 58 m		18 h 56 m		11 h 36 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Adhara	-Capella	-Rigel	-Aldebaran	+Jupiter	+Saturn	+Altair	+Antares
0	52°00.8' S	16°45.4' S	11.3'	11.5'	57.0'		113°35.7'	102°53.5'	100°47.5'	7°30.8'	22°11.8'	42°54.8'	78°18.5'
1	66°31.2' S	16°33.9' S	11.4'	11.6'	57.0'		113°05.5'	102°26.0'	100°14.9'	7°59.0'	22°44.1'	43°13.9'	78°51.3'
2	81°01.6' S	16°22.3' S	11.5'	11.7'	56.9'		112°35.3'	101°58.5'	99°42.2'	8°27.9'	23°16.5'	43°33.3'	79°24.0'
3	95°32.1' S	16°10.6' S	11.6'	11.7'	56.9'		112°05.0'	101°31.0'	99°09.6'	8°57.1'	23°48.8'	43°52.8'	79°56.8'
4	110°02.7' S	15°58.9' S	11.7'	11.8'	56.9'		111°34.8'	101°03.5'	98°37.0'	9°26.7'	24°21.1'	44°12.5'	80°29.5'
5	124°33.4' S	15°47.1' S	11.8'	11.9'	56.9'		111°04.5'	100°36.0'	98°04.4'	9°56.7'	24°53.4'	44°32.4'	81°02.2'
6	139°04.2' S	15°35.2' S	11.9'	11.9'	56.8'		110°34.3'	100°08.5'	97°31.9'	10°26.9'	25°25.8'	44°52.5'	81°34.8'
7	153°35.0' S	15°23.3' S	11.9'	12.0'	56.8'		110°04.1'	99°41.0'	96°59.3'	10°57.3'	25°58.1'	45°12.8'	82°07.5'
8	168°06.0' S	15°11.3' S	12.0'	12.1'	56.8'		109°33.8'	99°13.5'	96°26.8'	11°27.9'	26°30.4'	45°33.3'	82°40.1'
9	182°37.0' S	14°59.2' S	12.1'	12.1'	56.8'		109°03.6'	98°46.0'	95°54.3'	11°58.6'	27°02.6'	45°53.9'	83°12.7'
10	197°08.1' S	14°47.0' S	12.2'	12.2'	56.8'	112°33.5'	108°33.4'	98°18.5'	95°21.9'	12°29.5'	27°34.9'	46°14.7'	83°45.3'
11	211°39.3' S	14°34.8' S	12.3'	12.3'	56.7'	112°18.4'	108°03.2'	97°51.1'	94°49.4'	13°00.6'	28°07.2'	46°35.6'	84°17.8'
12	226°10.5' S	14°22.6' S	12.3'	12.3'	56.7'	112°03.3'	107°33.0'	97°23.6'	94°17.0'	13°31.7'	28°39.4'	46°56.8'	84°50.3'
13	240°41.9' S	14°10.3' S	12.4'	12.4'	56.7'	111°48.0'	107°02.8'	96°56.2'	93°44.6'	14°02.9'	29°11.7'	47°18.0'	85°22.9'
14	255°13.3' S	13°57.9' S	12.5'	12.4'	56.7'	111°32.7'	106°32.6'	96°28.7'	93°12.3'	14°34.2'	29°43.9'	47°39.4'	85°55.3'
15	269°44.8' S	13°45.4' S	12.6'	12.5'	56.6'	111°17.3'	106°02.5'	96°01.3'	92°39.9'	15°05.5'	30°16.1'	48°01.0'	86°27.8'
16	284°16.3' S	13°32.9' S	12.6'	12.5'	56.6'	111°01.8'	105°32.3'	95°33.8'	92°07.6'	15°37.0'	30°48.3'	48°22.7'	87°00.2'
17	298°48.0' S	13°20.4' S	12.7'	12.6'	56.6'	110°46.3'	105°02.1'	95°06.4'	91°35.3'	16°08.4'	31°20.5'	48°44.5'	87°32.7'
18	313°19.7' S	13°07.8' S	12.8'	12.7'	56.6'	110°30.6'	104°32.0'	94°39.0'	91°03.0'	16°39.9'	31°52.7'	49°06.5'	88°05.1'
19	327°51.5' S	12°55.1' S	12.9'	12.7'	56.6'	110°14.9'	104°01.8'	94°11.6'	90°30.7'	17°11.5'	32°24.9'	49°28.5'	88°37.4'
20	342°23.4' S	12°42.4' S	12.9'	12.8'	56.5'	109°59.1'	103°31.7'	93°44.2'	89°58.5'	17°43.0'	32°57.0'	49°50.7'	89°09.8'
21	356°55.3' S	12°29.7' S	13.0'	12.8'	56.5'	109°43.3'	103°01.6'	93°16.9'	89°26.3'	18°14.6'	33°29.2'	50°13.1'	89°42.1'
22	11°27.3' S	12°16.9' S	13.1'	12.8'	56.5'	109°27.3'	102°31.5'	92°49.5'	88°54.1'	18°46.3'	34°01.3'	50°35.5'	90°14.4'
23	25°59.4' S	12°04.0' S	13.2'	12.9'	56.5'	109°11.3'	102°01.4'	92°22.2'	88°21.9'	19°17.9'	34°33.4'	50°58.1'	90°46.7'
Mer. pass.		21 h 13 m SD 15.5'		phase 79%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2' S	29°30.5'	Spica	+1.0	158°25.4' S	11°16.3'	Betelgeuse	+0.5	270°54.8' N	7°24.7'
Deneb	+1.2	49°27.5' N	45°21.7'	Acrux	+0.8	173°03.7' S	63°12.9'	Capella	+0.1	280°25.6' N	46°01.0'
Altair	+0.8	62°02.5' N	8°55.7'	Regulus	+1.4	207°37.5' N	11°51.8'	Rigel	+0.2	281°06.2' S	8°10.5'
Vega	+0.0	80°35.1' N	38°48.5'	Pollux	+1.2	243°20.6' N	27°58.4'	Aldebaran	+0.9	290°42.4' N	16°33.2'
Antares	+1.1	112°19.4' S	26°28.7'	Procyon	+0.4	244°53.6' N	5°10.3'	Polaris	+2.0	314°49.7' N	89°21.2'
Rigel Kent	-0.0	139°44.6' S	60°55.4'	Adhara	+1.5	255°07.9' S	28°59.8'	Achernar	+0.5	335°21.6' S	57°07.6'
Arcturus	-0.1	145°50.7' N	19°04.4'	Sirius	-1.4	258°28.5' S	16°44.5'				
Hadar	+0.6	148°40.4' S	60°28.5'	Canopus	-0.6	263°53.4' S	52°42.1'				

Sunday 17 October 2021 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	25°43.0'	183°38.9'	S 9°15.1'	137°32.5'	S 25°06.2'	60°38.4'	S 15°09.3'	76°11.7'	S 19°20.2'	186°09.5'	S 7°37.7'
1	40°45.5'	198°39.1'	S 9°16.0'	152°32.1'	S 25°06.8'	75°40.9'	S 15°09.2'	91°14.1'	S 19°20.2'	201°10.4'	S 7°38.4'
2	55°47.9'	213°39.2'	S 9°16.9'	167°31.7'	S 25°07.3'	90°43.4'	S 15°09.2'	106°16.6'	S 19°20.2'	216°11.3'	S 7°39.0'
3	70°50.4'	228°39.3'	S 9°17.8'	182°31.2'	S 25°07.8'	105°45.8'	S 15°09.2'	121°19.0'	S 19°20.2'	231°12.2'	S 7°39.6'
4	85°52.9'	243°39.5'	S 9°18.7'	197°30.8'	S 25°08.3'	120°48.3'	S 15°09.2'	136°21.5'	S 19°20.2'	246°13.2'	S 7°40.3'
5	100°55.3'	258°39.6'	S 9°19.6'	212°30.4'	S 25°08.8'	135°50.8'	S 15°09.2'	151°23.9'	S 19°20.2'	261°14.1'	S 7°40.9'
6	115°57.8'	273°39.7'	S 9°20.5'	227°30.0'	S 25°09.3'	150°53.3'	S 15°09.2'	166°26.3'	S 19°20.2'	276°15.0'	S 7°41.6'
7	131°00.3'	288°39.8'	S 9°21.5'	242°29.6'	S 25°09.9'	165°55.7'	S 15°09.2'	181°28.8'	S 19°20.2'	291°15.9'	S 7°42.2'
8	146°02.7'	303°40.0'	S 9°22.4'	257°29.2'	S 25°10.4'	180°58.2'	S 15°09.2'	196°31.2'	S 19°20.2'	306°16.8'	S 7°42.8'
9	161°05.2'	318°40.1'	S 9°23.3'	272°28.8'	S 25°10.9'	196°00.7'	S 15°09.2'	211°33.6'	S 19°20.2'	321°17.8'	S 7°43.5'
10	176°07.6'	333°40.2'	S 9°24.2'	287°28.3'	S 25°11.4'	211°03.2'	S 15°09.2'	226°36.1'	S 19°20.1'	336°18.7'	S 7°44.1'
11	191°10.1'	348°40.4'	S 9°25.1'	302°27.9'	S 25°11.9'	226°05.6'	S 15°09.2'	241°38.5'	S 19°20.1'	351°19.6'	S 7°44.8'
12	206°12.6'	3°40.5'	S 9°26.0'	317°27.5'	S 25°12.4'	241°08.1'	S 15°09.2'	256°41.0'	S 19°20.1'	6°20.5'	S 7°45.4'
13	221°15.0'	18°40.6'	S 9°26.9'	332°27.1'	S 25°12.9'	256°10.6'	S 15°09.2'	271°43.4'	S 19°20.1'	21°21.4'	S 7°46.0'
14	236°17.5'	33°40.7'	S 9°27.8'	347°26.7'	S 25°13.4'	271°13.0'	S 15°09.2'	286°45.8'	S 19°20.1'	36°22.4'	S 7°46.7'
15	251°20.0'	48°40.9'	S 9°28.7'	2°26.3'	S 25°13.9'	286°15.5'	S 15°09.2'	301°48.3'	S 19°20.1'	51°23.3'	S 7°47.3'
16	266°22.4'	63°41.0'	S 9°29.7'	17°25.9'	S 25°14.4'	301°18.0'	S 15°09.2'	316°50.7'	S 19°20.1'	66°24.2'	S 7°47.9'
17	281°24.9'	78°41.1'	S 9°30.6'	32°25.5'	S 25°14.9'	316°20.5'	S 15°09.2'	331°53.1'	S 19°20.1'	81°25.1'	S 7°48.6'
18	296°27.4'	93°41.2'	S 9°31.5'	47°25.1'	S 25°15.4'	331°22.9'	S 15°09.2'	346°55.6'	S 19°20.1'	96°26.0'	S 7°49.2'
19	311°29.8'	108°41.4'	S 9°32.4'	62°24.6'	S 25°15.9'	346°25.4'	S 15°09.2'	1°58.0'	S 19°20.1'	111°27.0'	S 7°49.9'
20	326°32.3'	123°41.5'	S 9°33.3'	77°24.2'	S 25°16.4'	1°27.9'	S 15°09.2'	17°00.4'	S 19°20.1'	126°27.9'	S 7°50.5'
21	341°34.7'	138°41.6'	S 9°34.2'	92°23.8'	S 25°16.9'	16°30.3'	S 15°09.2'	32°02.9'	S 19°20.1'	141°28.8'	S 7°51.1'
22	356°37.2'	153°41.7'	S 9°35.1'	107°23.4'	S 25°17.4'	31°32.8'	S 15°09.2'	47°05.3'	S 19°20.1'	156°29.7'	S 7°51.8'
23	11°39.7'	168°41.8'	S 9°36.0'	122°23.0'	S 25°17.9'	46°35.3'	S 15°09.2'	62°07.8'	S 19°20.1'	171°30.6'	S 7°52.4'
		SD 16.0'	d -0.9'	v -0.4'	d -0.5'	v 2.5'	d 0.0'	v 2.4'	d 0.0'	v 0.9'	d -0.6'
Mer. pass.		11 h 45 m 19 s		14 h 50 m		19 h 54 m		18 h 52 m		11 h 35 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	40°31.6'	S 11°51.1'	13.2'	12.9'	56.4'	105°02.7'	101°31.3'	91°54.9'	87°49.8'		19°49.6'	35°05.5'	51°20.8'
1	55°03.8'	S 11°38.2'	13.3'	13.0'	56.4'	104°32.1'	101°01.2'	91°27.5'	87°17.6'		20°21.2'	35°37.5'	51°43.5'
2	69°36.1'	S 11°25.2'	13.4'	13.0'	56.4'	104°01.5'	100°31.2'	91°00.3'	86°45.5'	18°08.4'	20°52.9'	36°09.6'	52°06.4'
3	84°08.4'	S 11°12.2'	13.4'	13.1'	56.4'	103°31.0'	100°01.1'	90°33.0'	86°13.4'	18°23.9'	21°24.6'	36°41.6'	52°29.4'
4	98°40.9'	S 10°59.1'	13.5'	13.1'	56.4'	103°00.5'	99°31.1'	90°05.7'	85°41.4'	18°40.0'	21°56.3'	37°13.7'	52°52.5'
5	113°13.3'	S 10°46.0'	13.5'	13.1'	56.3'	102°30.0'	99°01.1'	89°38.5'	85°09.3'	18°56.8'	22°28.0'	37°45.7'	53°15.7'
6	127°45.9'	S 10°32.9'	13.6'	13.2'	56.3'	101°59.5'	98°31.0'	89°11.3'	84°37.3'	19°14.3'	22°59.7'	38°17.7'	53°38.9'
7	142°18.5'	S 10°19.7'	13.7'	13.2'	56.3'	101°29.0'	98°01.1'	88°44.1'	84°05.3'	19°32.3'	23°31.4'	38°49.6'	54°02.3'
8	156°51.2'	S 10°06.5'	13.7'	13.3'	56.3'	100°58.5'	97°31.1'	88°16.9'	83°33.3'	19°50.8'	24°03.1'	39°21.6'	54°25.8'
9	171°23.9'	S 9°53.2'	13.8'	13.3'	56.3'	100°28.1'	97°01.1'	87°49.7'	83°01.4'	20°09.9'	24°34.8'	39°53.5'	54°49.3'
10	185°56.7'	S 9°39.9'	13.9'	13.3'	56.2'	99°57.6'	96°31.2'	87°22.6'	82°29.4'	20°29.5'	25°06.5'	40°25.4'	55°12.9'
11	200°29.6'	S 9°26.6'	13.9'	13.4'	56.2'	99°27.2'	96°01.2'	86°55.5'	81°57.5'	20°49.6'	25°38.2'	40°57.3'	55°36.6'
12	215°02.5'	S 9°13.2'	14.0'	13.4'	56.2'	98°56.8'	95°31.3'	86°28.4'	81°25.6'	21°10.2'	26°09.9'	41°29.2'	56°00.4'
13	229°35.4'	S 8°59.8'	14.0'	13.4'	56.2'	98°26.4'	95°01.4'	86°01.3'	80°53.8'	21°31.2'	26°41.6'	42°01.1'	56°24.2'
14	244°08.5'	S 8°46.4'	14.1'	13.5'	56.2'	97°56.0'	94°31.5'	85°34.2'	80°21.9'	21°52.6'	27°13.2'	42°32.9'	56°48.1'
15	258°41.5'	S 8°32.9'	14.1'	13.5'	56.1'	97°25.6'	94°01.6'	85°07.2'	79°50.1'	22°14.4'	27°44.9'	43°04.8'	57°12.1'
16	273°14.7'	S 8°19.5'	14.2'	13.5'	56.1'	96°55.3'	93°31.8'	84°40.2'	79°18.3'	22°36.5'	28°16.5'	43°36.6'	57°36.2'
17	287°47.8'	S 8°06.0'	14.2'	13.5'	56.1'	96°24.9'	93°01.9'	84°13.3'	78°46.5'	22°59.0'	28°48.2'	44°08.4'	58°00.3'
18	302°21.1'	S 7°52.4'	14.3'	13.6'	56.1'	95°54.6'	92°32.1'	83°46.3'	78°14.8'	23°21.9'	29°19.8'	44°40.2'	58°24.5'
19	316°54.4'	S 7°38.9'	14.3'	13.6'	56.0'	95°24.3'	92°02.3'	83°19.4'	77°43.0'	23°45.0'	29°51.4'	45°11.9'	58°48.7'
20	331°27.7'	S 7°25.3'	14.4'	13.6'	56.0'	94°54.0'	91°32.5'	82°52.5'	77°11.3'	24°08.5'	30°23.1'	45°43.7'	59°13.0'
21	346°01.1'	S 7°11.7'	14.4'	13.6'	56.0'	94°23.8'	91°02.8'	82°25.6'	76°39.6'	24°32.2'	30°54.7'	46°15.4'	59°37.4'
22	0°34.5'	S 6°58.1'	14.5'	13.6'	56.0'	93°53.5'	90°33.0'	81°58.8'	76°07.9'	24°56.3'	31°26.2'	46°47.1'	60°01.8'
23	15°08.0'	S 6°44.4'	14.5'	13.7'	56.0'	93°23.3'	90°03.3'	81°32.0'	75°36.3'	25°20.5'	31°57.8'	47°18.8'	60°26.3'
Mer. pass.		21 h 58 m SD 15.4'		phase 87%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°49.5'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars				
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec			
0	26°42.1'	S 9°36.9'	183°42.0'	S 9°36.9'	137°22.6'	S 25°18.4'	61°37.7'	S 15°09.2'	77°10.2'	S 19°20.0'	186°31.6'	S 7°53.1'			
1	41°44.6'	S 9°37.8'	198°42.1'	S 9°37.8'	152°22.2'	S 25°18.9'	76°40.2'	S 15°09.2'	92°12.6'	S 19°20.0'	201°32.5'	S 7°53.7'			
2	56°47.1'	S 9°38.7'	213°42.2'	S 9°38.7'	167°21.8'	S 25°19.4'	91°42.7'	S 15°09.2'	107°15.1'	S 19°20.0'	216°33.4'	S 7°54.3'			
3	71°49.5'	S 9°39.6'	228°42.3'	S 9°39.6'	182°21.3'	S 25°19.9'	106°45.1'	S 15°09.2'	122°17.5'	S 19°20.0'	231°34.3'	S 7°55.0'			
4	86°52.0'	S 9°40.6'	243°42.5'	S 9°40.6'	197°20.9'	S 25°20.4'	121°47.6'	S 15°09.2'	137°19.9'	S 19°20.0'	246°35.2'	S 7°55.6'			
5	101°54.5'	S 9°41.5'	258°42.6'	S 9°41.5'	212°20.5'	S 25°20.9'	136°50.1'	S 15°09.2'	152°22.4'	S 19°20.0'	261°36.1'	S 7°56.2'			
6	116°56.9'	S 9°42.4'	273°42.7'	S 9°42.4'	227°20.1'	S 25°21.4'	151°52.5'	S 15°09.1'	167°24.8'	S 19°20.0'	276°37.1'	S 7°56.9'			
7	131°59.4'	S 9°43.3'	288°42.8'	S 9°43.3'	242°19.7'	S 25°21.8'	166°55.0'	S 15°09.1'	182°27.2'	S 19°20.0'	291°38.0'	S 7°57.5'			
8	147°01.9'	S 9°44.2'	303°42.9'	S 9°44.2'	257°19.3'	S 25°22.3'	181°57.5'	S 15°09.1'	197°29.7'	S 19°20.0'	306°38.9'	S 7°58.1'			
9	162°04.3'	S 9°45.1'	318°43.1'	S 9°45.1'	272°18.9'	S 25°22.8'	196°59.9'	S 15°09.1'	212°32.1'	S 19°20.0'	321°39.8'	S 7°58.8'			
10	177°06.8'	S 9°46.0'	333°43.2'	S 9°46.0'	287°18.5'	S 25°23.3'	212°02.4'	S 15°09.1'	227°34.5'	S 19°20.0'	336°40.7'	S 7°59.4'			
11	192°09.2'	S 9°46.9'	348°43.3'	S 9°46.9'	302°18.1'	S 25°23.8'	227°04.9'	S 15°09.1'	242°37.0'	S 19°20.0'	351°41.7'	S 8°00.1'			
12	207°11.7'	S 9°47.8'	3°43.4'	S 9°47.8'	317°17.7'	S 25°24.3'	242°07.3'	S 15°09.1'	257°39.4'	S 19°20.0'	6°42.6'	S 8°00.7'			
13	222°14.2'	S 9°48.7'	18°43.5'	S 9°48.7'	332°17.2'	S 25°24.7'	257°09.8'	S 15°09.1'	272°41.8'	S 19°19.9'	21°43.5'	S 8°01.3'			
14	237°16.6'	S 9°49.6'	33°43.7'	S 9°49.6'	347°16.8'	S 25°25.2'	272°12.3'	S 15°09.1'	287°44.3'	S 19°19.9'	36°44.4'	S 8°02.0'			
15	252°19.1'	S 9°50.5'	48°43.8'	S 9°50.5'	2°16.4'	S 25°25.7'	287°14.7'	S 15°09.1'	302°46.7'	S 19°19.9'	51°45.3'	S 8°02.6'			
16	267°21.6'	S 9°51.4'	63°43.9'	S 9°51.4'	17°16.0'	S 25°26.2'	302°17.2'	S 15°09.1'	317°49.1'	S 19°19.9'	66°46.2'	S 8°03.2'			
17	282°24.0'	S 9°52.3'	78°44.0'	S 9°52.3'	32°15.6'	S 25°26.7'	317°19.6'	S 15°09.1'	332°51.5'	S 19°19.9'	81°47.1'	S 8°03.9'			
18	297°26.5'	S 9°53.2'	93°44.1'	S 9°53.2'	47°15.2'	S 25°27.1'	332°22.1'	S 15°09.1'	347°54.0'	S 19°19.9'	96°48.1'	S 8°04.5'			
19	312°29.0'	S 9°54.1'	108°44.3'	S 9°54.1'	62°14.8'	S 25°27.6'	347°24.6'	S 15°09.1'	2°56.4'	S 19°19.9'	111°49.0'	S 8°05.2'			
20	327°31.4'	S 9°55.0'	123°44.4'	S 9°55.0'	77°14.4'	S 25°28.1'	2°27.0'	S 15°09.1'	17°58.8'	S 19°19.9'	126°49.9'	S 8°05.8'			
21	342°33.9'	S 9°55.9'	138°44.5'	S 9°55.9'	92°14.0'	S 25°28.6'	17°29.5'	S 15°09.1'	33°01.3'	S 19°19.9'	141°50.8'	S 8°06.4'			
22	357°36.3'	S 9°56.8'	153°44.6'	S 9°56.8'	107°13.6'	S 25°29.0'	32°32.0'	S 15°09.0'	48°03.7'	S 19°19.9'	156°51.7'	S 8°07.1'			
23	12°38.8'	S 9°57.7'	168°44.7'	S 9°57.7'	122°13.2'	S 25°29.5'	47°34.4'	S 15°09.0'	63°06.1'	S 19°19.9'	171°52.6'	S 8°07.7'			
		SD 16.0'	d -0.9'		v -0.4'	d -0.5'		v 2.5'	d 0.0'		v 2.4'	d 0.0'		v 0.9'	d -0.6'
Mer. pass.		11 h 45 m 8 s			14 h 51 m			19 h 50 m			18 h 48 m			11 h 33 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	29°41.5'	S 6°30.7'	14.6'	13.7'	55.9'	92°53.1'	89°33.6'	81°05.2'	75°04.6'	25°45.0'	32°29.4'	47°50.4'	60°50.8'
1	44°15.1'	S 6°17.0'	14.6'	13.7'	55.9'	92°22.9'	89°03.9'	80°38.5'	74°33.0'	26°09.8'	33°00.9'	48°22.1'	61°15.4'
2	58°48.7'	S 6°03.3'	14.7'	13.7'	55.9'	91°52.7'	88°34.2'	80°11.8'	74°01.4'	26°34.7'	33°32.5'	48°53.7'	61°40.0'
3	73°22.4'	S 5°49.6'	14.7'	13.7'	55.9'	91°22.5'	88°04.6'	79°45.1'	73°29.9'	26°59.9'	34°04.0'	49°25.3'	62°04.7'
4	87°56.1'	S 5°35.9'	14.7'	13.8'	55.9'	90°52.4'	87°34.9'	79°18.4'	72°58.3'	27°25.3'	34°35.5'	49°56.9'	62°29.4'
5	102°29.8'	S 5°22.1'	14.8'	13.8'	55.8'	90°22.3'	87°05.3'	78°51.8'	72°26.8'	27°50.8'	35°07.0'	50°28.5'	62°54.2'
6	117°03.6'	S 5°08.4'	14.8'	13.8'	55.8'	89°52.2'	86°35.7'	78°25.2'	71°55.3'	28°16.5'	35°38.5'	51°00.1'	63°19.0'
7	131°37.4'	S 4°54.6'	14.9'	13.8'	55.8'	89°22.1'	86°06.2'	77°58.7'	71°23.8'	28°42.4'	36°10.0'	51°31.6'	63°43.8'
8	146°11.3'	S 4°40.8'	14.9'	13.8'	55.8'	88°52.0'	85°36.6'	77°32.2'	70°52.3'	29°08.5'	36°41.4'	52°03.1'	64°08.7'
9	160°45.2'	S 4°27.0'	14.9'	13.8'	55.8'	88°22.0'	85°07.1'	77°05.7'	70°20.9'	29°34.7'	37°12.9'	52°34.6'	64°33.7'
10	175°19.1'	S 4°13.2'	15.0'	13.8'	55.8'	87°52.0'	84°37.6'	76°39.3'	69°49.5'	30°01.0'	37°44.3'	53°06.1'	64°58.6'
11	189°53.1'	S 3°59.4'	15.0'	13.8'	55.7'	87°22.0'	84°08.1'	76°12.9'	69°18.1'	30°27.5'	38°15.7'	53°37.6'	65°23.6'
12	204°27.1'	S 3°45.5'	15.0'	13.8'	55.7'	86°52.0'	83°38.6'	75°46.5'	68°46.7'	30°54.1'	38°47.1'	54°09.0'	65°48.6'
13	219°01.1'	S 3°31.7'	15.1'	13.8'	55.7'	86°22.0'	83°09.2'	75°20.2'	68°15.3'	31°20.8'	39°18.4'	54°40.4'	66°13.7'
14	233°35.2'	S 3°17.8'	15.1'	13.8'	55.7'	85°52.1'	82°39.8'	74°53.9'	67°44.0'	31°47.6'	39°49.8'	55°11.9'	66°38.8'
15	248°09.3'	S 3°04.0'	15.1'	13.9'	55.7'	85°22.1'	82°10.4'	74°27.7'	67°12.7'	32°14.6'	40°21.2'	55°43.2'	67°03.9'
16	262°43.4'	S 2°50.2'	15.2'	13.9'	55.6'	84°52.2'	81°41.0'	74°01.5'	66°41.4'	32°41.7'	40°52.5'	56°14.6'	67°29.1'
17	277°17.5'	S 2°36.3'	15.2'	13.9'	55.6'	84°22.4'	81°11.7'	73°35.3'	66°10.1'	33°08.8'	41°23.8'	56°46.0'	67°54.3'
18	291°51.7'	S 2°22.4'	15.2'	13.9'	55.6'	83°52.5'	80°42.3'	73°09.2'	65°38.9'	33°36.1'	41°55.1'	57°17.3'	68°19.5'
19	306°25.9'	S 2°08.6'	15.2'	13.9'	55.6'	83°22.7'	80°13.0'	72°43.1'	65°07.6'	34°03.4'	42°26.4'	57°48.6'	68°44.7'
20	321°00.2'	S 1°54.7'	15.3'	13.9'	55.6'	82°52.8'	79°43.8'	72°17.1'	64°36.4'	34°30.8'	42°57.6'	58°19.9'	69°10.0'
21	335°34.4'	S 1°40.9'	15.3'	13.9'	55.5'	82°23.0'	79°14.5'	71°51.1'	64°05.2'	34°58.4'	43°28.9'	58°51.2'	69°35.2'
22	350°08.7'	S 1°27.0'	15.3'	13.9'	55.5'	81°53.3'	78°45.3'	71°25.2'	63°34.1'	35°26.0'	44°00.1'	59°22.5'	70°00.5'
23	4°43.0'	S 1°13.2'	15.3'	13.9'	55.5'	81°23.5'	78°16.1'	70°59.3'	63°02.9'	35°53.6'	44°31.3'	59°53.7'	70°25.9'
Mer. pass.		22 h 41 m SD 15.3'			phase 93%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.1'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°49.4'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	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°41.3'	183°44.8'	S 9°58.7'	137°12.7'	S 25°30.0'		62°36.9'	S 15°09.0'		78°08.6'	S 19°19.9'		186°53.6'	S 8°08.3'				
1	42°43.7'	198°45.0'	S 9°59.6'	152°12.3'	S 25°30.4'		77°39.3'	S 15°09.0'		93°11.0'	S 19°19.8'		201°54.5'	S 8°09.0'				
2	57°46.2'	213°45.1'	S 10°00.5'	167°11.9'	S 25°30.9'		92°41.8'	S 15°09.0'		108°13.4'	S 19°19.8'		216°55.4'	S 8°09.6'				
3	72°48.7'	228°45.2'	S 10°01.4'	182°11.5'	S 25°31.4'		107°44.2'	S 15°09.0'		123°15.9'	S 19°19.8'		231°56.3'	S 8°10.2'				
4	87°51.1'	243°45.3'	S 10°02.3'	197°11.1'	S 25°31.8'		122°46.7'	S 15°09.0'		138°18.3'	S 19°19.8'		246°57.2'	S 8°10.9'				
5	102°53.6'	258°45.4'	S 10°03.2'	212°10.7'	S 25°32.3'		137°49.2'	S 15°09.0'		153°20.7'	S 19°19.8'		261°58.1'	S 8°11.5'				
6	117°56.1'	273°45.5'	S 10°04.1'	227°10.3'	S 25°32.8'		152°51.6'	S 15°09.0'		168°23.1'	S 19°19.8'		276°59.0'	S 8°12.1'				
7	132°58.5'	288°45.6'	S 10°05.0'	242°09.9'	S 25°33.2'		167°54.1'	S 15°09.0'		183°25.6'	S 19°19.8'		291°60.0'	S 8°12.8'				
8	148°01.0'	303°45.8'	S 10°05.9'	257°09.5'	S 25°33.7'		182°56.5'	S 15°09.0'		198°28.0'	S 19°19.8'		307°00.9'	S 8°13.4'				
9	163°03.5'	318°45.9'	S 10°06.8'	272°09.1'	S 25°34.2'		197°59.0'	S 15°09.0'		213°30.4'	S 19°19.8'		322°01.8'	S 8°14.0'				
10	178°05.9'	333°46.0'	S 10°07.7'	287°08.7'	S 25°34.6'		213°01.4'	S 15°09.0'		228°32.9'	S 19°19.8'		337°02.7'	S 8°14.7'				
11	193°08.4'	348°46.1'	S 10°08.6'	302°08.3'	S 25°35.1'		228°03.9'	S 15°08.9'		243°35.3'	S 19°19.8'		352°03.6'	S 8°15.3'				
12	208°10.8'	3°46.2'	S 10°09.5'	317°07.9'	S 25°35.5'		243°06.4'	S 15°08.9'		258°37.7'	S 19°19.7'		7°04.5'	S 8°16.0'				
13	223°13.3'	18°46.3'	S 10°10.4'	332°07.4'	S 25°36.0'		258°08.8'	S 15°08.9'		273°40.1'	S 19°19.7'		22°05.4'	S 8°16.6'				
14	238°15.8'	33°46.4'	S 10°11.3'	347°07.0'	S 25°36.4'		273°11.3'	S 15°08.9'		288°42.6'	S 19°19.7'		37°06.4'	S 8°17.2'				
15	253°18.2'	48°46.6'	S 10°12.2'	2°06.6'	S 25°36.9'		288°13.7'	S 15°08.9'		303°45.0'	S 19°19.7'		52°07.3'	S 8°17.9'				
16	268°20.7'	63°46.7'	S 10°13.1'	17°06.2'	S 25°37.3'		303°16.2'	S 15°08.9'		318°47.4'	S 19°19.7'		67°08.2'	S 8°18.5'				
17	283°23.2'	78°46.8'	S 10°14.0'	32°05.8'	S 25°37.8'		318°18.6'	S 15°08.9'		333°49.8'	S 19°19.7'		82°09.1'	S 8°19.1'				
18	298°25.6'	93°46.9'	S 10°14.9'	47°05.4'	S 25°38.3'		333°21.1'	S 15°08.9'		348°52.3'	S 19°19.7'		97°10.0'	S 8°19.8'				
19	313°28.1'	108°47.0'	S 10°15.7'	62°05.0'	S 25°38.7'		348°23.5'	S 15°08.9'		3°54.7'	S 19°19.7'		112°10.9'	S 8°20.4'				
20	328°30.6'	123°47.1'	S 10°16.6'	77°04.6'	S 25°39.1'		3°26.0'	S 15°08.9'		18°57.1'	S 19°19.7'		127°11.8'	S 8°21.0'				
21	343°33.0'	138°47.2'	S 10°17.5'	92°04.2'	S 25°39.6'		18°28.4'	S 15°08.9'		33°59.6'	S 19°19.7'		142°12.7'	S 8°21.7'				
22	358°35.5'	153°47.3'	S 10°18.4'	107°03.8'	S 25°40.0'		33°30.9'	S 15°08.8'		49°02.0'	S 19°19.7'		157°13.7'	S 8°22.3'				
23	13°38.0'	168°47.4'	S 10°19.3'	122°03.4'	S 25°40.5'		48°33.4'	S 15°08.8'		64°04.4'	S 19°19.6'		172°14.6'	S 8°22.9'				
		SD 16.0' d -0.9'		v -0.4' d -0.5'			v 2.5' d 0.0'			v 2.4' d 0.0'			v 0.9' d -0.6'					
Mer. pass.		11 h 44 m 56 s		14 h 52 m			19 h 46 m			18 h 44 m			11 h 32 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	19°17.3'	S 0°59.3'	15.4'	13.8'	55.5'	80°53.8'	77°46.9'	70°33.4'	62°31.8'	36°21.3'	45°02.5'	60°24.9'	70°51.2'
1	33°51.7'	S 0°45.5'	15.4'	13.8'	55.5'	80°24.1'	77°17.8'	70°07.6'	62°00.7'	36°49.1'	45°33.7'	60°56.1'	71°16.6'
2	48°26.1'	S 0°31.6'	15.4'	13.8'	55.5'	79°54.4'	76°48.7'	69°41.9'	61°29.6'	37°17.0'	46°04.9'	61°27.3'	71°41.9'
3	63°00.5'	S 0°17.8'	15.4'	13.8'	55.4'	79°24.8'	76°19.6'	69°16.2'	60°58.6'	37°44.9'	46°36.0'	61°58.5'	72°07.3'
4	77°34.9'	S 0°04.0'	15.4'	13.8'	55.4'	78°55.1'	75°50.5'	68°50.6'	60°27.5'	38°12.9'	47°07.1'	62°29.7'	72°32.7'
5	92°09.3'	N 0°09.9'	15.4'	13.8'	55.4'	78°25.5'	75°21.5'	68°25.0'	59°56.5'	38°41.0'	47°38.3'	63°00.8'	72°58.2'
6	106°43.7'	N 0°23.7'	15.5'	13.8'	55.4'	77°55.9'	74°52.4'	67°59.4'	59°25.5'	39°09.0'	48°09.4'	63°31.9'	73°23.6'
7	121°18.2'	N 0°37.5'	15.5'	13.8'	55.4'	77°26.4'	74°23.5'	67°33.9'	58°54.5'	39°37.2'	48°40.4'	64°03.0'	73°49.1'
8	135°52.7'	N 0°51.3'	15.5'	13.8'	55.3'	76°56.8'	73°54.5'	67°08.5'	58°23.6'	40°05.4'	49°11.5'	64°34.1'	74°14.5'
9	150°27.2'	N 1°05.1'	15.5'	13.8'	55.3'	76°27.3'	73°25.6'	66°43.1'	57°52.6'	40°33.6'	49°42.5'	65°05.2'	74°40.0'
10	165°01.6'	N 1°18.8'	15.5'	13.8'	55.3'	75°57.8'	72°56.7'	66°17.8'	57°21.7'	41°01.9'	50°13.6'	65°36.2'	75°05.5'
11	179°36.2'	N 1°32.6'	15.5'	13.7'	55.3'	75°28.4'	72°27.8'	65°52.6'	56°50.8'	41°30.2'	50°44.6'	66°07.2'	75°31.0'
12	194°10.7'	N 1°46.3'	15.5'	13.7'	55.3'	74°58.9'	71°59.0'	65°27.4'	56°20.0'	41°58.5'	51°15.6'	66°38.2'	75°56.5'
13	208°45.2'	N 2°00.0'	15.5'	13.7'	55.3'	74°29.5'	71°30.2'	65°02.2'	55°49.1'	42°26.9'	51°46.6'	67°09.2'	76°22.0'
14	223°19.8'	N 2°13.7'	15.5'	13.7'	55.2'	74°00.1'	71°01.4'	64°37.1'	55°18.3'	42°55.3'	52°17.5'	67°40.2'	76°47.5'
15	237°54.3'	N 2°27.4'	15.6'	13.7'	55.2'	73°30.8'	70°32.6'	64°12.1'	54°47.5'	43°23.8'	52°48.5'	68°11.2'	77°13.0'
16	252°28.9'	N 2°41.1'	15.6'	13.7'	55.2'	73°01.4'	70°03.9'	63°47.1'	54°16.7'	43°52.3'	53°19.4'	68°42.1'	77°38.6'
17	267°03.4'	N 2°54.8'	15.6'	13.6'	55.2'	72°32.1'	69°35.2'	63°22.3'	53°45.9'	44°20.8'	53°50.3'	69°13.0'	78°04.1'
18	281°38.0'	N 3°08.4'	15.6'	13.6'	55.2'	72°02.8'	69°06.6'	62°57.4'	53°15.2'	44°49.3'	54°21.2'	69°43.9'	78°29.6'
19	296°12.6'	N 3°22.0'	15.6'	13.6'	55.2'	71°33.6'	68°38.0'	62°32.7'	52°44.5'	45°17.9'	54°52.1'	70°14.8'	78°55.2'
20	310°47.1'	N 3°35.6'	15.6'	13.6'	55.1'	71°04.4'	68°09.4'	62°08.0'	52°13.8'	45°46.5'	55°22.9'	70°45.7'	79°20.7'
21	325°21.7'	N 3°49.2'	15.6'	13.6'	55.1'	70°35.2'	67°40.8'	61°43.3'	51°43.1'	46°15.1'	55°53.8'	71°16.5'	79°46.3'
22	339°56.3'	N 4°02.7'	15.6'	13.5'	55.1'	70°06.0'	67°12.3'	61°18.8'	51°12.5'	46°43.7'	56°24.6'	71°47.3'	80°11.8'
23	354°30.9'	N 4°16.3'	15.6'	13.5'	55.1'	69°36.8'	66°43.8'	60°54.3'	50°41.8'	47°12.4'	56°55.4'	72°18.1'	80°37.4'
Mer. pass.		23 h 23 m SD 15.1'		phase 97%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°49.2'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	28°40.4'	S 10°20.2'	183°47.5'	S 10°20.2'	137°03.0'	S 25°40.9'	63°35.8'	S 15°08.8'	79°06.8'	S 19°19.6'	187°15.5'	S 8°23.6'
1	43°42.9'	S 10°21.1'	198°47.7'	S 10°21.1'	152°02.6'	S 25°41.4'	78°38.3'	S 15°08.8'	94°09.3'	S 19°19.6'	202°16.4'	S 8°24.2'
2	58°45.3'	S 10°22.0'	213°47.8'	S 10°22.0'	167°02.2'	S 25°41.8'	93°40.7'	S 15°08.8'	109°11.7'	S 19°19.6'	217°17.3'	S 8°24.8'
3	73°47.8'	S 10°22.9'	228°47.9'	S 10°22.9'	182°01.8'	S 25°42.3'	108°43.2'	S 15°08.8'	124°14.1'	S 19°19.6'	232°18.2'	S 8°25.5'
4	88°50.3'	S 10°23.8'	243°48.0'	S 10°23.8'	197°01.4'	S 25°42.7'	123°45.6'	S 15°08.8'	139°16.5'	S 19°19.6'	247°19.1'	S 8°26.1'
5	103°52.7'	S 10°24.7'	258°48.1'	S 10°24.7'	212°01.0'	S 25°43.1'	138°48.1'	S 15°08.8'	154°19.0'	S 19°19.6'	262°20.0'	S 8°26.7'
6	118°55.2'	S 10°25.6'	273°48.2'	S 10°25.6'	227°00.6'	S 25°43.6'	153°50.5'	S 15°08.8'	169°21.4'	S 19°19.6'	277°20.9'	S 8°27.4'
7	133°57.7'	S 10°26.5'	288°48.3'	S 10°26.5'	242°00.2'	S 25°44.0'	168°53.0'	S 15°08.7'	184°23.8'	S 19°19.6'	292°21.9'	S 8°28.0'
8	149°00.1'	S 10°27.4'	303°48.4'	S 10°27.4'	256°59.8'	S 25°44.5'	183°55.4'	S 15°08.7'	199°26.2'	S 19°19.6'	307°22.8'	S 8°28.6'
9	164°02.6'	S 10°28.3'	318°48.5'	S 10°28.3'	271°59.3'	S 25°44.9'	198°57.9'	S 15°08.7'	214°28.7'	S 19°19.5'	322°23.7'	S 8°29.3'
10	179°05.1'	S 10°29.2'	333°48.6'	S 10°29.2'	286°58.9'	S 25°45.3'	214°00.3'	S 15°08.7'	229°31.1'	S 19°19.5'	337°24.6'	S 8°29.9'
11	194°07.5'	S 10°30.1'	348°48.7'	S 10°30.1'	301°58.5'	S 25°45.8'	229°02.7'	S 15°08.7'	244°33.5'	S 19°19.5'	352°25.5'	S 8°30.5'
12	209°10.0'	S 10°31.0'	3°48.8'	S 10°31.0'	316°58.1'	S 25°46.2'	244°05.2'	S 15°08.7'	259°35.9'	S 19°19.5'	7°26.4'	S 8°31.2'
13	224°12.4'	S 10°31.9'	18°49.0'	S 10°31.9'	331°57.7'	S 25°46.6'	259°07.6'	S 15°08.7'	274°38.4'	S 19°19.5'	22°27.3'	S 8°31.8'
14	239°14.9'	S 10°32.7'	33°49.1'	S 10°32.7'	346°57.3'	S 25°47.1'	274°10.1'	S 15°08.7'	289°40.8'	S 19°19.5'	37°28.2'	S 8°32.4'
15	254°17.4'	S 10°33.6'	48°49.2'	S 10°33.6'	1°56.9'	S 25°47.5'	289°12.5'	S 15°08.7'	304°43.2'	S 19°19.5'	52°29.1'	S 8°33.1'
16	269°19.8'	S 10°34.5'	63°49.3'	S 10°34.5'	16°56.5'	S 25°47.9'	304°15.0'	S 15°08.6'	319°45.6'	S 19°19.5'	67°30.0'	S 8°33.7'
17	284°22.3'	S 10°35.4'	78°49.4'	S 10°35.4'	31°56.1'	S 25°48.3'	319°17.4'	S 15°08.6'	334°48.0'	S 19°19.5'	82°31.0'	S 8°34.3'
18	299°24.8'	S 10°36.3'	93°49.5'	S 10°36.3'	46°55.7'	S 25°48.8'	334°19.9'	S 15°08.6'	349°50.5'	S 19°19.5'	97°31.9'	S 8°35.0'
19	314°27.2'	S 10°37.2'	108°49.6'	S 10°37.2'	61°55.3'	S 25°49.2'	349°22.3'	S 15°08.6'	4°52.9'	S 19°19.4'	112°32.8'	S 8°35.6'
20	329°29.7'	S 10°38.1'	123°49.7'	S 10°38.1'	76°54.9'	S 25°49.6'	4°24.8'	S 15°08.6'	19°55.3'	S 19°19.4'	127°33.7'	S 8°36.2'
21	344°32.2'	S 10°39.0'	138°49.8'	S 10°39.0'	91°54.5'	S 25°50.0'	19°27.2'	S 15°08.6'	34°57.7'	S 19°19.4'	142°34.6'	S 8°36.9'
22	359°34.6'	S 10°39.9'	153°49.9'	S 10°39.9'	106°54.1'	S 25°50.5'	34°29.6'	S 15°08.6'	50°00.2'	S 19°19.4'	157°35.5'	S 8°37.5'
23	14°37.1'	S 10°40.8'	168°50.0'	S 10°40.8'	121°53.7'	S 25°50.9'	49°32.1'	S 15°08.6'	65°02.6'	S 19°19.4'	172°36.4'	S 8°38.1'
		SD 16.1' d -0.9'			v -0.4' d -0.4'			v 2.4' d 0.0'			v 2.4' d 0.0'	v 0.9' d -0.6'
Mer. pass.		11 h 44 m 46 s			14 h 52 m			19 h 42 m			18 h 41 m	11 h 30 m

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	9°05.4'	N 4°29.8'	15.6'	13.5'	55.1'	69°07.7'	66°15.4'	60°29.9'	50°11.2'	47°41.1'	57°26.2'	72°48.9'	81°02.9'
1	23°40.0'	N 4°43.3'	15.6'	13.5'	55.1'	68°38.6'	65°46.9'	60°05.5'	49°40.6'	48°09.8'	57°57.0'	73°19.7'	81°28.4'
2	38°14.6'	N 4°56.7'	15.6'	13.4'	55.0'	68°09.6'	65°18.6'	59°41.3'	49°10.1'	48°38.5'	58°27.7'	73°50.5'	81°54.0'
3	52°49.2'	N 5°10.1'	15.6'	13.4'	55.0'	67°40.6'	64°50.2'	59°17.1'	48°39.5'	49°07.2'	58°58.4'	74°21.2'	82°19.5'
4	67°23.7'	N 5°23.5'	15.6'	13.4'	55.0'	67°11.6'	64°21.9'	58°53.0'	48°09.0'	49°35.9'	59°29.2'	74°51.9'	82°45.1'
5	81°58.3'	N 5°36.9'	15.6'	13.3'	55.0'	66°42.6'	63°53.6'	58°28.9'	47°38.5'	50°04.7'	59°59.9'	75°22.6'	83°10.6'
6	96°32.9'	N 5°50.2'	15.6'	13.3'	55.0'	66°13.7'	63°25.4'	58°05.0'	47°08.1'	50°33.5'	60°30.6'	75°53.3'	83°36.1'
7	111°07.4'	N 6°03.6'	15.5'	13.3'	55.0'	65°44.8'	62°57.2'	57°41.1'	46°37.6'	51°02.2'	61°01.2'	76°24.0'	84°01.7'
8	125°42.0'	N 6°16.8'	15.5'	13.2'	54.9'	65°15.9'	62°29.1'	57°17.3'	46°07.2'	51°31.0'	61°31.9'	76°54.7'	84°27.2'
9	140°16.5'	N 6°30.1'	15.5'	13.2'	54.9'	64°47.1'	62°00.9'	56°53.6'	45°36.8'	51°59.9'	62°02.5'	77°25.3'	84°52.7'
10	154°51.0'	N 6°43.3'	15.5'	13.2'	54.9'	64°18.2'	61°32.9'	56°30.0'	45°06.4'	52°28.7'	62°33.1'	77°55.9'	85°18.2'
11	169°25.6'	N 6°56.5'	15.5'	13.1'	54.9'	63°49.5'	61°04.8'	56°06.5'	44°36.0'	52°57.5'	63°03.7'	78°26.5'	85°43.7'
12	184°00.1'	N 7°09.6'	15.5'	13.1'	54.9'	63°20.7'	60°36.8'	55°43.1'	44°05.7'	53°26.3'	63°34.3'	78°57.1'	86°09.2'
13	198°34.6'	N 7°22.7'	15.5'	13.1'	54.9'	62°52.0'	60°08.9'	55°19.7'	43°35.4'	53°55.2'	64°04.9'	79°27.7'	86°34.7'
14	213°09.1'	N 7°35.8'	15.5'	13.0'	54.8'	62°23.3'	59°41.0'	54°56.5'	43°05.1'	54°24.0'	64°35.5'	79°58.2'	87°00.1'
15	227°43.5'	N 7°48.8'	15.5'	13.0'	54.8'	61°54.7'	59°13.1'	54°33.3'	42°34.8'	54°52.9'	65°06.0'	80°28.8'	87°25.6'
16	242°18.0'	N 8°01.8'	15.4'	13.0'	54.8'	61°26.1'	58°45.3'	54°10.2'	42°04.6'	55°21.7'	65°36.5'	80°59.3'	87°51.0'
17	256°52.5'	N 8°14.8'	15.4'	12.9'	54.8'	60°57.5'	58°17.5'	53°47.3'	41°34.4'	55°50.6'	66°07.0'	81°29.8'	88°16.5'
18	271°26.9'	N 8°27.7'	15.4'	12.9'	54.8'	60°29.0'	57°49.7'	53°24.4'	41°04.2'	56°19.5'	66°37.5'	82°00.3'	88°41.9'
19	286°01.3'	N 8°40.6'	15.4'	12.8'	54.8'	60°00.5'	57°22.0'	53°01.7'	40°34.1'	56°48.3'	67°08.0'	82°30.7'	89°07.3'
20	300°35.7'	N 8°53.5'	15.4'	12.8'	54.8'	59°32.0'	56°54.4'	52°39.0'	40°03.9'	57°17.2'	67°38.4'	83°01.2'	89°32.7'
21	315°10.1'	N 9°06.3'	15.4'	12.8'	54.7'	59°03.6'	56°26.8'	52°16.5'	39°33.8'	57°46.1'	68°08.9'	83°31.6'	89°58.1'
22	329°44.5'	N 9°19.0'	15.3'	12.7'	54.7'	58°35.2'	55°59.3'	51°54.0'	39°03.7'	58°15.0'	68°39.3'	84°02.0'	90°23.5'
23	344°18.8'	N 9°31.7'	15.3'	12.7'	54.7'	58°06.8'	55°31.8'	51°31.7'	38°33.7'	58°43.9'	69°09.7'	84°32.4'	90°48.9'
Mer. pass. 0 h 5 m SD 15.0' phase 100%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°49.0'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	29°39.6'	183°50.1' S	10°41.7'	136°53.3' S	25°51.3'	64°34.5' S	15°08.5'	80°05.0' S	19°19.4'	187°37.3' S	8°38.7'	
1	44°42.0'	198°50.2' S	10°42.5'	151°52.9' S	25°51.7'	79°37.0' S	15°08.5'	95°07.4' S	19°19.4'	202°38.2' S	8°39.4'	
2	59°44.5'	213°50.3' S	10°43.4'	166°52.5' S	25°52.1'	94°39.4' S	15°08.5'	110°09.8' S	19°19.4'	217°39.1' S	8°40.0'	
3	74°46.9'	228°50.4' S	10°44.3'	181°52.1' S	25°52.6'	109°41.9' S	15°08.5'	125°12.3' S	19°19.4'	232°40.0' S	8°40.6'	
4	89°49.4'	243°50.5' S	10°45.2'	196°51.7' S	25°53.0'	124°44.3' S	15°08.5'	140°14.7' S	19°19.3'	247°40.9' S	8°41.3'	
5	104°51.9'	258°50.6' S	10°46.1'	211°51.3' S	25°53.4'	139°46.7' S	15°08.5'	155°17.1' S	19°19.3'	262°41.9' S	8°41.9'	
6	119°54.3'	273°50.7' S	10°47.0'	226°50.9' S	25°53.8'	154°49.2' S	15°08.5'	170°19.5' S	19°19.3'	277°42.8' S	8°42.5'	
7	134°56.8'	288°50.8' S	10°47.9'	241°50.5' S	25°54.2'	169°51.6' S	15°08.5'	185°22.0' S	19°19.3'	292°43.7' S	8°43.2'	
8	149°59.3'	303°50.9' S	10°48.8'	256°50.1' S	25°54.6'	184°54.1' S	15°08.4'	200°24.4' S	19°19.3'	307°44.6' S	8°43.8'	
9	165°01.7'	318°51.0' S	10°49.7'	271°49.7' S	25°55.0'	199°56.5' S	15°08.4'	215°26.8' S	19°19.3'	322°45.5' S	8°44.4'	
10	180°04.2'	333°51.1' S	10°50.5'	286°49.3' S	25°55.4'	214°59.0' S	15°08.4'	230°29.2' S	19°19.3'	337°46.4' S	8°45.1'	
11	195°06.7'	348°51.2' S	10°51.4'	301°48.9' S	25°55.8'	230°01.4' S	15°08.4'	245°31.6' S	19°19.3'	352°47.3' S	8°45.7'	
12	210°09.1'	3°51.3' S	10°52.3'	316°48.5' S	25°56.3'	245°03.8' S	15°08.4'	260°34.1' S	19°19.3'	7°48.2' S	8°46.3'	
13	225°11.6'	18°51.4' S	10°53.2'	331°48.1' S	25°56.7'	260°06.3' S	15°08.4'	275°36.5' S	19°19.2'	22°49.1' S	8°47.0'	
14	240°14.0'	33°51.5' S	10°54.1'	346°47.7' S	25°57.1'	275°08.7' S	15°08.4'	290°38.9' S	19°19.2'	37°50.0' S	8°47.6'	
15	255°16.5'	48°51.6' S	10°55.0'	1°47.3' S	25°57.5'	290°11.1' S	15°08.3'	305°41.3' S	19°19.2'	52°50.9' S	8°48.2'	
16	270°19.0'	63°51.7' S	10°55.9'	16°46.9' S	25°57.9'	305°13.6' S	15°08.3'	320°43.7' S	19°19.2'	67°51.8' S	8°48.8'	
17	285°21.4'	78°51.8' S	10°56.7'	31°46.5' S	25°58.3'	320°16.0' S	15°08.3'	335°46.1' S	19°19.2'	82°52.7' S	8°49.5'	
18	300°23.9'	93°51.9' S	10°57.6'	46°46.1' S	25°58.7'	335°18.5' S	15°08.3'	350°48.6' S	19°19.2'	97°53.6' S	8°50.1'	
19	315°26.4'	108°52.0' S	10°58.5'	61°45.8' S	25°59.1'	350°20.9' S	15°08.3'	5°51.0' S	19°19.2'	112°54.5' S	8°50.7'	
20	330°28.8'	123°52.1' S	10°59.4'	76°45.4' S	25°59.5'	5°23.3' S	15°08.3'	20°53.4' S	19°19.2'	127°55.4' S	8°51.4'	
21	345°31.3'	138°52.2' S	11°00.3'	91°45.0' S	25°59.9'	20°25.8' S	15°08.2'	35°55.8' S	19°19.1'	142°56.4' S	8°52.0'	
22	0°33.8'	153°52.3' S	11°01.2'	106°44.6' S	26°00.3'	35°28.2' S	15°08.2'	50°58.2' S	19°19.1'	157°57.3' S	8°52.6'	
23	15°36.2'	168°52.4' S	11°02.0'	121°44.2' S	26°00.7'	50°30.6' S	15°08.2'	66°00.7' S	19°19.1'	172°58.2' S	8°53.3'	
		SD 16.1' d -0.9'		v -0.4' d -0.4'		v 2.4' d 0.0'		v 2.4' d 0.0'		v 0.9' d -0.6'		
Mer. pass.		11 h 44 m 36 s		14 h 53 m		19 h 39 m		18 h 37 m		11 h 29 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	358°53.1'	N 9°44.4'	15.3'	12.6'	54.7'	57°38.5'	55°04.3'	51°09.5'	38°03.6'	59°12.8'		69°40.1'	85°02.8'
1	13°27.4'	N 9°57.0'	15.3'	12.6'	54.7'	57°10.2'	54°36.9'	50°47.4'	37°33.6'	59°41.6'		70°10.5'	85°33.2'
2	28°01.7'	N 10°09.6'	15.3'	12.5'	54.7'	56°42.0'	54°09.6'	50°25.4'	37°03.6'	60°10.5'		70°40.8'	86°03.5'
3	42°36.0'	N 10°22.1'	15.2'	12.5'	54.7'	56°13.8'	53°42.3'	50°03.5'	36°33.7'	60°39.4'		71°11.2'	86°33.9'
4	57°10.2'	N 10°34.6'	15.2'	12.4'	54.6'	55°45.7'	53°15.0'	49°41.8'	36°03.8'	61°08.3'		71°41.5'	87°04.2'
5	71°44.4'	N 10°47.0'	15.2'	12.4'	54.6'	55°17.5'	52°47.8'	49°20.2'	35°33.9'	61°37.2'		72°11.8'	87°34.5'
6	86°18.6'	N 10°59.4'	15.2'	12.3'	54.6'	54°49.5'	52°20.7'	48°58.7'	35°04.0'	62°06.1'		72°42.1'	88°04.8'
7	100°52.8'	N 11°11.8'	15.1'	12.3'	54.6'	54°21.4'	51°53.6'	48°37.3'	34°34.2'	62°35.0'		73°12.4'	88°35.1'
8	115°26.9'	N 11°24.1'	15.1'	12.2'	54.6'	53°53.4'	51°26.6'	48°16.1'	34°04.3'	63°03.9'	69°00.9'	73°42.6'	89°05.3'
9	130°01.1'	N 11°36.3'	15.1'	12.2'	54.6'	53°25.5'	50°59.6'	47°55.0'	33°34.6'	63°32.7'	69°15.9'	74°12.9'	89°35.6'
10	144°35.1'	N 11°48.5'	15.1'	12.1'	54.6'	52°57.6'	50°32.7'	47°34.0'	33°04.8'	64°01.6'	69°31.0'	74°43.1'	90°05.8'
11	159°09.2'	N 12°00.6'	15.0'	12.1'	54.6'	52°29.8'	50°05.9'	47°13.2'	32°35.1'	64°30.5'	69°46.2'	75°13.3'	90°36.0'
12	173°43.2'	N 12°12.7'	15.0'	12.0'	54.5'	52°02.0'	49°39.1'	46°52.5'	32°05.4'	64°59.4'	70°01.4'	75°43.5'	91°06.2'
13	188°17.3'	N 12°24.7'	15.0'	12.0'	54.5'	51°34.2'	49°12.4'	46°32.0'	31°35.8'	65°28.3'	70°16.6'	76°13.7'	91°36.4'
14	202°51.2'	N 12°36.7'	14.9'	11.9'	54.5'	51°06.5'	48°45.7'	46°11.6'	31°06.1'	65°57.1'	70°32.0'	76°43.9'	92°06.5'
15	217°25.2'	N 12°48.6'	14.9'	11.9'	54.5'	50°38.8'	48°19.2'	45°51.3'	30°36.5'	66°26.0'	70°47.4'	77°14.0'	92°36.7'
16	231°59.1'	N 13°00.5'	14.9'	11.8'	54.5'	50°11.2'	47°52.6'	45°31.2'	30°07.0'	66°54.9'	71°02.9'	77°44.2'	93°06.8'
17	246°33.0'	N 13°12.2'	14.9'	11.7'	54.5'	49°43.7'	47°26.2'	45°11.3'	29°37.5'	67°23.7'	71°18.4'	78°14.3'	93°36.9'
18	261°06.8'	N 13°24.0'	14.8'	11.7'	54.5'	49°16.1'	46°59.8'	44°51.6'	29°08.0'	67°52.6'	71°34.0'	78°44.4'	94°07.0'
19	275°40.7'	N 13°35.7'	14.8'	11.6'	54.5'	48°48.7'	46°33.5'	44°31.9'	28°38.6'	68°21.4'	71°49.6'	79°14.5'	94°37.1'
20	290°14.4'	N 13°47.3'	14.8'	11.6'	54.4'	48°21.3'	46°07.3'	44°12.5'	28°09.2'	68°50.3'	72°05.3'	79°44.6'	95°07.2'
21	304°48.2'	N 13°58.8'	14.7'	11.5'	54.4'	47°53.9'	45°41.1'	43°53.2'	27°39.8'	69°19.1'	72°21.1'	80°14.7'	95°37.2'
22	319°21.9'	N 14°10.3'	14.7'	11.4'	54.4'	47°26.7'	45°15.0'	43°34.2'	27°10.5'	69°47.9'	72°36.9'	80°44.7'	96°07.3'
23	333°55.6'	N 14°21.8'	14.6'	11.4'	54.4'	46°59.4'	44°49.0'	43°15.2'	26°41.2'	70°16.8'	72°52.7'	81°14.8'	96°37.3'
Mer. pass.		0 h 5 m SD 14.9'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.6'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°48.7'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.9'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.4'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	30°38.7'	183°52.5'	S 11°02.9'	136°43.8'	S 26°01.1'	65°33.1'	S 15°08.2'	81°03.1'	S 19°19.1'	187°59.1'	S 8°53.9'	
1	45°41.2'	198°52.6'	S 11°03.8'	151°43.4'	S 26°01.5'	80°35.5'	S 15°08.2'	96°05.5'	S 19°19.1'	202°60.0'	S 8°54.5'	
2	60°43.6'	213°52.7'	S 11°04.7'	166°43.0'	S 26°01.8'	95°37.9'	S 15°08.2'	111°07.9'	S 19°19.1'	218°00.9'	S 8°55.1'	
3	75°46.1'	228°52.8'	S 11°05.6'	181°42.6'	S 26°02.2'	110°40.4'	S 15°08.2'	126°10.3'	S 19°19.1'	233°01.8'	S 8°55.8'	
4	90°48.5'	243°52.9'	S 11°06.5'	196°42.2'	S 26°02.6'	125°42.8'	S 15°08.1'	141°12.7'	S 19°19.1'	248°02.7'	S 8°56.4'	
5	105°51.0'	258°53.0'	S 11°07.3'	211°41.8'	S 26°03.0'	140°45.2'	S 15°08.1'	156°15.2'	S 19°19.1'	263°03.6'	S 8°57.0'	
6	120°53.5'	273°53.1'	S 11°08.2'	226°41.4'	S 26°03.4'	155°47.7'	S 15°08.1'	171°17.6'	S 19°19.0'	278°04.5'	S 8°57.7'	
7	135°55.9'	288°53.2'	S 11°09.1'	241°41.0'	S 26°03.8'	170°50.1'	S 15°08.1'	186°20.0'	S 19°19.0'	293°05.4'	S 8°58.3'	
8	150°58.4'	303°53.2'	S 11°10.0'	256°40.6'	S 26°04.2'	185°52.5'	S 15°08.1'	201°22.4'	S 19°19.0'	308°06.3'	S 8°58.9'	
9	166°00.9'	318°53.3'	S 11°10.9'	271°40.2'	S 26°04.6'	200°55.0'	S 15°08.1'	216°24.8'	S 19°19.0'	323°07.2'	S 8°59.5'	
10	181°03.3'	333°53.4'	S 11°11.7'	286°39.8'	S 26°04.9'	215°57.4'	S 15°08.0'	231°27.2'	S 19°19.0'	338°08.1'	S 9°00.2'	
11	196°05.8'	348°53.5'	S 11°12.6'	301°39.4'	S 26°05.3'	230°59.8'	S 15°08.0'	246°29.7'	S 19°19.0'	353°09.0'	S 9°00.8'	
12	211°08.3'	3°53.6'	S 11°13.5'	316°39.1'	S 26°05.7'	246°02.3'	S 15°08.0'	261°32.1'	S 19°19.0'	8°09.9'	S 9°01.4'	
13	226°10.7'	18°53.7'	S 11°14.4'	331°38.7'	S 26°06.1'	261°04.7'	S 15°08.0'	276°34.5'	S 19°19.0'	23°10.8'	S 9°02.1'	
14	241°13.2'	33°53.8'	S 11°15.3'	346°38.3'	S 26°06.5'	276°07.1'	S 15°08.0'	291°36.9'	S 19°18.9'	38°11.7'	S 9°02.7'	
15	256°15.7'	48°53.9'	S 11°16.1'	1°37.9'	S 26°06.8'	291°09.6'	S 15°08.0'	306°39.3'	S 19°18.9'	53°12.6'	S 9°03.3'	
16	271°18.1'	63°54.0'	S 11°17.0'	16°37.5'	S 26°07.2'	306°12.0'	S 15°07.9'	321°41.7'	S 19°18.9'	68°13.5'	S 9°03.9'	
17	286°20.6'	78°54.1'	S 11°17.9'	31°37.1'	S 26°07.6'	321°14.4'	S 15°07.9'	336°44.1'	S 19°18.9'	83°14.4'	S 9°04.6'	
18	301°23.0'	93°54.2'	S 11°18.8'	46°36.7'	S 26°08.0'	336°16.9'	S 15°07.9'	351°46.6'	S 19°18.9'	98°15.3'	S 9°05.2'	
19	316°25.5'	108°54.3'	S 11°19.6'	61°36.3'	S 26°08.4'	351°19.3'	S 15°07.9'	6°49.0'	S 19°18.9'	113°16.2'	S 9°05.8'	
20	331°28.0'	123°54.4'	S 11°20.5'	76°35.9'	S 26°08.7'	6°21.7'	S 15°07.9'	21°51.4'	S 19°18.9'	128°17.1'	S 9°06.5'	
21	346°30.4'	138°54.4'	S 11°21.4'	91°35.5'	S 26°09.1'	21°24.1'	S 15°07.8'	36°53.8'	S 19°18.9'	143°18.0'	S 9°07.1'	
22	1°32.9'	153°54.5'	S 11°22.3'	106°35.1'	S 26°09.5'	36°26.6'	S 15°07.8'	51°56.2'	S 19°18.8'	158°18.9'	S 9°07.7'	
23	16°35.4'	168°54.6'	S 11°23.2'	121°34.8'	S 26°09.8'	51°29.0'	S 15°07.8'	66°58.6'	S 19°18.8'	173°19.8'	S 9°08.3'	
		SD 16.1' <i>d</i> -0.9'		<i>v</i> -0.4' <i>d</i> -0.4'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 0.9' <i>d</i> -0.6'		
Mer. pass.		11 h 44 m 27 s		14 h 53 m		19 h 35 m		18 h 33 m		11 h 27 m		

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	348°29.3'	N 14°33.2'	14.6'	11.3'	54.4'	46°32.2'	44°23.1'	42°56.5'	26°11.9'	70°45.6'	73°08.7'	81°44.8'	97°07.3'
1	3°02.9'	N 14°44.5'	14.6'	11.2'	54.4'	46°05.1'	43°57.3'	42°37.9'	25°42.8'	71°14.4'	73°24.6'	82°14.8'	97°37.3'
2	17°36.4'	N 14°55.7'	14.5'	11.2'	54.4'	45°38.1'	43°31.5'	42°19.6'	25°13.6'	71°43.2'	73°40.6'	82°44.8'	98°07.3'
3	32°10.0'	N 15°06.9'	14.5'	11.1'	54.4'	45°11.1'	43°05.9'	42°01.4'	24°44.5'	72°12.0'	73°56.7'	83°14.8'	98°37.3'
4	46°43.5'	N 15°18.0'	14.5'	11.0'	54.3'	44°44.2'	42°40.3'	41°43.4'	24°15.5'	72°40.8'	74°12.8'	83°44.7'	99°07.2'
5	61°17.0'	N 15°29.0'	14.4'	11.0'	54.3'	44°17.3'	42°14.8'	41°25.6'	23°46.5'	73°09.6'	74°29.0'	84°14.7'	99°37.2'
6	75°50.4'	N 15°40.0'	14.4'	10.9'	54.3'	43°50.5'	41°49.4'	41°08.1'	23°17.6'	73°38.4'	74°45.2'	84°44.6'	100°07.1'
7	90°23.8'	N 15°50.9'	14.3'	10.8'	54.3'	43°23.8'	41°24.1'	40°50.7'	22°48.7'	74°07.2'	75°01.4'	85°14.6'	100°37.0'
8	104°57.1'	N 16°01.8'	14.3'	10.8'	54.3'	42°57.1'	40°58.9'	40°33.5'	22°19.9'	74°36.0'	75°17.7'	85°44.5'	101°06.9'
9	119°30.4'	N 16°12.5'	14.3'	10.7'	54.3'	42°30.5'	40°33.8'	40°16.6'	21°51.1'	75°04.7'	75°34.0'	86°14.4'	101°36.8'
10	134°03.7'	N 16°23.2'	14.2'	10.6'	54.3'	42°04.0'	40°08.8'	39°59.9'	21°22.4'	75°33.5'	75°50.4'	86°44.3'	102°06.7'
11	148°36.9'	N 16°33.9'	14.2'	10.6'	54.3'	41°37.6'	39°43.9'	39°43.4'	20°53.8'	76°02.3'	76°06.8'	87°14.1'	102°36.5'
12	163°10.1'	N 16°44.4'	14.1'	10.5'	54.3'	41°11.2'	39°19.1'	39°27.1'	20°25.3'	76°31.0'	76°23.2'	87°44.0'	103°06.4'
13	177°43.2'	N 16°54.9'	14.1'	10.4'	54.3'	40°44.9'	38°54.5'	39°11.0'	19°56.8'	76°59.8'	76°39.7'	88°13.8'	103°36.2'
14	192°16.4'	N 17°05.3'	14.1'	10.3'	54.2'	40°18.7'	38°29.9'	38°55.2'	19°28.4'	77°28.5'	76°56.2'	88°43.7'	104°06.1'
15	206°49.4'	N 17°15.6'	14.0'	10.3'	54.2'	39°52.6'	38°05.5'	38°39.7'	19°00.2'	77°57.2'	77°12.8'	89°13.5'	104°35.9'
16	221°22.4'	N 17°25.9'	14.0'	10.2'	54.2'	39°26.6'	37°41.2'	38°24.3'	18°32.0'	78°25.9'	77°29.4'	89°43.3'	105°05.7'
17	235°55.4'	N 17°36.1'	13.9'	10.1'	54.2'	39°00.7'	37°17.0'		18°03.9'	78°54.7'	77°46.0'	90°13.1'	105°35.5'
18	250°28.3'	N 17°46.2'	13.9'	10.0'	54.2'	38°34.8'	36°52.9'		17°35.9'	79°23.4'	78°02.6'	90°42.9'	106°05.2'
19	265°01.2'	N 17°56.2'	13.8'	10.0'	54.2'	38°09.1'	36°29.0'		17°08.0'	79°52.1'	78°19.3'	91°12.7'	106°35.0'
20	279°34.1'	N 18°06.2'	13.8'	9.9'	54.2'	37°43.4'	36°05.2'		16°40.3'	80°20.8'	78°36.1'	91°42.4'	107°04.7'
21	294°06.9'	N 18°16.0'	13.8'	9.8'	54.2'	37°17.8'	35°41.6'		16°12.7'	80°49.4'	78°52.8'	92°12.2'	107°34.5'
22	308°39.6'	N 18°25.8'	13.7'	9.7'	54.2'	36°52.4'	35°18.0'		15°45.2'	81°18.1'	79°09.6'	92°41.9'	108°04.2'
23	323°12.3'	N 18°35.5'	13.7'	9.6'	54.2'	36°27.0'	34°54.7'		15°17.9'	81°46.8'	79°26.4'	93°11.7'	108°33.9'
Mer. pass.		0 h 47 m SD 14.8'		phase 98%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°48.5'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	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	31°37.8'	183°54.7'	S 11°24.0'	136°34.4'	S 26°10.2'		66°31.4'	S 15°07.8'		82°01.0'	S 19°18.8'		188°20.7'	S 9°09.0'				
1	46°40.3'	198°54.8'	S 11°24.9'	151°34.0'	S 26°10.6'		81°33.8'	S 15°07.8'		97°03.5'	S 19°18.8'		203°21.6'	S 9°09.6'				
2	61°42.8'	213°54.9'	S 11°25.8'	166°33.6'	S 26°10.9'		96°36.3'	S 15°07.8'		112°05.9'	S 19°18.8'		218°22.5'	S 9°10.2'				
3	76°45.2'	228°55.0'	S 11°26.7'	181°33.2'	S 26°11.3'		111°38.7'	S 15°07.7'		127°08.3'	S 19°18.8'		233°23.4'	S 9°10.9'				
4	91°47.7'	243°55.1'	S 11°27.5'	196°32.8'	S 26°11.7'		126°41.1'	S 15°07.7'		142°10.7'	S 19°18.8'		248°24.3'	S 9°11.5'				
5	106°50.1'	258°55.1'	S 11°28.4'	211°32.4'	S 26°12.0'		141°43.6'	S 15°07.7'		157°13.1'	S 19°18.8'		263°25.2'	S 9°12.1'				
6	121°52.6'	273°55.2'	S 11°29.3'	226°32.0'	S 26°12.4'		156°46.0'	S 15°07.7'		172°15.5'	S 19°18.7'		278°26.1'	S 9°12.7'				
7	136°55.1'	288°55.3'	S 11°30.2'	241°31.6'	S 26°12.8'		171°48.4'	S 15°07.7'		187°17.9'	S 19°18.7'		293°27.0'	S 9°13.4'				
8	151°57.5'	303°55.4'	S 11°31.0'	256°31.3'	S 26°13.1'		186°50.8'	S 15°07.6'		202°20.3'	S 19°18.7'		308°27.9'	S 9°14.0'				
9	167°00.0'	318°55.5'	S 11°31.9'	271°30.9'	S 26°13.5'		201°53.2'	S 15°07.6'		217°22.7'	S 19°18.7'		323°28.8'	S 9°14.6'				
10	182°02.5'	333°55.6'	S 11°32.8'	286°30.5'	S 26°13.8'		216°55.7'	S 15°07.6'		232°25.2'	S 19°18.7'		338°29.7'	S 9°15.2'				
11	197°04.9'	348°55.7'	S 11°33.6'	301°30.1'	S 26°14.2'		231°58.1'	S 15°07.6'		247°27.6'	S 19°18.7'		353°30.6'	S 9°15.9'				
12	212°07.4'	3°55.8'	S 11°34.5'	316°29.7'	S 26°14.6'		247°00.5'	S 15°07.6'		262°30.0'	S 19°18.7'		8°31.5'	S 9°16.5'				
13	227°09.9'	18°55.8'	S 11°35.4'	331°29.3'	S 26°14.9'		262°02.9'	S 15°07.5'		277°32.4'	S 19°18.6'		23°32.4'	S 9°17.1'				
14	242°12.3'	33°55.9'	S 11°36.3'	346°28.9'	S 26°15.3'		277°05.4'	S 15°07.5'		292°34.8'	S 19°18.6'		38°33.3'	S 9°17.7'				
15	257°14.8'	48°56.0'	S 11°37.1'	1°28.6'	S 26°15.6'		292°07.8'	S 15°07.5'		307°37.2'	S 19°18.6'		53°34.2'	S 9°18.4'				
16	272°17.3'	63°56.1'	S 11°38.0'	16°28.2'	S 26°16.0'		307°10.2'	S 15°07.5'		322°39.6'	S 19°18.6'		68°35.1'	S 9°19.0'				
17	287°19.7'	78°56.2'	S 11°38.9'	31°27.8'	S 26°16.3'		322°12.6'	S 15°07.5'		337°42.0'	S 19°18.6'		83°36.0'	S 9°19.6'				
18	302°22.2'	93°56.3'	S 11°39.7'	46°27.4'	S 26°16.7'		337°15.0'	S 15°07.4'		352°44.4'	S 19°18.6'		98°36.9'	S 9°20.3'				
19	317°24.6'	108°56.3'	S 11°40.6'	61°27.0'	S 26°17.0'		352°17.5'	S 15°07.4'		7°46.9'	S 19°18.6'		113°37.8'	S 9°20.9'				
20	332°27.1'	123°56.4'	S 11°41.5'	76°26.6'	S 26°17.4'		7°19.9'	S 15°07.4'		22°49.3'	S 19°18.5'		128°38.7'	S 9°21.5'				
21	347°29.6'	138°56.5'	S 11°42.4'	91°26.3'	S 26°17.7'		22°22.3'	S 15°07.4'		37°51.7'	S 19°18.5'		143°39.6'	S 9°22.1'				
22	2°32.0'	153°56.6'	S 11°43.2'	106°25.9'	S 26°18.1'		37°24.7'	S 15°07.4'		52°54.1'	S 19°18.5'		158°40.5'	S 9°22.8'				
23	17°34.5'	168°56.7'	S 11°44.1'	121°25.5'	S 26°18.4'		52°27.1'	S 15°07.3'		67°56.5'	S 19°18.5'		173°41.4'	S 9°23.4'				
		SD 16.1' d -0.9'		v -0.4' d -0.4'			v 2.4' d 0.0'			v 2.4' d 0.0'			v 0.9' d -0.6'					
Mer. pass.		11 h 44 m 18 s		14 h 54 m			19 h 31 m			18 h 29 m			11 h 26 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	337°45.0'	N 18°45.2'	13.6'	9.5'	54.2'	57°46.0'	36°01.8'	34°31.5'	14°50.7'	79°43.2'	82°15.5'	93°41.4'	109°03.6'
1	352°17.6'	N 18°54.7'	13.6'	9.5'	54.2'	57°16.3'	35°36.6'	34°08.4'	14°23.8'	80°00.1'	82°44.1'	94°11.1'	109°33.3'
2	6°50.2'	N 19°04.2'	13.5'	9.4'	54.1'	56°46.5'	35°11.6'	33°45.6'	13°57.0'	80°16.9'	83°12.8'	94°40.8'	110°03.0'
3	21°22.7'	N 19°13.6'	13.5'	9.3'	54.1'	56°16.7'	34°46.7'	33°22.8'	13°30.4'	80°33.9'	83°41.4'	95°10.5'	110°32.7'
4	35°55.2'	N 19°22.9'	13.4'	9.2'	54.1'	55°47.0'	34°21.9'	33°00.3'	13°04.1'	80°50.8'	84°10.0'	95°40.1'	111°02.3'
5	50°27.6'	N 19°32.1'	13.4'	9.1'	54.1'	55°17.3'	33°57.3'	32°37.9'	12°38.1'	81°07.7'	84°38.7'	96°09.8'	111°32.0'
6	64°60.0'	N 19°41.2'	13.3'	9.0'	54.1'	54°47.5'	33°32.7'	32°15.8'	12°12.3'	81°24.7'	85°07.3'	96°39.5'	112°01.6'
7	79°32.3'	N 19°50.2'	13.3'	9.0'	54.1'	54°17.8'	33°08.3'	31°53.8'	11°46.9'	81°41.7'	85°35.9'	97°09.1'	112°31.2'
8	94°04.6'	N 19°59.2'	13.2'	8.9'	54.1'	53°48.1'	32°44.1'	31°32.0'	11°21.8'	81°58.7'	86°04.5'	97°38.7'	113°00.8'
9	108°36.9'	N 20°08.1'	13.2'	8.8'	54.1'	53°18.4'	32°20.0'	31°10.4'	10°57.1'	82°15.8'	86°33.1'	98°08.3'	113°30.4'
10	123°09.1'	N 20°16.8'	13.1'	8.7'	54.1'	52°48.8'	31°56.0'	30°49.0'	10°32.8'	82°32.8'	87°01.7'	98°38.0'	114°00.0'
11	137°41.2'	N 20°25.5'	13.1'	8.6'	54.1'	52°19.1'	31°32.2'	30°27.8'	10°09.1'	82°49.9'	87°30.2'	99°07.6'	114°29.6'
12	152°13.3'	N 20°34.1'	13.1'	8.5'	54.1'	51°49.4'	31°08.5'	30°06.9'	9°45.8'	83°07.0'	87°58.8'	99°37.2'	114°59.2'
13	166°45.4'	N 20°42.6'	13.0'	8.4'	54.1'	51°19.8'	30°45.1'	29°46.2'	9°23.2'	83°24.1'	88°27.4'	100°06.7'	115°28.8'
14	181°17.4'	N 20°51.0'	13.0'	8.3'	54.1'	50°50.1'	30°21.7'	29°25.7'	9°01.3'	83°41.2'	88°55.9'	100°36.3'	115°58.3'
15	195°49.3'	N 20°59.4'	12.9'	8.2'	54.1'	50°20.5'	29°58.6'	29°05.5'		83°58.3'	89°24.5'	101°05.9'	116°27.9'
16	210°21.2'	N 21°07.6'	12.9'	8.1'	54.1'	49°50.9'	29°35.7'	28°45.5'		84°15.5'	89°53.0'	101°35.4'	116°57.4'
17	224°53.1'	N 21°15.7'	12.8'	8.0'	54.1'	49°21.2'	29°12.9'	28°25.8'		84°32.6'	90°21.6'	102°05.0'	117°26.9'
18	239°24.9'	N 21°23.8'	12.8'	7.9'	54.0'	48°51.6'	28°50.3'	28°06.4'		84°49.8'	90°50.1'	102°34.5'	117°56.5'
19	253°56.7'	N 21°31.7'	12.7'	7.9'	54.0'	48°22.0'	28°27.9'	27°47.3'		85°07.0'	91°18.6'	103°04.1'	118°26.0'
20	268°28.4'	N 21°39.6'	12.7'	7.8'	54.0'	47°52.4'	28°05.8'	27°28.4'		85°24.2'	91°47.1'	103°33.6'	118°55.5'
21	283°00.0'	N 21°47.3'	12.6'	7.7'	54.0'	47°22.8'	27°43.9'	27°09.8'		85°41.4'	92°15.6'	104°03.1'	119°25.0'
22	297°31.7'	N 21°55.0'	12.6'	7.6'	54.0'	46°53.3'	27°22.2'	26°51.6'		85°58.6'	92°44.1'	104°32.6'	119°54.5'
23	312°03.2'	N 22°02.6'	12.5'	7.5'	54.0'	46°23.7'	27°00.7'	26°33.7'		86°15.8'	93°12.6'	105°02.1'	
Mer. pass.		1 h 32 m SD 14.8'		phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.3'	Polaris	+2.0	314°48.2'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars					
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec				
0	32°37.0'	183°56.8'	S	11°45.0'	136°25.1'	S	26°18.8'	67°29.6'	S	15°07.3'	82°58.9'	S	19°18.5'	188°42.3'	S	9°24.0'
1	47°39.4'	198°56.8'	S	11°45.8'	151°24.7'	S	26°19.1'	82°32.0'	S	15°07.3'	98°01.3'	S	19°18.5'	203°43.2'	S	9°24.6'
2	62°41.9'	213°56.9'	S	11°46.7'	166°24.3'	S	26°19.4'	97°34.4'	S	15°07.3'	113°03.7'	S	19°18.5'	218°44.1'	S	9°25.3'
3	77°44.4'	228°57.0'	S	11°47.6'	181°24.0'	S	26°19.8'	112°36.8'	S	15°07.3'	128°06.1'	S	19°18.5'	233°45.0'	S	9°25.9'
4	92°46.8'	243°57.1'	S	11°48.4'	196°23.6'	S	26°20.1'	127°39.2'	S	15°07.2'	143°08.5'	S	19°18.4'	248°45.9'	S	9°26.5'
5	107°49.3'	258°57.2'	S	11°49.3'	211°23.2'	S	26°20.5'	142°41.7'	S	15°07.2'	158°10.9'	S	19°18.4'	263°46.8'	S	9°27.1'
6	122°51.8'	273°57.2'	S	11°50.2'	226°22.8'	S	26°20.8'	157°44.1'	S	15°07.2'	173°13.4'	S	19°18.4'	278°47.7'	S	9°27.8'
7	137°54.2'	288°57.3'	S	11°51.0'	241°22.4'	S	26°21.1'	172°46.5'	S	15°07.2'	188°15.8'	S	19°18.4'	293°48.6'	S	9°28.4'
8	152°56.7'	303°57.4'	S	11°51.9'	256°22.1'	S	26°21.5'	187°48.9'	S	15°07.1'	203°18.2'	S	19°18.4'	308°49.5'	S	9°29.0'
9	167°59.1'	318°57.5'	S	11°52.8'	271°21.7'	S	26°21.8'	202°51.3'	S	15°07.1'	218°20.6'	S	19°18.4'	323°50.4'	S	9°29.6'
10	183°01.6'	333°57.6'	S	11°53.6'	286°21.3'	S	26°22.1'	217°53.7'	S	15°07.1'	233°23.0'	S	19°18.4'	338°51.3'	S	9°30.3'
11	198°04.1'	348°57.6'	S	11°54.5'	301°20.9'	S	26°22.5'	232°56.2'	S	15°07.1'	248°25.4'	S	19°18.3'	353°52.2'	S	9°30.9'
12	213°06.5'	3°57.7'	S	11°55.4'	316°20.6'	S	26°22.8'	247°58.6'	S	15°07.1'	263°27.8'	S	19°18.3'	8°53.1'	S	9°31.5'
13	228°09.0'	18°57.7'	S	11°56.2'	331°20.2'	S	26°23.1'	263°01.0'	S	15°07.0'	278°30.2'	S	19°18.3'	23°54.0'	S	9°32.1'
14	243°11.5'	33°57.9'	S	11°57.1'	346°19.8'	S	26°23.5'	278°03.4'	S	15°07.0'	293°32.6'	S	19°18.3'	38°54.9'	S	9°32.7'
15	258°13.9'	48°57.9'	S	11°58.0'	1°19.4'	S	26°23.8'	293°05.8'	S	15°07.0'	308°35.0'	S	19°18.3'	53°55.8'	S	9°33.4'
16	273°16.4'	63°58.0'	S	11°58.8'	16°19.0'	S	26°24.1'	308°08.2'	S	15°07.0'	323°37.4'	S	19°18.3'	68°56.6'	S	9°34.0'
17	288°18.9'	78°58.1'	S	11°59.7'	31°18.7'	S	26°24.4'	323°10.6'	S	15°06.9'	338°39.8'	S	19°18.2'	83°57.5'	S	9°34.6'
18	303°21.3'	93°58.2'	S	12°00.5'	46°18.3'	S	26°24.8'	338°13.1'	S	15°06.9'	353°42.2'	S	19°18.2'	98°58.4'	S	9°35.2'
19	318°23.8'	108°58.2'	S	12°01.4'	61°17.9'	S	26°25.1'	353°15.5'	S	15°06.9'	8°44.6'	S	19°18.2'	113°59.3'	S	9°35.9'
20	333°26.2'	123°58.3'	S	12°02.3'	76°17.5'	S	26°25.4'	8°17.9'	S	15°06.9'	23°47.0'	S	19°18.2'	129°00.2'	S	9°36.5'
21	348°28.7'	138°58.4'	S	12°03.1'	91°17.2'	S	26°25.7'	23°20.3'	S	15°06.8'	38°49.4'	S	19°18.2'	144°01.1'	S	9°37.1'
22	3°31.2'	153°58.5'	S	12°04.0'	106°16.8'	S	26°26.0'	38°22.7'	S	15°06.8'	53°51.9'	S	19°18.2'	159°02.0'	S	9°37.7'
23	18°33.6'	168°58.5'	S	12°04.9'	121°16.4'	S	26°26.4'	53°25.1'	S	15°06.8'	68°54.3'	S	19°18.2'	174°02.9'	S	9°38.4'
		SD 16.1'	d -0.9'		v -0.4'	d -0.3'		v 2.4'	d 0.0'		v 2.4'	d 0.0'		v 0.9'	d -0.6'	
Mer. pass.		11 h 44 m 10 s			14 h 55 m			19 h 27 m			18 h 25 m			11 h 25 m		

h	Moon					Lunar distance										
	GHA	dec	v	d	HP	-Regulus	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter			
0	326°34.8'	N 22°10.0'	12.5'	7.4'	54.0'	82°13.0'	45°54.1'	26°39.5'	26°16.1'		86°33.0'	93°41.1'	105°31.6'			
1	341°06.2'	N 22°17.4'	12.4'	7.3'	54.0'	81°43.5'	45°24.6'	26°18.5'	25°58.8'		86°50.3'	94°09.6'	106°01.1'			
2	355°37.7'	N 22°24.7'	12.4'	7.2'	54.0'	81°14.0'	44°55.0'	25°57.8'	25°41.9'		87°07.5'	94°38.0'	106°30.6'			
3	10°09.0'	N 22°31.8'	12.3'	7.1'	54.0'	80°44.5'	44°25.5'	25°37.3'	25°25.4'		87°24.8'	95°06.5'	107°00.1'			
4	24°40.4'	N 22°38.9'	12.3'	7.0'	54.0'	80°15.0'	43°55.9'	25°17.2'	25°09.2'		87°42.0'	95°34.9'	107°29.5'			
5	39°11.7'	N 22°45.9'	12.2'	6.9'	54.0'	79°45.5'	43°26.4'	24°57.4'	24°53.4'		87°59.3'	96°03.4'	107°59.0'			
6	53°42.9'	N 22°52.7'	12.2'	6.8'	54.0'	79°16.0'	42°56.9'	24°37.8'			88°16.5'	96°31.8'	108°28.4'			
7	68°14.1'	N 22°59.5'	12.1'	6.7'	54.0'	78°46.5'	42°27.4'	24°18.6'			88°33.8'	97°00.3'	108°57.9'			
8	82°45.2'	N 23°06.1'	12.1'	6.6'	54.0'	78°17.1'	41°57.9'	23°59.7'			88°51.0'	97°28.7'	109°27.3'			
9	97°16.3'	N 23°12.7'	12.1'	6.4'	54.0'	77°47.6'	41°28.3'	23°41.2'			89°08.3'	97°57.1'	109°56.8'			
10	111°47.4'	N 23°19.1'	12.0'	6.3'	54.0'	77°18.1'	40°58.8'	23°23.0'			89°25.6'	98°25.5'	110°26.2'			
11	126°18.4'	N 23°25.5'	12.0'	6.2'	54.0'	76°48.7'	40°29.4'	23°05.2'			89°42.8'	98°53.9'	110°55.7'			
12	140°49.4'	N 23°31.7'	11.9'	6.1'	54.0'	76°19.2'	39°59.9'	22°47.8'			90°00.1'	99°22.3'	111°25.1'			
13	155°20.3'	N 23°37.8'	11.9'	6.0'	54.0'	75°49.8'	39°30.4'	22°30.7'			90°17.3'	99°50.7'	111°54.5'			
14	169°51.1'	N 23°43.9'	11.8'	5.9'	54.0'	75°20.3'	39°00.9'	22°14.1'			90°34.6'	100°19.1'	112°23.9'			
15	184°22.0'	N 23°49.8'	11.8'	5.8'	54.0'	74°50.9'	38°31.4'	21°58.0'			90°51.8'	100°47.5'	112°53.3'			
16	198°52.7'	N 23°55.6'	11.7'	5.7'	54.0'	74°21.4'	38°02.0'	21°42.2'			91°09.1'	101°15.9'	113°22.7'			
17	213°23.5'	N 24°01.3'	11.7'	5.6'	54.0'	73°52.0'	37°32.5'			9°08.6'	91°26.3'	101°44.2'	113°52.1'			
18	227°54.2'	N 24°06.9'	11.6'	5.5'	54.0'	73°22.6'	37°03.0'			9°30.7'	91°43.6'	102°12.6'	114°21.5'			
19	242°24.8'	N 24°12.4'	11.6'	5.4'	54.0'	72°53.1'	36°33.6'			9°53.4'	92°00.8'	102°41.0'	114°50.9'			
20	256°55.4'	N 24°17.7'	11.6'	5.3'	54.0'	72°23.7'	36°04.1'			10°16.6'	92°18.0'	103°09.3'	115°20.3'			
21	271°26.0'	N 24°23.0'	11.5'	5.1'	54.0'	71°54.3'	35°34.7'			10°40.4'	92°35.2'	103°37.6'	115°49.7'			
22	285°56.5'	N 24°28.1'	11.5'	5.0'	54.0'	71°24.9'	35°05.2'			11°04.7'	92°52.5'	104°06.0'	116°19.1'			
23	300°27.0'	N 24°33.2'	11.4'	4.9'	54.0'	70°55.4'	34°35.8'			11°29.3'	93°09.7'	104°34.3'	116°48.5'			
Mer. pass.		2 h 18 m SD 14.7'	phase 90%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.2'	Polaris	+2.0	314°47.9'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.5'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	33°36.1'		183°58.6'	S 12°05.7'	136°16.0'	S 26°26.7'	68°27.5'	S 15°06.8'	83°56.7'	S 19°18.1'	189°03.8'	S 9°39.0'
1	48°38.6'		198°58.7'	S 12°06.6'	151°15.7'	S 26°27.0'	83°29.9'	S 15°06.7'	98°59.1'	S 19°18.1'	204°04.7'	S 9°39.6'
2	63°41.0'		213°58.8'	S 12°07.4'	166°15.3'	S 26°27.3'	98°32.3'	S 15°06.7'	114°01.5'	S 19°18.1'	219°05.6'	S 9°40.2'
3	78°43.5'		228°58.8'	S 12°08.3'	181°14.9'	S 26°27.6'	113°34.8'	S 15°06.7'	129°03.9'	S 19°18.1'	234°06.5'	S 9°40.9'
4	93°46.0'		243°58.9'	S 12°09.2'	196°14.5'	S 26°27.9'	128°37.2'	S 15°06.7'	144°06.3'	S 19°18.1'	249°07.4'	S 9°41.5'
5	108°48.4'		258°59.0'	S 12°10.0'	211°14.2'	S 26°28.3'	143°39.6'	S 15°06.7'	159°08.7'	S 19°18.1'	264°08.3'	S 9°42.1'
6	123°50.9'		273°59.1'	S 12°10.9'	226°13.8'	S 26°28.6'	158°42.0'	S 15°06.6'	174°11.1'	S 19°18.1'	279°09.2'	S 9°42.7'
7	138°53.4'		288°59.1'	S 12°11.7'	241°13.4'	S 26°28.9'	173°44.4'	S 15°06.6'	189°13.5'	S 19°18.0'	294°10.1'	S 9°43.3'
8	153°55.8'		303°59.2'	S 12°12.6'	256°13.1'	S 26°29.2'	188°46.8'	S 15°06.6'	204°15.9'	S 19°18.0'	309°10.9'	S 9°44.0'
9	168°58.3'		318°59.3'	S 12°13.5'	271°12.7'	S 26°29.5'	203°49.2'	S 15°06.6'	219°18.3'	S 19°18.0'	324°11.8'	S 9°44.6'
10	184°00.7'		333°59.3'	S 12°14.3'	286°12.3'	S 26°29.8'	218°51.6'	S 15°06.5'	234°20.7'	S 19°18.0'	339°12.7'	S 9°45.2'
11	199°03.2'		348°59.4'	S 12°15.2'	301°12.0'	S 26°30.1'	233°54.0'	S 15°06.5'	249°23.1'	S 19°18.0'	354°13.6'	S 9°45.8'
12	214°05.7'		3°59.5'	S 12°16.0'	316°11.6'	S 26°30.4'	248°56.4'	S 15°06.5'	264°25.5'	S 19°18.0'	9°14.5'	S 9°46.5'
13	229°08.1'		18°59.6'	S 12°16.9'	331°11.2'	S 26°30.7'	263°58.8'	S 15°06.5'	279°27.9'	S 19°17.9'	24°15.4'	S 9°47.1'
14	244°10.6'		33°59.6'	S 12°17.7'	346°10.8'	S 26°31.0'	279°01.2'	S 15°06.4'	294°30.3'	S 19°17.9'	39°16.3'	S 9°47.7'
15	259°13.1'		48°59.7'	S 12°18.6'	1°10.5'	S 26°31.3'	294°03.6'	S 15°06.4'	309°32.7'	S 19°17.9'	54°17.2'	S 9°48.3'
16	274°15.5'		63°59.8'	S 12°19.5'	16°10.1'	S 26°31.6'	309°06.0'	S 15°06.4'	324°35.1'	S 19°17.9'	69°18.1'	S 9°48.9'
17	289°18.0'		78°59.8'	S 12°20.3'	31°09.7'	S 26°31.9'	324°08.5'	S 15°06.3'	339°37.5'	S 19°17.9'	84°19.0'	S 9°49.6'
18	304°20.5'		93°59.9'	S 12°21.2'	46°09.4'	S 26°32.2'	339°10.9'	S 15°06.3'	354°39.9'	S 19°17.9'	99°19.9'	S 9°50.2'
19	319°22.9'		108°60.0'	S 12°22.0'	61°09.0'	S 26°32.5'	354°13.3'	S 15°06.3'	9°42.3'	S 19°17.8'	114°20.7'	S 9°50.8'
20	334°25.4'		124°00.0'	S 12°22.9'	76°08.6'	S 26°32.8'	9°15.7'	S 15°06.3'	24°44.7'	S 19°17.8'	129°21.6'	S 9°51.4'
21	349°27.9'		139°00.1'	S 12°23.7'	91°08.3'	S 26°33.1'	24°18.1'	S 15°06.2'	39°47.1'	S 19°17.8'	144°22.5'	S 9°52.0'
22	4°30.3'		154°00.2'	S 12°24.6'	106°07.9'	S 26°33.4'	39°20.5'	S 15°06.2'	54°49.5'	S 19°17.8'	159°23.4'	S 9°52.7'
23	19°32.8'		169°00.2'	S 12°25.4'	121°07.5'	S 26°33.7'	54°22.9'	S 15°06.2'	69°51.9'	S 19°17.8'	174°24.3'	S 9°53.3'
			SD 16.1' <i>d</i> -0.9'		<i>v</i> -0.4' <i>d</i> -0.3'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 0.9' <i>d</i> -0.6'	
Mer. pass.			11 h 44 m 3 s		14 h 55 m		19 h 23 m		18 h 21 m		11 h 23 m	

h	Moon					Lunar distance						
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Regulus	-Procyon	-Pollux	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter
0	314°57.4'	N 24°38.1'	11.4'	4.8'	54.0'	70°26.0'	40°02.2'	34°06.3'	11°54.3'	93°26.8'	105°02.6'	117°17.9'
1	329°27.8'	N 24°42.9'	11.4'	4.7'	54.0'	69°56.6'	39°37.3'	33°36.9'	12°19.7'	93°44.0'	105°31.0'	117°47.3'
2	343°58.2'	N 24°47.6'	11.3'	4.6'	54.0'	69°27.2'	39°12.5'	33°07.4'	12°45.3'	94°01.2'	105°59.3'	118°16.7'
3	358°28.5'	N 24°52.2'	11.3'	4.5'	54.0'	68°57.8'	38°47.9'	32°38.0'	13°11.2'	94°18.4'	106°27.6'	118°46.1'
4	12°58.7'	N 24°56.6'	11.2'	4.4'	54.0'	68°28.4'	38°23.3'	32°08.6'	13°37.4'	94°35.5'	106°55.9'	119°15.4'
5	27°29.0'	N 25°01.0'	11.2'	4.2'	54.0'	67°58.9'	37°58.8'	31°39.1'	14°03.7'	94°52.6'	107°24.2'	119°44.8'
6	41°59.2'	N 25°05.2'	11.2'	4.1'	54.0'	67°29.5'	37°34.4'	31°09.7'	14°30.3'	95°09.7'	107°52.5'	
7	56°29.3'	N 25°09.3'	11.1'	4.0'	54.0'	67°00.1'	37°10.2'	30°40.3'	14°57.1'	95°26.9'	108°20.7'	
8	70°59.5'	N 25°13.3'	11.1'	3.9'	54.0'	66°30.7'	36°46.0'	30°10.9'	15°24.0'	95°43.9'	108°49.0'	
9	85°29.5'	N 25°17.2'	11.0'	3.8'	54.0'	66°01.3'	36°22.0'	29°41.5'	15°51.1'	96°01.0'	109°17.3'	
10	99°59.6'	N 25°21.0'	11.0'	3.7'	54.0'	65°31.8'	35°58.0'	29°12.0'	16°18.3'	96°18.1'	109°45.6'	
11	114°29.6'	N 25°24.6'	11.0'	3.5'	54.0'	65°02.4'	35°34.2'	28°42.6'	16°45.6'	96°35.1'	110°13.8'	
12	128°59.6'	N 25°28.2'	10.9'	3.4'	54.1'	64°33.0'	35°10.5'	28°13.2'	17°13.1'	96°52.1'	110°42.1'	
13	143°29.5'	N 25°31.6'	10.9'	3.3'	54.1'	64°03.6'	34°47.0'	27°43.8'	17°40.7'	97°09.1'	111°10.3'	
14	157°59.4'	N 25°34.9'	10.9'	3.2'	54.1'	63°34.2'	34°23.6'	27°14.4'	18°08.3'	97°26.1'	111°38.6'	
15	172°29.3'	N 25°38.1'	10.8'	3.1'	54.1'	63°04.7'	34°00.3'	26°45.0'	18°36.1'	97°43.1'	112°06.8'	
16	186°59.2'	N 25°41.1'	10.8'	2.9'	54.1'	62°35.3'	33°37.1'	26°15.5'	19°04.0'	98°00.0'	112°35.1'	
17	201°29.0'	N 25°44.0'	10.8'	2.8'	54.1'	62°05.9'	33°14.1'	25°46.1'	19°31.9'	98°16.9'	113°03.3'	
18	215°58.8'	N 25°46.9'	10.8'	2.7'	54.1'	61°36.4'	32°51.3'	25°16.7'	19°60.0'	98°33.8'	113°31.5'	
19	230°28.5'	N 25°49.5'	10.7'	2.6'	54.1'	61°07.0'	32°28.6'	24°47.3'	20°28.1'	98°50.7'	113°59.7'	
20	244°58.2'	N 25°52.1'	10.7'	2.4'	54.1'	60°37.5'	32°06.0'	24°17.9'	20°56.2'	99°07.6'	114°27.9'	
21	259°27.9'	N 25°54.6'	10.7'	2.3'	54.1'	60°08.1'	31°43.7'	23°48.5'	21°24.5'	99°24.4'	114°56.1'	
22	273°57.6'	N 25°56.9'	10.6'	2.2'	54.1'	59°38.6'	31°21.5'	23°19.1'	21°52.8'	99°41.2'	115°24.3'	
23	288°27.2'	N 25°59.1'	10.6'	2.1'	54.1'	59°09.2'	30°59.5'	22°49.7'	22°21.1'	99°58.0'	115°52.5'	
Mer. pass.			3 h 6 m SD 14.7'	phase 84%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.2'	Polaris	+2.0	314°47.7'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.6'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	34°35.2'	184°00.3'	S 12°26.3'	136°07.2'	S 26°34.0'	69°25.3'	S 15°06.2'	84°54.3'	S 19°17.8'	189°25.2'	S 9°53.9'	
1	49°37.7'	199°00.4'	S 12°27.1'	151°06.8'	S 26°34.3'	84°27.7'	S 15°06.1'	99°56.7'	S 19°17.8'	204°26.1'	S 9°54.5'	
2	64°40.2'	214°00.4'	S 12°28.0'	166°06.4'	S 26°34.6'	99°30.1'	S 15°06.1'	114°59.1'	S 19°17.7'	219°27.0'	S 9°55.1'	
3	79°42.6'	229°00.5'	S 12°28.9'	181°06.1'	S 26°34.9'	114°32.5'	S 15°06.1'	130°01.5'	S 19°17.7'	234°27.9'	S 9°55.8'	
4	94°45.1'	244°00.6'	S 12°29.7'	196°05.7'	S 26°35.2'	129°34.9'	S 15°06.1'	145°03.9'	S 19°17.7'	249°28.8'	S 9°56.4'	
5	109°47.6'	259°00.6'	S 12°30.6'	211°05.4'	S 26°35.5'	144°37.3'	S 15°06.0'	160°06.3'	S 19°17.7'	264°29.6'	S 9°57.0'	
6	124°50.0'	274°00.7'	S 12°31.4'	226°05.0'	S 26°35.7'	159°39.7'	S 15°06.0'	175°08.7'	S 19°17.7'	279°30.5'	S 9°57.6'	
7	139°52.5'	289°00.8'	S 12°32.3'	241°04.6'	S 26°36.0'	174°42.1'	S 15°06.0'	190°11.1'	S 19°17.7'	294°31.4'	S 9°58.2'	
8	154°55.0'	304°00.8'	S 12°33.1'	256°04.3'	S 26°36.3'	189°44.5'	S 15°05.9'	205°13.5'	S 19°17.6'	309°32.3'	S 9°58.9'	
9	169°57.4'	319°00.9'	S 12°34.0'	271°03.9'	S 26°36.6'	204°46.9'	S 15°05.9'	220°15.9'	S 19°17.6'	324°33.2'	S 9°59.5'	
10	184°59.9'	334°00.9'	S 12°34.8'	286°03.5'	S 26°36.9'	219°49.3'	S 15°05.9'	235°18.3'	S 19°17.6'	339°34.1'	S 10°00.1'	
11	200°02.4'	349°01.0'	S 12°35.7'	301°03.2'	S 26°37.2'	234°51.7'	S 15°05.9'	250°20.7'	S 19°17.6'	354°35.0'	S 10°00.7'	
12	215°04.8'	4°01.1'	S 12°36.5'	316°02.8'	S 26°37.4'	249°54.1'	S 15°05.8'	265°23.1'	S 19°17.6'	9°35.9'	S 10°01.3'	
13	230°07.3'	19°01.1'	S 12°37.4'	331°02.5'	S 26°37.7'	264°56.5'	S 15°05.8'	280°25.5'	S 19°17.6'	24°36.8'	S 10°02.0'	
14	245°09.7'	34°01.2'	S 12°38.2'	346°02.1'	S 26°38.0'	279°58.9'	S 15°05.8'	295°27.9'	S 19°17.5'	39°37.6'	S 10°02.6'	
15	260°12.2'	49°01.3'	S 12°39.1'	1°01.7'	S 26°38.3'	295°01.3'	S 15°05.8'	310°30.3'	S 19°17.5'	54°38.5'	S 10°03.2'	
16	275°14.7'	64°01.3'	S 12°39.9'	16°01.4'	S 26°38.5'	310°03.7'	S 15°05.7'	325°32.7'	S 19°17.5'	69°39.4'	S 10°03.8'	
17	290°17.1'	79°01.4'	S 12°40.8'	31°01.0'	S 26°38.8'	325°06.1'	S 15°05.7'	340°35.1'	S 19°17.5'	84°40.3'	S 10°04.4'	
18	305°19.6'	94°01.4'	S 12°41.6'	46°00.7'	S 26°39.1'	340°08.5'	S 15°05.7'	355°37.5'	S 19°17.5'	99°41.2'	S 10°05.1'	
19	320°22.1'	109°01.5'	S 12°42.4'	61°00.3'	S 26°39.4'	355°10.9'	S 15°05.6'	10°39.9'	S 19°17.5'	114°42.1'	S 10°05.7'	
20	335°24.5'	124°01.6'	S 12°43.3'	75°60.0'	S 26°39.6'	10°13.3'	S 15°05.6'	25°42.3'	S 19°17.4'	129°43.0'	S 10°06.3'	
21	350°27.0'	139°01.6'	S 12°44.1'	90°59.6'	S 26°39.9'	25°15.7'	S 15°05.6'	40°44.7'	S 19°17.4'	144°43.8'	S 10°06.9'	
22	5°29.5'	154°01.7'	S 12°45.0'	105°59.2'	S 26°40.2'	40°18.1'	S 15°05.5'	55°47.1'	S 19°17.4'	159°44.7'	S 10°07.5'	
23	20°31.9'	169°01.7'	S 12°45.8'	120°58.9'	S 26°40.4'	55°20.4'	S 15°05.5'	70°49.5'	S 19°17.4'	174°45.6'	S 10°08.1'	
		SD 16.1' d -0.8'		v -0.4' d -0.3'		v 2.4' d 0.0'		v 2.4' d 0.0'		v 0.9' d -0.6'		
Mer. pass.		11 h 43 m 57 s		14 h 56 m		19 h 19 m		18 h 17 m		11 h 22 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	302°56.8'	N 26°01.2'	10.6'	2.0'	54.1'		58°39.7'	30°37.7'	22°20.3'				22°49.5'
1	317°26.4'	N 26°03.1'	10.6'	1.8'	54.1'		58°10.3'	30°16.0'	21°50.9'				23°18.0'
2	331°56.0'	N 26°05.0'	10.5'	1.7'	54.1'		57°40.8'	29°54.6'	21°21.5'				23°46.5'
3	346°25.5'	N 26°06.7'	10.5'	1.6'	54.2'	119°55.3'	57°11.3'	29°33.4'	20°52.1'				24°15.1'
4	0°55.0'	N 26°08.3'	10.5'	1.5'	54.2'	119°28.2'	56°41.8'	29°12.4'	20°22.7'				24°43.7'
5	15°24.5'	N 26°09.7'	10.5'	1.3'	54.2'	119°01.1'	56°12.3'	28°51.6'	19°53.4'				25°12.3'
6	29°54.0'	N 26°11.1'	10.4'	1.2'	54.2'	118°33.9'	55°42.8'	28°31.1'	19°24.0'				25°41.0'
7	44°23.4'	N 26°12.3'	10.4'	1.1'	54.2'	118°06.8'	55°13.3'	28°10.8'	18°54.6'				26°09.8'
8	58°52.8'	N 26°13.3'	10.4'	1.0'	54.2'	117°39.7'	54°43.8'	27°50.7'	18°25.2'				26°38.6'
9	73°22.2'	N 26°14.3'	10.4'	0.8'	54.2'	117°12.5'	54°14.3'	27°30.9'	17°55.9'				27°07.4'
10	87°51.6'	N 26°15.1'	10.4'	0.7'	54.2'	116°45.4'	53°44.8'	27°11.4'	17°26.5'				27°36.2'
11	102°21.0'	N 26°15.9'	10.4'	0.6'	54.2'	116°18.2'	53°15.3'	26°52.2'	16°57.2'		24°27.2'		28°05.1'
12	116°50.4'	N 26°16.4'	10.3'	0.5'	54.2'	115°51.0'	52°45.7'	26°33.2'	16°27.8'		24°42.4'	28°34.0'	39°14.3'
13	131°19.7'	N 26°16.9'	10.3'	0.3'	54.3'	115°23.9'	52°16.2'	26°14.6'	15°58.5'		24°57.9'	29°03.0'	39°30.2'
14	145°49.0'	N 26°17.2'	10.3'	0.2'	54.3'	114°56.7'	51°46.6'	25°56.2'	15°29.2'		25°13.9'	29°32.0'	39°46.4'
15	160°18.3'	N 26°17.4'	10.3'	0.1'	54.3'	114°29.5'	51°17.1'	25°38.2'	14°59.9'	21°29.9'	25°30.2'	30°01.0'	40°02.8'
16	174°47.6'	N 26°17.5'	10.3'	-0.1'	54.3'	114°02.2'	50°47.5'	25°20.5'	14°30.6'	21°45.4'	25°47.0'	30°30.1'	40°19.4'
17	189°16.9'	N 26°17.4'	10.3'	-0.2'	54.3'	113°35.0'	50°17.9'	25°03.2'	14°01.4'	22°01.3'	26°04.1'	30°59.1'	40°36.3'
18	203°46.1'	N 26°17.3'	10.3'	-0.3'	54.3'	113°07.8'	49°48.3'	24°46.2'	13°32.1'	22°17.7'	26°21.5'	31°28.3'	40°53.3'
19	218°15.4'	N 26°17.0'	10.2'	-0.4'	54.3'	112°40.5'	49°18.7'	24°29.6'	13°02.9'	22°34.5'	26°39.3'	31°57.4'	41°10.5'
20	232°44.6'	N 26°16.5'	10.2'	-0.6'	54.3'	112°13.2'	48°49.1'	24°13.4'	12°33.8'	22°51.7'	26°57.4'	32°26.6'	41°28.0'
21	247°13.9'	N 26°16.0'	10.2'	-0.7'	54.4'	111°46.0'	48°19.5'	23°57.6'	12°04.6'	23°09.4'	27°15.9'	32°55.8'	41°45.6'
22	261°43.1'	N 26°15.3'	10.2'	-0.8'	54.4'	111°18.7'	47°49.9'		11°35.5'	23°27.4'	27°34.7'	33°25.0'	42°03.5'
23	276°12.3'	N 26°14.5'	10.2'	-0.9'	54.4'	110°51.4'	47°20.2'		11°06.5'	23°45.9'	27°53.7'	33°54.3'	42°21.5'
Mer. pass.		3 h 56 m SD 14.8'		phase 76%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.6'	N 5°10.2'	Polaris	+2.0	314°47.4'	N 89°21.2'
Rigil Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	35°34.4'	184°01.8'	S 12°46.7'	135°58.5'	S 26°40.7'	70°22.8'	S 15°05.5'	85°51.9'	S 19°17.4'	189°46.5'	S 10°08.8'							
1	50°36.9'	199°01.9'	S 12°47.5'	150°58.2'	S 26°41.0'	85°25.2'	S 15°05.5'	100°54.3'	S 19°17.4'	204°47.4'	S 10°09.4'							
2	65°39.3'	214°01.9'	S 12°48.4'	165°57.8'	S 26°41.2'	100°27.6'	S 15°05.4'	115°56.7'	S 19°17.3'	219°48.3'	S 10°10.0'							
3	80°41.8'	229°02.0'	S 12°49.2'	180°57.5'	S 26°41.5'	115°30.0'	S 15°05.4'	130°59.1'	S 19°17.3'	234°49.2'	S 10°10.6'							
4	95°44.2'	244°02.0'	S 12°50.1'	195°57.1'	S 26°41.8'	130°32.4'	S 15°05.4'	146°01.5'	S 19°17.3'	249°50.0'	S 10°11.2'							
5	110°46.7'	259°02.1'	S 12°50.9'	210°56.8'	S 26°42.0'	145°34.8'	S 15°05.3'	161°03.9'	S 19°17.3'	264°50.9'	S 10°11.9'							
6	125°49.2'	274°02.1'	S 12°51.7'	225°56.4'	S 26°42.3'	160°37.2'	S 15°05.3'	176°06.3'	S 19°17.3'	279°51.8'	S 10°12.5'							
7	140°51.6'	289°02.2'	S 12°52.6'	240°56.1'	S 26°42.6'	175°39.6'	S 15°05.3'	191°08.6'	S 19°17.2'	294°52.7'	S 10°13.1'							
8	155°54.1'	304°02.3'	S 12°53.4'	255°55.7'	S 26°42.8'	190°42.0'	S 15°05.3'	206°11.0'	S 19°17.2'	309°53.6'	S 10°13.7'							
9	170°56.6'	319°02.3'	S 12°54.3'	270°55.4'	S 26°43.1'	205°44.4'	S 15°05.2'	221°13.4'	S 19°17.2'	324°54.5'	S 10°14.3'							
10	185°59.0'	334°02.4'	S 12°55.1'	285°55.0'	S 26°43.3'	220°46.8'	S 15°05.2'	236°15.8'	S 19°17.2'	339°55.4'	S 10°14.9'							
11	201°01.5'	349°02.4'	S 12°56.0'	300°54.7'	S 26°43.6'	235°49.2'	S 15°05.2'	251°18.2'	S 19°17.2'	354°56.2'	S 10°15.6'							
12	216°04.0'	4°02.5'	S 12°56.8'	315°54.3'	S 26°43.8'	250°51.6'	S 15°05.1'	266°20.6'	S 19°17.2'	9°57.1'	S 10°16.2'							
13	231°06.4'	19°02.5'	S 12°57.6'	330°54.0'	S 26°44.1'	265°53.9'	S 15°05.1'	281°23.0'	S 19°17.1'	24°58.0'	S 10°16.8'							
14	246°08.9'	34°02.6'	S 12°58.5'	345°53.6'	S 26°44.3'	280°56.3'	S 15°05.1'	296°25.4'	S 19°17.1'	39°58.9'	S 10°17.4'							
15	261°11.3'	49°02.6'	S 12°59.3'	0°53.3'	S 26°44.6'	295°58.7'	S 15°05.0'	311°27.8'	S 19°17.1'	54°59.8'	S 10°18.0'							
16	276°13.8'	64°02.7'	S 13°00.2'	15°52.9'	S 26°44.8'	311°01.1'	S 15°05.0'	326°30.2'	S 19°17.1'	70°00.7'	S 10°18.6'							
17	291°16.3'	79°02.7'	S 13°01.0'	30°52.6'	S 26°45.1'	326°03.5'	S 15°05.0'	341°32.6'	S 19°17.1'	85°01.5'	S 10°19.3'							
18	306°18.7'	94°02.8'	S 13°01.8'	45°52.2'	S 26°45.3'	341°05.9'	S 15°04.9'	356°35.0'	S 19°17.1'	100°02.4'	S 10°19.9'							
19	321°21.2'	109°02.9'	S 13°02.7'	60°51.9'	S 26°45.6'	356°08.3'	S 15°04.9'	11°37.4'	S 19°17.0'	115°03.3'	S 10°20.5'							
20	336°23.7'	124°02.9'	S 13°03.5'	75°51.5'	S 26°45.8'	11°10.7'	S 15°04.9'	26°39.8'	S 19°17.0'	130°04.2'	S 10°21.1'							
21	351°26.1'	139°03.0'	S 13°04.4'	90°51.2'	S 26°46.1'	26°13.1'	S 15°04.8'	41°42.2'	S 19°17.0'	145°05.1'	S 10°21.7'							
22	6°28.6'	154°03.0'	S 13°05.2'	105°50.8'	S 26°46.3'	41°15.4'	S 15°04.8'	56°44.5'	S 19°17.0'	160°06.0'	S 10°22.3'							
23	21°31.1'	169°03.1'	S 13°06.0'	120°50.5'	S 26°46.6'	56°17.8'	S 15°04.8'	71°46.9'	S 19°17.0'	175°06.8'	S 10°23.0'							
		SD 16.1'	d -0.8'	v -0.3'	d -0.3'	v 2.4'	d 0.0'	v 2.4'	d 0.0'	v 0.9'	d -0.6'							
Mer. pass.		11 h 43 m 51 s		14 h 56 m		19 h 15 m		18 h 14 m		11 h 20 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Spica	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	290°41.5'	N 26°13.5'	10.2'	-1.1'	54.4'	110°24.0'		46°50.6'	10°37.5'	24°04.7'	28°13.1'	34°23.6'	42°39.8'
1	305°10.7'	N 26°12.4'	10.2'	-1.2'	54.4'	109°56.7'		46°20.9'	10°08.6'	24°23.8'	28°32.8'	34°52.9'	42°58.2'
2	319°39.9'	N 26°11.2'	10.2'	-1.3'	54.4'	109°29.3'		45°51.3'	9°39.7'	24°43.3'	28°52.7'	35°22.2'	43°16.7'
3	334°09.1'	N 26°09.9'	10.2'	-1.5'	54.4'	109°02.0'		45°21.6'	9°11.0'	25°03.1'	29°12.9'	35°51.6'	43°35.5'
4	348°38.3'	N 26°08.4'	10.2'	-1.6'	54.5'	108°34.6'	98°54.5'	44°51.9'	8°42.3'	25°23.3'	29°33.4'	36°21.0'	43°54.5'
5	3°07.5'	N 26°06.9'	10.2'	-1.7'	54.5'	108°07.2'	98°24.7'	44°22.2'	8°13.8'	25°43.7'	29°54.1'	36°50.4'	44°13.6'
6	17°36.7'	N 26°05.2'	10.2'	-1.8'	54.5'	107°39.8'	97°54.9'	43°52.5'	7°45.5'	26°04.5'	30°15.0'	37°19.9'	44°32.8'
7	32°05.9'	N 26°03.3'	10.2'	-2.0'	54.5'	107°12.3'	97°25.1'	43°22.7'	7°17.4'	26°25.5'	30°36.2'	37°49.4'	44°52.3'
8	46°35.1'	N 26°01.3'	10.2'	-2.1'	54.5'	106°44.9'	96°55.2'	42°53.0'	6°49.5'	26°46.8'	30°57.7'	38°18.9'	45°11.9'
9	61°04.2'	N 25°59.2'	10.2'	-2.2'	54.5'	106°17.4'	96°25.4'	42°23.2'	6°21.8'	27°08.4'	31°19.3'	38°48.4'	45°31.7'
10	75°33.4'	N 25°57.0'	10.2'	-2.4'	54.6'	105°49.9'	95°55.5'	41°53.5'	5°54.6'	27°30.2'	31°41.2'	39°18.0'	45°51.6'
11	90°02.6'	N 25°54.7'	10.2'	-2.5'	54.6'	105°22.4'	95°25.6'	41°23.7'	5°27.8'	27°52.3'	32°03.2'	39°47.5'	46°11.7'
12	104°31.8'	N 25°52.2'	10.2'	-2.6'	54.6'	104°54.9'	94°55.7'	40°53.9'	5°01.7'	28°14.6'	32°25.5'	40°17.2'	46°31.9'
13	119°01.0'	N 25°49.6'	10.2'	-2.7'	54.6'	104°27.4'	94°25.8'	40°24.1'		28°37.2'	32°48.0'	40°46.8'	46°52.2'
14	133°30.2'	N 25°46.8'	10.2'	-2.9'	54.6'	103°59.8'	93°55.8'	39°54.2'		28°59.9'	33°10.7'	41°16.5'	47°12.8'
15	147°59.4'	N 25°44.0'	10.2'	-3.0'	54.7'	103°32.2'	93°25.8'	39°24.4'		29°22.9'	33°33.5'	41°46.2'	47°33.4'
16	162°28.6'	N 25°41.0'	10.2'	-3.1'	54.7'	103°04.6'	92°55.9'	38°54.6'		29°46.1'	33°56.6'	42°15.9'	47°54.2'
17	176°57.8'	N 25°37.9'	10.2'	-3.2'	54.7'	102°37.0'	92°25.8'	38°24.7'		30°09.5'	34°19.8'	42°45.6'	48°15.2'
18	191°27.0'	N 25°34.6'	10.2'	-3.4'	54.7'	102°09.4'	91°55.8'	37°54.8'		30°33.1'	34°43.2'	43°15.4'	48°36.2'
19	205°56.3'	N 25°31.2'	10.2'	-3.5'	54.7'	101°41.7'	91°25.8'	37°24.9'		30°56.8'	35°06.7'	43°45.2'	48°57.4'
20	220°25.5'	N 25°27.7'	10.2'	-3.6'	54.7'	101°14.0'	90°55.7'	36°55.0'		31°20.8'	35°30.4'	44°15.1'	49°18.8'
21	234°54.7'	N 25°24.1'	10.3'	-3.8'	54.8'	100°46.3'	90°25.6'	36°25.1'		31°44.9'	35°54.3'	44°44.9'	49°40.3'
22	249°24.0'	N 25°20.3'	10.3'	-3.9'	54.8'	100°18.6'	89°55.5'	35°55.2'		32°09.2'	36°18.3'	45°14.8'	50°01.8'
23	263°53.3'	N 25°16.5'	10.3'	-4.0'	54.8'	99°50.9'	89°25.4'	35°25.2'		32°33.7'	36°42.5'	45°44.7'	50°23.6'
Mer. pass.		4 h 47 m SD 14.8'		phase 67%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.8'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.5'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°47.2'	N 89°21.2'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries	Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	36°33.5'	184°03.1'	S 13°06.9'	135°50.2'	S 26°46.8'	71°20.2'	S 15°04.8'	86°49.3'	S 19°16.9'	190°07.7'	S 10°23.6'	
1	51°36.0'	199°03.2'	S 13°07.7'	150°49.8'	S 26°47.0'	86°22.6'	S 15°04.7'	101°51.7'	S 19°16.9'	205°08.6'	S 10°24.2'	
2	66°38.5'	214°03.2'	S 13°08.5'	165°49.5'	S 26°47.3'	101°25.0'	S 15°04.7'	116°54.1'	S 19°16.9'	220°09.5'	S 10°24.8'	
3	81°40.9'	229°03.3'	S 13°09.4'	180°49.1'	S 26°47.5'	116°27.4'	S 15°04.7'	131°56.5'	S 19°16.9'	235°10.4'	S 10°25.4'	
4	96°43.4'	244°03.3'	S 13°10.2'	195°48.8'	S 26°47.8'	131°29.8'	S 15°04.6'	146°58.9'	S 19°16.9'	250°11.2'	S 10°26.0'	
5	111°45.8'	259°03.4'	S 13°11.0'	210°48.4'	S 26°48.0'	146°32.1'	S 15°04.6'	162°01.3'	S 19°16.9'	265°12.1'	S 10°26.6'	
6	126°48.3'	274°03.4'	S 13°11.9'	225°48.1'	S 26°48.2'	161°34.5'	S 15°04.6'	177°03.7'	S 19°16.8'	280°13.0'	S 10°27.3'	
7	141°50.8'	289°03.5'	S 13°12.7'	240°47.8'	S 26°48.5'	176°36.9'	S 15°04.5'	192°06.1'	S 19°16.8'	295°13.9'	S 10°27.9'	
8	156°53.2'	304°03.5'	S 13°13.6'	255°47.4'	S 26°48.7'	191°39.3'	S 15°04.5'	207°08.5'	S 19°16.8'	310°14.8'	S 10°28.5'	
9	171°55.7'	319°03.5'	S 13°14.4'	270°47.1'	S 26°48.9'	206°41.7'	S 15°04.5'	222°10.9'	S 19°16.8'	325°15.6'	S 10°29.1'	
10	186°58.2'	334°03.6'	S 13°15.2'	285°46.7'	S 26°49.2'	221°44.1'	S 15°04.4'	237°13.2'	S 19°16.8'	340°16.5'	S 10°29.7'	
11	202°00.6'	349°03.6'	S 13°16.1'	300°46.4'	S 26°49.4'	236°46.4'	S 15°04.4'	252°15.6'	S 19°16.7'	355°17.4'	S 10°30.3'	
12	217°03.1'	4°03.7'	S 13°16.9'	315°46.1'	S 26°49.6'	251°48.8'	S 15°04.4'	267°18.0'	S 19°16.7'	10°18.3'	S 10°30.9'	
13	232°05.6'	19°03.7'	S 13°17.7'	330°45.7'	S 26°49.9'	266°51.2'	S 15°04.3'	282°20.4'	S 19°16.7'	25°19.2'	S 10°31.6'	
14	247°08.0'	34°03.8'	S 13°18.5'	345°45.4'	S 26°50.1'	281°53.6'	S 15°04.3'	297°22.8'	S 19°16.7'	40°20.0'	S 10°32.2'	
15	262°10.5'	49°03.8'	S 13°19.4'	0°45.0'	S 26°50.3'	296°56.0'	S 15°04.3'	312°25.2'	S 19°16.7'	55°20.9'	S 10°32.8'	
16	277°13.0'	64°03.9'	S 13°20.2'	15°44.7'	S 26°50.5'	311°58.3'	S 15°04.2'	327°27.6'	S 19°16.6'	70°21.8'	S 10°33.4'	
17	292°15.4'	79°03.9'	S 13°21.0'	30°44.4'	S 26°50.8'	327°00.7'	S 15°04.2'	342°30.0'	S 19°16.6'	85°22.7'	S 10°34.0'	
18	307°17.9'	94°04.0'	S 13°21.9'	45°44.0'	S 26°51.0'	342°03.1'	S 15°04.2'	357°32.4'	S 19°16.6'	100°23.6'	S 10°34.6'	
19	322°20.3'	109°04.0'	S 13°22.7'	60°43.7'	S 26°51.2'	357°05.5'	S 15°04.1'	12°34.7'	S 19°16.6'	115°24.4'	S 10°35.2'	
20	337°22.8'	124°04.1'	S 13°23.5'	75°43.4'	S 26°51.4'	12°07.9'	S 15°04.1'	27°37.1'	S 19°16.6'	130°25.3'	S 10°35.9'	
21	352°25.3'	139°04.1'	S 13°24.4'	90°43.0'	S 26°51.6'	27°10.3'	S 15°04.1'	42°39.5'	S 19°16.6'	145°26.2'	S 10°36.5'	
22	7°27.7'	154°04.1'	S 13°25.2'	105°42.7'	S 26°51.9'	42°12.6'	S 15°04.0'	57°41.9'	S 19°16.5'	160°27.1'	S 10°37.1'	
23	22°30.2'	169°04.2'	S 13°26.0'	120°42.4'	S 26°52.1'	57°15.0'	S 15°04.0'	72°44.3'	S 19°16.5'	175°28.0'	S 10°37.7'	
		SD 16.1' d -0.8'		v -0.3' d -0.2'		v 2.4' d 0.0'		v 2.4' d 0.0'		v 0.9' d -0.6'		
Mer. pass.		11 h 43 m 46 s		14 h 57 m		19 h 12 m		18 h 10 m		11 h 19 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	278°22.5'	N 25°12.4'	10.3'	-4.1'	54.8'	103°26.5'	99°23.1'	88°55.2'	34°55.2'			32°58.3'	37°06.8'
1	292°51.8'	N 25°08.3'	10.3'	-4.3'	54.9'	103°09.9'	98°55.3'	88°25.0'	34°25.3'			33°23.1'	37°31.3'
2	307°21.1'	N 25°04.0'	10.3'	-4.4'	54.9'	102°53.1'	98°27.5'	87°54.8'	33°55.3'			33°48.1'	37°55.9'
3	321°50.4'	N 24°59.7'	10.3'	-4.5'	54.9'	102°36.4'	97°59.7'	87°24.6'	33°25.3'			34°13.2'	38°20.6'
4	336°19.8'	N 24°55.1'	10.3'	-4.6'	54.9'	102°19.5'	97°31.8'	86°54.4'	32°55.2'			34°38.4'	38°45.5'
5	350°49.1'	N 24°50.5'	10.4'	-4.8'	54.9'	102°02.6'	97°03.9'	86°24.1'	32°25.2'			35°03.8'	39°10.5'
6	5°18.5'	N 24°45.7'	10.4'	-4.9'	55.0'	101°45.7'	96°36.0'	85°53.8'	31°55.1'	5°23.6'		35°29.3'	39°35.6'
7	19°47.9'	N 24°40.8'	10.4'	-5.0'	55.0'	101°28.7'	96°08.1'	85°23.5'	31°25.1'	5°50.7'		35°54.9'	40°00.9'
8	34°17.2'	N 24°35.8'	10.4'	-5.1'	55.0'	101°11.7'	95°40.1'	84°53.1'	30°55.0'	6°18.3'		36°20.7'	40°26.2'
9	48°46.7'	N 24°30.7'	10.4'	-5.3'	55.0'	100°54.6'	95°12.1'	84°22.7'	30°24.9'	6°46.3'		36°46.6'	40°51.7'
10	63°16.1'	N 24°25.4'	10.4'	-5.4'	55.1'	100°37.4'	94°44.1'	83°52.3'	29°54.8'	7°14.7'		37°12.6'	41°17.3'
11	77°45.5'	N 24°20.0'	10.5'	-5.5'	55.1'	100°20.2'	94°16.1'	83°21.9'	29°24.7'	7°43.4'		37°38.7'	41°43.0'
12	92°15.0'	N 24°14.5'	10.5'	-5.6'	55.1'	100°03.0'	93°48.0'	82°51.5'	28°54.6'	8°12.4'		38°05.0'	42°08.9'
13	106°44.5'	N 24°08.9'	10.5'	-5.8'	55.1'	99°45.7'	93°19.9'	82°21.0'	28°24.4'	8°41.5'		38°31.3'	42°34.8'
14	121°14.0'	N 24°03.1'	10.5'	-5.9'	55.2'	99°28.3'	92°51.8'	81°50.5'	27°54.3'	9°10.8'		38°57.8'	43°00.9'
15	135°43.5'	N 23°57.2'	10.5'	-6.0'	55.2'	99°11.0'	92°23.6'	81°20.0'	27°24.1'	9°40.3'		39°24.4'	43°27.0'
16	150°13.0'	N 23°51.2'	10.6'	-6.1'	55.2'	98°53.5'	91°55.4'	80°49.4'	26°53.9'	10°10.0'		39°51.1'	43°53.2'
17	164°42.6'	N 23°45.1'	10.6'	-6.2'	55.2'	98°36.0'	91°27.2'	80°18.8'	26°23.7'	10°39.7'		40°17.9'	44°19.6'
18	179°12.2'	N 23°38.9'	10.6'	-6.4'	55.3'	98°18.5'	90°59.0'	79°48.2'	25°53.5'	11°09.6'		40°44.8'	44°46.0'
19	193°41.8'	N 23°32.5'	10.6'	-6.5'	55.3'	98°00.9'	90°30.7'	79°17.5'	25°23.3'	11°39.6'		41°11.8'	45°12.6'
20	208°11.4'	N 23°26.0'	10.6'	-6.6'	55.3'	97°43.3'	90°02.4'	78°46.9'	24°53.1'	12°09.7'		41°38.9'	45°39.2'
21	222°41.0'	N 23°19.4'	10.7'	-6.7'	55.3'	97°25.7'	89°34.1'	78°16.2'	24°22.9'	12°39.8'		42°06.1'	46°06.0'
22	237°10.7'	N 23°12.7'	10.7'	-6.9'	55.4'	97°08.0'	89°05.7'	77°45.4'	23°52.7'	13°10.1'	23°13.9'	42°33.3'	46°32.8'
23	251°40.4'	N 23°05.8'	10.7'	-7.0'	55.4'	96°50.3'	88°37.4'	77°14.7'	23°22.5'	13°40.4'	23°29.0'	43°00.7'	46°59.7'
Mer. pass.		5 h 38 m SD 15.0'		phase 58%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.5'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°47.0'	N 89°21.3'
Rigel Kent	-0.0	139°44.6'	S 60°55.4'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	37°32.7'	184°04.2'	S 13°26.9'	135°42.0'	S 26°52.3'	72°17.4'	S 15°03.9'	87°46.7'	S 19°16.5'	190°28.8'	S 10°38.3'							
1	52°35.1'	199°04.3'	S 13°27.7'	150°41.7'	S 26°52.5'	87°19.8'	S 15°03.9'	102°49.1'	S 19°16.5'	205°29.7'	S 10°38.9'							
2	67°37.6'	214°04.3'	S 13°28.5'	165°41.4'	S 26°52.7'	102°22.1'	S 15°03.9'	117°51.5'	S 19°16.5'	220°30.6'	S 10°39.5'							
3	82°40.1'	229°04.3'	S 13°29.3'	180°41.1'	S 26°52.9'	117°24.5'	S 15°03.8'	132°53.9'	S 19°16.4'	235°31.5'	S 10°40.1'							
4	97°42.5'	244°04.4'	S 13°30.2'	195°40.7'	S 26°53.1'	132°26.9'	S 15°03.8'	147°56.2'	S 19°16.4'	250°32.3'	S 10°40.8'							
5	112°45.0'	259°04.4'	S 13°31.0'	210°40.4'	S 26°53.4'	147°29.3'	S 15°03.8'	162°58.6'	S 19°16.4'	265°33.2'	S 10°41.4'							
6	127°47.5'	274°04.5'	S 13°31.8'	225°40.1'	S 26°53.6'	162°31.7'	S 15°03.7'	178°01.0'	S 19°16.4'	280°34.1'	S 10°42.0'							
7	142°49.9'	289°04.5'	S 13°32.6'	240°39.7'	S 26°53.8'	177°34.0'	S 15°03.7'	193°03.4'	S 19°16.4'	295°35.0'	S 10°42.6'							
8	157°52.4'	304°04.6'	S 13°33.5'	255°39.4'	S 26°54.0'	192°36.4'	S 15°03.7'	208°05.8'	S 19°16.3'	310°35.8'	S 10°43.2'							
9	172°54.8'	319°04.6'	S 13°34.3'	270°39.1'	S 26°54.2'	207°38.8'	S 15°03.6'	223°08.2'	S 19°16.3'	325°36.7'	S 10°43.8'							
10	187°57.3'	334°04.6'	S 13°35.1'	285°38.8'	S 26°54.4'	222°41.2'	S 15°03.6'	238°10.6'	S 19°16.3'	340°37.6'	S 10°44.4'							
11	202°59.8'	349°04.7'	S 13°35.9'	300°38.4'	S 26°54.6'	237°43.5'	S 15°03.6'	253°12.9'	S 19°16.3'	355°38.5'	S 10°45.0'							
12	218°02.2'	4°04.7'	S 13°36.8'	315°38.1'	S 26°54.8'	252°45.9'	S 15°03.5'	268°15.3'	S 19°16.3'	10°39.3'	S 10°45.7'							
13	233°04.7'	19°04.7'	S 13°37.6'	330°37.8'	S 26°55.0'	267°48.3'	S 15°03.5'	283°17.7'	S 19°16.2'	25°40.2'	S 10°46.3'							
14	248°07.2'	34°04.8'	S 13°38.4'	345°37.5'	S 26°55.2'	282°50.7'	S 15°03.4'	298°20.1'	S 19°16.2'	40°41.1'	S 10°46.9'							
15	263°09.6'	49°04.8'	S 13°39.2'	0°37.1'	S 26°55.4'	297°53.0'	S 15°03.4'	313°22.5'	S 19°16.2'	55°42.0'	S 10°47.5'							
16	278°12.1'	64°04.9'	S 13°40.1'	15°36.8'	S 26°55.6'	312°55.4'	S 15°03.4'	328°24.9'	S 19°16.2'	70°42.9'	S 10°48.1'							
17	293°14.6'	79°04.9'	S 13°40.9'	30°36.5'	S 26°55.8'	327°57.8'	S 15°03.3'	343°27.3'	S 19°16.2'	85°43.7'	S 10°48.7'							
18	308°17.0'	94°04.9'	S 13°41.7'	45°36.2'	S 26°56.0'	343°00.1'	S 15°03.3'	358°29.6'	S 19°16.1'	100°44.6'	S 10°49.3'							
19	323°19.5'	109°05.0'	S 13°42.5'	60°35.8'	S 26°56.2'	358°02.5'	S 15°03.3'	13°32.0'	S 19°16.1'	115°45.5'	S 10°49.9'							
20	338°21.9'	124°05.0'	S 13°43.3'	75°35.5'	S 26°56.4'	13°04.9'	S 15°03.2'	28°34.4'	S 19°16.1'	130°46.3'	S 10°50.5'							
21	353°24.4'	139°05.0'	S 13°44.2'	90°35.2'	S 26°56.6'	28°07.3'	S 15°03.2'	43°36.8'	S 19°16.1'	145°47.2'	S 10°51.2'							
22	8°26.9'	154°05.1'	S 13°45.0'	105°34.9'	S 26°56.8'	43°09.6'	S 15°03.2'	58°39.2'	S 19°16.1'	160°48.1'	S 10°51.8'							
23	23°29.3'	169°05.1'	S 13°45.8'	120°34.6'	S 26°57.0'	58°12.0'	S 15°03.1'	73°41.6'	S 19°16.0'	175°49.0'	S 10°52.4'							
		SD 16.1'	<i>d</i> -0.8'	<i>v</i> -0.3'	<i>d</i> -0.2'	<i>v</i> 2.4'	<i>d</i> 0.0'	<i>v</i> 2.4'	<i>d</i> 0.0'	<i>v</i> 0.9'	<i>d</i> -0.6'							
Mer. pass.		11 h 43 m 42 s		14 h 58 m		19 h 8 m		18 h 6 m		11 h 17 m								

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Sun	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	266°10.1'	N 22°58.8'	10.7'	-7.1'	55.4'	88°08.9'	76°43.9'		22°52.2'	14°10.8'	23°44.5'	43°28.2'	47°26.7'
1	280°39.9'	N 22°51.7'	10.8'	-7.2'	55.5'	87°40.5'	76°13.1'		22°22.0'	14°41.3'	24°00.6'	43°55.8'	47°53.8'
2	295°09.6'	N 22°44.5'	10.8'	-7.3'	55.5'	87°12.0'	75°42.2'		21°51.8'	15°11.8'	24°17.1'	44°23.4'	48°21.0'
3	309°39.4'	N 22°37.2'	10.8'	-7.4'	55.5'	86°43.5'	75°11.3'		21°21.6'	15°42.4'	24°34.1'	44°51.1'	48°48.3'
4	324°09.2'	N 22°29.8'	10.8'	-7.6'	55.5'	86°14.9'	74°40.4'		20°51.3'	16°13.0'	24°51.5'	45°19.0'	49°15.6'
5	338°39.1'	N 22°22.2'	10.9'	-7.7'	55.6'	85°46.4'	74°09.4'		20°21.1'	16°43.7'	25°09.4'	45°46.9'	49°43.0'
6	353°08.9'	N 22°14.5'	10.9'	-7.8'	55.6'	85°17.8'	73°38.5'		19°50.9'	17°14.5'	25°27.6'	46°14.9'	50°10.6'
7	7°38.8'	N 22°06.7'	10.9'	-7.9'	55.6'	84°49.1'	73°07.4'		19°20.8'	17°45.3'	25°46.3'	46°42.9'	50°38.2'
8	22°08.7'	N 21°58.8'	10.9'	-8.0'	55.7'	84°20.4'	72°36.4'		18°50.6'	18°16.1'	26°05.4'	47°11.1'	51°05.8'
9	36°38.7'	N 21°50.8'	11.0'	-8.1'	55.7'	83°51.7'	72°05.3'		18°20.5'	18°47.1'	26°24.8'	47°39.3'	51°33.6'
10	51°08.6'	N 21°42.6'	11.0'	-8.3'	55.7'	83°23.0'	71°34.2'		17°50.3'	19°18.0'	26°44.6'	48°07.6'	52°01.4'
11	65°38.6'	N 21°34.4'	11.0'	-8.4'	55.8'	82°54.2'	71°03.0'		17°20.3'	19°49.0'	27°04.8'	48°36.0'	52°29.3'
12	80°08.6'	N 21°26.0'	11.0'	-8.5'	55.8'	82°25.4'	70°31.9'		16°50.2'	20°20.1'	27°25.3'	49°04.5'	52°57.3'
13	94°38.7'	N 21°17.5'	11.1'	-8.6'	55.8'	81°56.5'	70°00.6'		16°20.2'	20°51.2'	27°46.2'	49°33.0'	53°25.4'
14	109°08.7'	N 21°08.9'	11.1'	-8.7'	55.8'	81°27.6'	69°29.4'		15°50.3'	21°22.4'	28°07.3'	50°01.6'	53°53.5'
15	123°38.8'	N 21°00.2'	11.1'	-8.8'	55.9'	80°58.7'	68°58.1'		15°20.4'	21°53.6'	28°28.8'	50°30.3'	54°21.7'
16	138°08.9'	N 20°51.4'	11.1'	-8.9'	55.9'	80°29.7'	68°26.8'		14°50.6'	22°24.8'	28°50.6'	50°59.0'	54°50.0'
17	152°39.1'	N 20°42.4'	11.2'	-9.0'	55.9'	80°00.7'	67°55.4'	68°33.0'	14°20.8'	22°56.1'	29°12.7'	51°27.9'	55°18.4'
18	167°09.2'	N 20°33.4'	11.2'	-9.2'	56.0'	79°31.7'	67°24.0'	68°05.6'	13°51.2'	23°27.5'	29°35.1'	51°56.8'	55°46.8'
19	181°39.4'	N 20°24.2'	11.2'	-9.3'	56.0'	79°02.6'	66°52.6'	67°38.2'	13°21.6'	23°58.9'	29°57.7'	52°25.7'	56°15.3'
20	196°09.6'	N 20°14.9'	11.2'	-9.4'	56.0'	78°33.5'	66°21.1'	67°10.8'	12°52.2'	24°30.3'	30°20.6'	52°54.8'	56°43.8'
21	210°39.9'	N 20°05.6'	11.3'	-9.5'	56.1'	78°04.3'	65°49.6'	66°43.4'	12°23.0'	25°01.8'	30°43.8'	53°23.9'	57°12.5'
22	225°10.1'	N 19°56.1'	11.3'	-9.6'	56.1'	77°35.1'	65°18.1'	66°16.0'	11°53.9'	25°33.3'	31°07.3'	53°53.1'	57°41.2'
23	239°40.4'	N 19°46.5'	11.3'	-9.7'	56.1'	77°05.9'	64°46.5'	65°48.6'	11°24.9'	26°04.9'	31°30.9'	54°22.3'	58°10.0'
Mer. pass.		6 h 28 m SD 15.1'	phase 48%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.8'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

Saturday 30 October 2021 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	38°31.8'	184°05.1'	S 13°46.6'	135°34.2'	S 26°57.2'	73°14.4'	S 15°03.1'	88°43.9'	S 19°16.0'	190°49.8'	S 10°53.0'
1	53°34.3'	199°05.2'	S 13°47.4'	150°33.9'	S 26°57.4'	88°16.7'	S 15°03.0'	103°46.3'	S 19°16.0'	205°50.7'	S 10°53.6'
2	68°36.7'	214°05.2'	S 13°48.3'	165°33.6'	S 26°57.5'	103°19.1'	S 15°03.0'	118°48.7'	S 19°16.0'	220°51.6'	S 10°54.2'
3	83°39.2'	229°05.2'	S 13°49.1'	180°33.3'	S 26°57.7'	118°21.5'	S 15°03.0'	133°51.1'	S 19°16.0'	235°52.5'	S 10°54.8'
4	98°41.7'	244°05.3'	S 13°49.9'	195°33.0'	S 26°57.9'	133°23.8'	S 15°02.9'	148°53.5'	S 19°15.9'	250°53.3'	S 10°55.4'
5	113°44.1'	259°05.3'	S 13°50.7'	210°32.7'	S 26°58.1'	148°26.2'	S 15°02.9'	163°55.9'	S 19°15.9'	265°54.2'	S 10°56.0'
6	128°46.6'	274°05.3'	S 13°51.5'	225°32.3'	S 26°58.3'	163°28.6'	S 15°02.9'	178°58.2'	S 19°15.9'	280°55.1'	S 10°56.6'
7	143°49.1'	289°05.4'	S 13°52.4'	240°32.0'	S 26°58.5'	178°31.0'	S 15°02.8'	194°00.6'	S 19°15.9'	295°56.0'	S 10°57.3'
8	158°51.5'	304°05.4'	S 13°53.2'	255°31.7'	S 26°58.7'	193°33.3'	S 15°02.8'	209°03.0'	S 19°15.9'	310°56.8'	S 10°57.9'
9	173°54.0'	319°05.4'	S 13°54.0'	270°31.4'	S 26°58.8'	208°35.7'	S 15°02.7'	224°05.4'	S 19°15.8'	325°57.7'	S 10°58.5'
10	188°56.4'	334°05.5'	S 13°54.8'	285°31.1'	S 26°59.0'	223°38.1'	S 15°02.7'	239°07.8'	S 19°15.8'	340°58.6'	S 10°59.1'
11	203°58.9'	349°05.5'	S 13°55.6'	300°30.8'	S 26°59.2'	238°40.4'	S 15°02.7'	254°10.2'	S 19°15.8'	355°59.4'	S 10°59.7'
12	219°01.4'	4°05.5'	S 13°56.4'	315°30.5'	S 26°59.4'	253°42.8'	S 15°02.6'	269°12.5'	S 19°15.8'	11°00.3'	S 11°00.3'
13	234°03.8'	19°05.6'	S 13°57.2'	330°30.1'	S 26°59.6'	268°45.2'	S 15°02.6'	284°14.9'	S 19°15.8'	26°01.2'	S 11°00.9'
14	249°06.3'	34°05.6'	S 13°58.1'	345°29.8'	S 26°59.7'	283°47.5'	S 15°02.5'	299°17.3'	S 19°15.7'	41°02.1'	S 11°01.5'
15	264°08.8'	49°05.6'	S 13°58.9'	0°29.5'	S 26°59.9'	298°49.9'	S 15°02.5'	314°19.7'	S 19°15.7'	56°02.9'	S 11°02.1'
16	279°11.2'	64°05.6'	S 13°59.7'	15°29.2'	S 27°00.1'	313°52.3'	S 15°02.5'	329°22.1'	S 19°15.7'	71°03.8'	S 11°02.7'
17	294°13.7'	79°05.7'	S 14°00.5'	30°28.9'	S 27°00.2'	328°54.6'	S 15°02.4'	344°24.4'	S 19°15.7'	86°04.7'	S 11°03.3'
18	309°16.2'	94°05.7'	S 14°01.3'	45°28.6'	S 27°00.4'	343°57.0'	S 15°02.4'	359°26.8'	S 19°15.6'	101°05.5'	S 11°03.9'
19	324°18.6'	109°05.7'	S 14°02.1'	60°28.3'	S 27°00.6'	358°59.3'	S 15°02.3'	14°29.2'	S 19°15.6'	116°06.4'	S 11°04.6'
20	339°21.1'	124°05.8'	S 14°02.9'	75°28.0'	S 27°00.8'	14°01.7'	S 15°02.3'	29°31.6'	S 19°15.6'	131°07.3'	S 11°05.2'
21	354°23.6'	139°05.8'	S 14°03.7'	90°27.7'	S 27°00.9'	29°04.1'	S 15°02.3'	44°34.0'	S 19°15.6'	146°08.2'	S 11°05.8'
22	9°26.0'	154°05.8'	S 14°04.6'	105°27.4'	S 27°01.1'	44°06.4'	S 15°02.2'	59°36.3'	S 19°15.6'	161°09.0'	S 11°06.4'
23	24°28.5'	169°05.8'	S 14°05.4'	120°27.1'	S 27°01.3'	59°08.8'	S 15°02.2'	74°38.7'	S 19°15.5'	176°09.9'	S 11°07.0'
		SD 16.1' <i>d</i> -0.8'		<i>v</i> -0.3' <i>d</i> -0.2'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 0.9' <i>d</i> -0.6'	
Mer. pass.		11 h 43 m 39 s		14 h 58 m		19 h 4 m		18 h 2 m		11 h 16 m	

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Sun	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	254°10.8'	N 19°36.8'	11.3'	-9.8'	56.2'	76°36.6'	65°21.2'	64°14.9'	10°56.2'	26°36.5'	31°54.9'	54°51.6'	55°36.3'
1	268°41.1'	N 19°27.0'	11.4'	-9.9'	56.2'	76°07.3'	64°53.8'	63°43.2'	10°27.8'	27°08.2'	32°19.0'	55°21.0'	55°54.2'
2	283°11.5'	N 19°17.1'	11.4'	-10.0'	56.2'	75°38.0'	64°26.4'	63°11.5'	9°59.7'	27°39.9'	32°43.4'	55°50.5'	56°12.3'
3	297°41.9'	N 19°07.0'	11.4'	-10.1'	56.3'	75°08.6'	63°59.0'	62°39.8'	9°31.9'	28°11.7'	33°08.0'	56°20.0'	56°30.6'
4	312°12.3'	N 18°56.9'	11.4'	-10.2'	56.3'	74°39.2'	63°31.6'	62°08.0'	9°04.5'	28°43.5'	33°32.8'	56°49.6'	56°49.0'
5	326°42.7'	N 18°46.7'	11.5'	-10.3'	56.3'	74°09.7'	63°04.2'	61°36.2'	8°37.7'	29°15.3'	33°57.8'	57°19.2'	57°07.6'
6	341°13.2'	N 18°36.3'	11.5'	-10.4'	56.4'	73°40.2'	62°36.8'	61°04.4'	8°11.4'	29°47.2'	34°23.0'	57°48.9'	57°26.4'
7	355°43.7'	N 18°25.9'	11.5'	-10.5'	56.4'	73°10.6'	62°09.4'	60°32.5'		30°19.1'	34°48.5'	58°18.7'	57°45.2'
8	10°14.2'	N 18°15.4'	11.5'	-10.6'	56.4'	72°41.1'	61°42.0'	60°00.6'		30°51.1'	35°14.1'	58°48.5'	58°04.3'
9	24°44.7'	N 18°04.7'	11.6'	-10.7'	56.5'	72°11.4'	61°14.6'	59°28.6'		31°23.1'	35°39.9'	59°18.4'	58°23.5'
10	39°15.3'	N 17°54.0'	11.6'	-10.8'	56.5'	71°41.7'	60°47.3'	58°56.6'		31°55.2'	36°05.9'	59°48.4'	58°42.8'
11	53°45.9'	N 17°43.1'	11.6'	-10.9'	56.6'	71°12.0'	60°19.9'	58°24.5'		32°27.3'	36°32.0'	60°18.4'	59°02.2'
12	68°16.5'	N 17°32.2'	11.6'	-11.0'	56.6'	70°42.3'	59°52.6'	57°52.5'		32°59.5'	36°58.3'	60°48.5'	59°21.8'
13	82°47.1'	N 17°21.1'	11.6'	-11.1'	56.6'	70°12.5'	59°25.3'	57°20.3'		33°31.7'	37°24.8'	61°18.7'	59°41.6'
14	97°17.8'	N 17°10.0'	11.7'	-11.2'	56.7'	69°42.6'	58°57.9'	56°48.2'		34°04.0'	37°51.5'	61°48.9'	60°01.5'
15	111°48.4'	N 16°58.7'	11.7'	-11.3'	56.7'	69°12.7'	58°30.7'	56°16.0'		34°36.3'	38°18.3'	62°19.2'	60°21.5'
16	126°19.1'	N 16°47.4'	11.7'	-11.4'	56.7'	68°42.8'	58°03.4'	55°43.7'		35°08.6'	38°45.3'	62°49.5'	60°41.6'
17	140°49.8'	N 16°36.0'	11.7'	-11.5'	56.8'	68°12.8'	57°36.1'	55°11.4'		35°41.0'	39°12.4'	63°19.9'	61°01.9'
18	155°20.6'	N 16°24.4'	11.8'	-11.6'	56.8'	67°42.8'	57°08.9'	54°39.1'		36°13.5'	39°39.7'	63°50.4'	61°22.3'
19	169°51.3'	N 16°12.8'	11.8'	-11.7'	56.9'	67°12.7'	56°41.7'	54°06.7'		36°45.9'	40°07.1'	64°20.9'	61°42.9'
20	184°22.1'	N 16°01.1'	11.8'	-11.8'	56.9'	66°42.6'	56°14.5'	53°34.3'		37°18.5'	40°34.7'	64°51.5'	62°03.5'
21	198°52.9'	N 15°49.2'	11.8'	-11.9'	56.9'	66°12.4'	55°47.3'	53°01.8'		37°51.1'	41°02.4'	65°22.1'	62°24.3'
22	213°23.7'	N 15°37.3'	11.8'	-12.0'	57.0'	65°42.2'	55°20.2'	52°29.3'		38°23.7'	41°30.3'	65°52.8'	62°45.2'
23	227°54.5'	N 15°25.3'	11.8'	-12.1'	57.0'	65°12.0'	54°53.1'	51°56.8'		38°56.4'	41°58.3'	66°23.6'	63°06.3'
Mer. pass.		7 h 18 m SD 15.3' phase 38%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.7'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	39°30.9'	184°05.9' S	14°06.2'	135°26.8' S	27°01.4'	74°11.2' S	15°02.1'	89°41.1' S	19°15.5'	191°10.8' S	11°07.6'	
1	54°33.4'	199°05.9' S	14°07.0'	150°26.5' S	27°01.6'	89°13.5' S	15°02.1'	104°43.5' S	19°15.5'	206°11.6' S	11°08.2'	
2	69°35.9'	214°05.9' S	14°07.8'	165°26.2' S	27°01.8'	104°15.9' S	15°02.1'	119°45.9' S	19°15.5'	221°12.5' S	11°08.8'	
3	84°38.3'	229°05.9' S	14°08.6'	180°25.9' S	27°01.9'	119°18.2' S	15°02.0'	134°48.2' S	19°15.5'	236°13.4' S	11°09.4'	
4	99°40.8'	244°06.0' S	14°09.4'	195°25.6' S	27°02.1'	134°20.6' S	15°02.0'	149°50.6' S	19°15.4'	251°14.2' S	11°10.0'	
5	114°43.3'	259°06.0' S	14°10.2'	210°25.2' S	27°02.2'	149°23.0' S	15°01.9'	164°53.0' S	19°15.4'	266°15.1' S	11°10.6'	
6	129°45.7'	274°06.0' S	14°11.0'	225°24.9' S	27°02.4'	164°25.3' S	15°01.9'	179°55.4' S	19°15.4'	281°16.0' S	11°11.2'	
7	144°48.2'	289°06.0' S	14°11.8'	240°24.6' S	27°02.6'	179°27.7' S	15°01.9'	194°57.7' S	19°15.4'	296°16.8' S	11°11.8'	
8	159°50.7'	304°06.1' S	14°12.7'	255°24.3' S	27°02.7'	194°30.1' S	15°01.8'	210°00.1' S	19°15.3'	311°17.7' S	11°12.4'	
9	174°53.1'	319°06.1' S	14°13.5'	270°24.0' S	27°02.9'	209°32.4' S	15°01.8'	225°02.5' S	19°15.3'	326°18.6' S	11°13.1'	
10	189°55.6'	334°06.1' S	14°14.3'	285°23.8' S	27°03.0'	224°34.8' S	15°01.7'	240°04.9' S	19°15.3'	341°19.4' S	11°13.7'	
11	204°58.0'	349°06.1' S	14°15.1'	300°23.5' S	27°03.2'	239°37.1' S	15°01.7'	255°07.3' S	19°15.3'	356°20.3' S	11°14.3'	
12	220°00.5'	4°06.1' S	14°15.9'	315°23.2' S	27°03.3'	254°39.5' S	15°01.7'	270°09.6' S	19°15.3'	11°21.2' S	11°14.9'	
13	235°03.0'	19°06.2' S	14°16.7'	330°22.9' S	27°03.5'	269°41.8' S	15°01.6'	285°12.0' S	19°15.2'	26°22.1' S	11°15.5'	
14	250°05.4'	34°06.2' S	14°17.5'	345°22.6' S	27°03.6'	284°44.2' S	15°01.6'	300°14.4' S	19°15.2'	41°22.9' S	11°16.1'	
15	265°07.9'	49°06.2' S	14°18.3'	0°22.3' S	27°03.8'	299°46.6' S	15°01.5'	315°16.8' S	19°15.2'	56°23.8' S	11°16.7'	
16	280°10.4'	64°06.2' S	14°19.1'	15°22.0' S	27°03.9'	314°48.9' S	15°01.5'	330°19.1' S	19°15.2'	71°24.7' S	11°17.3'	
17	295°12.8'	79°06.3' S	14°19.9'	30°21.7' S	27°04.1'	329°51.3' S	15°01.4'	345°21.5' S	19°15.2'	86°25.5' S	11°17.9'	
18	310°15.3'	94°06.3' S	14°20.7'	45°21.4' S	27°04.2'	344°53.6' S	15°01.4'	0°23.9' S	19°15.1'	101°26.4' S	11°18.5'	
19	325°17.8'	109°06.3' S	14°21.5'	60°21.1' S	27°04.4'	359°56.0' S	15°01.4'	15°26.3' S	19°15.1'	116°27.3' S	11°19.1'	
20	340°20.2'	124°06.3' S	14°22.3'	75°20.8' S	27°04.5'	14°58.3' S	15°01.3'	30°28.6' S	19°15.1'	131°28.1' S	11°19.7'	
21	355°22.7'	139°06.3' S	14°23.1'	90°20.5' S	27°04.7'	30°00.7' S	15°01.3'	45°31.0' S	19°15.1'	146°29.0' S	11°20.3'	
22	10°25.2'	154°06.3' S	14°23.9'	105°20.2' S	27°04.8'	45°03.1' S	15°01.2'	60°33.4' S	19°15.0'	161°29.8' S	11°20.9'	
23	25°27.6'	169°06.4' S	14°24.7'	120°19.9' S	27°04.9'	60°05.4' S	15°01.2'	75°35.8' S	19°15.0'	176°30.7' S	11°21.5'	
		SD 16.1' <i>d</i> -0.8'		<i>v</i> -0.3' <i>d</i> -0.2'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 0.9' <i>d</i> -0.6'		
Mer. pass.		11 h 43 m 37 s		14 h 59 m		19 h 0 m		17 h 58 m		11 h 15 m		

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-AcruX	-Sun	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	242°25.4'	N 15°13.2'	11.9'	-12.2'	57.0'	81°47.4'	64°41.7'	54°26.0'	51°24.2'		39°29.1'	42°26.4'	63°27.5'
1	256°56.2'	N 15°01.1'	11.9'	-12.3'	57.1'	81°28.7'	64°11.4'	53°59.0'	50°51.6'		40°01.9'	42°54.6'	63°48.8'
2	271°27.1'	N 14°48.8'	11.9'	-12.4'	57.1'	81°10.0'	63°41.0'	53°32.0'	50°18.9'		40°34.7'	43°23.0'	64°10.2'
3	285°58.0'	N 14°36.4'	11.9'	-12.5'	57.2'	80°51.2'	63°10.6'	53°05.0'	49°46.2'		41°07.5'	43°51.5'	64°31.7'
4	300°28.9'	N 14°24.0'	11.9'	-12.5'	57.2'	80°32.5'	62°40.1'	52°38.1'	49°13.5'		41°40.5'	44°20.1'	64°53.3'
5	314°59.8'	N 14°11.4'	11.9'	-12.6'	57.2'	80°13.8'	62°09.6'	52°11.3'	48°40.7'		42°13.4'	44°48.8'	65°15.1'
6	329°30.8'	N 13°58.8'	11.9'	-12.7'	57.3'	79°55.1'	61°39.0'	51°44.4'	48°07.8'		42°46.4'	45°17.7'	65°37.0'
7	344°01.7'	N 13°46.1'	12.0'	-12.8'	57.3'	79°36.5'	61°08.4'	51°17.6'	47°35.0'	8°24.4'	43°19.5'	45°46.7'	65°58.9'
8	358°32.7'	N 13°33.3'	12.0'	-12.9'	57.3'	79°17.8'	60°37.7'	50°50.9'	47°02.0'	8°52.0'	43°52.6'	46°15.8'	66°21.0'
9	13°03.6'	N 13°20.4'	12.0'	-13.0'	57.4'	78°59.1'	60°07.0'	50°24.2'	46°29.1'	9°20.2'	44°25.8'	46°45.0'	66°43.2'
10	27°34.6'	N 13°07.4'	12.0'	-13.0'	57.4'	78°40.5'	59°36.2'	49°57.6'	45°56.1'	9°49.0'	44°59.0'	47°14.3'	67°05.6'
11	42°05.6'	N 12°54.4'	12.0'	-13.1'	57.5'	78°21.9'	59°05.4'	49°31.1'	45°23.0'	10°18.3'	45°32.2'	47°43.7'	67°28.0'
12	56°36.6'	N 12°41.3'	12.0'	-13.2'	57.5'	78°03.3'	58°34.6'	49°04.6'	44°49.9'	10°48.0'	46°05.5'	48°13.2'	67°50.5'
13	71°07.6'	N 12°28.1'	12.0'	-13.3'	57.5'	77°44.7'	58°03.7'	48°38.1'	44°16.8'	11°18.1'	46°38.9'	48°42.9'	68°13.1'
14	85°38.7'	N 12°14.8'	12.0'	-13.4'	57.6'	77°26.1'	57°32.7'	48°11.8'	43°43.6'	11°48.5'	47°12.3'	49°12.6'	68°35.9'
15	100°09.7'	N 12°01.4'	12.0'	-13.4'	57.6'	77°07.6'	57°01.7'	47°45.5'	43°10.4'	12°19.2'	47°45.7'	49°42.4'	68°58.7'
16	114°40.7'	N 11°48.0'	12.0'	-13.5'	57.7'	76°49.1'	56°30.7'	47°19.3'	42°37.2'	12°50.2'	48°19.2'	50°12.4'	69°21.6'
17	129°11.8'	N 11°34.4'	12.0'	-13.6'	57.7'	76°30.6'	55°59.6'	46°53.2'	42°03.9'	13°21.5'	48°52.8'	50°42.4'	69°44.6'
18	143°42.8'	N 11°20.8'	12.1'	-13.7'	57.7'	76°12.2'	55°28.5'	46°27.1'	41°30.5'	13°53.0'	49°26.4'	51°12.5'	70°07.8'
19	158°13.9'	N 11°07.2'	12.1'	-13.7'	57.8'	75°53.7'	54°57.3'	46°01.2'	40°57.2'	14°24.7'	50°00.0'	51°42.7'	70°31.0'
20	172°44.9'	N 10°53.4'	12.1'	-13.8'	57.8'	75°35.3'	54°26.0'	45°35.3'	40°23.7'	14°56.5'	50°33.7'	52°13.1'	70°54.3'
21	187°16.0'	N 10°39.6'	12.1'	-13.9'	57.9'	75°17.0'	53°54.7'	45°09.6'	39°50.3'	15°28.6'	51°07.5'	52°43.5'	71°17.7'
22	201°47.0'	N 10°25.7'	12.1'	-14.0'	57.9'	74°58.7'	53°23.4'	44°43.9'	39°16.8'	16°00.8'	51°41.3'	53°14.0'	71°41.2'
23	216°18.1'	N 10°11.7'	12.1'	-14.0'	57.9'	74°40.4'	52°52.0'	44°18.4'	38°43.2'	16°33.2'	52°15.1'	53°44.6'	72°04.8'
Mer. pass.		8 h 6 m SD 15.6' phase 29%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.0'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.2'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.6'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.3'	S 52°42.1'				