

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	100°37.6'	179°10.5'	S 23°01.2'	166°00.0'	S 18°35.0'	127°39.4'	S 12°12.7'	146°01.3'	S 18°00.6'	208°58.0'	S 22°30.0'	
1	115°40.0'	194°10.2'	S 23°01.0'	181°03.9'	S 18°34.6'	142°41.4'	S 12°12.5'	161°03.5'	S 18°00.6'	223°58.6'	S 22°30.2'	
2	130°42.5'	209°09.9'	S 23°00.8'	196°07.7'	S 18°34.1'	157°43.4'	S 12°12.3'	176°05.7'	S 18°00.5'	238°59.1'	S 22°30.5'	
3	145°45.0'	224°09.6'	S 23°00.6'	211°11.6'	S 18°33.7'	172°45.4'	S 12°12.1'	191°07.9'	S 18°00.4'	253°59.7'	S 22°30.7'	
4	160°47.4'	239°09.3'	S 23°00.4'	226°15.4'	S 18°33.3'	187°47.3'	S 12°12.0'	206°10.1'	S 18°00.3'	269°00.3'	S 22°31.0'	
5	175°49.9'	254°09.0'	S 23°00.2'	241°19.3'	S 18°32.8'	202°49.3'	S 12°11.8'	221°12.3'	S 18°00.3'	284°00.8'	S 22°31.2'	
6	190°52.4'	269°08.7'	S 22°60.0'	256°23.1'	S 18°32.4'	217°51.3'	S 12°11.6'	236°14.5'	S 18°00.2'	299°01.4'	S 22°31.5'	
7	205°54.8'	284°08.4'	S 22°59.8'	271°27.0'	S 18°31.9'	232°53.3'	S 12°11.4'	251°16.7'	S 18°00.1'	314°01.9'	S 22°31.7'	
8	220°57.3'	299°08.1'	S 22°59.6'	286°30.9'	S 18°31.5'	247°55.3'	S 12°11.3'	266°18.8'	S 18°00.0'	329°02.5'	S 22°32.0'	
9	235°59.8'	314°07.8'	S 22°59.4'	301°34.7'	S 18°31.1'	262°57.3'	S 12°11.1'	281°21.0'	S 17°60.0'	344°03.1'	S 22°32.2'	
10	251°02.2'	329°07.5'	S 22°59.2'	316°38.6'	S 18°30.6'	277°59.3'	S 12°10.9'	296°23.2'	S 17°59.9'	359°03.6'	S 22°32.5'	
11	266°04.7'	344°07.2'	S 22°58.9'	331°42.5'	S 18°30.2'	293°01.3'	S 12°10.7'	311°25.4'	S 17°59.8'	14°04.2'	S 22°32.7'	
12	281°07.2'	359°06.9'	S 22°58.7'	346°46.3'	S 18°29.8'	308°03.3'	S 12°10.5'	326°27.6'	S 17°59.7'	29°04.7'	S 22°33.0'	
13	296°09.6'	14°06.6'	S 22°58.5'	1°50.2'	S 18°29.3'	323°05.3'	S 12°10.4'	341°29.8'	S 17°59.7'	44°05.3'	S 22°33.2'	
14	311°12.1'	29°06.3'	S 22°58.3'	16°54.1'	S 18°28.9'	338°07.3'	S 12°10.2'	356°32.0'	S 17°59.6'	59°05.8'	S 22°33.5'	
15	326°14.5'	44°06.0'	S 22°58.1'	31°58.0'	S 18°28.5'	353°09.3'	S 12°10.0'	11°34.2'	S 17°59.5'	74°06.4'	S 22°33.7'	
16	341°17.0'	59°05.7'	S 22°57.9'	47°01.9'	S 18°28.0'	8°11.3'	S 12°09.8'	26°36.4'	S 17°59.4'	89°07.0'	S 22°33.9'	
17	356°19.5'	74°05.5'	S 22°57.7'	62°05.8'	S 18°27.6'	23°13.3'	S 12°09.7'	41°38.5'	S 17°59.4'	104°07.5'	S 22°34.2'	
18	11°21.9'	89°05.2'	S 22°57.5'	77°09.7'	S 18°27.2'	38°15.3'	S 12°09.5'	56°40.7'	S 17°59.3'	119°08.1'	S 22°34.4'	
19	26°24.4'	104°04.9'	S 22°57.2'	92°13.6'	S 18°26.7'	53°17.3'	S 12°09.3'	71°42.9'	S 17°59.2'	134°08.6'	S 22°34.7'	
20	41°26.9'	119°04.6'	S 22°57.0'	107°17.4'	S 18°26.3'	68°19.3'	S 12°09.1'	86°45.1'	S 17°59.1'	149°09.2'	S 22°34.9'	
21	56°29.3'	134°04.3'	S 22°56.8'	122°21.3'	S 18°25.9'	83°21.3'	S 12°09.0'	101°47.3'	S 17°59.1'	164°09.7'	S 22°35.2'	
22	71°31.8'	149°04.0'	S 22°56.6'	137°25.3'	S 18°25.4'	98°23.3'	S 12°08.8'	116°49.5'	S 17°59.0'	179°10.3'	S 22°35.4'	
23	86°34.3'	164°03.7'	S 22°56.4'	152°29.2'	S 18°25.0'	113°25.3'	S 12°08.6'	131°51.7'	S 17°58.9'	194°10.8'	S 22°35.6'	
		SD 16.3'	d 0.2'		v 3.9'	d 0.4'		v 2.0'	d 0.2'		v 2.2'	d 0.1'
Mer. pass.		12 h 3 m 32 s		12 h 53 m		15 h 27 m		14 h 14 m		10 h 4 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Mars	+Antares	+Rigil Kent	+Hadar	+Spica	+Arcturus	+Acrux	+Regulus
0	206°32.5'	S 23°55.2'	2.9'	-7.3'	61.0'					51°19.1'	57°59.2'		105°21.1'
1	220°54.3'	S 24°02.5'	2.8'	-7.1'	61.0'	3°12.8'				51°56.7'	58°30.9'		105°58.7'
2	235°16.1'	S 24°09.6'	2.7'	-7.0'	61.1'	3°47.5'				52°34.2'	59°02.8'		106°36.4'
3	249°37.8'	S 24°16.6'	2.6'	-6.8'	61.1'	4°22.6'	7°56.1'			53°11.8'	59°34.7'		107°14.1'
4	263°59.4'	S 24°23.4'	2.5'	-6.6'	61.1'	4°58.0'	8°29.7'			53°49.4'	60°06.6'		107°51.8'
5	278°20.9'	S 24°30.0'	2.4'	-6.4'	61.1'	5°33.5'	9°03.9'			54°27.1'	60°38.7'		108°29.5'
6	292°42.4'	S 24°36.4'	2.3'	-6.2'	61.1'	6°09.1'	9°38.5'			55°04.7'	61°10.8'		109°07.3'
7	307°03.7'	S 24°42.6'	2.3'	-6.0'	61.1'	6°44.9'	10°13.6'			55°42.4'	61°43.1'		109°45.0'
8	321°25.0'	S 24°48.6'	2.2'	-5.9'	61.1'	7°20.7'	10°49.0'			56°20.1'	62°15.3'		110°22.8'
9	335°46.1'	S 24°54.5'	2.1'	-5.7'	61.1'	7°56.6'	11°24.6'			56°57.7'	62°47.7'		111°00.5'
10	350°07.2'	S 25°00.2'	2.0'	-5.5'	61.1'	8°32.5'	12°00.5'			57°35.5'	63°20.1'		111°38.3'
11	4°28.3'	S 25°05.6'	2.0'	-5.3'	61.1'	9°08.4'	12°36.6'			58°13.2'	63°52.6'		112°16.1'
12	18°49.2'	S 25°10.9'	1.9'	-5.1'	61.1'	9°44.4'	13°12.9'			58°50.9'	64°25.2'		112°53.9'
13	33°10.1'	S 25°16.0'	1.8'	-4.9'	61.1'	10°20.5'	13°49.3'			59°28.7'	64°57.8'		113°31.7'
14	47°30.9'	S 25°20.9'	1.8'	-4.7'	61.2'	10°56.5'	14°25.9'			59°59.9'	65°30.5'		114°09.5'
15	61°51.7'	S 25°25.6'	1.7'	-4.5'	61.2'	11°32.6'	15°02.6'		49°51.9'	60°06.4'	65°03.2'		114°47.3'
16	76°12.4'	S 25°30.2'	1.6'	-4.3'	61.2'	12°08.7'	15°39.4'		50°07.1'	60°44.2'	66°03.2'		115°25.1'
17	90°33.0'	S 25°34.5'	1.6'	-4.1'	61.2'	12°44.8'	16°16.3'		50°22.7'	61°22.0'	66°36.0'	62°05.5'	115°25.1'
18	104°53.6'	S 25°38.6'	1.5'	-3.9'	61.2'	13°20.9'	16°53.2'		50°38.5'	61°59.7'	67°08.8'	62°20.6'	116°03.0'
19	119°14.1'	S 25°42.5'	1.5'	-3.7'	61.2'	13°57.0'	17°30.3'		50°54.6'	62°37.5'	67°41.7'	62°35.9'	116°40.8'
20	133°34.6'	S 25°46.2'	1.4'	-3.5'	61.2'	14°33.2'	18°07.4'	47°17.3'	51°11.0'	63°15.3'	68°14.6'	62°51.3'	117°18.6'
21	147°55.0'	S 25°49.7'	1.4'	-3.3'	61.2'	15°09.3'	18°44.6'	47°32.4'	51°27.7'	63°53.1'	68°47.6'	63°07.0'	117°56.5'
22	162°15.4'	S 25°53.0'	1.4'	-3.1'	61.2'	15°45.5'	19°21.8'	47°47.8'	51°44.6'	64°31.0'	69°20.6'	63°22.8'	118°34.3'
23	176°35.8'	S 25°56.2'	1.3'	-2.9'	61.2'	16°21.7'	19°59.1'	48°03.5'	52°01.8'	65°08.8'	69°53.7'	63°38.8'	119°12.2'
								48°19.6'	52°19.3'	65°46.6'	70°26.8'	63°55.0'	119°50.0'
Mer. pass.		10 h 41 m SD 16.6'		phase 5%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°25.0'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.8'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°52.8'	N 89°21.6'
Rigil Kent	-0.0	139°44.0'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°21.9'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.0'	Sirius	-1.4	258°28.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	101°36.7'	179°03.4'	S 22°56.1'	167°33.1'	S 18°24.6'		128°27.3'	S 12°08.4'		146°53.9'	S 17°58.8'		209°11.4'	S 22°35.9'		209°11.4'	S 22°35.9'	
1	116°39.2'	194°03.1'	S 22°55.9'	182°37.0'	S 18°24.1'		143°29.3'	S 12°08.2'		161°56.1'	S 17°58.8'		224°12.0'	S 22°36.1'		224°12.0'	S 22°36.1'	
2	131°41.7'	209°02.8'	S 22°55.7'	197°40.9'	S 18°23.7'		158°31.3'	S 12°08.1'		176°58.3'	S 17°58.7'		239°12.5'	S 22°36.4'		239°12.5'	S 22°36.4'	
3	146°44.1'	224°02.5'	S 22°55.5'	212°44.8'	S 18°23.3'		173°33.2'	S 12°07.9'		192°00.4'	S 17°58.6'		254°13.1'	S 22°36.6'		254°13.1'	S 22°36.6'	
4	161°46.6'	239°02.2'	S 22°55.3'	227°48.7'	S 18°22.8'		188°35.2'	S 12°07.7'		207°02.6'	S 17°58.5'		269°13.6'	S 22°36.8'		269°13.6'	S 22°36.8'	
5	176°49.0'	254°01.9'	S 22°55.0'	242°52.6'	S 18°22.4'		203°37.2'	S 12°07.5'		222°04.8'	S 17°58.5'		284°14.2'	S 22°37.1'		284°14.2'	S 22°37.1'	
6	191°51.5'	269°01.6'	S 22°54.8'	257°56.6'	S 18°22.0'		218°39.2'	S 12°07.4'		237°07.0'	S 17°58.4'		299°14.7'	S 22°37.3'		299°14.7'	S 22°37.3'	
7	206°54.0'	284°01.3'	S 22°54.6'	273°00.5'	S 18°21.6'		233°41.2'	S 12°07.2'		252°09.2'	S 17°58.3'		314°15.3'	S 22°37.6'		314°15.3'	S 22°37.6'	
8	221°56.4'	299°01.1'	S 22°54.4'	288°04.4'	S 18°21.1'		248°43.2'	S 12°07.0'		267°11.4'	S 17°58.2'		329°15.8'	S 22°37.8'		329°15.8'	S 22°37.8'	
9	236°58.9'	314°00.8'	S 22°54.1'	303°08.4'	S 18°20.7'		263°45.2'	S 12°06.8'		282°13.6'	S 17°58.2'		344°16.4'	S 22°38.0'		344°16.4'	S 22°38.0'	
10	252°01.4'	329°00.5'	S 22°53.9'	318°12.3'	S 18°20.3'		278°47.2'	S 12°06.6'		297°15.8'	S 17°58.1'		359°16.9'	S 22°38.3'		359°16.9'	S 22°38.3'	
11	267°03.8'	344°00.2'	S 22°53.7'	333°16.2'	S 18°19.8'		293°49.2'	S 12°06.5'		312°18.0'	S 17°58.0'		14°17.5'	S 22°38.5'		14°17.5'	S 22°38.5'	
12	282°06.3'	358°59.9'	S 22°53.4'	348°20.2'	S 18°19.4'		308°51.2'	S 12°06.3'		327°20.1'	S 17°57.9'		29°18.0'	S 22°38.8'		29°18.0'	S 22°38.8'	
13	297°08.8'	13°59.6'	S 22°53.2'	3°24.1'	S 18°19.0'		323°53.2'	S 12°06.1'		342°22.3'	S 17°57.9'		44°18.6'	S 22°39.0'		44°18.6'	S 22°39.0'	
14	312°11.2'	28°59.3'	S 22°53.0'	18°28.1'	S 18°18.6'		338°55.2'	S 12°05.9'		357°24.5'	S 17°57.8'		59°19.2'	S 22°39.2'		59°19.2'	S 22°39.2'	
15	327°13.7'	43°59.0'	S 22°52.8'	33°32.0'	S 18°18.1'		353°57.2'	S 12°05.7'		12°26.7'	S 17°57.7'		74°19.7'	S 22°39.5'		74°19.7'	S 22°39.5'	
16	342°16.2'	58°58.7'	S 22°52.5'	48°36.0'	S 18°17.7'		8°59.2'	S 12°05.6'		27°28.9'	S 17°57.6'		89°20.3'	S 22°39.7'		89°20.3'	S 22°39.7'	
17	357°18.6'	73°58.4'	S 22°52.3'	63°39.9'	S 18°17.3'		24°01.2'	S 12°05.4'		42°31.1'	S 17°57.6'		104°20.8'	S 22°39.9'		104°20.8'	S 22°39.9'	
18	12°21.1'	88°58.1'	S 22°52.1'	78°43.9'	S 18°16.9'		39°03.1'	S 12°05.2'		57°33.3'	S 17°57.5'		119°21.4'	S 22°40.2'		119°21.4'	S 22°40.2'	
19	27°23.5'	103°57.8'	S 22°51.8'	93°47.8'	S 18°16.5'		54°05.1'	S 12°05.0'		72°35.5'	S 17°57.4'		134°21.9'	S 22°40.4'		134°21.9'	S 22°40.4'	
20	42°26.0'	118°57.6'	S 22°51.6'	108°51.8'	S 18°16.0'		69°07.1'	S 12°04.9'		87°37.6'	S 17°57.3'		149°22.5'	S 22°40.6'		149°22.5'	S 22°40.6'	
21	57°28.5'	133°57.3'	S 22°51.3'	123°55.7'	S 18°15.6'		84°09.1'	S 12°04.7'		102°39.8'	S 17°57.3'		164°23.0'	S 22°40.9'		164°23.0'	S 22°40.9'	
22	72°30.9'	148°57.0'	S 22°51.1'	138°59.7'	S 18°15.2'		99°11.1'	S 12°04.5'		117°42.0'	S 17°57.2'		179°23.6'	S 22°41.1'		179°23.6'	S 22°41.1'	
23	87°33.4'	163°56.7'	S 22°50.9'	154°03.7'	S 18°14.8'		114°13.1'	S 12°04.3'		132°44.2'	S 17°57.1'		194°24.1'	S 22°41.3'		194°24.1'	S 22°41.3'	
		SD 16.3'	d 0.2'		v 3.9'	d 0.4'		v 2.0'	d 0.2'		v 2.2'	d 0.1'		v 0.6'	d -0.2'			
Mer. pass.		12 h 4 m 0 s		12 h 46 m		15 h 24 m		14 h 10 m		10 h 3 m								

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	+Mars	+Antares	+Rigil Kent	+Hadar	+Acrux	+Spica	+Arcturus
0	190°56.1'	S 25°59.1'	1.3'	-2.7'	61.2'	16°57.9'	20°36.4'	48°35.9'	52°37.0'	64°11.3'	66°24.4'	70°59.9'
1	205°16.4'	S 26°01.8'	1.2'	-2.5'	61.2'	17°34.0'	21°13.8'	48°52.6'	52°55.0'	64°27.8'	67°02.2'	71°33.1'
2	219°36.6'	S 26°04.3'	1.2'	-2.3'	61.2'	18°10.2'	21°51.2'	49°09.5'	53°13.2'	64°44.5'	67°40.1'	72°06.3'
3	233°56.9'	S 26°06.6'	1.2'	-2.1'	61.2'							
4	248°17.1'	S 26°08.7'	1.2'	-1.9'	61.2'							
5	262°37.2'	S 26°10.5'	1.2'	-1.7'	61.2'							
6	276°57.4'	S 26°12.2'	1.1'	-1.5'	61.2'							
7	291°17.5'	S 26°13.7'	1.1'	-1.3'	61.2'							
8	305°37.7'	S 26°14.9'	1.1'	-1.1'	61.2'							
9	319°57.8'	S 26°16.0'	1.1'	-0.8'	61.1'							
10	334°17.9'	S 26°16.8'	1.1'	-0.6'	61.1'							
11	348°38.0'	S 26°17.5'	1.1'	-0.4'	61.1'							
12	2°58.2'	S 26°17.9'	1.1'	-0.2'	61.1'							
13	17°18.3'	S 26°18.1'	1.1'	-0.0'	61.1'							
14	31°38.4'	S 26°18.2'	1.2'	0.2'	61.1'							
15	45°58.6'	S 26°18.0'	1.2'	0.4'	61.1'							
16	60°18.8'	S 26°17.6'	1.2'	0.6'	61.1'							
17	74°38.9'	S 26°17.0'	1.2'	0.8'	61.1'							
18	88°59.2'	S 26°16.2'	1.2'	1.0'	61.1'							
19	103°19.4'	S 26°15.1'	1.3'	1.2'	61.1'							
20	117°39.7'	S 26°13.9'	1.3'	1.4'	61.0'							
21	131°60.0'	S 26°12.5'	1.3'	1.6'	61.0'							
22	146°20.3'	S 26°10.9'	1.4'	1.8'	61.0'							
23	160°40.7'	S 26°09.0'	1.4'	2.0'	61.0'							
Mer. pass.	11 h 48 m	SD 16.7'	phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°25.0'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°53.0'	N 89°21.6'
Rigil Kent	-0.0	139°44.0'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

Monday 03 January 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	102°35.9'		178°56.4'	S 22°50.6'	169°07.6'	S 18°14.4'	129°15.1'	S 12°04.1'	147°46.4'	S 17°57.0'	209°24.7'	S 22°41.6'
1	117°38.3'		193°56.1'	S 22°50.4'	184°11.6'	S 18°13.9'	144°17.1'	S 12°04.0'	162°48.6'	S 17°57.0'	224°25.2'	S 22°41.8'
2	132°40.8'		208°55.8'	S 22°50.2'	199°15.6'	S 18°13.5'	159°19.1'	S 12°03.8'	177°50.8'	S 17°56.9'	239°25.8'	S 22°42.0'
3	147°43.3'		223°55.5'	S 22°49.9'	214°19.6'	S 18°13.1'	174°21.1'	S 12°03.6'	192°53.0'	S 17°56.8'	254°26.3'	S 22°42.3'
4	162°45.7'		238°55.2'	S 22°49.7'	229°23.5'	S 18°12.7'	189°23.1'	S 12°03.4'	207°55.1'	S 17°56.7'	269°26.9'	S 22°42.5'
5	177°48.2'		253°54.9'	S 22°49.4'	244°27.5'	S 18°12.3'	204°25.0'	S 12°03.2'	222°57.3'	S 17°56.7'	284°27.4'	S 22°42.7'
6	192°50.7'		268°54.7'	S 22°49.2'	259°31.5'	S 18°11.8'	219°27.0'	S 12°03.1'	237°59.5'	S 17°56.6'	299°28.0'	S 22°43.0'
7	207°53.1'		283°54.4'	S 22°48.9'	274°35.5'	S 18°11.4'	234°29.0'	S 12°02.9'	253°01.7'	S 17°56.5'	314°28.5'	S 22°43.2'
8	222°55.6'		298°54.1'	S 22°48.7'	289°39.5'	S 18°11.0'	249°31.0'	S 12°02.7'	268°03.9'	S 17°56.4'	329°29.1'	S 22°43.4'
9	237°58.0'		313°53.8'	S 22°48.4'	304°43.5'	S 18°10.6'	264°33.0'	S 12°02.5'	283°06.1'	S 17°56.4'	344°29.6'	S 22°43.6'
10	253°00.5'		328°53.5'	S 22°48.2'	319°47.5'	S 18°10.2'	279°35.0'	S 12°02.3'	298°08.3'	S 17°56.3'	359°30.2'	S 22°43.9'
11	268°03.0'		343°53.2'	S 22°48.0'	334°51.5'	S 18°09.8'	294°37.0'	S 12°02.2'	313°10.5'	S 17°56.2'	14°30.7'	S 22°44.1'
12	283°05.4'		358°52.9'	S 22°47.7'	349°55.5'	S 18°09.4'	309°39.0'	S 12°02.0'	328°12.6'	S 17°56.1'	29°31.3'	S 22°44.3'
13	298°07.8'		13°52.6'	S 22°47.5'	4°59.5'	S 18°08.9'	324°41.0'	S 12°01.8'	343°14.8'	S 17°56.1'	44°31.8'	S 22°44.6'
14	313°10.4'		28°52.4'	S 22°47.2'	20°03.5'	S 18°08.5'	339°43.0'	S 12°01.6'	358°17.0'	S 17°56.0'	59°32.4'	S 22°44.8'
15	328°12.8'		43°52.1'	S 22°47.0'	35°07.5'	S 18°08.1'	354°44.9'	S 12°01.4'	13°19.2'	S 17°55.9'	74°32.9'	S 22°45.0'
16	343°15.3'		58°51.8'	S 22°46.7'	50°11.5'	S 18°07.7'	9°46.9'	S 12°01.3'	28°21.4'	S 17°55.8'	89°33.5'	S 22°45.2'
17	358°17.8'		73°51.5'	S 22°46.4'	65°15.5'	S 18°07.3'	24°48.9'	S 12°01.1'	43°23.6'	S 17°55.7'	104°34.0'	S 22°45.5'
18	13°20.2'		88°51.2'	S 22°46.2'	80°19.5'	S 18°06.9'	39°50.9'	S 12°00.9'	58°25.8'	S 17°55.7'	119°34.6'	S 22°45.7'
19	28°22.7'		103°50.9'	S 22°45.9'	95°23.5'	S 18°06.5'	54°52.9'	S 12°00.7'	73°27.9'	S 17°55.6'	134°35.1'	S 22°45.9'
20	43°25.2'		118°50.6'	S 22°45.7'	110°27.5'	S 18°06.1'	69°54.9'	S 12°00.5'	88°30.1'	S 17°55.5'	149°35.6'	S 22°46.1'
21	58°27.6'		133°50.3'	S 22°45.4'	125°31.5'	S 18°05.6'	84°56.9'	S 12°00.4'	103°32.3'	S 17°55.4'	164°36.2'	S 22°46.4'
22	73°30.1'		148°50.1'	S 22°45.2'	140°35.5'	S 18°05.2'	99°58.9'	S 12°00.2'	118°34.5'	S 17°55.4'	179°36.7'	S 22°46.6'
23	88°32.5'		163°49.8'	S 22°44.9'	155°39.5'	S 18°04.8'	115°00.9'	S 12°00.0'	133°36.7'	S 17°55.3'	194°37.3'	S 22°46.8'
			SD 16.3'	<i>d</i> 0.2'	<i>v</i> 4.0'	<i>d</i> 0.4'	<i>v</i> 2.0'	<i>d</i> 0.2'	<i>v</i> 2.2'	<i>d</i> 0.1'	<i>v</i> 0.5'	<i>d</i> -0.2'
Mer. pass.			12 h 4 m 28 s		12 h 40 m		15 h 21 m		14 h 7 m		10 h 2 m	

h	Moon					Lunar distance			
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn
0	175°01.1'	S 26°07.0'	1.5'	2.2'	61.0'				
1	189°21.5'	S 26°04.7'	1.5'	2.4'	61.0'				
2	203°42.0'	S 26°02.3'	1.6'	2.6'	61.0'				
3	218°02.6'	S 25°59.7'	1.6'	2.8'	60.9'				
4	232°23.2'	S 25°56.8'	1.7'	3.0'	60.9'				
5	246°43.9'	S 25°53.8'	1.7'	3.2'	60.9'				
6	261°04.6'	S 25°50.5'	1.8'	3.4'	60.9'				
7	275°25.4'	S 25°47.1'	1.9'	3.6'	60.9'				
8	289°46.3'	S 25°43.5'	1.9'	3.8'	60.9'				
9	304°07.2'	S 25°39.6'	2.0'	4.0'	60.8'				
10	318°28.2'	S 25°35.6'	2.1'	4.2'	60.8'				
11	332°49.3'	S 25°31.4'	2.2'	4.4'	60.8'	68°28.2'	43°44.5'	38°25.8'	19°44.2'
12	347°10.5'	S 25°27.0'	2.2'	4.6'	60.8'	68°10.0'	43°10.1'	37°49.0'	19°07.7'
13	1°31.7'	S 25°22.4'	2.3'	4.8'	60.8'	67°52.0'	42°35.8'	37°12.2'	18°31.4'
14	15°53.0'	S 25°17.6'	2.4'	5.0'	60.7'	67°34.1'	42°01.6'	36°35.5'	17°55.2'
15	30°14.5'	S 25°12.7'	2.5'	5.2'	60.7'	67°16.3'	41°27.5'	35°58.8'	17°19.0'
16	44°36.0'	S 25°07.5'	2.6'	5.3'	60.7'	66°58.7'	40°53.5'	35°22.2'	16°43.0'
17	58°57.5'	S 25°02.2'	2.7'	5.5'	60.7'	66°41.2'	40°19.6'	34°45.6'	16°07.0'
18	73°19.2'	S 24°56.7'	2.8'	5.7'	60.7'	66°23.8'	39°45.8'	34°09.0'	15°31.2'
19	87°41.0'	S 24°51.0'	2.9'	5.9'	60.6'	66°06.7'	39°12.1'	33°32.5'	14°55.5'
20	102°02.9'	S 24°45.1'	3.0'	6.1'	60.6'	65°49.6'	38°38.6'	32°56.0'	14°19.9'
21	116°24.8'	S 24°39.0'	3.1'	6.2'	60.6'	65°32.8'	38°05.2'	32°19.5'	13°44.5'
22	130°46.9'	S 24°32.8'	3.2'	6.4'	60.6'	65°16.1'	37°31.9'	31°43.1'	13°09.3'
23	145°09.1'	S 24°26.4'	3.3'	6.6'	60.5'	64°59.6'	36°58.8'	31°06.8'	12°34.3'
Mer. pass.	12 h 54 m	SD 16.6'	phase 0%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°25.0'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°53.3'	N 89°21.6'
Rigil Kent	-0.0	139°44.0'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	103°35.0'	178°49.5'	S 22°44.7'	170°43.6'	S 18°04.4'	130°02.8'	S 11°59.8'	148°38.9'	S 17°55.2'	209°37.8'	S 22°47.0'	
1	118°37.5'	193°49.2'	S 22°44.4'	185°47.6'	S 18°04.0'	145°04.8'	S 11°59.6'	163°41.1'	S 17°55.1'	224°38.4'	S 22°47.3'	
2	133°39.9'	208°48.9'	S 22°44.1'	200°51.6'	S 18°03.6'	160°06.8'	S 11°59.5'	178°43.3'	S 17°55.1'	239°38.9'	S 22°47.5'	
3	148°42.4'	223°48.6'	S 22°43.9'	215°55.6'	S 18°03.2'	175°08.8'	S 11°59.3'	193°45.4'	S 17°55.0'	254°39.5'	S 22°47.7'	
4	163°44.9'	238°48.3'	S 22°43.6'	230°59.7'	S 18°02.8'	190°10.8'	S 11°59.1'	208°47.6'	S 17°54.9'	269°40.0'	S 22°47.9'	
5	178°47.3'	253°48.1'	S 22°43.4'	246°03.7'	S 18°02.4'	205°12.8'	S 11°58.9'	223°49.8'	S 17°54.8'	284°40.6'	S 22°48.2'	
6	193°49.8'	268°47.8'	S 22°43.1'	261°07.7'	S 18°02.0'	220°14.8'	S 11°58.7'	238°52.0'	S 17°54.8'	299°41.1'	S 22°48.4'	
7	208°52.3'	283°47.5'	S 22°42.8'	276°11.8'	S 18°01.6'	235°16.7'	S 11°58.6'	253°54.2'	S 17°54.7'	314°41.7'	S 22°48.6'	
8	223°54.7'	298°47.2'	S 22°42.6'	291°15.8'	S 18°01.2'	250°18.7'	S 11°58.4'	268°56.4'	S 17°54.6'	329°42.2'	S 22°48.8'	
9	238°57.2'	313°46.9'	S 22°42.3'	306°19.8'	S 18°00.8'	265°20.7'	S 11°58.2'	283°58.6'	S 17°54.5'	344°42.7'	S 22°49.0'	
10	253°59.7'	328°46.6'	S 22°42.0'	321°23.9'	S 18°00.4'	280°22.7'	S 11°58.0'	299°00.7'	S 17°54.5'	359°43.3'	S 22°49.3'	
11	269°02.1'	343°46.4'	S 22°41.8'	336°27.9'	S 17°60.0'	295°24.7'	S 11°57.8'	314°02.9'	S 17°54.4'	14°43.8'	S 22°49.5'	
12	284°04.6'	358°46.1'	S 22°41.5'	351°32.0'	S 17°59.6'	310°26.7'	S 11°57.6'	329°05.1'	S 17°54.3'	29°44.4'	S 22°49.7'	
13	299°07.0'	13°45.8'	S 22°41.2'	6°36.0'	S 17°59.2'	325°28.7'	S 11°57.5'	344°07.3'	S 17°54.2'	44°44.9'	S 22°49.9'	
14	314°09.5'	28°45.5'	S 22°41.0'	21°40.1'	S 17°58.8'	340°30.7'	S 11°57.3'	359°09.5'	S 17°54.1'	59°45.5'	S 22°50.1'	
15	329°12.0'	43°45.2'	S 22°40.7'	36°44.1'	S 17°58.4'	355°32.6'	S 11°57.1'	14°11.7'	S 17°54.1'	74°46.0'	S 22°50.4'	
16	344°14.4'	58°44.9'	S 22°40.4'	51°48.2'	S 17°58.0'	10°34.6'	S 11°56.9'	29°13.8'	S 17°54.0'	89°46.6'	S 22°50.6'	
17	359°16.9'	73°44.7'	S 22°40.2'	66°52.2'	S 17°57.6'	25°36.6'	S 11°56.7'	44°16.0'	S 17°53.9'	104°47.1'	S 22°50.8'	
18	14°19.4'	88°44.4'	S 22°39.9'	81°56.3'	S 17°57.2'	40°38.6'	S 11°56.6'	59°18.2'	S 17°53.8'	119°47.6'	S 22°51.0'	
19	29°21.8'	103°44.1'	S 22°39.6'	97°00.3'	S 17°56.8'	55°40.6'	S 11°56.4'	74°20.4'	S 17°53.8'	134°48.2'	S 22°51.2'	
20	44°24.3'	118°43.8'	S 22°39.3'	112°04.4'	S 17°56.4'	70°42.6'	S 11°56.2'	89°22.6'	S 17°53.7'	149°48.7'	S 22°51.4'	
21	59°26.8'	133°43.5'	S 22°39.1'	127°08.4'	S 17°56.0'	85°44.5'	S 11°56.0'	104°24.8'	S 17°53.6'	164°49.3'	S 22°51.7'	
22	74°29.2'	148°43.2'	S 22°38.8'	142°12.5'	S 17°55.6'	100°46.5'	S 11°55.8'	119°27.0'	S 17°53.5'	179°49.8'	S 22°51.9'	
23	89°31.7'	163°43.0'	S 22°38.5'	157°16.6'	S 17°55.2'	115°48.5'	S 11°55.6'	134°29.1'	S 17°53.5'	194°50.4'	S 22°52.1'	
		SD 16.3'	d 0.3'	v 4.0'	d 0.4'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.2'	
Mer. pass.		12 h 4 m 55 s		12 h 34 m		15 h 18 m		14 h 3 m		10 h 1 m		

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Achernar	-Fomalhaut	-Jupiter	-Saturn
0	159°31.3'	S 24°19.8'	3.4'	6.7'	60.5'			64°43.2'	36°25.8'	30°30.5'	11°59.5'
1	173°53.7'	S 24°13.1'	3.5'	6.9'	60.5'			64°27.0'	35°52.9'	29°54.2'	11°24.9'
2	188°16.2'	S 24°06.2'	3.6'	7.1'	60.5'			64°11.0'	35°20.2'	29°18.0'	10°50.6'
3	202°38.8'	S 23°59.1'	3.7'	7.2'	60.4'			63°55.1'	34°47.7'	28°41.8'	10°16.7'
4	217°01.5'	S 23°51.9'	3.8'	7.4'	60.4'			63°39.4'	34°15.3'	28°05.7'	9°43.1'
5	231°24.4'	S 23°44.5'	3.9'	7.6'	60.4'			63°23.9'	33°43.1'	27°29.6'	9°10.0'
6	245°47.3'	S 23°36.9'	4.1'	7.7'	60.3'			63°08.6'	33°11.0'	26°53.6'	8°37.4'
7	260°10.4'	S 23°29.2'	4.2'	7.9'	60.3'				32°39.2'	26°17.6'	8°05.3'
8	274°33.5'	S 23°21.3'	4.3'	8.0'	60.3'				32°07.6'	25°41.7'	
9	288°56.8'	S 23°13.2'	4.4'	8.2'	60.3'				31°36.1'	25°05.9'	
10	303°20.2'	S 23°05.0'	4.5'	8.3'	60.2'				31°04.9'	24°30.1'	
11	317°43.8'	S 22°56.7'	4.7'	8.5'	60.2'				30°33.9'	23°54.4'	
12	332°07.4'	S 22°48.2'	4.8'	8.6'	60.2'		119°33.7'		30°03.1'	23°18.8'	
13	346°31.2'	S 22°39.6'	4.9'	8.8'	60.1'		119°04.7'		29°32.5'	22°43.2'	
14	0°55.1'	S 22°30.8'	5.0'	8.9'	60.1'	119°52.3'	118°35.7'		29°02.2'	22°07.7'	
15	15°19.1'	S 22°21.9'	5.2'	9.1'	60.1'	119°16.0'	118°06.7'		28°32.2'	21°32.3'	
16	29°43.3'	S 22°12.8'	5.3'	9.2'	60.0'	118°39.7'	117°37.6'		28°02.4'	20°56.9'	
17	44°07.6'	S 22°03.6'	5.4'	9.3'	60.0'	118°03.4'	117°08.5'		27°32.9'	20°21.6'	
18	58°32.0'	S 21°54.2'	5.5'	9.5'	60.0'	117°27.2'	116°39.3'		27°03.7'	19°46.4'	
19	72°56.5'	S 21°44.8'	5.7'	9.6'	59.9'	116°51.0'	116°10.1'		26°34.9'	19°11.3'	
20	87°21.2'	S 21°35.1'	5.8'	9.7'	59.9'	116°14.9'	115°40.9'		26°06.3'	18°36.3'	
21	101°46.0'	S 21°25.4'	5.9'	9.9'	59.9'	115°38.8'	115°11.6'		25°38.1'	18°01.4'	
22	116°10.9'	S 21°15.5'	6.1'	10.0'	59.8'	115°02.7'	114°42.3'		25°10.3'	17°26.6'	
23	130°36.0'	S 21°05.5'	6.2'	10.1'	59.8'	114°26.7'	114°13.0'		24°42.8'	16°52.0'	
Mer. pass.		13 h 56 m	SD 16.5'	phase 2%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°25.0'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°53.7'	N 89°21.6'
Rigil Kent	-0.0	139°44.0'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	104°34.1'	178°42.7'	S 22°38.2'	172°20.6'	S 17°54.8'	130°50.5'	S 11°55.5'	149°31.3'	S 17°53.4'	209°50.9'	S 22°52.3'	
1	119°36.6'	193°42.4'	S 22°38.0'	187°24.7'	S 17°54.4'	145°52.5'	S 11°55.3'	164°33.5'	S 17°53.3'	224°51.4'	S 22°52.5'	
2	134°39.1'	208°42.1'	S 22°37.7'	202°28.8'	S 17°54.0'	160°54.5'	S 11°55.1'	179°35.7'	S 17°53.2'	239°52.0'	S 22°52.7'	
3	149°41.5'	223°41.8'	S 22°37.4'	217°32.8'	S 17°53.6'	175°56.5'	S 11°54.9'	194°37.9'	S 17°53.2'	254°52.5'	S 22°52.9'	
4	164°44.0'	238°41.6'	S 22°37.1'	232°36.9'	S 17°53.2'	190°58.4'	S 11°54.7'	209°40.1'	S 17°53.1'	269°53.1'	S 22°53.2'	
5	179°46.5'	253°41.3'	S 22°36.8'	247°41.0'	S 17°52.8'	206°00.4'	S 11°54.6'	224°42.2'	S 17°53.0'	284°53.6'	S 22°53.4'	
6	194°48.9'	268°41.0'	S 22°36.6'	262°45.0'	S 17°52.4'	221°02.4'	S 11°54.4'	239°44.4'	S 17°52.9'	299°54.2'	S 22°53.6'	
7	209°51.4'	283°40.7'	S 22°36.3'	277°49.1'	S 17°52.0'	236°04.4'	S 11°54.2'	254°46.6'	S 17°52.8'	314°54.7'	S 22°53.8'	
8	224°53.9'	298°40.4'	S 22°36.0'	292°53.2'	S 17°51.7'	251°06.4'	S 11°54.0'	269°48.8'	S 17°52.8'	329°55.2'	S 22°54.0'	
9	239°56.3'	313°40.2'	S 22°35.7'	307°57.3'	S 17°51.3'	266°08.4'	S 11°53.8'	284°51.0'	S 17°52.7'	344°55.8'	S 22°54.2'	
10	254°58.8'	328°39.9'	S 22°35.4'	323°01.3'	S 17°50.9'	281°10.3'	S 11°53.6'	299°53.2'	S 17°52.6'	359°56.3'	S 22°54.4'	
11	270°01.3'	343°39.6'	S 22°35.1'	338°05.4'	S 17°50.5'	296°12.3'	S 11°53.5'	314°55.4'	S 17°52.5'	14°56.9'	S 22°54.6'	
12	285°03.7'	358°39.3'	S 22°34.9'	353°09.5'	S 17°50.1'	311°14.3'	S 11°53.3'	329°57.5'	S 17°52.5'	29°57.4'	S 22°54.9'	
13	300°06.2'	13°39.0'	S 22°34.6'	8°13.6'	S 17°49.7'	326°16.3'	S 11°53.1'	344°59.7'	S 17°52.4'	44°57.9'	S 22°55.1'	
14	315°08.6'	28°38.8'	S 22°34.3'	23°17.7'	S 17°49.3'	341°18.3'	S 11°52.9'	0°01.9'	S 17°52.3'	59°58.5'	S 22°55.3'	
15	330°11.1'	43°38.5'	S 22°34.0'	38°21.7'	S 17°48.9'	356°20.3'	S 11°52.7'	15°04.1'	S 17°52.2'	74°59.0'	S 22°55.5'	
16	345°13.6'	58°38.2'	S 22°33.7'	53°25.8'	S 17°48.5'	11°22.2'	S 11°52.5'	30°06.3'	S 17°52.2'	89°59.6'	S 22°55.7'	
17	0°16.0'	73°37.9'	S 22°33.4'	68°29.9'	S 17°48.2'	26°24.2'	S 11°52.4'	45°08.5'	S 17°52.1'	105°00.1'	S 22°55.9'	
18	15°18.5'	88°37.7'	S 22°33.1'	83°34.0'	S 17°47.8'	41°26.2'	S 11°52.2'	60°10.6'	S 17°52.0'	120°00.6'	S 22°56.1'	
19	30°21.0'	103°37.4'	S 22°32.8'	98°38.1'	S 17°47.4'	56°28.2'	S 11°52.0'	75°12.8'	S 17°51.9'	135°01.2'	S 22°56.3'	
20	45°23.4'	118°37.1'	S 22°32.5'	113°42.2'	S 17°47.0'	71°30.2'	S 11°51.8'	90°15.0'	S 17°51.8'	150°01.7'	S 22°56.5'	
21	60°25.9'	133°36.8'	S 22°32.3'	128°46.3'	S 17°46.6'	86°32.1'	S 11°51.6'	105°17.2'	S 17°51.8'	165°02.3'	S 22°56.7'	
22	75°28.4'	148°36.5'	S 22°32.0'	143°50.4'	S 17°46.2'	101°34.1'	S 11°51.4'	120°19.4'	S 17°51.7'	180°02.8'	S 22°56.9'	
23	90°30.8'	163°36.3'	S 22°31.7'	158°54.5'	S 17°45.9'	116°36.1'	S 11°51.3'	135°21.6'	S 17°51.6'	195°03.3'	S 22°57.1'	
		SD 16.3'	d 0.3'	v 4.1'	d 0.4'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.2'	
Mer. pass.		12 h 5 m 23 s		12 h 27 m		15 h 15 m		14 h 0 m		10 h 0 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Aldebaran	-Rigel	-Fomalhaut	-Jupiter	+Saturn	+Sun	+Altair
0	145°01.1'	S 20°55.4'	6.3'	10.2'	59.8'		113°50.7'	113°43.6'	24°15.7'	16°17.4'			
1	159°26.5'	S 20°45.2'	6.4'	10.4'	59.7'		113°14.7'	113°14.3'	23°49.1'	15°43.0'			
2	173°51.9'	S 20°34.8'	6.6'	10.5'	59.7'		112°38.8'	112°44.9'	23°22.9'	15°08.7'			
3	188°17.5'	S 20°24.3'	6.7'	10.6'	59.7'		112°03.0'	112°15.5'	22°57.1'	14°34.5'			
4	202°43.2'	S 20°13.7'	6.8'	10.7'	59.6'		111°27.2'	111°46.1'	22°31.8'	14°00.5'			
5	217°09.0'	S 20°03.0'	7.0'	10.8'	59.6'		110°51.4'	111°16.6'	22°07.0'	13°26.7'			37°48.2'
6	231°35.0'	S 19°52.2'	7.1'	10.9'	59.6'		110°15.7'	110°47.2'	21°42.8'	12°53.1'	7°58.2'		38°03.5'
7	246°01.1'	S 19°41.3'	7.2'	11.0'	59.5'		109°40.0'	110°17.7'	21°19.1'	12°19.7'	8°29.2'		38°19.2'
8	260°27.3'	S 19°30.2'	7.4'	11.1'	59.5'		109°04.3'	109°48.3'	20°55.9'	11°46.5'	9°00.7'		38°35.3'
9	274°53.7'	S 19°19.1'	7.5'	11.2'	59.4'		108°28.8'	109°18.8'	20°33.4'	11°13.6'	9°32.6'		38°51.7'
10	289°20.1'	S 19°07.8'	7.6'	11.4'	59.4'		107°53.2'	108°49.4'	20°11.6'	10°41.0'	10°04.9'		39°08.4'
11	303°46.8'	S 18°56.5'	7.7'	11.4'	59.4'		107°17.7'	108°19.9'	19°50.4'	10°08.7'	10°37.5'		39°25.5'
12	318°13.5'	S 18°45.0'	7.9'	11.5'	59.3'		106°42.2'	107°50.4'	19°29.9'	9°36.8'	11°10.3'		39°42.9'
13	332°40.4'	S 18°33.5'	8.0'	11.6'	59.3'		106°06.8'	107°21.0'	19°10.1'	9°05.4'	11°43.4'		40°00.6'
14	347°07.4'	S 18°21.8'	8.1'	11.7'	59.3'		105°31.5'	106°51.5'		8°34.5'	12°16.6'		40°18.7'
15	1°34.5'	S 18°10.1'	8.3'	11.8'	59.2'		104°56.1'	106°22.0'		8°04.2'	12°49.9'		40°37.0'
16	16°01.8'	S 17°58.3'	8.4'	11.9'	59.2'		104°20.9'	105°52.6'			13°23.4'	40°06.1'	40°55.6'
17	30°29.1'	S 17°46.4'	8.5'	12.0'	59.1'		103°45.7'	105°23.2'			13°56.9'	40°38.9'	41°14.5'
18	44°56.7'	S 17°34.4'	8.6'	12.1'	59.1'	119°33.6'	103°10.5'	104°53.7'			14°30.6'	41°11.6'	41°33.6'
19	59°24.3'	S 17°22.3'	8.8'	12.2'	59.1'	119°00.7'	102°35.3'	104°24.3'			15°04.3'	41°44.3'	41°53.0'
20	73°52.1'	S 17°10.1'	8.9'	12.3'	59.0'	118°27.8'	102°00.3'	103°54.9'			15°38.0'	42°16.9'	42°12.7'
21	88°19.9'	S 16°57.8'	9.0'	12.3'	59.0'	117°54.8'	101°25.2'	103°25.5'			16°11.8'	42°49.4'	42°32.6'
22	102°47.9'	S 16°45.5'	9.1'	12.4'	58.9'	117°22.0'	100°50.2'	102°56.1'			16°45.6'	43°22.0'	42°52.8'
23	117°16.1'	S 16°33.1'	9.3'	12.5'	58.9'	116°49.1'	100°15.3'	102°26.8'			17°19.5'	43°54.5'	43°13.2'
Mer. pass.		14 h 53 m SD 16.3'	phase 7%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°54.1'	N 89°21.6'
Rigil Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	105°33.3'	178°36.0'	S 22°31.4'	173°58.6'	S 17°45.5'		131°38.1'	S 11°51.1'		150°23.7'	S 17°51.5'		210°03.9'	S 22°57.3'				
1	120°35.8'	193°35.7'	S 22°31.1'	189°02.7'	S 17°45.1'		146°40.1'	S 11°50.9'		165°25.9'	S 17°51.5'		225°04.4'	S 22°57.6'				
2	135°38.2'	208°35.4'	S 22°30.8'	204°06.8'	S 17°44.7'		161°42.1'	S 11°50.7'		180°28.1'	S 17°51.4'		240°05.0'	S 22°57.8'				
3	150°40.7'	223°35.2'	S 22°30.5'	219°10.9'	S 17°44.3'		176°44.0'	S 11°50.5'		195°30.3'	S 17°51.3'		255°05.5'	S 22°58.0'				
4	165°43.1'	238°34.9'	S 22°30.2'	234°15.0'	S 17°44.0'		191°46.0'	S 11°50.3'		210°32.5'	S 17°51.2'		270°06.0'	S 22°58.2'				
5	180°45.6'	253°34.6'	S 22°29.9'	249°19.1'	S 17°43.6'		206°48.0'	S 11°50.2'		225°34.7'	S 17°51.2'		285°06.6'	S 22°58.4'				
6	195°48.1'	268°34.3'	S 22°29.6'	264°23.2'	S 17°43.2'		221°50.0'	S 11°50.0'		240°36.8'	S 17°51.1'		300°07.1'	S 22°58.6'				
7	210°50.5'	283°34.1'	S 22°29.3'	279°27.3'	S 17°42.8'		236°52.0'	S 11°49.8'		255°39.0'	S 17°51.0'		315°07.6'	S 22°58.8'				
8	225°53.0'	298°33.8'	S 22°29.0'	294°31.4'	S 17°42.5'		251°53.9'	S 11°49.6'		270°41.2'	S 17°50.9'		330°08.2'	S 22°59.0'				
9	240°55.5'	313°33.5'	S 22°28.7'	309°35.5'	S 17°42.1'		266°55.9'	S 11°49.4'		285°43.4'	S 17°50.8'		345°08.7'	S 22°59.2'				
10	255°57.9'	328°33.2'	S 22°28.4'	324°39.6'	S 17°41.7'		281°57.9'	S 11°49.2'		300°45.6'	S 17°50.8'		0°09.3'	S 22°59.4'				
11	271°00.4'	343°33.0'	S 22°28.1'	339°43.7'	S 17°41.3'		296°59.9'	S 11°49.1'		315°47.8'	S 17°50.7'		15°09.8'	S 22°59.6'				
12	286°02.9'	358°32.7'	S 22°27.8'	354°47.8'	S 17°40.9'		312°01.9'	S 11°48.9'		330°49.9'	S 17°50.6'		30°10.3'	S 22°59.8'				
13	301°05.3'	13°32.4'	S 22°27.5'	9°51.9'	S 17°40.6'		327°03.8'	S 11°48.7'		345°52.1'	S 17°50.5'		45°10.9'	S 22°60.0'				
14	316°07.8'	28°32.1'	S 22°27.2'	24°56.0'	S 17°40.2'		342°05.8'	S 11°48.5'		0°54.3'	S 17°50.5'		60°11.4'	S 23°00.2'				
15	331°10.3'	43°31.9'	S 22°26.8'	40°00.1'	S 17°39.8'		357°07.8'	S 11°48.3'		15°56.5'	S 17°50.4'		75°11.9'	S 23°00.4'				
16	346°12.7'	58°31.6'	S 22°26.5'	55°04.2'	S 17°39.5'		12°09.8'	S 11°48.1'		30°58.7'	S 17°50.3'		90°12.5'	S 23°00.6'				
17	1°15.2'	73°31.3'	S 22°26.2'	70°08.3'	S 17°39.1'		27°11.8'	S 11°47.9'		46°00.8'	S 17°50.2'		105°13.0'	S 23°00.8'				
18	16°17.6'	88°31.0'	S 22°25.9'	85°12.4'	S 17°38.7'		42°13.7'	S 11°47.8'		61°03.0'	S 17°50.1'		120°13.5'	S 23°01.0'				
19	31°20.1'	103°30.8'	S 22°25.6'	100°16.6'	S 17°38.3'		57°15.7'	S 11°47.6'		76°05.2'	S 17°50.1'		135°14.1'	S 23°01.2'				
20	46°22.6'	118°30.5'	S 22°25.3'	115°20.7'	S 17°38.0'		72°17.7'	S 11°47.4'		91°07.4'	S 17°50.0'		150°14.6'	S 23°01.4'				
21	61°25.0'	133°30.2'	S 22°25.0'	130°24.8'	S 17°37.6'		87°19.7'	S 11°47.2'		106°09.6'	S 17°49.9'		165°15.1'	S 23°01.6'				
22	76°27.5'	148°30.0'	S 22°24.7'	145°28.9'	S 17°37.2'		102°21.6'	S 11°47.0'		121°11.8'	S 17°49.8'		180°15.7'	S 23°01.8'				
23	91°30.0'	163°29.7'	S 22°24.4'	160°33.0'	S 17°36.9'		117°23.6'	S 11°46.8'		136°13.9'	S 17°49.8'		195°16.2'	S 23°02.0'				
		SD 16.3'	d 0.3'	v 4.1'	d 0.4'		v 2.0'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.2'				
Mer. pass.		12 h 5 m 49 s		12 h 21 m			15 h 11 m			13 h 56 m			9 h 59 m					

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sirius	-Rigel	-Aldebaran	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Sun
0	131°44.3'	S 16°20.6'	9.4'	12.6'	58.9'	118°45.3'	101°57.4'	99°40.4'			17°53.3'	43°33.8'	44°26.9'
1	146°12.7'	S 16°08.0'	9.5'	12.6'	58.8'	118°23.2'	101°28.1'	99°05.6'			18°27.2'	43°54.6'	44°59.3'
2	160°41.2'	S 15°55.4'	9.6'	12.7'	58.8'	118°01.1'	100°58.8'	98°30.8'			19°01.1'	44°15.6'	45°31.6'
3	175°09.8'	S 15°42.7'	9.7'	12.8'	58.8'	117°38.9'	100°29.5'	97°56.0'			19°34.9'	44°36.9'	46°03.9'
4	189°38.6'	S 15°29.9'	9.9'	12.8'	58.7'	117°16.6'	100°00.2'	97°21.4'			20°08.8'	44°58.3'	46°36.1'
5	204°07.4'	S 15°17.1'	10.0'	12.9'	58.7'	116°54.2'	99°31.0'	96°46.7'			20°42.7'	45°19.9'	47°08.3'
6	218°36.4'	S 15°04.2'	10.1'	13.0'	58.6'	116°31.8'	99°01.8'	96°12.1'			21°16.5'	45°41.7'	47°40.5'
7	233°05.5'	S 14°51.2'	10.2'	13.0'	58.6'	116°09.2'	98°32.6'	95°37.6'			21°50.3'	46°03.7'	48°12.6'
8	247°34.7'	S 14°38.2'	10.3'	13.1'	58.6'	115°46.7'	98°03.4'	95°03.1'			22°24.1'	46°25.8'	48°44.6'
9	262°04.0'	S 14°25.1'	10.4'	13.1'	58.5'	115°24.0'	97°34.3'	94°28.6'			22°57.9'	46°48.1'	49°16.6'
10	276°33.4'	S 14°12.0'	10.5'	13.2'	58.5'	115°01.3'	97°05.2'	93°54.2'			23°31.7'	47°10.6'	49°48.6'
11	291°03.0'	S 13°58.7'	10.7'	13.3'	58.4'	114°38.5'	96°36.1'	93°19.9'			24°05.4'	47°33.2'	50°20.5'
12	305°32.6'	S 13°45.5'	10.8'	13.3'	58.4'	114°15.7'	96°07.1'	92°45.6'			24°39.2'	47°56.0'	50°52.3'
13	320°02.4'	S 13°32.2'	10.9'	13.4'	58.3'	113°52.9'	95°38.1'	92°11.4'			25°12.8'	48°18.9'	51°24.1'
14	334°32.3'	S 13°18.8'	11.0'	13.4'	58.3'	113°29.9'	95°09.1'	91°37.2'			25°46.5'	48°41.9'	51°55.9'
15	349°02.2'	S 13°05.4'	11.1'	13.5'	58.3'	113°07.0'	94°40.1'	91°03.0'		7°31.8'	26°20.1'	49°05.1'	52°27.6'
16	3°32.3'	S 12°51.9'	11.2'	13.5'	58.2'	112°43.9'	94°11.2'	90°28.9'		8°00.3'	26°53.7'	49°28.4'	52°59.3'
17	18°02.5'	S 12°38.4'	11.3'	13.6'	58.2'	112°20.9'	93°42.4'	89°54.9'		8°29.5'	27°27.3'	49°51.8'	53°30.9'
18	32°32.8'	S 12°24.9'	11.4'	13.6'	58.1'	111°57.8'	93°13.5'	89°20.9'		8°59.1'	28°00.8'	50°15.4'	54°02.4'
19	47°03.2'	S 12°11.3'	11.5'	13.6'	58.1'	111°34.6'	92°44.7'	88°46.9'		9°29.2'	28°34.3'	50°39.0'	54°33.9'
20	61°33.7'	S 11°57.7'	11.6'	13.7'	58.1'	111°11.4'	92°15.9'	88°13.0'		9°59.6'	29°07.7'	51°02.8'	55°05.4'
21	76°04.3'	S 11°44.0'	11.7'	13.7'	58.0'	110°48.2'	91°47.2'	87°39.2'		10°30.2'	29°41.2'	51°26.6'	55°36.8'
22	90°35.0'	S 11°30.3'	11.8'	13.8'	58.0'	110°24.9'	91°18.5'	87°05.4'		11°01.1'	30°14.5'	51°50.6'	56°08.2'
23	105°05.8'	S 11°16.5'	11.9'	13.8'	57.9'	110°01.7'	90°49.9'	86°31.6'	18°02.3'	11°32.2'	30°47.9'	52°14.7'	56°39.5'
Mer. pass.		15 h 45 m SD 16.1'	phase 14%						18°18.2'	12°03.5'			

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.4'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°54.5'	N 89°21.6'
Rigil Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	106°32.4'	178°29.4' S	22°24.1'	175°37.1' S	17°36.5'	132°25.6' S	11°46.6'	151°16.1' S	17°49.7'	210°16.7' S	23°02.2'	
1	121°34.9'	193°29.1' S	22°23.7'	190°41.3' S	17°36.1'	147°27.6' S	11°46.5'	166°18.3' S	17°49.6'	225°17.3' S	23°02.4'	
2	136°37.4'	208°28.9' S	22°23.4'	205°45.4' S	17°35.8'	162°29.6' S	11°46.3'	181°20.5' S	17°49.5'	240°17.8' S	23°02.6'	
3	151°39.8'	223°28.6' S	22°23.1'	220°49.5' S	17°35.4'	177°31.5' S	11°46.1'	196°22.7' S	17°49.5'	255°18.4' S	23°02.8'	
4	166°42.3'	238°28.3' S	22°22.8'	235°53.6' S	17°35.0'	192°33.5' S	11°45.9'	211°24.8' S	17°49.4'	270°18.9' S	23°03.0'	
5	181°44.7'	253°28.1' S	22°22.5'	250°57.7' S	17°34.7'	207°35.5' S	11°45.7'	226°27.0' S	17°49.3'	285°19.4' S	23°03.2'	
6	196°47.2'	268°27.8' S	22°22.2'	266°01.8' S	17°34.3'	222°37.5' S	11°45.5'	241°29.2' S	17°49.2'	300°20.0' S	23°03.4'	
7	211°49.7'	283°27.5' S	22°21.8'	281°06.0' S	17°34.0'	237°39.4' S	11°45.4'	256°31.4' S	17°49.1'	315°20.5' S	23°03.5'	
8	226°52.1'	298°27.2' S	22°21.5'	296°10.1' S	17°33.6'	252°41.4' S	11°45.2'	271°33.6' S	17°49.1'	330°21.0' S	23°03.7'	
9	241°54.6'	313°27.0' S	22°21.2'	311°14.2' S	17°33.2'	267°43.4' S	11°45.0'	286°35.8' S	17°49.0'	345°21.6' S	23°03.9'	
10	256°57.1'	328°26.7' S	22°20.9'	326°18.3' S	17°32.9'	282°45.4' S	11°44.8'	301°37.9' S	17°48.9'	0°22.1' S	23°04.1'	
11	271°59.5'	343°26.4' S	22°20.6'	341°22.5' S	17°32.5'	297°47.4' S	11°44.6'	316°40.1' S	17°48.8'	15°22.6' S	23°04.3'	
12	287°02.0'	358°26.2' S	22°20.2'	356°26.6' S	17°32.1'	312°49.3' S	11°44.4'	331°42.3' S	17°48.8'	30°23.2' S	23°04.5'	
13	302°04.5'	13°25.9' S	22°19.9'	11°30.7' S	17°31.8'	327°51.3' S	11°44.2'	346°44.5' S	17°48.7'	45°23.7' S	23°04.7'	
14	317°06.9'	28°25.6' S	22°19.6'	26°34.8' S	17°31.4'	342°53.3' S	11°44.1'	1°46.7' S	17°48.6'	60°24.2' S	23°04.9'	
15	332°09.4'	43°25.4' S	22°19.3'	41°38.9' S	17°31.1'	357°55.3' S	11°43.9'	16°48.8' S	17°48.5'	75°24.8' S	23°05.1'	
16	347°11.9'	58°25.1' S	22°18.9'	56°43.1' S	17°30.7'	12°57.2' S	11°43.7'	31°51.0' S	17°48.4'	90°25.3' S	23°05.3'	
17	2°14.3'	73°24.8' S	22°18.6'	71°47.2' S	17°30.4'	27°59.2' S	11°43.5'	46°53.2' S	17°48.4'	105°25.8' S	23°05.5'	
18	17°16.8'	88°24.6' S	22°18.3'	86°51.3' S	17°30.0'	43°01.2' S	11°43.3'	61°55.4' S	17°48.3'	120°26.3' S	23°05.7'	
19	32°19.2'	103°24.3' S	22°17.9'	101°55.5' S	17°29.7'	58°03.2' S	11°43.1'	76°57.6' S	17°48.2'	135°26.9' S	23°05.8'	
20	47°21.7'	118°24.0' S	22°17.6'	116°59.6' S	17°29.3'	73°05.1' S	11°42.9'	91°59.7' S	17°48.1'	150°27.4' S	23°06.0'	
21	62°24.2'	133°23.8' S	22°17.3'	132°03.7' S	17°28.9'	88°07.1' S	11°42.7'	107°01.9' S	17°48.0'	165°27.9' S	23°06.2'	
22	77°26.6'	148°23.5' S	22°17.0'	147°07.8' S	17°28.6'	103°09.1' S	11°42.6'	122°04.1' S	17°48.0'	180°28.5' S	23°06.4'	
23	92°29.1'	163°23.2' S	22°16.6'	162°12.0' S	17°28.2'	118°11.1' S	11°42.4'	137°06.3' S	17°47.9'	195°29.0' S	23°06.6'	
		SD 16.3' d 0.3'		v 4.1' d 0.4'		v 2.0' d 0.2'		v 2.2' d 0.1'		v 0.5' d -0.2'		
Mer. pass.		12 h 6 m 15 s		12 h 14 m		15 h 8 m		13 h 53 m		9 h 59 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Sun
0	119°36.7'	S 11°02.7'	12.0'	13.8'	57.9'	103°17.1'	99°45.2'	90°21.3'	85°57.9'	12°34.9'	18°34.8'	31°21.2'	57°10.8'
1	134°07.7'	S 10°48.9'	12.1'	13.9'	57.9'	102°45.1'	99°13.7'	89°52.7'	85°24.3'	13°06.4'	18°52.2'	31°54.5'	57°42.0'
2	148°38.8'	S 10°35.0'	12.2'	13.9'	57.8'	102°13.1'	98°42.1'	89°24.2'	84°50.7'	13°38.0'	19°10.2'	32°27.7'	58°13.1'
3	163°10.0'	S 10°21.2'	12.3'	13.9'	57.8'	101°41.2'	98°10.7'	88°55.7'	84°17.2'	14°09.7'	19°28.9'	33°00.9'	58°44.3'
4	177°41.2'	S 10°07.2'	12.4'	13.9'	57.7'	101°09.3'	97°39.2'	88°27.3'	83°43.7'	14°41.5'	19°48.2'	33°34.0'	59°15.3'
5	192°12.6'	S 9°53.3'	12.5'	14.0'	57.7'	100°37.4'	97°07.8'	87°58.9'	83°10.2'	15°13.3'	20°08.0'	34°07.1'	59°46.4'
6	206°44.1'	S 9°39.3'	12.5'	14.0'	57.7'	100°05.6'	96°36.5'	87°30.5'	82°36.8'	15°45.1'	20°28.4'	34°40.2'	60°17.3'
7	221°15.6'	S 9°25.3'	12.6'	14.0'	57.6'	99°33.8'	96°05.1'	87°02.2'	82°03.5'	16°17.0'	20°49.4'	35°13.2'	60°48.3'
8	235°47.2'	S 9°11.3'	12.7'	14.0'	57.6'	99°02.0'	95°33.9'	86°34.0'	81°30.2'	16°48.9'	21°10.8'	35°46.2'	61°19.1'
9	250°18.9'	S 8°57.3'	12.8'	14.1'	57.5'	98°30.3'	95°02.6'	86°05.8'	80°56.9'	17°20.8'	21°32.7'	36°19.1'	61°50.0'
10	264°50.7'	S 8°43.2'	12.9'	14.1'	57.5'	97°58.7'	94°31.4'	85°37.6'	80°23.7'	17°52.8'	21°55.0'	36°52.0'	62°20.7'
11	279°22.6'	S 8°29.1'	13.0'	14.1'	57.5'	97°27.1'	94°00.3'	85°09.5'	79°50.6'	18°24.7'	22°17.7'	37°24.8'	62°51.5'
12	293°54.6'	S 8°15.0'	13.0'	14.1'	57.4'	96°55.5'	93°29.1'	84°41.4'	79°17.4'	18°56.7'	22°40.8'	37°57.6'	63°22.2'
13	308°26.6'	S 8°00.9'	13.1'	14.1'	57.4'	96°23.9'	92°58.1'	84°13.4'	78°44.4'	19°28.6'	23°04.3'	38°30.4'	63°52.8'
14	322°58.7'	S 7°46.7'	13.2'	14.2'	57.3'	95°52.5'	92°27.0'	83°45.4'	78°11.4'	20°00.5'	23°28.1'	39°03.1'	64°23.4'
15	337°30.9'	S 7°32.6'	13.3'	14.2'	57.3'	95°21.0'	91°56.1'	83°17.5'	77°38.4'	20°32.5'	23°52.2'	39°35.8'	64°53.9'
16	352°03.2'	S 7°18.4'	13.3'	14.2'	57.3'	94°49.6'	91°25.1'	82°49.7'	77°05.5'	21°04.4'	24°16.6'	40°08.5'	65°24.4'
17	6°35.6'	S 7°04.2'	13.4'	14.2'	57.2'	94°18.2'	90°54.2'	82°21.8'	76°32.6'	21°36.3'	24°41.3'	40°41.1'	65°54.9'
18	21°08.0'	S 6°50.0'	13.5'	14.2'	57.2'	93°46.9'	90°23.4'	81°54.1'	75°59.8'	22°08.2'	25°06.3'	41°13.6'	66°25.3'
19	35°40.5'	S 6°35.8'	13.6'	14.2'	57.1'	93°15.6'	89°52.6'	81°26.4'	75°27.1'	22°40.1'	25°31.5'	41°46.1'	66°55.7'
20	50°13.0'	S 6°21.6'	13.6'	14.2'	57.1'	92°44.4'	89°21.8'	80°58.7'	74°54.3'	23°11.9'	25°56.9'	42°18.6'	67°26.0'
21	64°45.7'	S 6°07.4'	13.7'	14.2'	57.1'	92°13.2'	88°51.1'	80°31.1'	74°21.7'	23°43.7'	26°22.6'	42°51.0'	67°56.2'
22	79°18.4'	S 5°53.1'	13.8'	14.2'	57.0'	91°42.0'	88°20.4'	80°03.6'	73°49.0'	24°15.5'	26°48.5'	43°23.4'	68°26.4'
23	93°51.2'	S 5°38.9'	13.8'	14.2'	57.0'	91°10.9'	87°49.7'	79°36.1'	73°16.5'	24°47.3'	27°14.5'	43°55.7'	68°56.6'
Mer. pass.		16 h 33 m SD 15.8'		phase 23%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°55.0'	N 89°21.6'
Rigil Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	107°31.6'		178°23.0'	S 22°16.3'	177°16.1'	S 17°27.9'	133°13.0'	S 11°42.2'	152°08.5'	S 17°47.8'	210°29.5'	S 23°06.8'
1	122°34.0'		193°22.7'	S 22°16.0'	192°20.2'	S 17°27.5'	148°15.0'	S 11°42.0'	167°10.7'	S 17°47.7'	225°30.1'	S 23°07.0'
2	137°36.5'		208°22.4'	S 22°15.6'	207°24.3'	S 17°27.2'	163°17.0'	S 11°41.8'	182°12.8'	S 17°47.7'	240°30.6'	S 23°07.2'
3	152°39.0'		223°22.2'	S 22°15.3'	222°28.5'	S 17°26.8'	178°19.0'	S 11°41.6'	197°15.0'	S 17°47.6'	255°31.1'	S 23°07.3'
4	167°41.4'		238°21.9'	S 22°15.0'	237°32.6'	S 17°26.5'	193°20.9'	S 11°41.4'	212°17.2'	S 17°47.5'	270°31.7'	S 23°07.5'
5	182°43.9'		253°21.6'	S 22°14.6'	252°36.7'	S 17°26.1'	208°22.9'	S 11°41.3'	227°19.4'	S 17°47.4'	285°32.2'	S 23°07.7'
6	197°46.4'		268°21.4'	S 22°14.3'	267°40.8'	S 17°25.8'	223°24.9'	S 11°41.1'	242°21.6'	S 17°47.3'	300°32.7'	S 23°07.9'
7	212°48.8'		283°21.1'	S 22°13.9'	282°45.0'	S 17°25.4'	238°26.9'	S 11°40.9'	257°23.7'	S 17°47.3'	315°33.2'	S 23°08.1'
8	227°51.3'		298°20.8'	S 22°13.6'	297°49.1'	S 17°25.1'	253°28.8'	S 11°40.7'	272°25.9'	S 17°47.2'	330°33.8'	S 23°08.3'
9	242°53.7'		313°20.6'	S 22°13.3'	312°53.2'	S 17°24.8'	268°30.8'	S 11°40.5'	287°28.1'	S 17°47.1'	345°34.3'	S 23°08.5'
10	257°56.2'		328°20.3'	S 22°12.9'	327°57.4'	S 17°24.4'	283°32.8'	S 11°40.3'	302°30.3'	S 17°47.0'	0°34.8'	S 23°08.6'
11	272°58.7'		343°20.0'	S 22°12.6'	343°01.5'	S 17°24.1'	298°34.8'	S 11°40.1'	317°32.5'	S 17°47.0'	15°35.4'	S 23°08.8'
12	288°01.1'		358°19.8'	S 22°12.3'	358°05.6'	S 17°23.7'	313°36.7'	S 11°39.9'	332°34.6'	S 17°46.9'	30°35.9'	S 23°09.0'
13	303°03.6'		13°19.5'	S 22°11.9'	13°09.7'	S 17°23.4'	328°38.7'	S 11°39.8'	347°36.8'	S 17°46.8'	45°36.4'	S 23°09.2'
14	318°06.1'		28°19.3'	S 22°11.6'	28°13.9'	S 17°23.0'	343°40.7'	S 11°39.6'	2°39.0'	S 17°46.7'	60°36.9'	S 23°09.4'
15	333°08.5'		43°19.0'	S 22°11.2'	43°18.0'	S 17°22.7'	358°42.7'	S 11°39.4'	17°41.2'	S 17°46.6'	75°37.5'	S 23°09.6'
16	348°11.0'		58°18.7'	S 22°10.9'	58°22.1'	S 17°22.3'	13°44.6'	S 11°39.2'	32°43.4'	S 17°46.6'	90°38.0'	S 23°09.7'
17	3°13.5'		73°18.5'	S 22°10.5'	73°26.3'	S 17°22.0'	28°46.6'	S 11°39.0'	47°45.5'	S 17°46.5'	105°38.5'	S 23°09.9'
18	18°15.9'		88°18.2'	S 22°10.2'	88°30.4'	S 17°21.7'	43°48.6'	S 11°38.8'	62°47.7'	S 17°46.4'	120°39.1'	S 23°10.1'
19	33°18.4'		103°17.9'	S 22°09.8'	103°34.5'	S 17°21.3'	58°50.5'	S 11°38.6'	77°49.9'	S 17°46.3'	135°39.6'	S 23°10.3'
20	48°20.8'		118°17.7'	S 22°09.5'	118°38.6'	S 17°21.0'	73°52.5'	S 11°38.4'	92°52.1'	S 17°46.2'	150°40.1'	S 23°10.5'
21	63°23.3'		133°17.4'	S 22°09.1'	133°42.8'	S 17°20.7'	88°54.5'	S 11°38.3'	107°54.3'	S 17°46.2'	165°40.6'	S 23°10.6'
22	78°25.8'		148°17.2'	S 22°08.8'	148°46.9'	S 17°20.3'	103°56.5'	S 11°38.1'	122°56.4'	S 17°46.1'	180°41.2'	S 23°10.8'
23	93°28.2'		163°16.9'	S 22°08.4'	163°51.0'	S 17°20.0'	118°58.4'	S 11°37.9'	137°58.6'	S 17°46.0'	195°41.7'	S 23°11.0'
			SD 16.3'	d 0.3'	v 4.1'	d 0.3'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.2'
Mer. pass.			12 h 6 m 41 s		12 h 8 m		15 h 5 m		13 h 49 m		9 h 58 m	

h	Moon					Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Sun	
0	108°24.0'		S 5°24.6'	13.9'	14.3'	57.0'	90°39.8'	87°19.1'	79°08.7'	72°43.9'	25°19.1'	27°40.8'	44°28.0'	69°26.8'
1	122°56.9'		S 5°10.4'	14.0'	14.3'	56.9'	90°08.8'	86°48.6'	78°41.3'	72°11.4'	25°50.8'	28°07.2'	45°00.3'	69°56.8'
2	137°29.9'		S 4°56.1'	14.0'	14.3'	56.9'	89°37.8'	86°18.1'	78°14.0'	71°39.0'	26°22.5'	28°33.8'	45°32.5'	70°26.9'
3	152°02.9'		S 4°41.9'	14.1'	14.3'	56.8'	89°06.9'	85°47.6'	77°46.7'	71°06.6'	26°54.2'	29°00.6'	46°04.7'	70°56.9'
4	166°36.0'		S 4°27.6'	14.1'	14.3'	56.8'	88°36.0'	85°17.2'	77°19.5'	70°34.3'	27°25.8'	29°27.5'	46°36.8'	71°26.8'
5	181°09.1'		S 4°13.4'	14.2'	14.3'	56.8'	88°05.1'	84°46.9'	76°52.3'	70°02.0'	27°57.4'	29°54.5'	47°08.9'	71°56.7'
6	195°42.3'		S 3°59.1'	14.3'	14.3'	56.7'	87°34.3'	84°16.5'	76°25.2'	69°29.7'	28°29.0'	30°21.6'	47°40.9'	72°26.6'
7	210°15.6'		S 3°44.9'	14.3'	14.3'	56.7'	87°03.6'	83°46.3'	75°58.2'	68°57.5'	29°00.6'	30°48.9'	48°12.9'	72°56.4'
8	224°48.9'		S 3°30.6'	14.4'	14.2'	56.7'	86°32.8'	83°16.0'	75°31.2'	68°25.3'	29°32.1'	31°16.3'	48°44.9'	73°26.2'
9	239°22.3'		S 3°16.4'	14.4'	14.2'	56.6'	86°02.2'	82°45.8'	75°04.3'	67°53.2'	30°03.6'	31°43.8'	49°16.8'	73°55.9'
10	253°55.7'		S 3°02.1'	14.5'	14.2'	56.6'	85°31.5'	82°15.7'	74°37.5'	67°21.1'	30°35.1'	32°11.3'	49°48.7'	74°25.6'
11	268°29.2'		S 2°47.9'	14.5'	14.2'	56.5'	85°00.9'	81°45.6'	74°10.7'	66°49.1'	31°06.5'	32°39.0'	50°20.6'	74°55.2'
12	283°02.7'		S 2°33.6'	14.6'	14.2'	56.5'	84°30.4'	81°15.5'	73°44.0'	66°17.1'	31°37.9'	33°06.8'	50°52.4'	75°24.8'
13	297°36.3'		S 2°19.4'	14.6'	14.2'	56.5'	83°59.9'	80°45.5'	73°17.3'	65°45.2'	32°09.2'	33°34.6'	51°24.1'	75°54.4'
14	312°09.9'		S 2°05.2'	14.7'	14.2'	56.4'	83°29.4'	80°15.6'	72°50.7'	65°13.3'	32°40.6'	34°02.5'	51°55.8'	76°23.9'
15	326°43.6'		S 1°51.0'	14.7'	14.2'	56.4'	82°59.0'	79°45.6'	72°24.2'	64°41.4'	33°11.8'	34°30.5'	52°27.5'	76°53.4'
16	341°17.3'		S 1°36.8'	14.8'	14.2'	56.4'	82°28.6'	79°15.8'	71°57.7'	64°09.6'	33°43.1'	34°58.6'	52°59.2'	77°22.8'
17	355°51.0'		S 1°22.6'	14.8'	14.2'	56.3'	81°58.3'	78°46.0'	71°31.3'	63°37.8'	34°14.3'	35°26.7'	53°30.8'	77°52.2'
18	10°24.8'		S 1°08.5'	14.8'	14.2'	56.3'	81°28.0'	78°16.2'	71°04.9'	63°06.1'	34°45.5'	35°54.9'	54°02.3'	78°21.6'
19	24°58.7'		S 0°54.3'	14.9'	14.1'	56.3'	80°57.7'	77°46.4'	70°38.7'	62°34.4'	35°16.7'	36°23.1'	54°33.9'	78°50.9'
20	39°32.6'		S 0°40.2'	14.9'	14.1'	56.2'	80°27.5'	77°16.8'	70°12.5'	62°02.8'	35°47.8'	36°51.4'	55°05.3'	79°20.2'
21	54°06.5'		S 0°26.0'	15.0'	14.1'	56.2'	79°57.3'	76°47.1'	69°46.3'	61°31.2'	36°18.9'	37°19.7'	55°36.8'	79°49.4'
22	68°40.4'		S 0°11.9'	15.0'	14.1'	56.2'	79°27.2'	76°17.5'	69°20.2'	60°59.6'	36°50.0'	37°48.1'	56°08.2'	80°18.6'
23	83°14.4'		N 0°02.2'	15.0'	14.1'	56.1'	78°57.1'	75°48.0'	68°54.2'	60°28.1'	37°21.0'	38°16.5'	56°39.6'	80°47.7'
Mer. pass.			17 h 17 m SD 15.5'	phase 32%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.7'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°55.5'	N 89°21.7'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec		
0	108°30.7'	178°16.6'	S 22°08.1'	178°55.1'	S 17°19.6'		134°00.4'	S 11°37.7'	153°00.8'	S 17°45.9'	210°42.2'	S 23°11.2'						
1	123°33.2'	193°16.4'	S 22°07.7'	193°59.3'	S 17°19.3'		149°02.4'	S 11°37.5'	168°03.0'	S 17°45.9'	225°42.8'	S 23°11.4'						
2	138°35.6'	208°16.1'	S 22°07.4'	209°03.4'	S 17°19.0'		164°04.4'	S 11°37.3'	183°05.2'	S 17°45.8'	240°43.3'	S 23°11.5'						
3	153°38.1'	223°15.9'	S 22°07.0'	224°07.5'	S 17°18.6'		179°06.3'	S 11°37.1'	198°07.3'	S 17°45.7'	255°43.8'	S 23°11.7'						
4	168°40.6'	238°15.6'	S 22°06.7'	239°11.6'	S 17°18.3'		194°08.3'	S 11°36.9'	213°09.5'	S 17°45.6'	270°44.3'	S 23°11.9'						
5	183°43.0'	253°15.3'	S 22°06.3'	254°15.8'	S 17°18.0'		209°10.3'	S 11°36.8'	228°11.7'	S 17°45.5'	285°44.9'	S 23°12.1'						
6	198°45.5'	268°15.1'	S 22°06.0'	269°19.9'	S 17°17.6'		224°12.2'	S 11°36.6'	243°13.9'	S 17°45.5'	300°45.4'	S 23°12.2'						
7	213°48.0'	283°14.8'	S 22°05.6'	284°24.0'	S 17°17.3'		239°14.2'	S 11°36.4'	258°16.0'	S 17°45.4'	315°45.9'	S 23°12.4'						
8	228°50.4'	298°14.6'	S 22°05.3'	299°28.1'	S 17°17.0'		254°16.2'	S 11°36.2'	273°18.2'	S 17°45.3'	330°46.4'	S 23°12.6'						
9	243°52.9'	313°14.3'	S 22°04.9'	314°32.3'	S 17°16.7'		269°18.2'	S 11°36.0'	288°20.4'	S 17°45.2'	345°47.0'	S 23°12.8'						
10	258°55.3'	328°14.0'	S 22°04.6'	329°36.4'	S 17°16.3'		284°20.1'	S 11°35.8'	303°22.6'	S 17°45.1'	0°47.5'	S 23°12.9'						
11	273°57.8'	343°13.8'	S 22°04.2'	344°40.5'	S 17°16.0'		299°22.1'	S 11°35.6'	318°24.8'	S 17°45.1'	15°48.0'	S 23°13.1'						
12	289°00.3'	358°13.5'	S 22°03.8'	359°44.6'	S 17°15.7'		314°24.1'	S 11°35.4'	333°26.9'	S 17°45.0'	30°48.5'	S 23°13.3'						
13	304°02.7'	13°13.3'	S 22°03.5'	14°48.7'	S 17°15.3'		329°26.0'	S 11°35.2'	348°29.1'	S 17°44.9'	45°49.1'	S 23°13.5'						
14	319°05.2'	28°13.0'	S 22°03.1'	29°52.9'	S 17°15.0'		344°28.0'	S 11°35.1'	3°31.3'	S 17°44.8'	60°49.6'	S 23°13.6'						
15	334°07.7'	43°12.8'	S 22°02.8'	44°57.0'	S 17°14.7'		359°30.0'	S 11°34.9'	18°33.5'	S 17°44.8'	75°50.1'	S 23°13.8'						
16	349°10.1'	58°12.5'	S 22°02.4'	60°01.1'	S 17°14.4'		14°31.9'	S 11°34.7'	33°35.7'	S 17°44.7'	90°50.6'	S 23°14.0'						
17	4°12.6'	73°12.2'	S 22°02.0'	75°05.2'	S 17°14.0'		29°33.9'	S 11°34.5'	48°37.8'	S 17°44.6'	105°51.2'	S 23°14.2'						
18	19°15.1'	88°12.0'	S 22°01.7'	90°09.3'	S 17°13.7'		44°35.9'	S 11°34.3'	63°40.0'	S 17°44.5'	120°51.7'	S 23°14.3'						
19	34°17.5'	103°11.7'	S 22°01.3'	105°13.5'	S 17°13.4'		59°37.9'	S 11°34.1'	78°42.2'	S 17°44.4'	135°52.2'	S 23°14.5'						
20	49°20.0'	118°11.5'	S 22°00.9'	120°17.6'	S 17°13.1'		74°39.8'	S 11°33.9'	93°44.4'	S 17°44.4'	150°52.7'	S 23°14.7'						
21	64°22.4'	133°11.2'	S 22°00.6'	135°21.7'	S 17°12.8'		89°41.8'	S 11°33.7'	108°46.5'	S 17°44.3'	165°53.3'	S 23°14.8'						
22	79°24.9'	148°11.0'	S 22°00.2'	150°25.8'	S 17°12.4'		104°43.8'	S 11°33.5'	123°48.7'	S 17°44.2'	180°53.8'	S 23°15.0'						
23	94°27.4'	163°10.7'	S 21°59.8'	165°29.9'	S 17°12.1'		119°45.7'	S 11°33.4'	138°50.9'	S 17°44.1'	195°54.3'	S 23°15.2'						
		SD 16.3'	d 0.4'	v 4.1'	d 0.3'		v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.2'						
Mer. pass.		12 h 7 m 6 s		12 h 1 m			15 h 2 m		13 h 46 m		9 h 57 m							

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Sun
0	97°48.5'	N 0°16.2'	15.1'	14.1'	56.1'	78°27.1'	75°18.5'	68°28.3'	59°56.6'	37°52.0'	38°45.0'	57°10.9'	81°16.9'
1	112°22.5'	N 0°30.3'	15.1'	14.0'	56.1'	77°57.1'	74°49.0'	68°02.4'	59°25.2'	38°22.9'	39°13.4'	57°42.2'	81°45.9'
2	126°56.6'	N 0°44.3'	15.1'	14.0'	56.0'	77°27.2'	74°19.6'	67°36.6'	58°53.8'	38°53.8'	39°42.0'	58°13.5'	82°15.0'
3	141°30.7'	N 0°58.4'	15.2'	14.0'	56.0'	76°57.3'	73°50.2'	67°10.9'	58°22.4'	39°24.7'	40°10.5'	58°44.7'	82°44.0'
4	156°04.9'	N 1°12.4'	15.2'	14.0'	56.0'	76°27.4'	73°20.9'	66°45.3'	57°51.1'	39°55.6'	40°39.1'	59°15.9'	83°12.9'
5	170°39.1'	N 1°26.3'	15.2'	14.0'	55.9'	75°57.6'	72°51.7'	66°19.7'	57°19.9'	40°26.4'	41°07.7'	59°47.0'	83°41.9'
6	185°13.3'	N 1°40.3'	15.2'	13.9'	55.9'	75°27.8'	72°22.4'	65°54.2'	56°48.6'	40°57.2'	41°36.3'	60°18.1'	84°10.8'
7	199°47.5'	N 1°54.2'	15.3'	13.9'	55.9'	74°58.1'	71°53.3'	65°28.8'	56°17.4'	41°28.0'	42°05.0'	60°49.2'	84°39.6'
8	214°21.8'	N 2°08.1'	15.3'	13.9'	55.8'	74°28.4'	71°24.1'	65°03.4'	55°46.3'	41°58.7'	42°33.7'	61°20.3'	85°08.4'
9	228°56.1'	N 2°22.0'	15.3'	13.9'	55.8'	73°58.7'	70°55.0'	64°38.1'	55°15.2'	42°29.4'	43°02.4'	61°51.3'	85°37.2'
10	243°30.4'	N 2°35.9'	15.3'	13.8'	55.8'	73°29.1'	70°26.0'	64°12.9'	54°44.1'	43°00.0'	43°31.1'	62°22.2'	86°05.9'
11	258°04.7'	N 2°49.7'	15.4'	13.8'	55.7'	72°59.5'	69°57.0'	63°47.8'	54°13.0'	43°30.7'	43°59.8'	62°53.2'	86°34.7'
12	272°39.1'	N 3°03.5'	15.4'	13.8'	55.7'	72°30.0'	69°28.1'	63°22.8'	53°42.1'	44°01.3'	44°28.6'	63°24.1'	87°03.3'
13	287°13.4'	N 3°17.3'	15.4'	13.8'	55.7'	72°00.5'	68°59.2'	62°57.8'	53°11.1'	44°31.8'	44°57.3'	63°54.9'	87°32.0'
14	301°47.8'	N 3°31.0'	15.4'	13.7'	55.6'	71°31.1'	68°30.3'	62°32.9'	52°40.2'	45°02.4'	45°26.1'	64°25.8'	88°00.6'
15	316°22.2'	N 3°44.8'	15.4'	13.7'	55.6'	71°01.7'	68°01.6'	62°08.1'	52°09.3'	45°32.9'	45°54.9'	64°56.6'	88°29.1'
16	330°56.6'	N 3°58.4'	15.4'	13.7'	55.6'	70°32.4'	67°32.8'	61°43.4'	51°38.4'	46°03.3'	46°23.7'	65°27.4'	88°57.7'
17	345°31.1'	N 4°12.1'	15.4'	13.6'	55.6'	70°03.0'	67°04.1'	61°18.7'	51°07.6'	46°33.8'	46°52.5'	65°58.1'	89°26.2'
18	0°05.5'	N 4°25.7'	15.5'	13.6'	55.5'	69°33.8'	66°35.4'	60°54.2'	50°36.9'	47°04.2'	47°21.3'	66°28.8'	89°54.7'
19	14°40.0'	N 4°39.3'	15.5'	13.6'	55.5'	69°04.6'	66°06.8'	60°29.7'	50°06.1'	47°34.6'	47°50.1'	66°59.5'	90°23.1'
20	29°14.5'	N 4°52.9'	15.5'	13.5'	55.5'	68°35.4'	65°38.3'	60°05.3'	49°35.4'	48°04.9'	48°18.9'	67°30.1'	90°51.5'
21	43°48.9'	N 5°06.4'	15.5'	13.5'	55.4'	68°06.2'	65°09.8'	59°41.0'	49°04.8'	48°35.3'	48°47.7'	68°00.7'	91°19.9'
22	58°23.4'	N 5°19.9'	15.5'	13.5'	55.4'	67°37.1'	64°41.3'	59°16.8'	48°34.1'	49°05.5'	49°16.5'	68°31.3'	91°48.2'
23	72°57.9'	N 5°33.4'	15.5'	13.4'	55.4'	67°08.1'	64°12.9'	58°52.7'	48°03.5'	49°35.8'	49°45.3'	69°01.9'	92°16.5'
Mer. pass.		18 h 0 m SD 15.3'	phase 42%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°55.9'	N 89°21.7'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.1'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	109°29.8'	178°10.5'	S 21°59.5'	180°34.0'	S 17°11.8'		134°47.7'	S 11°33.2'		153°53.1'	S 17°44.0'		210°54.8'	S 23°15.4'				
1	124°32.3'	193°10.2'	S 21°59.1'	195°38.2'	S 17°11.5'		149°49.7'	S 11°33.0'		168°55.3'	S 17°44.0'		225°55.4'	S 23°15.5'				
2	139°34.8'	208°10.0'	S 21°58.7'	210°42.3'	S 17°11.2'		164°51.6'	S 11°32.8'		183°57.4'	S 17°43.9'		240°55.9'	S 23°15.7'				
3	154°37.2'	223°09.7'	S 21°58.4'	225°46.4'	S 17°10.9'		179°53.6'	S 11°32.6'		198°59.6'	S 17°43.8'		255°56.4'	S 23°15.9'				
4	169°39.7'	238°09.4'	S 21°58.0'	240°50.5'	S 17°10.5'		194°55.6'	S 11°32.4'		214°01.8'	S 17°43.7'		270°56.9'	S 23°16.0'				
5	184°42.2'	253°09.2'	S 21°57.6'	255°54.6'	S 17°10.2'		209°57.6'	S 11°32.2'		229°04.0'	S 17°43.6'		285°57.4'	S 23°16.2'				
6	199°44.6'	268°08.9'	S 21°57.2'	270°58.7'	S 17°09.9'		224°59.5'	S 11°32.0'		244°06.2'	S 17°43.6'		300°58.0'	S 23°16.4'				
7	214°47.1'	283°08.7'	S 21°56.9'	286°02.8'	S 17°09.6'		240°01.5'	S 11°31.8'		259°08.3'	S 17°43.5'		315°58.5'	S 23°16.5'				
8	229°49.6'	298°08.4'	S 21°56.5'	301°06.9'	S 17°09.3'		255°03.5'	S 11°31.6'		274°10.5'	S 17°43.4'		330°59.0'	S 23°16.7'				
9	244°52.0'	313°08.2'	S 21°56.1'	316°11.0'	S 17°09.0'		270°05.4'	S 11°31.5'		289°12.7'	S 17°43.3'		345°59.5'	S 23°16.9'				
10	259°54.5'	328°07.9'	S 21°55.7'	331°15.1'	S 17°08.7'		285°07.4'	S 11°31.3'		304°14.9'	S 17°43.2'		1°00.1'	S 23°17.0'				
11	274°56.9'	343°07.7'	S 21°55.4'	346°19.2'	S 17°08.3'		300°09.4'	S 11°31.1'		319°17.0'	S 17°43.2'		16°00.6'	S 23°17.2'				
12	289°59.4'	358°07.4'	S 21°55.0'	1°23.3'	S 17°08.0'		315°11.3'	S 11°30.9'		334°19.2'	S 17°43.1'		31°01.1'	S 23°17.4'				
13	305°01.9'	13°07.2'	S 21°54.6'	16°27.4'	S 17°07.7'		330°13.3'	S 11°30.7'		349°21.4'	S 17°43.0'		46°01.6'	S 23°17.5'				
14	320°04.3'	28°06.9'	S 21°54.2'	31°31.6'	S 17°07.4'		345°15.3'	S 11°30.5'		4°23.6'	S 17°42.9'		61°02.1'	S 23°17.7'				
15	335°06.8'	43°06.7'	S 21°53.9'	46°35.7'	S 17°07.1'		0°17.2'	S 11°30.3'		19°25.8'	S 17°42.9'		76°02.7'	S 23°17.8'				
16	350°09.3'	58°06.4'	S 21°53.5'	61°39.8'	S 17°06.8'		15°19.2'	S 11°30.1'		34°27.9'	S 17°42.8'		91°03.2'	S 23°18.0'				
17	5°11.7'	73°06.2'	S 21°53.1'	76°43.9'	S 17°06.5'		30°21.2'	S 11°29.9'		49°30.1'	S 17°42.7'		106°03.7'	S 23°18.2'				
18	20°14.2'	88°05.9'	S 21°52.7'	91°47.9'	S 17°06.2'		45°23.1'	S 11°29.7'		64°32.3'	S 17°42.6'		121°04.2'	S 23°18.3'				
19	35°16.7'	103°05.7'	S 21°52.3'	106°52.0'	S 17°05.9'		60°25.1'	S 11°29.6'		79°34.5'	S 17°42.5'		136°04.8'	S 23°18.5'				
20	50°19.1'	118°05.4'	S 21°51.9'	121°56.1'	S 17°05.6'		75°27.1'	S 11°29.4'		94°36.6'	S 17°42.5'		151°05.3'	S 23°18.7'				
21	65°21.6'	133°05.2'	S 21°51.6'	137°00.2'	S 17°05.3'		90°29.0'	S 11°29.2'		109°38.8'	S 17°42.4'		166°05.8'	S 23°18.8'				
22	80°24.1'	148°04.9'	S 21°51.2'	152°04.3'	S 17°05.0'		105°31.0'	S 11°29.0'		124°41.0'	S 17°42.3'		181°06.3'	S 23°19.0'				
23	95°26.5'	163°04.7'	S 21°50.8'	167°08.4'	S 17°04.7'		120°33.0'	S 11°28.8'		139°43.2'	S 17°42.2'		196°06.8'	S 23°19.1'				
		SD 16.3'	d 0.4'	v 4.1'	d 0.3'		v 2.0'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.2'				
Mer. pass.		12 h 7 m 30 s		11 h 54 m			14 h 59 m			13 h 42 m			9 h 56 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Sun
0	87°32.4'	N 5°46.8'	15.5'	13.4'	55.4'	66°39.1'	63°44.6'	58°28.6'	47°33.0'	50°06.0'	50°14.2'	69°32.4'	92°44.8'
1	102°06.9'	N 6°00.2'	15.5'	13.4'	55.3'	66°10.1'	63°16.2'	58°04.7'	47°02.5'	50°36.2'	50°43.0'	70°02.9'	93°13.0'
2	116°41.5'	N 6°13.6'	15.5'	13.3'	55.3'	65°41.2'	62°48.0'	57°40.9'	46°32.0'	51°06.4'	51°11.8'	70°33.4'	93°41.3'
3	131°16.0'	N 6°26.9'	15.5'	13.3'	55.3'	65°12.3'	62°19.8'	57°17.1'	46°01.5'	51°36.6'	51°40.7'	71°03.8'	94°09.5'
4	145°50.5'	N 6°40.2'	15.5'	13.2'	55.3'	64°43.5'	61°51.6'	56°53.4'	45°31.1'	52°06.7'	52°09.5'	71°34.2'	94°37.6'
5	160°25.0'	N 6°53.4'	15.5'	13.2'	55.2'	64°14.7'	61°23.5'	56°29.9'	45°00.8'	52°36.8'	52°38.3'	72°04.6'	95°05.7'
6	174°59.5'	N 7°06.6'	15.5'	13.2'	55.2'	63°45.9'	60°55.4'	56°06.4'	44°30.4'	53°06.9'	53°07.1'	72°34.9'	95°33.8'
7	189°34.1'	N 7°19.8'	15.5'	13.1'	55.2'	63°17.2'	60°27.4'	55°43.0'	44°00.1'	53°36.9'	53°36.0'	73°05.2'	96°01.9'
8	204°08.6'	N 7°32.9'	15.5'	13.1'	55.1'	62°48.5'	59°59.5'	55°19.8'	43°29.8'	54°06.9'	54°04.8'	73°35.5'	96°30.0'
9	218°43.1'	N 7°46.0'	15.5'	13.0'	55.1'	62°19.9'	59°31.6'	54°56.6'	42°59.6'	54°36.9'	54°33.6'	74°05.8'	96°58.0'
10	233°17.6'	N 7°59.0'	15.5'	13.0'	55.1'	61°51.3'	59°03.7'	54°33.5'	42°29.4'	55°06.9'	55°02.4'	74°36.0'	97°26.0'
11	247°52.1'	N 8°12.0'	15.5'	13.0'	55.1'	61°22.8'	58°35.9'	54°10.6'	41°59.2'	55°36.8'	55°31.2'	75°06.2'	97°53.9'
12	262°26.6'	N 8°25.0'	15.5'	12.9'	55.0'	60°54.3'	58°08.2'	53°47.7'	41°29.1'	56°06.7'	56°00.0'	75°36.4'	98°21.9'
13	277°01.1'	N 8°37.9'	15.5'	12.9'	55.0'	60°25.8'	57°40.5'	53°25.0'	40°59.0'	56°36.6'	56°28.8'	76°06.6'	98°49.8'
14	291°35.6'	N 8°50.7'	15.5'	12.8'	55.0'	59°57.4'	57°12.9'	53°02.3'	40°28.9'	57°06.5'	56°57.6'	76°36.7'	99°17.6'
15	306°10.0'	N 9°03.5'	15.5'	12.8'	55.0'	59°29.1'	56°45.3'	52°39.8'	39°58.9'	57°36.3'	57°26.4'	77°06.8'	99°45.5'
16	320°44.5'	N 9°16.3'	15.5'	12.7'	55.0'	59°00.8'	56°17.7'	52°17.4'	39°28.9'	58°06.1'	57°55.2'	77°36.9'	100°13.3'
17	335°19.0'	N 9°29.0'	15.4'	12.7'	54.9'	58°32.5'	55°50.3'	51°55.1'	38°58.9'	58°35.9'	58°24.0'	78°07.0'	100°41.1'
18	349°53.4'	N 9°41.7'	15.4'	12.6'	54.9'	58°04.3'	55°22.8'	51°32.9'	38°29.0'	59°05.7'	58°52.7'	78°37.0'	101°08.9'
19	4°27.8'	N 9°54.3'	15.4'	12.6'	54.9'	57°36.1'	54°55.5'	51°10.8'	37°59.1'	59°35.4'	59°21.5'	79°07.0'	101°36.7'
20	19°02.2'	N 10°06.9'	15.4'	12.5'	54.9'	57°08.0'	54°28.2'	50°48.9'	37°29.2'	60°05.2'	59°50.3'	79°37.0'	102°04.4'
21	33°36.6'	N 10°19.5'	15.4'	12.5'	54.8'	56°39.9'	54°00.9'	50°27.0'	36°59.4'	60°34.9'	60°19.0'	80°07.0'	102°32.1'
22	48°11.0'	N 10°31.9'	15.4'	12.4'	54.8'	56°11.8'	53°33.7'	50°05.3'	36°29.6'	61°04.6'	60°47.8'	80°36.9'	102°59.8'
23	62°45.4'	N 10°44.4'	15.3'	12.4'	54.8'	55°43.8'	53°06.6'	49°43.7'	35°59.9'	61°34.2'	61°16.5'	81°06.8'	103°27.5'
Mer. pass.		18 h 42 m SD 15.1'	phase 52%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°56.3'	N 89°21.7'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	110°29.0'	178°04.4'	S 21°50.4'	182°12.5'	S 17°04.4'		135°34.9'	S 11°28.6'		154°45.3'	S 17°42.1'		211°07.4'	S 23°19.3'				
1	125°31.4'	193°04.2'	S 21°50.0'	197°16.6'	S 17°04.1'		150°36.9'	S 11°28.4'		169°47.5'	S 17°42.1'		226°07.9'	S 23°19.5'				
2	140°33.9'	208°03.9'	S 21°49.6'	212°20.7'	S 17°03.8'		165°38.9'	S 11°28.2'		184°49.7'	S 17°42.0'		241°08.4'	S 23°19.6'				
3	155°36.4'	223°03.7'	S 21°49.2'	227°24.8'	S 17°03.5'		180°40.8'	S 11°28.0'		199°51.9'	S 17°41.9'		256°08.9'	S 23°19.8'				
4	170°38.8'	238°03.4'	S 21°48.9'	242°28.9'	S 17°03.2'		195°42.8'	S 11°27.8'		214°54.1'	S 17°41.8'		271°09.4'	S 23°19.9'				
5	185°41.3'	253°03.2'	S 21°48.5'	257°33.0'	S 17°02.9'		210°44.8'	S 11°27.6'		229°56.2'	S 17°41.7'		286°10.0'	S 23°20.1'				
6	200°43.8'	268°02.9'	S 21°48.1'	272°37.0'	S 17°02.6'		225°46.7'	S 11°27.5'		244°58.4'	S 17°41.7'		301°10.5'	S 23°20.3'				
7	215°46.2'	283°02.7'	S 21°47.7'	287°41.1'	S 17°02.3'		240°48.7'	S 11°27.3'		260°00.6'	S 17°41.6'		316°11.0'	S 23°20.4'				
8	230°48.7'	298°02.4'	S 21°47.3'	302°45.2'	S 17°02.0'		255°50.7'	S 11°27.1'		275°02.8'	S 17°41.5'		331°11.5'	S 23°20.6'				
9	245°51.2'	313°02.2'	S 21°46.9'	317°49.3'	S 17°01.7'		270°52.6'	S 11°26.9'		290°04.9'	S 17°41.4'		346°12.0'	S 23°20.7'				
10	260°53.6'	328°02.0'	S 21°46.5'	332°53.4'	S 17°01.4'		285°54.6'	S 11°26.7'		305°07.1'	S 17°41.3'		1°12.5'	S 23°20.9'				
11	275°56.1'	343°01.7'	S 21°46.1'	347°57.4'	S 17°01.1'		300°56.6'	S 11°26.5'		320°09.3'	S 17°41.3'		16°13.1'	S 23°21.0'				
12	290°58.5'	358°01.5'	S 21°45.7'	3°01.5'	S 17°00.8'		315°58.5'	S 11°26.3'		335°11.5'	S 17°41.2'		31°13.6'	S 23°21.2'				
13	306°01.0'	13°01.2'	S 21°45.3'	18°05.6'	S 17°00.5'		331°00.5'	S 11°26.1'		350°13.6'	S 17°41.1'		46°14.1'	S 23°21.3'				
14	321°03.5'	28°01.0'	S 21°44.9'	33°09.7'	S 17°00.2'		346°02.5'	S 11°25.9'		5°15.8'	S 17°41.0'		61°14.6'	S 23°21.5'				
15	336°05.9'	43°00.7'	S 21°44.5'	48°13.7'	S 16°60.0'		1°04.4'	S 11°25.7'		20°18.0'	S 17°40.9'		76°15.1'	S 23°21.7'				
16	351°08.4'	58°00.5'	S 21°44.1'	63°17.8'	S 16°59.7'		16°06.4'	S 11°25.5'		35°20.2'	S 17°40.9'		91°15.7'	S 23°21.8'				
17	6°10.9'	73°00.2'	S 21°43.7'	78°21.9'	S 16°59.4'		31°08.3'	S 11°25.3'		50°22.3'	S 17°40.8'		106°16.2'	S 23°22.0'				
18	21°13.3'	87°60.0'	S 21°43.3'	93°25.9'	S 16°59.1'		46°10.3'	S 11°25.2'		65°24.5'	S 17°40.7'		121°16.7'	S 23°22.1'				
19	36°15.8'	102°59.8'	S 21°42.9'	108°30.0'	S 16°58.8'		61°12.3'	S 11°25.0'		80°26.7'	S 17°40.6'		136°17.2'	S 23°22.3'				
20	51°18.3'	117°59.5'	S 21°42.5'	123°34.1'	S 16°58.5'		76°14.2'	S 11°24.8'		95°28.9'	S 17°40.5'		151°17.7'	S 23°22.4'				
21	66°20.7'	132°59.3'	S 21°42.1'	138°38.1'	S 16°58.2'		91°16.2'	S 11°24.6'		110°31.1'	S 17°40.5'		166°18.2'	S 23°22.6'				
22	81°23.2'	147°59.0'	S 21°41.7'	153°42.2'	S 16°58.0'		106°18.2'	S 11°24.4'		125°33.2'	S 17°40.4'		181°18.8'	S 23°22.7'				
23	96°25.7'	162°58.8'	S 21°41.3'	168°46.2'	S 16°57.7'		121°20.1'	S 11°24.2'		140°35.4'	S 17°40.3'		196°19.3'	S 23°22.9'				
		SD 16.3'	d 0.4'	v 4.1'	d 0.3'		v 2.0'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.2'				
Mer. pass.		12 h 7 m 54 s		11 h 48 m			14 h 56 m			13 h 39 m			9 h 55 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Achernar	+Sun
0	77°19.7'	N 10°56.8'	15.3'	12.3'	54.8'	55°15.9'	52°39.5'	49°22.3'	35°30.1'	61°45.3'	62°03.8'		103°55.1'
1	91°54.1'	N 11°09.1'	15.3'	12.3'	54.8'	54°48.0'	52°12.5'	49°01.0'	35°00.4'	62°14.0'	62°33.5'		104°22.7'
2	106°28.4'	N 11°21.4'	15.3'	12.2'	54.7'	54°20.1'	51°45.6'	48°39.8'	34°30.8'	62°42.7'	63°03.1'		104°50.3'
3	121°02.7'	N 11°33.6'	15.3'	12.2'	54.7'	53°52.3'	51°18.7'	48°18.7'	34°01.2'	63°11.4'	63°32.6'		105°17.9'
4	135°36.9'	N 11°45.7'	15.2'	12.1'	54.7'	53°24.6'	50°51.9'	47°57.8'	33°31.6'	63°40.2'	64°02.2'		105°45.5'
5	150°11.2'	N 11°57.9'	15.2'	12.1'	54.7'	52°56.9'	50°25.1'	47°37.0'	33°02.0'	64°08.9'	64°31.7'	69°40.7'	106°13.0'
6	164°45.4'	N 12°09.9'	15.2'	12.0'	54.7'	52°29.2'	49°58.4'	47°16.4'	32°32.5'	64°37.5'	65°01.2'	69°55.8'	106°40.5'
7	179°19.6'	N 12°21.9'	15.2'	11.9'	54.6'	52°01.6'	49°31.8'	46°55.9'	32°03.1'	65°06.2'	65°30.7'	70°10.9'	107°08.0'
8	193°53.8'	N 12°33.9'	15.1'	11.9'	54.6'	51°34.1'	49°05.2'	46°35.5'	31°33.6'	65°34.9'	66°00.2'	70°26.1'	107°35.5'
9	208°27.0'	N 12°45.8'	15.1'	11.8'	54.6'	51°06.6'	48°38.7'	46°15.3'	31°04.2'	66°03.6'	66°29.7'	70°41.3'	108°02.9'
10	223°02.0'	N 12°57.6'	15.1'	11.8'	54.6'	50°39.1'	48°12.3'	45°55.3'	30°34.8'	66°32.3'	66°59.1'	70°56.6'	108°30.4'
11	237°36.1'	N 13°09.4'	15.1'	11.7'	54.6'	50°11.7'	47°45.9'	45°35.4'	30°05.5'	67°00.9'	67°28.5'	71°12.0'	108°57.8'
12	252°10.2'	N 13°21.1'	15.0'	11.7'	54.5'	49°44.4'	47°19.7'	45°15.6'	29°36.2'	67°29.6'	67°57.9'	71°27.4'	109°25.2'
13	266°44.2'	N 13°32.7'	15.0'	11.6'	54.5'	49°17.1'	46°53.4'	44°56.0'	29°07.0'	67°58.2'	68°27.3'	71°42.9'	109°52.6'
14	281°18.2'	N 13°44.3'	15.0'	11.5'	54.5'	48°49.8'	46°27.3'	44°36.6'	28°37.8'	68°26.9'	68°56.7'	71°58.4'	110°19.9'
15	295°52.2'	N 13°55.9'	14.9'	11.5'	54.5'	48°22.6'	46°01.2'	44°17.4'	28°08.6'	68°55.5'	69°26.1'	72°14.0'	110°47.3'
16	310°26.1'	N 14°07.3'	14.9'	11.4'	54.5'	47°55.5'	45°35.2'	43°58.3'	27°39.5'	69°24.1'	69°55.4'	72°29.6'	111°14.6'
17	325°00.0'	N 14°18.7'	14.9'	11.3'	54.5'	47°28.5'	45°09.3'	43°39.4'	27°10.4'	69°52.7'	70°24.7'	72°45.3'	111°41.9'
18	339°33.9'	N 14°30.1'	14.8'	11.3'	54.4'	47°01.4'	44°43.5'	43°20.6'	26°41.4'	70°21.3'	70°54.0'	73°01.0'	112°09.2'
19	354°07.7'	N 14°41.4'	14.8'	11.2'	54.4'	46°34.5'	44°17.7'	43°02.1'	26°12.4'	70°49.9'	71°23.3'	73°16.8'	112°36.5'
20	8°41.6'	N 14°52.6'	14.8'	11.2'	54.4'	46°07.6'	43°52.1'	42°43.7'	25°43.5'	71°18.5'	71°52.6'	73°32.7'	113°03.7'
21	23°15.3'	N 15°03.7'	14.7'	11.1'	54.4'	45°40.8'	43°26.5'	42°25.5'	25°14.6'	71°47.1'	72°21.9'	73°48.5'	113°31.0'
22	37°49.1'	N 15°14.8'	14.7'	11.0'	54.4'	45°14.0'	43°01.0'	42°07.5'	24°45.7'	72°15.7'	72°51.1'	74°04.5'	113°58.2'
23	52°22.8'	N 15°25.8'	14.7'	11.0'	54.4'	44°47.3'	42°35.6'	41°49.7'	24°16.9'	72°44.3'	73°20.4'	74°20.4'	114°25.4'
Mer. pass.		19 h 24 m SD 14.9'	phase 62%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°56.7'	N 89°21.7'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	111°28.1'		177°58.5'	S 21°40.9'	183°50.3'	S 16°57.4'	136°22.1'	S 11°24.0'	155°37.6'	S 17°40.2'	211°19.8'	S 23°23.0'
1	126°30.6'		192°58.3'	S 21°40.5'	198°54.4'	S 16°57.1'	151°24.1'	S 11°23.8'	170°39.8'	S 17°40.1'	226°20.3'	S 23°23.2'
2	141°33.0'		207°58.1'	S 21°40.1'	213°58.4'	S 16°56.8'	166°26.0'	S 11°23.6'	185°41.9'	S 17°40.1'	241°20.8'	S 23°23.3'
3	156°35.5'		222°57.8'	S 21°39.7'	229°02.5'	S 16°56.5'	181°28.0'	S 11°23.4'	200°44.1'	S 17°40.0'	256°21.3'	S 23°23.5'
4	171°38.0'		237°57.6'	S 21°39.3'	244°06.5'	S 16°56.3'	196°30.0'	S 11°23.2'	215°46.3'	S 17°39.9'	271°21.9'	S 23°23.6'
5	186°40.4'		252°57.3'	S 21°38.9'	259°10.6'	S 16°56.0'	211°31.9'	S 11°23.0'	230°48.5'	S 17°39.8'	286°22.4'	S 23°23.8'
6	201°42.9'		267°57.1'	S 21°38.5'	274°14.6'	S 16°55.7'	226°33.9'	S 11°22.8'	245°50.6'	S 17°39.7'	301°22.9'	S 23°23.9'
7	216°45.4'		282°56.9'	S 21°38.1'	289°18.7'	S 16°55.4'	241°35.8'	S 11°22.7'	260°52.8'	S 17°39.7'	316°23.4'	S 23°24.1'
8	231°47.8'		297°56.6'	S 21°37.7'	304°22.7'	S 16°55.2'	256°37.8'	S 11°22.5'	275°55.0'	S 17°39.6'	331°23.9'	S 23°24.2'
9	246°50.3'		312°56.4'	S 21°37.3'	319°26.7'	S 16°54.9'	271°39.8'	S 11°22.3'	290°57.2'	S 17°39.5'	346°24.4'	S 23°24.4'
10	261°52.8'		327°56.1'	S 21°36.8'	334°30.8'	S 16°54.6'	286°41.7'	S 11°22.1'	305°59.3'	S 17°39.4'	1°24.9'	S 23°24.5'
11	276°55.2'		342°55.9'	S 21°36.4'	349°34.8'	S 16°54.3'	301°43.7'	S 11°21.9'	321°01.5'	S 17°39.3'	16°25.5'	S 23°24.7'
12	291°57.7'		357°55.7'	S 21°36.0'	4°38.9'	S 16°54.1'	316°45.7'	S 11°21.7'	336°03.7'	S 17°39.3'	31°26.0'	S 23°24.8'
13	307°00.2'		12°55.4'	S 21°35.6'	19°42.9'	S 16°53.8'	331°47.6'	S 11°21.5'	351°05.9'	S 17°39.2'	46°26.5'	S 23°25.0'
14	322°02.6'		27°55.2'	S 21°35.2'	34°46.9'	S 16°53.5'	346°49.6'	S 11°21.3'	6°08.0'	S 17°39.1'	61°27.0'	S 23°25.1'
15	337°05.1'		42°54.9'	S 21°34.8'	49°50.9'	S 16°53.2'	1°51.5'	S 11°21.1'	21°10.2'	S 17°39.0'	76°27.5'	S 23°25.2'
16	352°07.5'		57°54.7'	S 21°34.4'	64°55.0'	S 16°53.0'	16°53.5'	S 11°20.9'	36°12.4'	S 17°38.9'	91°28.0'	S 23°25.4'
17	7°10.0'		72°54.5'	S 21°34.0'	79°59.0'	S 16°52.7'	31°55.5'	S 11°20.7'	51°14.6'	S 17°38.9'	106°28.6'	S 23°25.5'
18	22°12.5'		87°54.2'	S 21°33.5'	95°03.0'	S 16°52.4'	46°57.4'	S 11°20.5'	66°16.7'	S 17°38.8'	121°29.1'	S 23°25.7'
19	37°14.9'		102°54.0'	S 21°33.1'	110°07.1'	S 16°52.2'	61°59.4'	S 11°20.3'	81°18.9'	S 17°38.7'	136°29.6'	S 23°25.8'
20	52°17.4'		117°53.8'	S 21°32.7'	125°11.1'	S 16°51.9'	77°01.4'	S 11°20.1'	96°21.1'	S 17°38.6'	151°30.1'	S 23°26.0'
21	67°19.9'		132°53.5'	S 21°32.3'	140°15.1'	S 16°51.6'	92°03.3'	S 11°20.0'	111°23.3'	S 17°38.5'	166°30.6'	S 23°26.1'
22	82°22.3'		147°53.3'	S 21°31.9'	155°19.1'	S 16°51.4'	107°05.3'	S 11°19.8'	126°25.4'	S 17°38.5'	181°31.1'	S 23°26.2'
23	97°24.8'		162°53.0'	S 21°31.4'	170°23.1'	S 16°51.1'	122°07.2'	S 11°19.6'	141°27.6'	S 17°38.4'	196°31.6'	S 23°26.4'
			SD 16.3'	d 0.4'	v 4.0'	d 0.3'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.1'
Mer. pass.			12 h 8 m 17 s		11 h 41 m		14 h 53 m		13 h 36 m		9 h 54 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Achernar	+Sun
0	66°56.4'	N 15°36.8'	14.6'	10.9'	54.4'	44°20.7'	42°10.3'	41°32.1'	23°48.2'	73°12.9'	73°49.6'	74°36.4'	114°52.6'
1	81°30.0'	N 15°47.7'	14.6'	10.8'	54.3'	43°54.1'	41°45.0'	41°14.7'	23°19.5'	73°41.4'	74°18.8'	74°52.5'	115°19.8'
2	96°03.6'	N 15°58.5'	14.5'	10.7'	54.3'	43°27.6'	41°19.9'	40°57.4'	22°50.9'	74°10.0'	74°48.0'	75°08.6'	115°47.0'
3	110°37.2'	N 16°09.2'	14.5'	10.7'	54.3'	43°01.2'	40°54.9'	40°40.4'	22°22.3'	74°38.5'	75°17.2'	75°24.7'	116°14.2'
4	125°10.7'	N 16°19.9'	14.5'	10.6'	54.3'	42°34.8'	40°29.9'	40°23.6'	21°53.8'	75°07.1'	75°46.4'	75°40.9'	116°41.3'
5	139°44.1'	N 16°30.5'	14.4'	10.5'	54.3'	42°08.5'	40°05.1'	40°07.0'	21°25.4'	75°35.6'	76°15.5'	75°57.1'	117°08.4'
6	154°17.6'	N 16°41.1'	14.4'	10.5'	54.3'	41°42.3'	39°40.4'	39°50.7'	20°57.1'	76°04.1'	76°44.7'	76°13.4'	117°35.6'
7	168°50.9'	N 16°51.5'	14.3'	10.4'	54.3'	41°16.1'	39°15.7'	39°34.5'	20°28.8'	76°32.7'	77°13.8'	76°29.7'	118°02.7'
8	183°24.3'	N 17°01.9'	14.3'	10.3'	54.3'	40°50.1'	38°51.2'	39°18.6'	20°00.6'	77°01.2'	77°43.0'	76°46.0'	118°29.8'
9	197°57.6'	N 17°12.2'	14.2'	10.2'	54.2'	40°24.1'	38°26.8'	39°02.9'	19°32.4'	77°29.7'	78°12.1'	77°02.4'	118°56.9'
10	212°30.8'	N 17°22.5'	14.2'	10.2'	54.2'	39°58.2'	38°02.5'	38°47.5'	19°04.4'	77°58.2'	78°41.2'	77°18.8'	119°23.9'
11	227°04.0'	N 17°32.7'	14.2'	10.1'	54.2'	39°32.3'	37°38.3'		18°36.5'	78°26.7'	79°10.3'	77°35.2'	119°51.0'
12	241°37.2'	N 17°42.8'	14.1'	10.0'	54.2'	39°06.6'	37°14.3'		18°08.6'	78°55.2'	79°39.4'	77°51.7'	
13	256°10.3'	N 17°52.8'	14.1'	9.9'	54.2'	38°41.0'	36°50.4'		17°40.9'	79°23.7'	80°08.4'	78°08.2'	
14	270°43.4'	N 18°02.7'	14.0'	9.9'	54.2'	38°15.4'	36°26.6'		17°13.3'	79°52.2'	80°37.5'	78°24.8'	
15	285°16.4'	N 18°12.6'	14.0'	9.8'	54.2'	37°49.9'	36°02.9'		16°45.8'	80°20.7'	81°06.6'	78°41.3'	
16	299°49.4'	N 18°22.4'	13.9'	9.7'	54.2'	37°24.5'	35°39.4'		16°18.4'	80°49.2'	81°35.6'	78°57.9'	
17	314°22.3'	N 18°32.1'	13.9'	9.6'	54.2'	36°59.3'	35°16.0'		15°51.2'	81°17.6'	82°04.7'	79°14.6'	
18	328°55.2'	N 18°41.7'	13.8'	9.5'	54.1'	36°34.1'	34°52.7'		15°24.1'	81°46.1'	82°33.7'	79°31.2'	
19	343°28.0'	N 18°51.3'	13.8'	9.5'	54.1'	36°09.0'	34°29.6'		14°57.2'	82°14.6'	83°02.7'	79°47.9'	
20	358°00.8'	N 19°00.7'	13.7'	9.4'	54.1'	35°44.0'	34°06.7'		14°30.4'	82°43.0'	83°31.8'	80°04.6'	
21	12°33.5'	N 19°10.1'	13.7'	9.3'	54.1'	35°19.2'	33°43.9'		14°03.9'	83°11.5'	84°00.8'	80°21.3'	
22	27°06.2'	N 19°19.4'	13.6'	9.2'	54.1'	34°54.4'	33°21.3'		13°37.6'	83°39.9'	84°29.8'	80°38.1'	
23	41°38.8'	N 19°28.6'	13.6'	9.1'	54.1'	34°29.8'	32°58.8'		13°11.5'	84°08.4'	84°58.8'	80°54.9'	
Mer. pass.			20 h 8 m SD 14.8'		phase 71%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°57.1'	N 89°21.7'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

Thursday 13 January 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	112°27.3'	177°52.8'	S 21°31.0'	185°27.1'	S 16°50.8'		137°09.2'	S 11°19.4'		156°29.8'	S 17°38.3'		211°32.1'	S 23°26.5'				
1	127°29.7'	192°52.6'	S 21°30.6'	200°31.1'	S 16°50.6'		152°11.2'	S 11°19.2'		171°32.0'	S 17°38.2'		226°32.7'	S 23°26.7'				
2	142°32.2'	207°52.3'	S 21°30.2'	215°35.2'	S 16°50.3'		167°13.1'	S 11°19.0'		186°34.1'	S 17°38.1'		241°33.2'	S 23°26.8'				
3	157°34.7'	222°52.1'	S 21°29.8'	230°39.2'	S 16°50.1'		182°15.1'	S 11°18.8'		201°36.3'	S 17°38.1'		256°33.7'	S 23°27.0'				
4	172°37.1'	237°51.9'	S 21°29.3'	245°43.2'	S 16°49.8'		197°17.0'	S 11°18.6'		216°38.5'	S 17°38.0'		271°34.2'	S 23°27.1'				
5	187°39.6'	252°51.6'	S 21°28.9'	260°47.2'	S 16°49.5'		212°19.0'	S 11°18.4'		231°40.7'	S 17°37.9'		286°34.7'	S 23°27.2'				
6	202°42.0'	267°51.4'	S 21°28.5'	275°51.2'	S 16°49.3'		227°21.0'	S 11°18.2'		246°42.8'	S 17°37.8'		301°35.2'	S 23°27.4'				
7	217°44.5'	282°51.2'	S 21°28.1'	290°55.2'	S 16°49.0'		242°22.9'	S 11°18.0'		261°45.0'	S 17°37.7'		316°35.7'	S 23°27.5'				
8	232°47.0'	297°50.9'	S 21°27.6'	305°59.2'	S 16°48.8'		257°24.9'	S 11°17.8'		276°47.2'	S 17°37.6'		331°36.2'	S 23°27.6'				
9	247°49.4'	312°50.7'	S 21°27.2'	321°03.2'	S 16°48.5'		272°26.8'	S 11°17.6'		291°49.4'	S 17°37.6'		346°36.8'	S 23°27.8'				
10	262°51.9'	327°50.5'	S 21°26.8'	336°07.2'	S 16°48.3'		287°28.8'	S 11°17.4'		306°51.5'	S 17°37.5'		1°37.3'	S 23°27.9'				
11	277°54.4'	342°50.2'	S 21°26.3'	351°11.1'	S 16°48.0'		302°30.8'	S 11°17.2'		321°53.7'	S 17°37.4'		16°37.8'	S 23°28.1'				
12	292°56.8'	357°50.0'	S 21°25.9'	6°15.1'	S 16°47.8'		317°32.7'	S 11°17.0'		336°55.9'	S 17°37.3'		31°38.3'	S 23°28.2'				
13	307°59.3'	12°49.8'	S 21°25.5'	21°19.1'	S 16°47.5'		332°34.7'	S 11°16.8'		351°58.1'	S 17°37.2'		46°38.8'	S 23°28.3'				
14	323°01.8'	27°49.5'	S 21°25.1'	36°23.1'	S 16°47.2'		347°36.6'	S 11°16.7'		7°00.2'	S 17°37.2'		61°39.3'	S 23°28.5'				
15	338°04.2'	42°49.3'	S 21°24.6'	51°27.1'	S 16°47.0'		2°38.6'	S 11°16.5'		22°02.4'	S 17°37.1'		76°39.8'	S 23°28.6'				
16	353°06.7'	57°49.1'	S 21°24.2'	66°31.1'	S 16°46.7'		17°40.6'	S 11°16.3'		37°04.6'	S 17°37.0'		91°40.3'	S 23°28.7'				
17	8°09.1'	72°48.8'	S 21°23.8'	81°35.0'	S 16°46.5'		32°42.5'	S 11°16.1'		52°06.8'	S 17°36.9'		106°40.8'	S 23°28.9'				
18	23°11.6'	87°48.6'	S 21°23.3'	96°39.0'	S 16°46.2'		47°44.5'	S 11°15.9'		67°08.9'	S 17°36.8'		121°41.4'	S 23°29.0'				
19	38°14.1'	102°48.4'	S 21°22.9'	111°43.0'	S 16°46.0'		62°46.4'	S 11°15.7'		82°11.1'	S 17°36.8'		136°41.9'	S 23°29.1'				
20	53°16.5'	117°48.2'	S 21°22.5'	126°46.9'	S 16°45.8'		77°48.4'	S 11°15.5'		97°13.3'	S 17°36.7'		151°42.4'	S 23°29.3'				
21	68°19.0'	132°47.9'	S 21°22.0'	141°50.9'	S 16°45.5'		92°50.4'	S 11°15.3'		112°15.5'	S 17°36.6'		166°42.9'	S 23°29.4'				
22	83°21.5'	147°47.7'	S 21°21.6'	156°54.9'	S 16°45.3'		107°52.3'	S 11°15.1'		127°17.6'	S 17°36.5'		181°43.4'	S 23°29.5'				
23	98°23.9'	162°47.5'	S 21°21.1'	171°58.8'	S 16°45.0'		122°54.3'	S 11°14.9'		142°19.8'	S 17°36.4'		196°43.9'	S 23°29.7'				
		SD 16.3' d 0.4'		v 4.0' d 0.3'			v 2.0' d 0.2'			v 2.2' d 0.1'			v 0.5' d -0.1'					
Mer. pass.		12 h 8 m 40 s		11 h 35 m			14 h 49 m			13 h 32 m			9 h 54 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	56°11.4'	N 19°37.8'	13.5'	9.1'	54.1'	55°21.6'	34°05.3'	32°36.6'	12°45.7'	81°11.7'	84°36.8'	85°27.8'	105°12.7'
1	70°44.0'	N 19°46.8'	13.5'	9.0'	54.1'	54°52.1'	33°40.9'	32°14.5'	12°20.1'	81°28.5'	85°05.3'	85°56.8'	105°41.9'
2	85°16.4'	N 19°55.8'	13.4'	8.9'	54.1'	54°22.6'	33°16.7'	31°52.6'	11°54.9'	81°45.4'	85°33.7'	86°25.7'	106°11.1'
3	99°48.9'	N 20°04.7'	13.4'	8.8'	54.1'	53°53.0'	32°52.5'	31°30.8'	11°30.0'	82°02.3'	86°02.1'	86°54.7'	106°40.4'
4	114°21.2'	N 20°13.5'	13.3'	8.7'	54.1'	53°23.5'	32°28.6'	31°09.3'	11°05.5'	82°19.2'	86°30.6'	87°23.7'	107°09.6'
5	128°53.6'	N 20°22.2'	13.3'	8.6'	54.1'	52°54.0'	32°04.7'	30°48.0'	10°41.4'	82°36.1'	86°59.0'	87°52.7'	107°38.8'
6	143°25.9'	N 20°30.8'	13.2'	8.5'	54.1'	52°24.4'	31°41.0'	30°26.9'	10°17.8'	82°53.0'	87°27.4'	88°21.6'	108°08.0'
7	157°58.1'	N 20°39.3'	13.2'	8.4'	54.0'	51°54.9'	31°17.5'	30°06.0'	9°54.7'	83°10.0'	87°55.8'	88°50.6'	108°37.2'
8	172°30.3'	N 20°47.8'	13.1'	8.4'	54.0'	51°25.4'	30°54.1'	29°45.3'	9°32.2'	83°27.0'	88°24.2'	89°19.5'	109°06.4'
9	187°02.4'	N 20°56.1'	13.1'	8.3'	54.0'	50°55.9'	30°30.9'	29°24.9'	9°10.4'	83°44.0'	88°52.6'	89°48.5'	109°35.5'
10	201°34.4'	N 21°04.4'	13.0'	8.2'	54.0'	50°26.4'	30°07.8'	29°04.7'		84°01.0'	89°21.1'	90°17.4'	110°04.7'
11	216°06.5'	N 21°12.6'	13.0'	8.1'	54.0'	49°56.9'	29°45.0'	28°44.7'		84°18.0'	89°49.5'	90°46.4'	110°33.9'
12	230°38.4'	N 21°20.7'	12.9'	8.0'	54.0'	49°27.4'	29°22.3'	28°25.0'		84°35.0'	90°17.9'	91°15.3'	111°03.1'
13	245°10.3'	N 21°28.6'	12.9'	7.9'	54.0'	48°57.9'	28°59.8'	28°05.6'		84°52.1'	90°46.3'	91°44.2'	111°32.3'
14	259°42.2'	N 21°36.5'	12.8'	7.8'	54.0'	48°28.4'	28°37.5'	27°46.4'		85°09.2'	91°14.7'	92°13.2'	112°01.4'
15	274°14.0'	N 21°44.3'	12.7'	7.7'	54.0'	47°58.9'	28°15.3'	27°27.6'		85°26.3'	91°43.1'	92°42.1'	112°30.6'
16	288°45.7'	N 21°52.0'	12.7'	7.6'	54.0'	47°29.4'	27°53.5'	27°09.0'		85°43.3'	92°11.4'	93°11.0'	112°59.8'
17	303°17.4'	N 21°59.7'	12.6'	7.5'	54.0'	46°59.9'	27°31.8'	26°50.7'		86°00.4'	92°39.8'	93°40.0'	113°28.9'
18	317°49.1'	N 22°07.2'	12.6'	7.4'	54.0'	46°30.5'	27°10.3'	26°32.8'		86°17.6'	93°08.2'	94°08.9'	113°58.1'
19	332°20.7'	N 22°14.6'	12.5'	7.3'	54.0'	46°01.0'	26°49.1'	26°15.1'		86°34.7'	93°36.6'	94°37.8'	114°27.2'
20	346°52.2'	N 22°21.9'	12.5'	7.2'	54.0'	45°31.5'	26°28.2'	25°57.8'		86°51.8'	94°05.0'	95°06.8'	114°56.4'
21	1°23.7'	N 22°29.1'	12.4'	7.1'	54.0'	45°02.0'	26°07.5'	25°40.9'		87°09.0'	94°33.4'	95°35.7'	115°25.6'
22	15°55.1'	N 22°36.2'	12.4'	7.0'	54.0'	44°32.5'	25°47.0'	25°24.3'		87°26.1'	95°01.8'	96°04.6'	115°54.7'
23	30°26.5'	N 22°43.2'	12.3'	6.9'	54.0'	44°03.1'	25°26.9'	25°08.1'		87°43.3'	95°30.1'	96°33.5'	116°23.9'
Mer. pass.		20 h 54 m SD 14.8'		phase 79%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°57.5'	N 89°21.7'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.3'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	113°26.4'		177°47.2'	S 21°20.7'	187°02.8'	S 16°44.8'	137°56.2'	S 11°14.7'	157°22.0'	S 17°36.4'	211°44.4'	S 23°29.8'
1	128°28.9'		192°47.0'	S 21°20.3'	202°06.7'	S 16°44.5'	152°58.2'	S 11°14.5'	172°24.2'	S 17°36.3'	226°44.9'	S 23°29.9'
2	143°31.3'		207°46.8'	S 21°19.8'	217°10.7'	S 16°44.3'	168°00.1'	S 11°14.3'	187°26.3'	S 17°36.2'	241°45.4'	S 23°30.1'
3	158°33.8'		222°46.6'	S 21°19.4'	232°14.7'	S 16°44.1'	183°02.1'	S 11°14.1'	202°28.5'	S 17°36.1'	256°46.0'	S 23°30.2'
4	173°36.3'		237°46.3'	S 21°18.9'	247°18.6'	S 16°43.8'	198°04.1'	S 11°13.9'	217°30.7'	S 17°36.0'	271°46.5'	S 23°30.3'
5	188°38.7'		252°46.1'	S 21°18.5'	262°22.6'	S 16°43.6'	213°06.0'	S 11°13.7'	232°32.8'	S 17°36.0'	286°47.0'	S 23°30.5'
6	203°41.2'		267°45.9'	S 21°18.1'	277°26.5'	S 16°43.3'	228°08.0'	S 11°13.5'	247°35.0'	S 17°35.9'	301°47.5'	S 23°30.6'
7	218°43.6'		282°45.6'	S 21°17.6'	292°30.4'	S 16°43.1'	243°09.9'	S 11°13.3'	262°37.2'	S 17°35.8'	316°48.0'	S 23°30.7'
8	233°46.1'		297°45.4'	S 21°17.2'	307°34.4'	S 16°42.9'	258°11.9'	S 11°13.1'	277°39.4'	S 17°35.7'	331°48.5'	S 23°30.9'
9	248°48.6'		312°45.2'	S 21°16.7'	322°38.3'	S 16°42.6'	273°13.9'	S 11°13.0'	292°41.5'	S 17°35.6'	346°49.0'	S 23°31.0'
10	263°51.0'		327°45.0'	S 21°16.3'	337°42.2'	S 16°42.4'	288°15.8'	S 11°12.8'	307°43.7'	S 17°35.5'	1°49.5'	S 23°31.1'
11	278°53.5'		342°44.7'	S 21°15.8'	352°46.2'	S 16°42.2'	303°17.8'	S 11°12.6'	322°45.9'	S 17°35.5'	16°50.0'	S 23°31.2'
12	293°56.0'		357°44.5'	S 21°15.4'	7°50.1'	S 16°41.9'	318°19.7'	S 11°12.4'	337°48.1'	S 17°35.4'	31°50.5'	S 23°31.4'
13	308°58.4'		12°44.3'	S 21°14.9'	22°54.0'	S 16°41.7'	333°21.7'	S 11°12.2'	352°50.2'	S 17°35.3'	46°51.0'	S 23°31.5'
14	324°00.9'		27°44.1'	S 21°14.5'	37°58.0'	S 16°41.5'	348°23.6'	S 11°12.0'	7°52.4'	S 17°35.2'	61°51.5'	S 23°31.6'
15	339°03.4'		42°43.8'	S 21°14.0'	53°01.9'	S 16°41.2'	3°25.6'	S 11°11.8'	22°54.6'	S 17°35.1'	76°52.1'	S 23°31.7'
16	354°05.8'		57°43.6'	S 21°13.6'	68°05.8'	S 16°41.0'	18°27.6'	S 11°11.6'	37°56.8'	S 17°35.1'	91°52.6'	S 23°31.9'
17	9°08.3'		72°43.4'	S 21°13.1'	83°09.7'	S 16°40.8'	33°29.5'	S 11°11.4'	52°58.9'	S 17°35.0'	106°53.1'	S 23°32.0'
18	24°10.8'		87°43.2'	S 21°12.7'	98°13.6'	S 16°40.5'	48°31.5'	S 11°11.2'	68°01.1'	S 17°34.9'	121°53.6'	S 23°32.1'
19	39°13.2'		102°42.9'	S 21°12.2'	113°17.5'	S 16°40.3'	63°33.4'	S 11°11.0'	83°03.3'	S 17°34.8'	136°54.1'	S 23°32.2'
20	54°15.7'		117°42.7'	S 21°11.8'	128°21.4'	S 16°40.1'	78°35.4'	S 11°10.8'	98°05.4'	S 17°34.7'	151°54.6'	S 23°32.4'
21	69°18.1'		132°42.5'	S 21°11.3'	143°25.3'	S 16°39.9'	93°37.3'	S 11°10.6'	113°07.6'	S 17°34.7'	166°55.1'	S 23°32.5'
22	84°20.6'		147°42.3'	S 21°10.9'	158°29.2'	S 16°39.6'	108°39.3'	S 11°10.4'	128°09.8'	S 17°34.6'	181°55.6'	S 23°32.6'
23	99°23.1'		162°42.1'	S 21°10.4'	173°33.1'	S 16°39.4'	123°41.2'	S 11°10.2'	143°12.0'	S 17°34.5'	196°56.1'	S 23°32.7'
			SD 16.3'	d 0.4'	v 3.9'	d 0.2'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.1'
Mer. pass.			12 h 9 m 2 s		11 h 29 m		14 h 46 m		13 h 29 m		9 h 53 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter
0	44°57.8'	N 22°50.2'	12.3'	6.8'	54.0'	48°18.3'	43°33.6'	25°07.0'	24°52.2'		88°00.5'	95°58.5'	97°02.5'
1	59°29.1'	N 22°57.0'	12.2'	6.7'	54.0'	47°52.2'	43°04.1'	24°47.4'	24°36.8'		88°17.6'	96°26.9'	97°31.4'
2	74°00.3'	N 23°03.7'	12.2'	6.6'	54.0'	47°26.1'	42°34.7'	24°28.2'			88°34.8'	96°55.3'	98°00.3'
3	88°31.4'	N 23°10.3'	12.1'	6.5'	54.0'	47°00.0'	42°05.2'	24°09.2'			88°52.0'	97°23.6'	98°29.2'
4	103°02.5'	N 23°16.8'	12.1'	6.4'	54.0'	46°34.0'	41°35.7'	23°50.6'			89°09.2'	97°52.0'	98°58.2'
5	117°33.6'	N 23°23.2'	12.0'	6.3'	54.0'	46°08.0'	41°06.2'	23°32.4'			89°26.4'	98°20.4'	99°27.1'
6	132°04.6'	N 23°29.5'	12.0'	6.2'	54.0'	45°42.2'	40°36.8'	23°14.5'			89°43.6'	98°48.7'	99°56.0'
7	146°35.6'	N 23°35.7'	11.9'	6.1'	54.0'	45°16.3'	40°07.3'	22°57.0'			90°00.7'	99°17.1'	100°25.0'
8	161°06.5'	N 23°41.8'	11.9'	6.0'	54.0'	44°50.5'	39°37.8'	22°39.8'			90°17.9'	99°45.5'	100°53.9'
9	175°37.3'	N 23°47.8'	11.8'	5.9'	54.0'	44°24.8'	39°08.4'	22°23.1'			90°35.1'	100°13.8'	101°22.8'
10	190°08.1'	N 23°53.7'	11.7'	5.8'	54.0'	43°59.1'	38°38.9'	22°06.8'			90°52.3'	100°42.2'	101°51.8'
11	204°38.9'	N 23°59.4'	11.7'	5.7'	54.0'	43°33.5'	38°09.4'	21°51.0'			91°09.5'	101°10.6'	102°20.7'
12	219°09.6'	N 24°05.1'	11.6'	5.6'	54.0'	43°08.0'	37°39.9'			9°06.8'	91°26.7'	101°38.9'	102°49.6'
13	233°40.2'	N 24°10.7'	11.6'	5.4'	54.0'	42°42.5'	37°10.4'			9°28.5'	91°43.9'	102°07.3'	103°18.6'
14	248°10.8'	N 24°16.1'	11.6'	5.3'	54.0'	42°17.1'	36°41.0'			9°50.9'	92°01.1'	102°35.6'	103°47.5'
15	262°41.4'	N 24°21.4'	11.5'	5.2'	54.0'	41°51.8'	36°11.5'			10°13.9'	92°18.3'	103°04.0'	104°16.5'
16	277°11.9'	N 24°26.6'	11.5'	5.1'	54.0'	41°26.6'	35°42.0'			10°37.4'	92°35.4'	103°32.4'	104°45.4'
17	291°42.3'	N 24°31.7'	11.4'	5.0'	54.0'	41°01.4'	35°12.5'			11°01.4'	92°52.6'	104°00.7'	105°14.4'
18	306°12.7'	N 24°36.7'	11.4'	4.9'	54.0'	40°36.3'	34°43.0'			11°25.9'	93°09.8'	104°29.1'	105°43.4'
19	320°43.1'	N 24°41.6'	11.3'	4.8'	54.0'	40°11.2'	34°13.5'			11°50.7'	93°26.9'	104°57.4'	106°12.3'
20	335°13.4'	N 24°46.4'	11.3'	4.7'	54.0'	39°46.3'	33°44.0'			12°15.9'	93°44.1'	105°25.8'	106°41.3'
21	349°43.7'	N 24°51.0'	11.2'	4.5'	54.0'	39°21.4'	33°14.6'			12°41.4'	94°01.2'	105°54.1'	107°10.3'
22	4°13.9'	N 24°55.6'	11.2'	4.4'	54.0'	38°56.7'	32°45.1'			13°07.2'	94°18.4'	106°22.5'	107°39.3'
23	18°44.1'	N 25°00.0'	11.1'	4.3'	54.0'	38°32.0'	32°15.6'			13°33.2'	94°35.5'	106°50.8'	108°08.2'
Mer. pass.			21 h 42 m	SD 14.7'	phase 86%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°57.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.0'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	114°25.5'		177°41.8'	S 21°10.0'	188°37.0'	S 16°39.2'	138°43.2'	S 11°10.0'	158°14.1'	S 17°34.4'	211°56.6'	S 23°32.9'
1	129°28.0'		192°41.6'	S 21°09.5'	203°40.9'	S 16°39.0'	153°45.2'	S 11°09.8'	173°16.3'	S 17°34.3'	226°57.1'	S 23°33.0'
2	144°30.5'		207°41.4'	S 21°09.1'	218°44.8'	S 16°38.7'	168°47.1'	S 11°09.6'	188°18.5'	S 17°34.2'	241°57.6'	S 23°33.1'
3	159°32.9'		222°41.2'	S 21°08.6'	233°48.7'	S 16°38.5'	183°49.1'	S 11°09.4'	203°20.7'	S 17°34.2'	256°58.1'	S 23°33.2'
4	174°35.4'		237°41.0'	S 21°08.1'	248°52.6'	S 16°38.3'	198°51.0'	S 11°09.2'	218°22.8'	S 17°34.1'	271°58.6'	S 23°33.3'
5	189°37.9'		252°40.7'	S 21°07.7'	263°56.5'	S 16°38.1'	213°53.0'	S 11°09.0'	233°25.0'	S 17°34.0'	286°59.2'	S 23°33.5'
6	204°40.3'		267°40.5'	S 21°07.2'	279°00.3'	S 16°37.9'	228°54.9'	S 11°08.8'	248°27.2'	S 17°33.9'	301°59.7'	S 23°33.6'
7	219°42.8'		282°40.3'	S 21°06.8'	294°04.2'	S 16°37.6'	243°56.9'	S 11°08.6'	263°29.4'	S 17°33.8'	317°00.2'	S 23°33.7'
8	234°45.3'		297°40.1'	S 21°06.3'	309°08.1'	S 16°37.4'	258°58.8'	S 11°08.4'	278°31.5'	S 17°33.8'	332°00.7'	S 23°33.8'
9	249°47.7'		312°39.9'	S 21°05.8'	324°12.0'	S 16°37.2'	274°00.8'	S 11°08.2'	293°33.7'	S 17°33.7'	347°01.2'	S 23°33.9'
10	264°50.2'		327°39.6'	S 21°05.4'	339°15.8'	S 16°37.0'	289°02.8'	S 11°08.1'	308°35.9'	S 17°33.6'	2°01.7'	S 23°34.1'
11	279°52.6'		342°39.4'	S 21°04.9'	354°19.7'	S 16°36.8'	304°04.7'	S 11°07.9'	323°38.0'	S 17°33.5'	17°02.2'	S 23°34.2'
12	294°55.1'		357°39.2'	S 21°04.5'	9°23.6'	S 16°36.6'	319°06.7'	S 11°07.7'	338°40.2'	S 17°33.4'	32°02.7'	S 23°34.3'
13	309°57.6'		12°39.0'	S 21°04.0'	24°27.4'	S 16°36.4'	334°08.6'	S 11°07.5'	353°42.4'	S 17°33.4'	47°03.2'	S 23°34.4'
14	325°00.0'		27°38.8'	S 21°03.5'	39°31.3'	S 16°36.1'	349°10.6'	S 11°07.3'	8°44.6'	S 17°33.3'	62°03.7'	S 23°34.5'
15	340°02.5'		42°38.5'	S 21°03.1'	54°35.1'	S 16°35.9'	4°12.5'	S 11°07.1'	23°46.7'	S 17°33.2'	77°04.2'	S 23°34.6'
16	355°05.0'		57°38.3'	S 21°02.6'	69°39.0'	S 16°35.7'	19°14.5'	S 11°06.9'	38°48.9'	S 17°33.1'	92°04.7'	S 23°34.8'
17	10°07.4'		72°38.1'	S 21°02.1'	84°42.8'	S 16°35.5'	34°16.4'	S 11°06.7'	53°51.1'	S 17°33.0'	107°05.2'	S 23°34.9'
18	25°09.9'		87°37.9'	S 21°01.7'	99°46.7'	S 16°35.3'	49°18.4'	S 11°06.5'	68°53.2'	S 17°32.9'	122°05.7'	S 23°35.0'
19	40°12.4'		102°37.7'	S 21°01.2'	114°50.5'	S 16°35.1'	64°20.3'	S 11°06.3'	83°55.4'	S 17°32.9'	137°06.2'	S 23°35.1'
20	55°14.8'		117°37.5'	S 21°00.7'	129°54.3'	S 16°34.9'	79°22.3'	S 11°06.1'	98°57.6'	S 17°32.8'	152°06.7'	S 23°35.2'
21	70°17.3'		132°37.2'	S 21°00.3'	144°58.2'	S 16°34.7'	94°24.3'	S 11°05.9'	113°59.8'	S 17°32.7'	167°07.2'	S 23°35.3'
22	85°19.8'		147°37.0'	S 20°59.8'	160°02.0'	S 16°34.5'	109°26.2'	S 11°05.7'	129°01.9'	S 17°32.6'	182°07.7'	S 23°35.5'
23	100°22.2'		162°36.8'	S 20°59.3'	175°05.8'	S 16°34.3'	124°28.2'	S 11°05.5'	144°04.1'	S 17°32.5'	197°08.2'	S 23°35.6'
			SD 16.3'	d 0.5'	v 3.9'	d 0.2'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.1'
Mer. pass.			12 h 9 m 23 s		11 h 23 m		14 h 43 m		13 h 25 m		9 h 52 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter
0	33°14.2'	N 25°04.3'	11.1'	4.2'	54.0'	116°25.9'	68°06.7'	38°07.4'	31°46.1'	13°59.5'	94°52.6'	107°19.2'	108°37.2'
1	47°44.3'	N 25°08.5'	11.0'	4.1'	54.0'	116°00.6'	67°37.2'	37°42.9'	31°16.5'	14°26.0'	95°09.7'	107°47.5'	109°06.2'
2	62°14.3'	N 25°12.6'	11.0'	4.0'	54.0'	115°35.2'	67°07.7'	37°18.5'	30°47.0'	14°52.7'	95°26.8'	108°15.8'	109°35.2'
3	76°44.3'	N 25°16.5'	11.0'	3.8'	54.0'	115°09.8'	66°38.2'	36°54.2'	30°17.5'	15°19.6'	95°43.9'	108°44.2'	110°04.2'
4	91°14.3'	N 25°20.4'	10.9'	3.7'	54.0'	114°44.3'	66°08.7'	36°30.1'	29°48.0'	15°46.6'	96°00.9'	109°12.5'	110°33.2'
5	105°44.2'	N 25°24.1'	10.9'	3.6'	54.0'	114°18.8'	65°39.2'	36°06.0'	29°18.5'	16°13.8'	96°18.0'	109°40.9'	111°02.3'
6	120°14.1'	N 25°27.7'	10.8'	3.5'	54.0'	113°53.3'	65°09.7'	35°42.0'	28°49.0'	16°41.1'	96°35.0'	110°09.2'	111°31.3'
7	134°43.9'	N 25°31.2'	10.8'	3.4'	54.0'	113°27.7'	64°40.1'	35°18.2'	28°19.5'	17°08.6'	96°52.0'	110°37.5'	112°00.3'
8	149°13.7'	N 25°34.5'	10.8'	3.2'	54.0'	113°02.1'	64°10.6'	34°54.5'	27°49.9'	17°36.2'	97°09.0'	111°05.9'	112°29.3'
9	163°43.5'	N 25°37.8'	10.7'	3.1'	54.0'	112°36.4'	63°41.0'	34°30.9'	27°20.4'	18°03.9'	97°26.0'	111°34.2'	112°58.4'
10	178°13.2'	N 25°40.9'	10.7'	3.0'	54.0'	112°10.8'	63°11.5'	34°07.5'	26°50.9'	18°31.7'	97°42.9'	112°02.5'	113°27.4'
11	192°42.9'	N 25°43.9'	10.7'	2.9'	54.0'	111°45.1'	62°41.9'	33°44.2'	26°21.4'	18°59.6'	97°59.9'	112°30.9'	113°56.5'
12	207°12.5'	N 25°46.8'	10.6'	2.8'	54.0'	111°19.3'	62°12.3'	33°21.0'	25°51.8'	19°27.6'	98°16.8'	112°59.2'	114°25.6'
13	221°42.2'	N 25°49.5'	10.6'	2.6'	54.0'	110°53.6'	61°42.8'	32°58.0'	25°22.3'	19°55.7'	98°33.7'	113°27.5'	114°54.6'
14	236°11.7'	N 25°52.2'	10.6'	2.5'	54.1'	110°27.8'	61°13.2'	32°35.1'	24°52.7'	20°23.8'	98°50.6'	113°55.8'	115°23.7'
15	250°41.3'	N 25°54.7'	10.5'	2.4'	54.1'	110°01.9'	60°43.6'	32°12.4'	24°23.2'	20°52.1'	99°07.4'	114°24.2'	115°52.8'
16	265°10.8'	N 25°57.1'	10.5'	2.3'	54.1'	109°36.1'	60°14.0'	31°49.8'	23°53.7'	21°20.4'	99°24.3'	114°52.5'	116°21.9'
17	279°40.3'	N 25°59.3'	10.5'	2.1'	54.1'	109°10.2'	59°44.4'	31°27.5'	23°24.1'	21°48.8'	99°41.1'	115°20.8'	116°51.0'
18	294°09.8'	N 26°01.5'	10.4'	2.0'	54.1'	108°44.3'	59°14.8'	31°05.3'	22°54.6'	22°17.2'	99°57.9'	115°49.1'	117°20.1'
19	308°39.2'	N 26°03.5'	10.4'	1.9'	54.1'	108°18.3'	58°45.2'	30°43.3'	22°25.0'	22°45.7'	100°14.6'	116°17.4'	117°49.2'
20	323°08.6'	N 26°05.4'	10.4'	1.8'	54.1'	107°52.4'	58°15.6'	30°21.4'	21°55.5'	23°14.3'	100°31.4'	116°45.7'	118°18.3'
21	337°38.0'	N 26°07.1'	10.3'	1.6'	54.1'	107°26.4'	57°45.9'	29°59.8'	21°26.0'	23°42.9'	100°48.1'	117°14.0'	118°47.4'
22	352°07.3'	N 26°08.8'	10.3'	1.5'	54.1'	107°00.3'	57°16.3'	29°38.4'	20°56.4'	24°11.6'	101°04.7'	117°42.3'	119°16.6'
23	6°36.6'	N 26°10.3'	10.3'	1.4'	54.1'	106°34.3'	56°46.6'	29°17.2'	20°26.9'	24°40.3'	101°21.4'	118°10.6'	119°45.7'
Mer. pass.			22 h 33 m	SD 14.7'	phase 92%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.6'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°58.2'	N 89°21.7'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	115°24.7'	177°36.6'	S 20°58.8'	190°09.7'	S 16°34.1'	139°30.1'	S 11°05.3'	159°06.3'	S 17°32.5'	212°08.7'	S 23°35.7'	
1	130°27.1'	192°36.4'	S 20°58.4'	205°13.5'	S 16°33.9'	154°32.1'	S 11°05.1'	174°08.5'	S 17°32.4'	227°09.2'	S 23°35.8'	
2	145°29.6'	207°36.2'	S 20°57.9'	220°17.3'	S 16°33.7'	169°34.0'	S 11°04.9'	189°10.6'	S 17°32.3'	242°09.8'	S 23°35.9'	
3	160°32.1'	222°36.0'	S 20°57.4'	235°21.1'	S 16°33.5'	184°36.0'	S 11°04.7'	204°12.8'	S 17°32.2'	257°10.3'	S 23°36.0'	
4	175°34.5'	237°35.7'	S 20°56.9'	250°24.9'	S 16°33.3'	199°37.9'	S 11°04.5'	219°15.0'	S 17°32.1'	272°10.8'	S 23°36.1'	
5	190°37.0'	252°35.5'	S 20°56.5'	265°28.7'	S 16°33.1'	214°39.9'	S 11°04.3'	234°17.1'	S 17°32.0'	287°11.3'	S 23°36.2'	
6	205°39.5'	267°35.3'	S 20°56.0'	280°32.5'	S 16°32.9'	229°41.8'	S 11°04.1'	249°19.3'	S 17°32.0'	302°11.8'	S 23°36.3'	
7	220°41.9'	282°35.1'	S 20°55.5'	295°36.3'	S 16°32.7'	244°43.8'	S 11°03.9'	264°21.5'	S 17°31.9'	317°12.3'	S 23°36.5'	
8	235°44.4'	297°34.9'	S 20°55.0'	310°40.1'	S 16°32.5'	259°45.7'	S 11°03.7'	279°23.7'	S 17°31.8'	332°12.8'	S 23°36.6'	
9	250°46.9'	312°34.7'	S 20°54.6'	325°43.9'	S 16°32.3'	274°47.7'	S 11°03.5'	294°25.8'	S 17°31.7'	347°13.3'	S 23°36.7'	
10	265°49.3'	327°34.5'	S 20°54.1'	340°47.7'	S 16°32.1'	289°49.6'	S 11°03.3'	309°28.0'	S 17°31.6'	2°13.8'	S 23°36.8'	
11	280°51.8'	342°34.3'	S 20°53.6'	355°51.5'	S 16°31.9'	304°51.6'	S 11°03.1'	324°30.2'	S 17°31.6'	17°14.3'	S 23°36.9'	
12	295°54.2'	357°34.0'	S 20°53.1'	10°55.3'	S 16°31.7'	319°53.6'	S 11°02.9'	339°32.3'	S 17°31.5'	32°14.8'	S 23°37.0'	
13	310°56.7'	12°33.8'	S 20°52.6'	25°59.1'	S 16°31.5'	334°55.5'	S 11°02.7'	354°34.5'	S 17°31.4'	47°15.3'	S 23°37.1'	
14	325°59.2'	27°33.6'	S 20°52.2'	41°02.9'	S 16°31.3'	349°57.5'	S 11°02.5'	9°36.7'	S 17°31.3'	62°15.8'	S 23°37.2'	
15	341°01.6'	42°33.4'	S 20°51.7'	56°06.6'	S 16°31.1'	4°59.4'	S 11°02.3'	24°38.9'	S 17°31.2'	77°16.3'	S 23°37.3'	
16	356°04.1'	57°33.2'	S 20°51.2'	71°10.4'	S 16°31.0'	20°01.4'	S 11°02.1'	39°41.0'	S 17°31.1'	92°16.8'	S 23°37.4'	
17	11°06.6'	72°33.0'	S 20°50.7'	86°14.2'	S 16°30.8'	35°03.3'	S 11°01.9'	54°43.2'	S 17°31.1'	107°17.3'	S 23°37.5'	
18	26°09.0'	87°32.8'	S 20°50.2'	101°17.9'	S 16°30.6'	50°05.3'	S 11°01.7'	69°45.4'	S 17°31.0'	122°17.8'	S 23°37.6'	
19	41°11.5'	102°32.6'	S 20°49.7'	116°21.7'	S 16°30.4'	65°07.2'	S 11°01.5'	84°47.5'	S 17°30.9'	137°18.3'	S 23°37.8'	
20	56°14.0'	117°32.4'	S 20°49.3'	131°25.5'	S 16°30.2'	80°09.2'	S 11°01.3'	99°49.7'	S 17°30.8'	152°18.8'	S 23°37.9'	
21	71°16.4'	132°32.2'	S 20°48.8'	146°29.2'	S 16°30.0'	95°11.1'	S 11°01.1'	114°51.9'	S 17°30.7'	167°19.3'	S 23°38.0'	
22	86°18.9'	147°32.0'	S 20°48.3'	161°33.0'	S 16°29.8'	110°13.1'	S 11°00.9'	129°54.1'	S 17°30.7'	182°19.8'	S 23°38.1'	
23	101°21.4'	162°31.7'	S 20°47.8'	176°36.7'	S 16°29.7'	125°15.0'	S 11°00.7'	144°56.2'	S 17°30.6'	197°20.3'	S 23°38.2'	
		SD 16.3'	d 0.5'	v 3.8'	d 0.2'	v 2.0'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.1'	
Mer. pass.		12 h 9 m 44 s		11 h 17 m		14 h 40 m		13 h 22 m		9 h 51 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	21°05.9'	N 26°11.6'	10.3'	1.3'	54.1'	106°08.2'	56°17.0'	28°56.2'	19°57.3'				25°09.1'
1	35°35.2'	N 26°12.9'	10.3'	1.1'	54.1'	105°42.1'	55°47.3'	28°35.5'	19°27.8'				25°37.9'
2	50°04.5'	N 26°14.0'	10.2'	1.0'	54.1'	105°16.0'	55°17.6'	28°15.0'	18°58.3'				26°06.7'
3	64°33.7'	N 26°15.0'	10.2'	0.9'	54.1'	104°49.8'	54°48.0'	27°54.7'	18°28.7'				26°35.6'
4	79°02.9'	N 26°15.9'	10.2'	0.7'	54.1'	104°23.6'	54°18.3'	27°34.7'	17°59.2'				27°04.6'
5	93°32.1'	N 26°16.7'	10.2'	0.6'	54.2'	103°57.4'	53°48.6'	27°15.0'	17°29.7'				27°33.5'
6	108°01.3'	N 26°17.3'	10.2'	0.5'	54.2'	103°31.2'	53°18.9'	26°55.5'	17°00.2'		24°24.5'	28°02.6'	38°58.4'
7	122°30.4'	N 26°17.8'	10.1'	0.4'	54.2'	103°04.9'	52°49.2'	26°36.4'	16°30.7'		24°39.8'	28°31.6'	39°14.1'
8	136°59.5'	N 26°18.1'	10.1'	0.2'	54.2'	102°38.7'	52°19.4'	26°17.5'	16°01.2'		24°55.5'	29°00.7'	39°30.0'
9	151°28.7'	N 26°18.4'	10.1'	0.1'	54.2'	102°12.4'	51°49.7'	25°59.0'	15°31.8'		25°11.6'	29°29.8'	39°46.2'
10	165°57.8'	N 26°18.5'	10.1'	-0.0'	54.2'	101°46.0'	51°20.0'	25°40.7'	15°02.3'	21°29.7'	25°28.1'	29°59.0'	40°02.6'
11	180°26.9'	N 26°18.4'	10.1'	-0.2'	54.2'	101°19.7'	50°50.2'	25°22.9'	14°32.9'	21°45.1'	25°45.0'	30°28.2'	40°19.2'
12	194°56.0'	N 26°18.3'	10.1'	-0.3'	54.2'	100°53.3'	50°20.5'	25°05.3'	14°03.5'	22°01.0'	26°02.3'	30°57.4'	40°36.0'
13	209°25.0'	N 26°18.0'	10.1'	-0.4'	54.2'	100°26.9'	49°50.7'	24°48.1'	13°34.1'	22°17.3'	26°19.9'	31°26.7'	40°53.0'
14	223°54.1'	N 26°17.6'	10.1'	-0.5'	54.2'	100°00.5'	49°20.9'	24°31.3'	13°04.7'	22°34.1'	26°37.9'	31°55.9'	41°10.3'
15	238°23.2'	N 26°17.0'	10.0'	-0.7'	54.2'	99°34.1'	48°51.1'	24°14.9'	12°35.4'	22°51.3'	26°56.2'	32°25.3'	41°27.7'
16	252°52.2'	N 26°16.4'	10.0'	-0.8'	54.2'	99°07.7'	48°21.3'	23°58.9'	12°06.1'	23°08.9'	27°14.8'	32°54.6'	41°45.3'
17	267°21.3'	N 26°15.6'	10.0'	-0.9'	54.3'	98°41.2'	47°51.5'	23°43.3'	11°36.9'	23°27.0'	27°33.8'	33°24.0'	42°03.2'
18	281°50.3'	N 26°14.6'	10.0'	-1.1'	54.3'	98°14.7'	47°21.7'		11°07.7'	23°45.4'	27°53.0'	33°53.4'	42°21.2'
19	296°19.3'	N 26°13.6'	10.0'	-1.2'	54.3'	97°48.2'	46°51.9'		10°38.6'	24°04.2'	28°12.6'	34°22.8'	42°39.4'
20	310°48.4'	N 26°12.4'	10.0'	-1.3'	54.3'	97°21.7'	46°22.1'		10°09.5'	24°23.4'	28°32.4'	34°52.2'	42°57.9'
21	325°17.4'	N 26°11.1'	10.0'	-1.5'	54.3'	96°55.2'	45°52.2'		9°40.6'	24°42.9'	28°52.5'	35°21.7'	43°16.4'
22	339°46.4'	N 26°09.6'	10.0'	-1.6'	54.3'	96°28.6'	45°22.4'		9°11.7'	25°02.7'	29°12.9'	35°51.2'	43°35.2'
23	354°15.4'	N 26°08.0'	10.0'	-1.7'	54.3'	96°02.0'	44°52.5'		8°43.0'	25°22.9'	29°33.6'	36°20.7'	43°54.2'
Mer. pass.		23 h 24 m SD 14.8'	phase 96%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.9'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°58.6'	N 89°21.7'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

Monday 17 January 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars			
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec		
0	116°23.8'	177°31.5'	S 20°47.3'	191°40.5'	S 16°29.5'		140°17.0'	S 11°00.5'		159°58.4'	S 17°30.5'		212°20.8'	S 23°38.3'		212°20.8'	S 23°38.3'		
1	131°26.3'	192°31.3'	S 20°46.8'	206°44.2'	S 16°29.3'		155°18.9'	S 11°00.3'		175°00.6'	S 17°30.4'		227°21.3'	S 23°38.4'		227°21.3'	S 23°38.4'		
2	146°28.7'	207°31.1'	S 20°46.3'	221°47.9'	S 16°29.1'		170°20.9'	S 11°00.1'		190°02.7'	S 17°30.3'		242°21.8'	S 23°38.5'		242°21.8'	S 23°38.5'		
3	161°31.2'	222°30.9'	S 20°45.8'	236°51.7'	S 16°28.9'		185°22.8'	S 10°59.9'		205°04.9'	S 17°30.2'		257°22.3'	S 23°38.6'		257°22.3'	S 23°38.6'		
4	176°33.7'	237°30.7'	S 20°45.3'	251°55.4'	S 16°28.8'		200°24.8'	S 10°59.7'		220°07.1'	S 17°30.2'		272°22.8'	S 23°38.7'		272°22.8'	S 23°38.7'		
5	191°36.1'	252°30.5'	S 20°44.9'	266°59.1'	S 16°28.6'		215°26.7'	S 10°59.5'		235°09.3'	S 17°30.1'		287°23.3'	S 23°38.8'		287°23.3'	S 23°38.8'		
6	206°38.6'	267°30.3'	S 20°44.4'	282°02.8'	S 16°28.4'		230°28.7'	S 10°59.3'		250°11.4'	S 17°30.0'		302°23.8'	S 23°38.9'		302°23.8'	S 23°38.9'		
7	221°41.1'	282°30.1'	S 20°43.9'	297°06.6'	S 16°28.2'		245°30.6'	S 10°59.1'		265°13.6'	S 17°29.9'		317°24.3'	S 23°39.0'		317°24.3'	S 23°39.0'		
8	236°43.5'	297°29.9'	S 20°43.4'	312°10.3'	S 16°28.1'		260°32.6'	S 10°58.9'		280°15.8'	S 17°29.8'		332°24.8'	S 23°39.1'		332°24.8'	S 23°39.1'		
9	251°46.0'	312°29.7'	S 20°42.9'	327°14.0'	S 16°27.9'		275°34.5'	S 10°58.7'		295°17.9'	S 17°29.7'		347°25.3'	S 23°39.2'		347°25.3'	S 23°39.2'		
10	266°48.5'	327°29.5'	S 20°42.4'	342°17.7'	S 16°27.7'		290°36.5'	S 10°58.5'		310°20.1'	S 17°29.7'		2°25.8'	S 23°39.3'		2°25.8'	S 23°39.3'		
11	281°50.9'	342°29.3'	S 20°41.9'	357°21.4'	S 16°27.5'		305°38.4'	S 10°58.3'		325°22.3'	S 17°29.6'		17°26.3'	S 23°39.4'		17°26.3'	S 23°39.4'		
12	296°53.4'	357°29.1'	S 20°41.4'	12°25.1'	S 16°27.4'		320°40.4'	S 10°58.1'		340°24.5'	S 17°29.5'		32°26.8'	S 23°39.5'		32°26.8'	S 23°39.5'		
13	311°55.9'	12°28.9'	S 20°40.9'	27°28.8'	S 16°27.2'		335°42.3'	S 10°57.9'		355°26.6'	S 17°29.4'		47°27.3'	S 23°39.6'		47°27.3'	S 23°39.6'		
14	326°58.3'	27°28.7'	S 20°40.4'	42°32.5'	S 16°27.0'		350°44.3'	S 10°57.7'		10°28.8'	S 17°29.3'		62°27.8'	S 23°39.7'		62°27.8'	S 23°39.7'		
15	342°00.8'	42°28.5'	S 20°39.9'	57°36.2'	S 16°26.9'		5°46.2'	S 10°57.6'		25°31.0'	S 17°29.3'		77°28.3'	S 23°39.8'		77°28.3'	S 23°39.8'		
16	357°03.2'	57°28.3'	S 20°39.4'	72°39.9'	S 16°26.7'		20°48.2'	S 10°57.4'		40°33.1'	S 17°29.2'		92°28.8'	S 23°39.9'		92°28.8'	S 23°39.9'		
17	12°05.7'	72°28.1'	S 20°38.9'	87°43.6'	S 16°26.5'		35°50.1'	S 10°57.2'		55°35.3'	S 17°29.1'		107°29.3'	S 23°40.0'		107°29.3'	S 23°40.0'		
18	27°08.2'	87°27.9'	S 20°38.4'	102°47.3'	S 16°26.4'		50°52.1'	S 10°57.0'		70°37.5'	S 17°29.0'		122°29.8'	S 23°40.1'		122°29.8'	S 23°40.1'		
19	42°10.6'	102°27.7'	S 20°37.9'	117°50.9'	S 16°26.2'		65°54.0'	S 10°56.8'		85°39.6'	S 17°28.9'		137°30.3'	S 23°40.2'		137°30.3'	S 23°40.2'		
20	57°13.1'	117°27.4'	S 20°37.4'	132°54.6'	S 16°26.0'		80°56.0'	S 10°56.6'		100°41.8'	S 17°28.8'		152°30.8'	S 23°40.3'		152°30.8'	S 23°40.3'		
21	72°15.6'	132°27.2'	S 20°36.9'	147°58.3'	S 16°25.9'		95°57.9'	S 10°56.4'		115°44.0'	S 17°28.8'		167°31.3'	S 23°40.4'		167°31.3'	S 23°40.4'		
22	87°18.0'	147°27.0'	S 20°36.4'	163°01.9'	S 16°25.7'		110°59.9'	S 10°56.2'		130°46.2'	S 17°28.7'		182°31.8'	S 23°40.4'		182°31.8'	S 23°40.4'		
23	102°20.5'	162°26.8'	S 20°35.9'	178°05.6'	S 16°25.5'		126°01.8'	S 10°56.0'		145°48.3'	S 17°28.6'		197°32.3'	S 23°40.5'		197°32.3'	S 23°40.5'		
		SD 16.3'	d 0.5'		v 3.7'	d 0.2'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.1'				
Mer. pass.		12 h 10 m 4 s		11 h 11 m			14 h 37 m			13 h 18 m			9 h 50 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	8°44.5'	N 26°06.3'	10.0'	-1.8'	54.3'	98°25.1'	95°35.4'	44°22.6'	8°14.4'	25°43.3'	29°54.5'	36°50.3'	44°13.3'
1	23°13.5'	N 26°04.5'	10.0'	-2.0'	54.3'	97°55.1'	95°08.8'	43°52.8'	7°45.9'	26°04.1'	30°15.6'	37°19.9'	44°32.6'
2	37°42.6'	N 26°02.5'	10.0'	-2.1'	54.3'	97°25.1'	94°42.2'	43°22.9'	7°17.7'	26°25.1'	30°37.0'	37°49.5'	44°52.0'
3	52°11.6'	N 26°00.4'	10.1'	-2.2'	54.4'	96°55.2'	94°15.6'	42°53.0'	6°49.7'	26°46.5'	30°58.6'	38°19.1'	45°11.6'
4	66°40.6'	N 25°58.2'	10.1'	-2.4'	54.4'	96°25.2'	93°48.9'	42°23.1'	6°22.1'	27°08.1'	31°20.4'	38°48.7'	45°31.4'
5	81°09.7'	N 25°55.8'	10.1'	-2.5'	54.4'	95°55.1'	93°22.2'	41°53.2'	5°54.8'	27°29.9'	31°42.4'	39°18.4'	45°51.3'
6	95°38.8'	N 25°53.3'	10.1'	-2.6'	54.4'	95°25.1'	92°55.5'	41°23.2'	5°28.0'	27°52.0'	32°04.7'	39°48.1'	46°11.4'
7	110°07.8'	N 25°50.7'	10.1'	-2.7'	54.4'	94°55.1'	92°28.8'	40°53.3'		28°14.4'	32°27.1'	40°17.8'	46°31.6'
8	124°36.9'	N 25°48.0'	10.1'	-2.9'	54.4'	94°25.0'	92°02.1'	40°23.4'		28°36.9'	32°49.7'	40°47.6'	46°52.0'
9	139°06.0'	N 25°45.1'	10.1'	-3.0'	54.4'	93°55.0'	91°35.4'	39°53.4'		28°59.7'	33°12.6'	41°17.3'	47°12.5'
10	153°35.1'	N 25°42.1'	10.1'	-3.1'	54.4'	93°24.9'	91°08.7'	39°23.5'		29°22.7'	33°35.6'	41°47.1'	47°33.1'
11	168°04.3'	N 25°39.0'	10.1'	-3.3'	54.5'	92°54.8'	90°41.9'	38°53.5'		29°45.9'	33°58.7'	42°16.9'	47°53.9'
12	182°33.4'	N 25°35.7'	10.2'	-3.4'	54.5'	92°24.7'	90°15.1'	38°23.5'		30°09.3'	34°22.1'	42°46.7'	48°14.8'
13	197°02.6'	N 25°32.3'	10.2'	-3.5'	54.5'	91°54.6'	89°48.4'	37°53.5'		30°32.9'	34°45.6'	43°16.6'	48°35.9'
14	211°31.7'	N 25°28.8'	10.2'	-3.6'	54.5'	91°24.4'	89°21.6'	37°23.6'		30°56.7'	35°09.3'	43°46.4'	48°57.1'
15	226°00.9'	N 25°25.2'	10.2'	-3.8'	54.5'	90°54.3'	88°54.8'	36°53.6'		31°20.7'	35°33.1'	44°16.3'	49°18.4'
16	240°30.1'	N 25°21.4'	10.2'	-3.9'	54.5'	90°24.1'	88°27.9'	36°23.6'		31°44.8'	35°57.1'	44°46.2'	49°39.8'
17	254°59.3'	N 25°17.5'	10.2'	-4.0'	54.5'	89°53.9'	88°01.1'	35°53.5'		32°09.1'	36°21.3'	45°16.1'	50°01.4'
18	269°28.6'	N 25°13.5'	10.3'	-4.1'	54.5'	89°23.7'	87°34.3'	35°23.5'		32°33.5'	36°45.5'	45°46.1'	50°23.1'
19	283°57.9'	N 25°09.4'	10.3'	-4.3'	54.6'	88°53.5'	87°07.4'	34°53.5'		32°58.2'	37°10.0'	46°16.1'	50°44.9'
20	298°27.1'	N 25°05.1'	10.3'	-4.4'	54.6'	88°23.3'	86°40.6'	34°23.5'		33°22.9'	37°34.5'	46°46.0'	51°06.8'
21	312°56.5'	N 25°00.7'	10.3'	-4.5'	54.6'	87°53.1'	86°13.7'	33°53.4'		33°47.8'	37°59.2'	47°16.1'	51°28.8'
22	327°25.8'	N 24°56.2'	10.4'	-4.6'	54.6'	87°22.8'	85°46.8'	33°23.4'		34°12.9'	38°24.0'	47°46.1'	51°51.0'
23	341°55.2'	N 24°51.5'	10.4'	-4.8'	54.6'	86°52.6'	85°20.0'	32°53.3'		34°38.1'	38°48.9'	48°16.1'	52°13.2'
Mer. pass.		0 h 15 m SD 14.8'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.1'	Polaris	+2.0	314°59.0'	N 89°21.7'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	117°23.0'	S 20°35.4'	177°26.6'	S 20°34.9'	193°09.3'	S 16°25.4'	141°03.8'	S 10°55.8'	160°50.5'	S 17°28.5'	212°32.8'	S 23°40.6'
1	132°25.4'	S 20°34.9'	192°26.4'	S 20°34.9'	208°12.9'	S 16°25.2'	156°05.7'	S 10°55.6'	175°52.7'	S 17°28.4'	227°33.3'	S 23°40.7'
2	147°27.9'	S 20°34.4'	207°26.2'	S 20°34.4'	223°16.6'	S 16°25.1'	171°07.7'	S 10°55.4'	190°54.8'	S 17°28.3'	242°33.8'	S 23°40.8'
3	162°30.4'	S 20°33.9'	222°26.0'	S 20°33.9'	238°20.2'	S 16°24.9'	186°09.6'	S 10°55.2'	205°57.0'	S 17°28.3'	257°34.3'	S 23°40.9'
4	177°32.8'	S 20°33.4'	237°25.8'	S 20°33.4'	253°23.9'	S 16°24.7'	201°11.6'	S 10°55.0'	220°59.2'	S 17°28.2'	272°34.8'	S 23°41.0'
5	192°35.3'	S 20°32.8'	252°25.7'	S 20°32.8'	268°27.5'	S 16°24.6'	216°13.5'	S 10°54.8'	236°01.4'	S 17°28.1'	287°35.3'	S 23°41.1'
6	207°37.7'	S 20°32.3'	267°25.5'	S 20°32.3'	283°31.1'	S 16°24.4'	231°15.5'	S 10°54.6'	251°03.5'	S 17°28.0'	302°35.8'	S 23°41.2'
7	222°40.2'	S 20°31.8'	282°25.3'	S 20°31.8'	298°34.8'	S 16°24.3'	246°17.4'	S 10°54.4'	266°05.7'	S 17°27.9'	317°36.3'	S 23°41.3'
8	237°42.7'	S 20°31.3'	297°25.1'	S 20°31.3'	313°38.4'	S 16°24.1'	261°19.4'	S 10°54.2'	281°07.9'	S 17°27.9'	332°36.8'	S 23°41.4'
9	252°45.1'	S 20°30.8'	312°24.9'	S 20°30.8'	328°42.0'	S 16°24.0'	276°21.3'	S 10°54.0'	296°10.0'	S 17°27.8'	347°37.2'	S 23°41.5'
10	267°47.6'	S 20°30.3'	327°24.7'	S 20°30.3'	343°45.6'	S 16°23.8'	291°23.3'	S 10°53.8'	311°12.2'	S 17°27.7'	2°37.7'	S 23°41.6'
11	282°50.1'	S 20°29.8'	342°24.5'	S 20°29.8'	358°49.3'	S 16°23.7'	306°25.2'	S 10°53.6'	326°14.4'	S 17°27.6'	17°38.2'	S 23°41.6'
12	297°52.5'	S 20°29.3'	357°24.3'	S 20°29.3'	13°52.9'	S 16°23.5'	321°27.1'	S 10°53.3'	341°16.5'	S 17°27.5'	32°38.7'	S 23°41.7'
13	312°55.0'	S 20°28.8'	12°24.1'	S 20°28.8'	28°56.5'	S 16°23.4'	336°29.1'	S 10°53.1'	356°18.7'	S 17°27.4'	47°39.2'	S 23°41.8'
14	327°57.5'	S 20°28.2'	27°23.9'	S 20°28.2'	44°00.1'	S 16°23.2'	351°31.0'	S 10°52.9'	11°20.9'	S 17°27.4'	62°39.7'	S 23°41.9'
15	342°59.9'	S 20°27.7'	42°23.7'	S 20°27.7'	59°03.7'	S 16°23.1'	6°33.0'	S 10°52.7'	26°23.1'	S 17°27.3'	77°40.2'	S 23°42.0'
16	358°02.4'	S 20°27.2'	57°23.5'	S 20°27.2'	74°07.3'	S 16°22.9'	21°34.9'	S 10°52.5'	41°25.2'	S 17°27.2'	92°40.7'	S 23°42.1'
17	13°04.9'	S 20°26.7'	72°23.3'	S 20°26.7'	89°10.9'	S 16°22.8'	36°36.9'	S 10°52.3'	56°27.4'	S 17°27.1'	107°41.2'	S 23°42.2'
18	28°07.3'	S 20°26.2'	87°23.1'	S 20°26.2'	104°14.5'	S 16°22.6'	51°38.8'	S 10°52.1'	71°29.6'	S 17°27.0'	122°41.7'	S 23°42.3'
19	43°09.8'	S 20°25.7'	102°22.9'	S 20°25.7'	119°18.1'	S 16°22.5'	66°40.8'	S 10°51.9'	86°31.7'	S 17°26.9'	137°42.2'	S 23°42.3'
20	58°12.2'	S 20°25.1'	117°22.7'	S 20°25.1'	134°21.6'	S 16°22.3'	81°42.7'	S 10°51.7'	101°33.9'	S 17°26.9'	152°42.7'	S 23°42.4'
21	73°14.7'	S 20°24.6'	132°22.5'	S 20°24.6'	149°25.2'	S 16°22.2'	96°44.7'	S 10°51.5'	116°36.1'	S 17°26.8'	167°43.2'	S 23°42.5'
22	88°17.2'	S 20°24.1'	147°22.3'	S 20°24.1'	164°28.8'	S 16°22.0'	111°46.6'	S 10°51.3'	131°38.2'	S 17°26.7'	182°43.7'	S 23°42.6'
23	103°19.6'	S 20°23.6'	162°22.1'	S 20°23.6'	179°32.4'	S 16°21.9'	126°48.6'	S 10°51.1'	146°40.4'	S 17°26.6'	197°44.2'	S 23°42.7'
		SD 16.3' d 0.5'		v 3.6' d 0.2'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d -0.1'		
Mer. pass.		12 h 10 m 23 s		11 h 5 m		14 h 34 m		13 h 15 m		9 h 49 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	356°24.5'	N 24°46.8'	10.4'	-4.9'	54.6'	101°59.1'	86°22.3'	84°53.1'	32°23.3'			35°03.4'	39°14.0'
1	10°54.0'	N 24°41.9'	10.4'	-5.0'	54.6'	101°42.0'	85°52.0'	84°26.2'	31°53.2'	5°26.7'		35°28.9'	39°39.2'
2	25°23.4'	N 24°36.9'	10.5'	-5.1'	54.6'	101°24.9'	85°21.7'	83°59.3'	31°23.1'	5°53.7'		35°54.4'	40°04.4'
3	39°52.9'	N 24°31.7'	10.5'	-5.3'	54.7'	101°07.8'	84°51.4'	83°32.4'	30°53.1'	6°21.2'		36°20.1'	40°29.8'
4	54°22.4'	N 24°26.5'	10.5'	-5.4'	54.7'	100°50.6'	84°21.0'	83°05.4'	30°23.0'	6°49.2'		36°45.9'	40°55.4'
5	68°51.9'	N 24°21.1'	10.6'	-5.5'	54.7'	100°33.4'	83°50.7'	82°38.5'	29°52.9'	7°17.5'		37°11.9'	41°21.0'
6	83°21.5'	N 24°15.6'	10.6'	-5.6'	54.7'	100°16.1'	83°20.3'	82°11.6'	29°22.8'	7°46.1'		37°37.9'	41°46.7'
7	97°51.1'	N 24°09.9'	10.6'	-5.7'	54.7'	99°58.8'	82°49.9'	81°44.6'	28°52.7'	8°14.9'		38°04.0'	42°12.5'
8	112°20.7'	N 24°04.2'	10.7'	-5.9'	54.7'	99°41.5'	82°19.5'	81°17.7'	28°22.7'	8°44.0'		38°30.3'	42°38.4'
9	126°50.4'	N 23°58.3'	10.7'	-6.0'	54.7'	99°24.1'	81°49.1'	80°50.8'	27°52.6'	9°13.2'		38°56.6'	43°04.4'
10	141°20.0'	N 23°52.3'	10.7'	-6.1'	54.8'	99°06.7'	81°18.7'	80°23.8'	27°22.5'	9°42.5'		39°23.1'	43°30.5'
11	155°49.8'	N 23°46.2'	10.8'	-6.2'	54.8'	98°49.2'	80°48.2'	79°56.9'	26°52.4'	10°12.0'		39°49.6'	43°56.7'
12	170°19.5'	N 23°40.0'	10.8'	-6.3'	54.8'	98°31.7'	80°17.8'	79°29.9'	26°22.3'	10°41.6'		40°16.3'	44°23.0'
13	184°49.3'	N 23°33.7'	10.8'	-6.5'	54.8'	98°14.2'	79°47.3'	79°02.9'	25°52.2'	11°11.3'		40°43.0'	44°49.3'
14	199°19.2'	N 23°27.2'	10.9'	-6.6'	54.8'	97°56.6'	79°16.8'	78°36.0'	25°22.2'	11°41.1'		41°09.8'	45°15.8'
15	213°49.0'	N 23°20.6'	10.9'	-6.7'	54.8'	97°39.0'	78°46.3'	78°09.0'	24°52.1'	12°11.0'		41°36.7'	45°42.3'
16	228°18.9'	N 23°13.9'	10.9'	-6.8'	54.8'	97°21.3'	78°15.8'	77°42.1'	24°22.0'	12°41.0'		42°03.7'	46°08.9'
17	242°48.9'	N 23°07.1'	11.0'	-6.9'	54.9'	97°03.7'	77°45.2'	77°15.1'	23°51.9'	13°11.0'		42°30.7'	46°35.6'
18	257°18.9'	N 23°00.2'	11.0'	-7.0'	54.9'	96°45.9'	77°14.7'	76°48.1'	23°21.9'	13°41.1'	23°23.8'	42°57.9'	47°02.4'
19	271°48.9'	N 22°53.2'	11.1'	-7.2'	54.9'	96°28.2'	76°44.1'	76°21.2'	22°51.8'	14°11.2'	23°39.2'	43°25.1'	47°29.2'
20	286°19.0'	N 22°46.0'	11.1'	-7.3'	54.9'	96°10.4'	76°13.5'	75°54.2'	22°21.8'	14°41.4'	23°55.1'	43°52.4'	47°56.1'
21	300°49.1'	N 22°38.7'	11.1'	-7.4'	54.9'	95°52.6'	75°42.9'	75°27.3'	21°51.8'	15°11.6'	24°11.4'	44°19.8'	48°23.1'
22	315°19.2'	N 22°31.4'	11.2'	-7.5'	54.9'	95°34.8'	75°12.3'	75°00.3'	21°21.8'	15°41.9'	24°28.1'	44°47.2'	48°50.1'
23	329°49.4'	N 22°23.9'	11.2'	-7.6'	55.0'	95°16.9'	74°41.7'	74°33.4'	20°51.8'	16°12.3'	24°45.3'	45°14.7'	49°17.3'
Mer. pass.		0 h 15 m SD 14.9'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.1'	Polaris	+2.0	314°59.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	118°22.1'	S 20°23.1'	177°21.9'	S 20°23.1'	194°35.9'	S 16°21.8'	141°50.5'	S 10°50.9'	161°42.6'	S 17°26.5'	212°44.7'	S 23°42.8'
1	133°24.6'	S 20°22.5'	192°21.7'	S 20°22.5'	209°39.5'	S 16°21.6'	156°52.5'	S 10°50.7'	176°44.8'	S 17°26.4'	227°45.2'	S 23°42.8'
2	148°27.0'	S 20°22.0'	207°21.6'	S 20°22.0'	224°43.0'	S 16°21.5'	171°54.4'	S 10°50.5'	191°46.9'	S 17°26.4'	242°45.7'	S 23°42.9'
3	163°29.5'	S 20°21.5'	222°21.4'	S 20°21.5'	239°46.6'	S 16°21.4'	186°56.4'	S 10°50.3'	206°49.1'	S 17°26.3'	257°46.2'	S 23°43.0'
4	178°32.0'	S 20°21.0'	237°21.2'	S 20°21.0'	254°50.2'	S 16°21.2'	201°58.3'	S 10°50.1'	221°51.3'	S 17°26.2'	272°46.7'	S 23°43.1'
5	193°34.4'	S 20°20.4'	252°21.0'	S 20°20.4'	269°53.7'	S 16°21.1'	217°00.2'	S 10°49.9'	236°53.4'	S 17°26.1'	287°47.2'	S 23°43.2'
6	208°36.9'	S 20°19.9'	267°20.8'	S 20°19.9'	284°57.2'	S 16°20.9'	232°02.2'	S 10°49.7'	251°55.6'	S 17°26.0'	302°47.7'	S 23°43.3'
7	223°39.3'	S 20°19.4'	282°20.6'	S 20°19.4'	300°00.8'	S 16°20.8'	247°04.1'	S 10°49.5'	266°57.8'	S 17°26.0'	317°48.1'	S 23°43.3'
8	238°41.8'	S 20°18.9'	297°20.4'	S 20°18.9'	315°04.3'	S 16°20.7'	262°06.1'	S 10°49.3'	281°59.9'	S 17°25.9'	332°48.6'	S 23°43.4'
9	253°44.3'	S 20°18.3'	312°20.2'	S 20°18.3'	330°07.8'	S 16°20.5'	277°08.0'	S 10°49.1'	297°02.1'	S 17°25.8'	347°49.1'	S 23°43.5'
10	268°46.7'	S 20°17.8'	327°20.0'	S 20°17.8'	345°11.4'	S 16°20.4'	292°10.0'	S 10°48.9'	312°04.3'	S 17°25.7'	2°49.6'	S 23°43.6'
11	283°49.2'	S 20°17.3'	342°19.8'	S 20°17.3'	0°14.9'	S 16°20.3'	307°11.9'	S 10°48.7'	327°06.4'	S 17°25.6'	17°50.1'	S 23°43.7'
12	298°51.7'	S 20°16.8'	357°19.6'	S 20°16.8'	15°18.4'	S 16°20.2'	322°13.9'	S 10°48.5'	342°08.6'	S 17°25.5'	32°50.6'	S 23°43.7'
13	313°54.1'	S 20°16.2'	12°19.5'	S 20°16.2'	30°21.9'	S 16°20.0'	337°15.8'	S 10°48.3'	357°10.8'	S 17°25.5'	47°51.1'	S 23°43.8'
14	328°56.6'	S 20°15.7'	27°19.3'	S 20°15.7'	45°25.4'	S 16°19.9'	352°17.8'	S 10°48.1'	12°13.0'	S 17°25.4'	62°51.6'	S 23°43.9'
15	343°59.1'	S 20°15.2'	42°19.1'	S 20°15.2'	60°28.9'	S 16°19.8'	7°19.7'	S 10°47.9'	27°15.1'	S 17°25.3'	77°52.1'	S 23°44.0'
16	359°01.5'	S 20°14.6'	57°18.9'	S 20°14.6'	75°32.4'	S 16°19.6'	22°21.6'	S 10°47.7'	42°17.3'	S 17°25.2'	92°52.6'	S 23°44.1'
17	14°04.0'	S 20°14.1'	72°18.7'	S 20°14.1'	90°35.9'	S 16°19.5'	37°23.6'	S 10°47.5'	57°19.5'	S 17°25.1'	107°53.1'	S 23°44.1'
18	29°06.5'	S 20°13.6'	87°18.5'	S 20°13.6'	105°39.4'	S 16°19.4'	52°25.5'	S 10°47.3'	72°21.6'	S 17°25.0'	122°53.6'	S 23°44.2'
19	44°08.9'	S 20°13.0'	102°18.3'	S 20°13.0'	120°42.9'	S 16°19.3'	67°27.5'	S 10°47.1'	87°23.8'	S 17°25.0'	137°54.1'	S 23°44.3'
20	59°11.4'	S 20°12.5'	117°18.2'	S 20°12.5'	135°46.4'	S 16°19.1'	82°29.4'	S 10°46.9'	102°26.0'	S 17°24.9'	152°54.6'	S 23°44.4'
21	74°13.8'	S 20°12.0'	132°18.0'	S 20°12.0'	150°49.9'	S 16°19.0'	97°31.4'	S 10°46.7'	117°28.1'	S 17°24.8'	167°55.1'	S 23°44.4'
22	89°16.3'	S 20°11.4'	147°17.8'	S 20°11.4'	165°53.4'	S 16°18.9'	112°33.3'	S 10°46.5'	132°30.3'	S 17°24.7'	182°55.5'	S 23°44.5'
23	104°18.8'	S 20°10.9'	162°17.6'	S 20°10.9'	180°56.9'	S 16°18.8'	127°35.3'	S 10°46.3'	147°32.5'	S 17°24.6'	197°56.0'	S 23°44.6'
		SD 16.2' d 0.5'		v 3.5' d 0.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d -0.1'		
Mer. pass.		12 h 10 m 41 s		10 h 59 m		14 h 31 m		13 h 11 m		9 h 49 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	344°19.6'	N 22°16.3'	11.3'	-7.7'	55.0'	94°59.1'	74°11.1'	74°06.4'	20°21.9'	16°42.6'	25°02.9'	45°42.3'	49°44.4'
1	358°49.9'	N 22°08.6'	11.3'	-7.8'	55.0'	94°41.1'	73°40.4'	73°39.5'	19°51.9'	17°13.0'	25°20.9'	46°09.9'	50°11.7'
2	13°20.2'	N 22°00.8'	11.4'	-7.9'	55.0'	94°23.2'	73°09.7'	73°12.5'	19°22.0'	17°43.5'	25°39.3'	46°37.6'	50°39.0'
3	27°50.5'	N 21°52.8'	11.4'	-8.0'	55.0'	94°05.3'	72°39.0'	72°45.6'	18°52.1'	18°14.0'	25°58.0'	47°05.4'	51°06.4'
4	42°20.9'	N 21°44.8'	11.4'	-8.1'	55.0'	93°47.3'	72°08.3'	72°18.7'	18°22.3'	18°44.5'	26°17.2'	47°33.3'	51°33.8'
5	56°51.4'	N 21°36.6'	11.5'	-8.3'	55.0'	93°29.3'	71°37.6'	71°51.7'	17°52.5'	19°15.1'	26°36.6'	48°01.2'	52°01.3'
6	71°21.9'	N 21°28.4'	11.5'	-8.4'	55.1'	93°11.2'	71°06.9'	71°24.8'	17°22.7'	19°45.6'	26°56.5'	48°29.1'	52°28.9'
7	85°52.4'	N 21°20.0'	11.6'	-8.5'	55.1'	92°53.2'	70°36.1'	70°57.9'	16°53.0'	20°16.3'	27°16.6'	48°57.1'	52°56.5'
8	100°23.0'	N 21°11.6'	11.6'	-8.6'	55.1'	92°35.1'	70°05.3'	70°31.0'	16°23.3'	20°46.9'	27°37.1'	49°25.2'	53°24.2'
9	114°53.6'	N 21°03.0'	11.7'	-8.7'	55.1'	92°17.0'	69°34.5'	70°04.1'	15°53.7'	21°17.6'	27°57.8'	49°53.4'	53°51.9'
10	129°24.2'	N 20°54.3'	11.7'	-8.8'	55.1'	91°58.9'	69°03.7'	69°37.3'	15°24.1'	21°48.3'	28°18.9'	50°21.5'	54°19.7'
11	143°54.9'	N 20°45.6'	11.7'	-8.9'	55.1'	91°40.8'	68°32.9'	69°10.4'	14°54.7'	22°19.0'	28°40.2'	50°49.8'	54°47.6'
12	158°25.7'	N 20°36.7'	11.8'	-9.0'	55.2'	91°22.7'	68°02.1'	68°43.5'	14°25.3'	22°49.8'	29°01.9'	51°18.1'	55°15.4'
13	172°56.4'	N 20°27.7'	11.8'	-9.1'	55.2'	91°04.5'	67°31.2'	68°16.7'	13°56.0'	23°20.6'	29°23.8'	51°46.4'	55°43.4'
14	187°27.3'	N 20°18.6'	11.9'	-9.2'	55.2'	90°46.4'	67°00.3'	67°49.8'	13°26.8'	23°51.4'	29°45.9'	52°14.8'	56°11.4'
15	201°58.2'	N 20°09.4'	11.9'	-9.3'	55.2'	90°28.2'	66°29.5'	67°23.0'	12°57.8'	24°22.2'	30°08.3'	52°43.3'	56°39.4'
16	216°29.1'	N 20°00.2'	12.0'	-9.4'	55.2'	90°10.0'	65°58.6'	66°56.2'	12°28.9'	24°53.1'	30°30.9'	53°11.8'	57°07.5'
17	231°00.0'	N 19°50.8'	12.0'	-9.5'	55.2'	89°51.8'	65°27.6'	66°29.4'	12°00.1'	25°23.9'	30°53.8'	53°40.3'	57°35.7'
18	245°31.1'	N 19°41.3'	12.1'	-9.6'	55.3'	89°33.6'	64°56.7'	66°02.7'	11°31.5'	25°54.8'	31°16.9'	54°08.9'	58°03.9'
19	260°02.1'	N 19°31.7'	12.1'	-9.7'	55.3'	89°15.4'	64°25.7'	65°35.9'	11°03.2'	26°25.8'	31°40.2'	54°37.6'	58°32.1'
20	274°33.2'	N 19°22.1'	12.1'	-9.8'	55.3'	88°57.2'	63°54.8'	65°09.2'	10°35.0'	26°56.7'	32°03.7'	55°06.3'	59°00.4'
21	289°04.4'	N 19°12.3'	12.2'	-9.9'	55.3'	88°38.9'	63°23.8'	64°42.5'	10°07.2'	27°27.7'	32°27.5'	55°35.0'	59°28.7'
22	303°35.5'	N 19°02.5'	12.2'	-10.0'	55.3'	88°20.7'	62°52.8'	64°15.8'	9°39.6'	27°58.7'	32°51.4'	56°03.8'	59°57.1'
23	318°06.8'	N 18°52.5'	12.3'	-10.0'	55.4'	88°02.4'	62°21.8'	63°49.1'	9°12.4'	28°29.7'	33°15.5'	56°32.6'	60°25.5'
Mer. pass.		1 h 5 m SD 15.0'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	314°59.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.5'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	119°21.2'	177°17.4'	S 20°10.4'	196°00.3'	S 16°18.7'		142°37.2'	S 10°46.1'		162°34.6'	S 17°24.5'		212°56.5'	S 23°44.7'				
1	134°23.7'	192°17.2'	S 20°09.8'	211°03.8'	S 16°18.5'		157°39.1'	S 10°45.9'		177°36.8'	S 17°24.5'		227°57.0'	S 23°44.7'				
2	149°26.2'	207°17.0'	S 20°09.3'	226°07.2'	S 16°18.4'		172°41.1'	S 10°45.7'		192°39.0'	S 17°24.4'		242°57.5'	S 23°44.8'				
3	164°28.6'	222°16.9'	S 20°08.7'	241°10.7'	S 16°18.3'		187°43.0'	S 10°45.5'		207°41.2'	S 17°24.3'		257°58.0'	S 23°44.9'				
4	179°31.1'	237°16.7'	S 20°08.2'	256°14.2'	S 16°18.2'		202°45.0'	S 10°45.3'		222°43.3'	S 17°24.2'		272°58.5'	S 23°45.0'				
5	194°33.6'	252°16.5'	S 20°07.7'	271°17.6'	S 16°18.1'		217°46.9'	S 10°45.1'		237°45.5'	S 17°24.1'		287°59.0'	S 23°45.0'				
6	209°36.0'	267°16.3'	S 20°07.1'	286°21.0'	S 16°18.0'		232°48.9'	S 10°44.9'		252°47.7'	S 17°24.0'		302°59.5'	S 23°45.1'				
7	224°38.5'	282°16.1'	S 20°06.6'	301°24.5'	S 16°17.8'		247°50.8'	S 10°44.7'		267°49.8'	S 17°24.0'		317°60.0'	S 23°45.2'				
8	239°41.0'	297°15.9'	S 20°06.0'	316°27.9'	S 16°17.7'		262°52.7'	S 10°44.5'		282°52.0'	S 17°23.9'		333°00.5'	S 23°45.2'				
9	254°43.4'	312°15.8'	S 20°05.5'	331°31.4'	S 16°17.6'		277°54.7'	S 10°44.3'		297°54.2'	S 17°23.8'		348°01.0'	S 23°45.3'				
10	269°45.9'	327°15.6'	S 20°05.0'	346°34.8'	S 16°17.5'		292°56.6'	S 10°44.1'		312°56.3'	S 17°23.7'		3°01.5'	S 23°45.4'				
11	284°48.3'	342°15.4'	S 20°04.4'	1°38.2'	S 16°17.4'		307°58.6'	S 10°43.9'		327°58.5'	S 17°23.6'		18°01.9'	S 23°45.5'				
12	299°50.8'	357°15.2'	S 20°03.9'	16°41.6'	S 16°17.3'		323°00.5'	S 10°43.7'		343°00.7'	S 17°23.5'		33°02.4'	S 23°45.5'				
13	314°53.3'	12°15.0'	S 20°03.3'	31°45.0'	S 16°17.2'		338°02.5'	S 10°43.5'		358°02.8'	S 17°23.5'		48°02.9'	S 23°45.6'				
14	329°55.7'	27°14.9'	S 20°02.8'	46°48.5'	S 16°17.1'		353°04.4'	S 10°43.3'		13°05.0'	S 17°23.4'		63°03.4'	S 23°45.7'				
15	344°58.2'	42°14.7'	S 20°02.2'	61°51.9'	S 16°17.0'		8°06.4'	S 10°43.1'		28°07.2'	S 17°23.3'		78°03.9'	S 23°45.7'				
16	0°00.7'	57°14.5'	S 20°01.7'	76°55.3'	S 16°16.9'		23°08.3'	S 10°42.9'		43°09.3'	S 17°23.2'		93°04.4'	S 23°45.8'				
17	15°03.1'	72°14.3'	S 20°01.1'	91°58.7'	S 16°16.8'		38°10.2'	S 10°42.7'		58°11.5'	S 17°23.1'		108°04.9'	S 23°45.9'				
18	30°05.6'	87°14.1'	S 20°00.6'	107°02.1'	S 16°16.7'		53°12.2'	S 10°42.4'		73°13.7'	S 17°23.0'		123°05.4'	S 23°45.9'				
19	45°08.1'	102°14.0'	S 20°00.0'	122°05.4'	S 16°16.6'		68°14.1'	S 10°42.2'		88°15.9'	S 17°23.0'		138°05.9'	S 23°46.0'				
20	60°10.5'	117°13.8'	S 19°59.5'	137°08.8'	S 16°16.4'		83°16.1'	S 10°42.0'		103°18.0'	S 17°22.9'		153°06.4'	S 23°46.1'				
21	75°13.0'	132°13.6'	S 19°58.9'	152°12.2'	S 16°16.3'		98°18.0'	S 10°41.8'		118°20.2'	S 17°22.8'		168°06.8'	S 23°46.1'				
22	90°15.5'	147°13.4'	S 19°58.4'	167°15.6'	S 16°16.2'		113°19.9'	S 10°41.6'		133°22.4'	S 17°22.7'		183°07.3'	S 23°46.2'				
23	105°17.9'	162°13.2'	S 19°57.8'	182°19.0'	S 16°16.1'		128°21.9'	S 10°41.4'		148°24.5'	S 17°22.6'		198°07.8'	S 23°46.3'				
		SD 16.2'	d 0.5'		v 3.4' d 0.1'			v 1.9' d 0.2'			v 2.2' d 0.1'			v 0.5' d -0.1'				
Mer. pass.		12 h 10 m 59 s		10 h 53 m			14 h 28 m			13 h 8 m			9 h 48 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse
0	332°38.1'	N 18°42.5'	12.3'	-10.1'	55.4'	87°44.2'	63°22.4'	61°50.7'	8°45.7'	29°00.8'	33°39.8'	56°51.1'	57°01.5'
1	347°09.4'	N 18°32.3'	12.4'	-10.2'	55.4'	87°25.9'	62°55.8'	61°19.7'	8°19.4'	29°31.9'	34°04.3'	57°09.2'	57°30.4'
2	1°40.7'	N 18°22.1'	12.4'	-10.3'	55.4'	87°07.7'	62°29.2'	60°48.6'	7°53.7'	30°03.0'	34°29.0'	57°27.4'	57°59.4'
3	16°12.2'	N 18°11.8'	12.5'	-10.4'	55.4'	86°49.4'	62°02.6'	60°17.5'		30°34.1'	34°53.8'	57°45.8'	58°28.3'
4	30°43.6'	N 18°01.4'	12.5'	-10.5'	55.4'	86°31.2'	61°36.1'	59°46.4'		31°05.2'	35°18.8'	58°04.3'	58°57.4'
5	45°15.1'	N 17°50.9'	12.5'	-10.6'	55.5'	86°12.9'	61°09.6'	59°15.3'		31°36.4'	35°43.9'	58°22.9'	59°26.5'
6	59°46.6'	N 17°40.3'	12.6'	-10.7'	55.5'	85°54.6'	60°43.1'	58°44.2'		32°07.5'	36°09.2'	58°41.7'	59°55.6'
7	74°18.2'	N 17°29.6'	12.6'	-10.8'	55.5'	85°36.4'	60°16.6'	58°13.0'		32°38.7'	36°34.7'	59°00.6'	60°24.7'
8	88°49.8'	N 17°18.9'	12.7'	-10.8'	55.5'	85°18.1'	59°50.2'	57°41.9'		33°10.0'	37°00.2'	59°19.6'	60°53.9'
9	103°21.5'	N 17°08.0'	12.7'	-10.9'	55.5'	84°59.9'	59°23.8'	57°10.7'		33°41.2'	37°26.0'	59°38.7'	61°23.2'
10	117°53.2'	N 16°57.1'	12.7'	-11.0'	55.6'	84°41.7'	58°57.4'	56°39.5'		34°12.5'	37°51.8'	59°57.9'	61°52.4'
11	132°25.0'	N 16°46.1'	12.8'	-11.1'	55.6'	84°23.4'	58°31.0'	56°08.3'		34°43.8'	38°17.8'	60°17.3'	62°21.7'
12	146°56.8'	N 16°35.0'	12.8'	-11.2'	55.6'	84°05.2'	58°04.8'	55°37.0'		35°15.1'	38°44.0'	60°36.7'	62°51.1'
13	161°28.6'	N 16°23.8'	12.9'	-11.3'	55.6'	83°47.0'	57°38.5'	55°05.8'		35°46.4'	39°10.2'	60°56.3'	63°20.5'
14	176°00.5'	N 16°12.6'	12.9'	-11.3'	55.6'	83°28.8'	57°12.3'	54°34.5'		36°17.8'	39°36.6'	61°16.0'	63°49.9'
15	190°32.4'	N 16°01.2'	13.0'	-11.4'	55.6'	83°10.6'	56°46.1'	54°03.2'		36°49.1'	40°03.1'	61°35.7'	64°19.3'
16	205°04.3'	N 15°49.8'	13.0'	-11.5'	55.7'	82°52.4'	56°20.0'	53°31.9'		37°20.5'	40°29.7'	61°55.6'	64°48.8'
17	219°36.3'	N 15°38.3'	13.0'	-11.6'	55.7'	82°34.2'	55°53.9'	53°00.6'		37°51.9'	40°56.4'	62°15.6'	65°18.3'
18	234°08.3'	N 15°26.7'	13.1'	-11.6'	55.7'	82°16.0'	55°27.8'	52°29.3'		38°23.4'	41°23.2'	62°35.7'	65°47.9'
19	248°40.4'	N 15°15.1'	13.1'	-11.7'	55.7'	81°57.9'	55°01.8'	51°57.9'		38°54.8'	41°50.2'	62°55.9'	66°17.5'
20	263°12.5'	N 15°03.4'	13.1'	-11.8'	55.7'	81°39.8'	54°35.9'	51°26.6'		39°26.3'	42°17.2'	63°16.2'	66°47.1'
21	277°44.7'	N 14°51.6'	13.2'	-11.9'	55.8'	81°21.6'	54°10.0'	50°55.2'		39°57.8'	42°44.3'	63°36.6'	67°16.7'
22	292°16.8'	N 14°39.7'	13.2'	-11.9'	55.8'	81°03.6'	53°44.1'	50°23.8'		40°29.4'	43°11.6'	63°57.1'	67°46.4'
23	306°49.1'	N 14°27.7'	13.3'	-12.0'	55.8'	80°45.5'	53°18.4'	49°52.4'		41°00.9'	43°38.9'	64°17.7'	68°16.2'
Mer. pass.		1 h 53 m SD 15.1'		phase 96%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°00.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°52.9'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	120°20.4'	177°13.1'	S 19°57.3'	197°22.3'	S 16°16.0'		143°23.8'	S 10°41.2'		163°26.7'	S 17°22.5'		213°08.3'	S 23°46.3'				
1	135°22.8'	192°12.9'	S 19°56.7'	212°25.7'	S 16°15.9'		158°25.8'	S 10°41.0'		178°28.9'	S 17°22.5'		228°08.8'	S 23°46.4'				
2	150°25.3'	207°12.7'	S 19°56.2'	227°29.1'	S 16°15.8'		173°27.7'	S 10°40.8'		193°31.0'	S 17°22.4'		243°09.3'	S 23°46.5'				
3	165°27.8'	222°12.5'	S 19°55.6'	242°32.4'	S 16°15.8'		188°29.7'	S 10°40.6'		208°33.2'	S 17°22.3'		258°09.8'	S 23°46.5'				
4	180°30.2'	237°12.4'	S 19°55.1'	257°35.8'	S 16°15.7'		203°31.6'	S 10°40.4'		223°35.4'	S 17°22.2'		273°10.3'	S 23°46.6'				
5	195°32.7'	252°12.2'	S 19°54.5'	272°39.1'	S 16°15.6'		218°33.5'	S 10°40.2'		238°37.5'	S 17°22.1'		288°10.8'	S 23°46.6'				
6	210°35.2'	267°12.0'	S 19°54.0'	287°42.4'	S 16°15.5'		233°35.5'	S 10°40.0'		253°39.7'	S 17°22.0'		303°11.3'	S 23°46.7'				
7	225°37.6'	282°11.8'	S 19°53.4'	302°45.8'	S 16°15.4'		248°37.4'	S 10°39.8'		268°41.9'	S 17°22.0'		318°11.7'	S 23°46.8'				
8	240°40.1'	297°11.7'	S 19°52.8'	317°49.1'	S 16°15.3'		263°39.4'	S 10°39.6'		283°44.0'	S 17°21.9'		333°12.2'	S 23°46.8'				
9	255°42.6'	312°11.5'	S 19°52.3'	332°52.5'	S 16°15.2'		278°41.3'	S 10°39.4'		298°46.2'	S 17°21.8'		348°12.7'	S 23°46.9'				
10	270°45.0'	327°11.3'	S 19°51.7'	347°55.8'	S 16°15.1'		293°43.2'	S 10°39.2'		313°48.4'	S 17°21.7'		3°13.2'	S 23°47.0'				
11	285°47.5'	342°11.1'	S 19°51.2'	2°59.1'	S 16°15.0'		308°45.2'	S 10°39.0'		328°50.5'	S 17°21.6'		18°13.7'	S 23°47.0'				
12	300°49.9'	357°11.0'	S 19°50.6'	18°02.4'	S 16°14.9'		323°47.1'	S 10°38.8'		343°52.7'	S 17°21.5'		33°14.2'	S 23°47.1'				
13	315°52.4'	12°10.8'	S 19°50.0'	33°05.7'	S 16°14.8'		338°49.1'	S 10°38.6'		358°54.9'	S 17°21.5'		48°14.7'	S 23°47.1'				
14	330°54.9'	27°10.6'	S 19°49.5'	48°09.0'	S 16°14.7'		353°51.0'	S 10°38.4'		13°57.0'	S 17°21.4'		63°15.2'	S 23°47.2'				
15	345°57.3'	42°10.4'	S 19°48.9'	63°12.3'	S 16°14.7'		8°53.0'	S 10°38.2'		28°59.2'	S 17°21.3'		78°15.7'	S 23°47.3'				
16	0°59.8'	57°10.3'	S 19°48.4'	78°15.6'	S 16°14.6'		23°54.9'	S 10°38.0'		44°01.4'	S 17°21.2'		93°16.1'	S 23°47.3'				
17	16°02.3'	72°10.1'	S 19°47.8'	93°18.9'	S 16°14.5'		38°56.8'	S 10°37.8'		59°03.5'	S 17°21.1'		108°16.6'	S 23°47.4'				
18	31°04.7'	87°09.9'	S 19°47.2'	108°22.2'	S 16°14.4'		53°58.8'	S 10°37.6'		74°05.7'	S 17°21.0'		123°17.1'	S 23°47.4'				
19	46°07.2'	102°09.8'	S 19°46.7'	123°25.5'	S 16°14.3'		69°00.7'	S 10°37.4'		89°07.9'	S 17°21.0'		138°17.6'	S 23°47.5'				
20	61°09.7'	117°09.6'	S 19°46.1'	138°28.8'	S 16°14.2'		84°02.7'	S 10°37.1'		104°10.1'	S 17°20.9'		153°18.1'	S 23°47.5'				
21	76°12.1'	132°09.4'	S 19°45.5'	153°32.1'	S 16°14.2'		99°04.6'	S 10°36.9'		119°12.2'	S 17°20.8'		168°18.6'	S 23°47.6'				
22	91°14.6'	147°09.2'	S 19°45.0'	168°35.3'	S 16°14.1'		114°06.5'	S 10°36.7'		134°14.4'	S 17°20.7'		183°19.1'	S 23°47.6'				
23	106°17.1'	162°09.1'	S 19°44.4'	183°38.6'	S 16°14.0'		129°08.5'	S 10°36.5'		149°16.6'	S 17°20.6'		198°19.6'	S 23°47.7'				
		SD 16.2'	d 0.6'	v 3.3'	d 0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.1'				
Mer. pass.		12 h 11 m 16 s		10 h 48 m			14 h 25 m			13 h 4 m			9 h 47 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	321°21.3'	N 14°15.7'	13.3'	-12.1'	55.8'	85°33.9'	80°27.4'	52°52.6'	49°20.9'		41°32.5'	44°06.3'	64°38.4'
1	335°53.6'	N 14°03.6'	13.3'	-12.2'	55.8'	85°11.3'	80°09.4'	52°26.9'	48°49.5'		42°04.0'	44°33.8'	64°59.1'
2	350°25.9'	N 13°51.5'	13.4'	-12.2'	55.9'	84°48.8'	79°51.4'	52°01.3'	48°18.0'	7°40.6'	42°35.7'	45°01.4'	65°20.0'
3	4°58.3'	N 13°39.3'	13.4'	-12.3'	55.9'	84°26.2'	79°33.4'	51°35.8'	47°46.5'	8°06.3'	43°07.3'	45°29.1'	65°40.9'
4	19°30.7'	N 13°27.0'	13.4'	-12.4'	55.9'	84°03.7'	79°15.4'	51°10.3'	47°15.0'	8°32.7'	43°38.9'	45°56.9'	66°02.0'
5	34°03.1'	N 13°14.6'	13.5'	-12.4'	55.9'	83°41.1'	78°57.5'	50°44.9'	46°43.5'	8°59.7'	44°10.6'	46°24.8'	66°23.1'
6	48°35.5'	N 13°02.2'	13.5'	-12.5'	55.9'	83°18.6'	78°39.6'	50°19.6'	46°12.0'	9°27.2'	44°42.3'	46°52.7'	66°44.3'
7	63°08.0'	N 12°49.7'	13.5'	-12.6'	56.0'	82°56.0'	78°21.7'	49°54.3'	45°40.4'	9°55.1'	45°14.0'	47°20.7'	67°05.6'
8	77°40.5'	N 12°37.1'	13.5'	-12.6'	56.0'	82°33.5'	78°03.8'	49°29.1'	45°08.9'	10°23.5'	45°45.8'	47°48.8'	67°26.9'
9	92°13.1'	N 12°24.5'	13.6'	-12.7'	56.0'	82°10.9'	77°46.0'	49°04.0'	44°37.3'	10°52.1'	46°17.5'	48°17.0'	67°48.4'
10	106°45.6'	N 12°11.8'	13.6'	-12.8'	56.0'	81°48.4'	77°28.2'	48°38.9'	44°05.7'	11°21.1'	46°49.3'	48°45.2'	68°09.9'
11	121°18.2'	N 11°59.0'	13.6'	-12.8'	56.0'	81°25.9'	77°10.5'	48°14.0'	43°34.1'	11°50.3'	47°21.1'	49°13.6'	68°31.5'
12	135°50.9'	N 11°46.2'	13.7'	-12.9'	56.1'	81°03.3'	76°52.8'	47°49.1'	43°02.5'	12°19.8'	47°52.9'	49°42.0'	68°53.2'
13	150°23.5'	N 11°33.4'	13.7'	-12.9'	56.1'	80°40.8'	76°35.1'	47°24.3'	42°30.8'	12°49.4'	48°24.8'	50°10.4'	69°15.0'
14	164°56.2'	N 11°20.4'	13.7'	-13.0'	56.1'	80°18.3'	76°17.4'	46°59.7'	41°59.2'	13°19.3'	48°56.6'	50°39.0'	69°36.8'
15	179°28.9'	N 11°07.4'	13.7'	-13.0'	56.1'	79°55.8'	75°59.8'	46°35.1'	41°27.5'	13°49.3'	49°28.5'	51°07.6'	69°58.7'
16	194°01.6'	N 10°54.4'	13.8'	-13.1'	56.2'	79°33.4'	75°42.2'	46°10.6'	40°55.8'	14°19.5'	50°00.4'	51°36.2'	70°20.7'
17	208°34.4'	N 10°41.3'	13.8'	-13.2'	56.2'	79°10.9'	75°24.7'	45°46.2'	40°24.1'	14°49.8'	50°32.4'	52°05.0'	70°42.8'
18	223°07.2'	N 10°28.1'	13.8'	-13.2'	56.2'	78°48.4'	75°07.2'	45°21.9'	39°52.4'	15°20.3'	51°04.3'	52°33.7'	71°04.9'
19	237°40.0'	N 10°14.9'	13.8'	-13.3'	56.2'	78°26.0'	74°49.8'	44°57.8'	39°20.6'	15°50.8'	51°36.3'	53°02.6'	71°27.1'
20	252°12.8'	N 10°01.6'	13.8'	-13.3'	56.2'	78°03.6'	74°32.4'	44°33.7'	38°48.9'	16°21.5'	52°08.3'	53°31.5'	71°49.3'
21	266°45.7'	N 9°48.3'	13.9'	-13.4'	56.3'	77°41.2'	74°15.0'	44°09.8'	38°17.1'	16°52.3'	52°40.3'	54°00.5'	72°11.6'
22	281°18.5'	N 9°34.9'	13.9'	-13.4'	56.3'	77°18.8'	73°57.7'	43°45.9'	37°45.3'	17°23.2'	53°12.4'	54°29.5'	72°34.0'
23	295°51.4'	N 9°21.5'	13.9'	-13.5'	56.3'	76°56.4'	73°40.5'	43°22.3'	37°13.6'	17°54.2'	53°44.5'	54°58.6'	72°56.5'
Mer. pass.		2 h 39 m SD 15.2'		phase 91%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°00.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	121°19.5'	177°08.9'	S 19°43.8'	198°41.9'	S 16°13.9'		144°10.4'	S 10°36.3'		164°18.7'	S 17°20.5'		213°20.0'	S 23°47.8'				
1	136°22.0'	192°08.7'	S 19°43.3'	213°45.1'	S 16°13.8'		159°12.4'	S 10°36.1'		179°20.9'	S 17°20.4'		228°20.5'	S 23°47.8'				
2	151°24.4'	207°08.6'	S 19°42.7'	228°48.4'	S 16°13.8'		174°14.3'	S 10°35.9'		194°23.1'	S 17°20.4'		243°21.0'	S 23°47.9'				
3	166°26.9'	222°08.4'	S 19°42.1'	243°51.6'	S 16°13.7'		189°16.2'	S 10°35.7'		209°25.2'	S 17°20.3'		258°21.5'	S 23°47.9'				
4	181°29.4'	237°08.2'	S 19°41.6'	258°54.9'	S 16°13.6'		204°18.2'	S 10°35.5'		224°27.4'	S 17°20.2'		273°22.0'	S 23°48.0'				
5	196°31.8'	252°08.1'	S 19°41.0'	273°58.1'	S 16°13.5'		219°20.1'	S 10°35.3'		239°29.6'	S 17°20.1'		288°22.5'	S 23°48.0'				
6	211°34.3'	267°07.9'	S 19°40.4'	289°01.4'	S 16°13.5'		234°22.1'	S 10°35.1'		254°31.7'	S 17°20.0'		303°23.0'	S 23°48.1'				
7	226°36.8'	282°07.7'	S 19°39.8'	304°04.6'	S 16°13.4'		249°24.0'	S 10°34.9'		269°33.9'	S 17°19.9'		318°23.5'	S 23°48.1'				
8	241°39.2'	297°07.6'	S 19°39.3'	319°07.8'	S 16°13.3'		264°25.9'	S 10°34.7'		284°36.1'	S 17°19.9'		333°23.9'	S 23°48.2'				
9	256°41.7'	312°07.4'	S 19°38.7'	334°11.0'	S 16°13.2'		279°27.9'	S 10°34.5'		299°38.2'	S 17°19.8'		348°24.4'	S 23°48.2'				
10	271°44.2'	327°07.2'	S 19°38.1'	349°14.3'	S 16°13.2'		294°29.8'	S 10°34.3'		314°40.4'	S 17°19.7'		3°24.9'	S 23°48.3'				
11	286°46.6'	342°07.1'	S 19°37.5'	4°17.5'	S 16°13.1'		309°31.8'	S 10°34.1'		329°42.6'	S 17°19.6'		18°25.4'	S 23°48.3'				
12	301°49.1'	357°06.9'	S 19°37.0'	19°20.7'	S 16°13.0'		324°33.7'	S 10°33.9'		344°44.7'	S 17°19.5'		33°25.9'	S 23°48.4'				
13	316°51.5'	12°06.7'	S 19°36.4'	34°23.9'	S 16°13.0'		339°35.6'	S 10°33.7'		359°46.9'	S 17°19.4'		48°26.4'	S 23°48.4'				
14	331°54.0'	27°06.6'	S 19°35.8'	49°27.1'	S 16°12.9'		354°37.6'	S 10°33.5'		14°49.1'	S 17°19.4'		63°26.9'	S 23°48.5'				
15	346°56.5'	42°06.4'	S 19°35.2'	64°30.3'	S 16°12.8'		9°39.5'	S 10°33.3'		29°51.2'	S 17°19.3'		78°27.3'	S 23°48.5'				
16	1°58.9'	57°06.2'	S 19°34.7'	79°33.5'	S 16°12.7'		24°41.4'	S 10°33.1'		44°53.4'	S 17°19.2'		93°27.8'	S 23°48.6'				
17	17°01.4'	72°06.1'	S 19°34.1'	94°36.7'	S 16°12.7'		39°43.4'	S 10°32.8'		59°55.6'	S 17°19.1'		108°28.3'	S 23°48.6'				
18	32°03.9'	87°05.9'	S 19°33.5'	109°39.9'	S 16°12.6'		54°45.3'	S 10°32.6'		74°57.7'	S 17°19.0'		123°28.8'	S 23°48.7'				
19	47°06.3'	102°05.7'	S 19°32.9'	124°43.0'	S 16°12.6'		69°47.3'	S 10°32.4'		89°59.9'	S 17°18.9'		138°29.3'	S 23°48.7'				
20	62°08.8'	117°05.6'	S 19°32.3'	139°46.2'	S 16°12.5'		84°49.2'	S 10°32.2'		105°02.1'	S 17°18.9'		153°29.8'	S 23°48.8'				
21	77°11.3'	132°05.4'	S 19°31.8'	154°49.4'	S 16°12.4'		99°51.1'	S 10°32.0'		120°04.2'	S 17°18.8'		168°30.3'	S 23°48.8'				
22	92°13.7'	147°05.3'	S 19°31.2'	169°52.5'	S 16°12.4'		114°53.1'	S 10°31.8'		135°06.4'	S 17°18.7'		183°30.7'	S 23°48.9'				
23	107°16.2'	162°05.1'	S 19°30.6'	184°55.7'	S 16°12.3'		129°55.0'	S 10°31.6'		150°08.6'	S 17°18.6'		198°31.2'	S 23°48.9'				
		SD 16.2'	d 0.6'	v 3.2'	d 0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.0'				
Mer. pass.		12 h 11 m 32 s		10 h 43 m			14 h 21 m			13 h 1 m			9 h 46 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	310°24.3'	N 9°08.0'	13.9'	-13.5'	56.3'	76°34.0'	73°23.3'	42°58.7'	36°41.7'	18°25.2'	54°16.6'	55°27.8'	73°19.0'
1	324°57.2'	N 8°54.5'	13.9'	-13.6'	56.3'	76°11.7'	73°06.1'	42°35.3'	36°09.9'	18°56.4'	54°48.7'	55°57.0'	73°41.5'
2	339°30.1'	N 8°40.9'	13.9'	-13.6'	56.4'	75°49.4'	72°49.0'	42°12.0'	35°38.1'	19°27.6'	55°20.8'	56°26.3'	74°04.2'
3	354°03.1'	N 8°27.3'	14.0'	-13.7'	56.4'	75°27.1'	72°32.0'	41°48.8'	35°06.2'	19°58.9'	55°53.0'	56°55.6'	74°26.9'
4	8°36.1'	N 8°13.6'	14.0'	-13.7'	56.4'	75°04.9'	72°15.0'	41°25.8'	34°34.4'	20°30.2'	56°25.2'	57°25.0'	74°49.6'
5	23°09.0'	N 7°59.9'	14.0'	-13.8'	56.4'	74°42.6'	71°58.1'	41°03.0'	34°02.5'	21°01.7'	56°57.4'	57°54.4'	75°12.4'
6	37°42.0'	N 7°46.2'	14.0'	-13.8'	56.5'	74°20.4'	71°41.2'	40°40.3'	33°30.6'	21°33.1'	57°29.6'	58°23.9'	75°35.3'
7	52°15.0'	N 7°32.4'	14.0'	-13.8'	56.5'	73°58.3'	71°24.4'	40°17.8'	32°58.7'	22°04.7'	58°01.8'	58°53.4'	75°58.2'
8	66°48.0'	N 7°18.5'	14.0'	-13.9'	56.5'	73°36.1'	71°07.6'	39°55.5'	32°26.8'	22°36.3'	58°34.1'	59°23.0'	76°21.1'
9	81°21.1'	N 7°04.6'	14.0'	-13.9'	56.5'	73°14.0'	70°50.9'	39°33.3'	31°54.9'	23°07.9'	59°06.4'	59°52.6'	76°44.2'
10	95°54.1'	N 6°50.7'	14.0'	-14.0'	56.5'	72°51.9'	70°34.3'	39°11.3'	31°23.0'	23°39.6'	59°38.7'	60°22.3'	77°07.2'
11	110°27.1'	N 6°36.7'	14.0'	-14.0'	56.6'	72°29.9'	70°17.8'	38°49.5'	30°51.1'	24°11.4'	60°11.1'	60°52.0'	77°30.4'
12	125°00.2'	N 6°22.7'	14.0'	-14.0'	56.6'	72°07.9'	70°01.3'	38°27.9'	30°19.1'	24°43.2'	60°43.5'	61°21.8'	77°53.5'
13	139°33.2'	N 6°08.7'	14.1'	-14.1'	56.6'	71°45.9'	69°44.9'	38°06.5'	29°47.2'	25°15.0'	61°15.9'	61°51.6'	78°16.8'
14	154°06.3'	N 5°54.6'	14.1'	-14.1'	56.6'	71°24.0'	69°28.5'	37°45.3'	29°15.2'	25°46.9'	61°48.3'	62°21.5'	78°40.0'
15	168°39.3'	N 5°40.5'	14.1'	-14.2'	56.7'	71°02.1'	69°12.3'	37°24.3'	28°43.3'	26°18.9'	62°20.7'	62°51.4'	79°03.3'
16	183°12.4'	N 5°26.3'	14.1'	-14.2'	56.7'	70°40.2'	68°56.1'	37°03.5'	28°11.3'	26°50.8'	62°53.2'	63°21.4'	79°26.7'
17	197°45.4'	N 5°12.1'	14.1'	-14.2'	56.7'	70°18.4'	68°40.0'	36°43.0'	27°39.3'	27°22.9'	63°25.7'	63°51.4'	79°50.1'
18	212°18.5'	N 4°57.9'	14.1'	-14.3'	56.7'	69°56.7'	68°23.9'	36°22.7'	27°07.3'	27°54.9'	63°58.2'	64°21.4'	80°13.6'
19	226°51.6'	N 4°43.6'	14.1'	-14.3'	56.8'	69°34.9'	68°08.0'	36°02.6'	26°35.4'	28°27.0'	64°30.7'	64°51.5'	80°37.0'
20	241°24.6'	N 4°29.3'	14.1'	-14.3'	56.8'	69°13.3'	67°52.1'	35°42.8'	26°03.4'	28°59.2'	65°03.3'	65°21.7'	81°00.6'
21	255°57.7'	N 4°15.0'	14.1'	-14.3'	56.8'	68°51.7'	67°36.3'	35°23.3'	25°31.4'	29°31.4'	65°35.9'	65°51.9'	81°24.2'
22	270°30.7'	N 4°00.7'	14.0'	-14.4'	56.8'	68°30.1'	67°20.6'	35°04.0'	24°59.4'	30°03.6'	66°08.5'	66°22.1'	81°47.8'
23	285°03.8'	N 3°46.3'	14.0'	-14.4'	56.8'	68°08.6'	67°05.0'	34°45.0'	24°27.5'	30°35.9'	66°41.2'	66°52.4'	82°11.4'
Mer. pass.		3 h 25 m SD 15.4'		phase 85%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.5'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.2'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°01.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	122°18.7'	177°04.9'	S 19°30.0'	199°58.9'	S 16°12.2'		144°57.0'	S 10°31.4'		165°10.7'	S 17°18.5'		213°31.7'	S 23°49.0'				
1	137°21.1'	192°04.8'	S 19°29.4'	215°02.0'	S 16°12.2'		159°58.9'	S 10°31.2'		180°12.9'	S 17°18.4'		228°32.2'	S 23°49.0'				
2	152°23.6'	207°04.6'	S 19°28.8'	230°05.2'	S 16°12.1'		175°00.8'	S 10°31.0'		195°15.1'	S 17°18.3'		243°32.7'	S 23°49.0'				
3	167°26.0'	222°04.4'	S 19°28.3'	245°08.3'	S 16°12.1'		190°02.8'	S 10°30.8'		210°17.2'	S 17°18.3'		258°33.2'	S 23°49.1'				
4	182°28.5'	237°04.3'	S 19°27.7'	260°11.4'	S 16°12.0'		205°04.7'	S 10°30.6'		225°19.4'	S 17°18.2'		273°33.6'	S 23°49.1'				
5	197°31.0'	252°04.1'	S 19°27.1'	275°14.6'	S 16°12.0'		220°06.6'	S 10°30.4'		240°21.6'	S 17°18.1'		288°34.1'	S 23°49.2'				
6	212°33.4'	267°04.0'	S 19°26.5'	290°17.7'	S 16°11.9'		235°08.6'	S 10°30.2'		255°23.7'	S 17°18.0'		303°34.6'	S 23°49.2'				
7	227°35.9'	282°03.8'	S 19°25.9'	305°20.8'	S 16°11.8'		250°10.5'	S 10°30.0'		270°25.9'	S 17°17.9'		318°35.1'	S 23°49.3'				
8	242°38.4'	297°03.7'	S 19°25.3'	320°24.0'	S 16°11.8'		265°12.5'	S 10°29.8'		285°28.1'	S 17°17.8'		333°35.6'	S 23°49.3'				
9	257°40.8'	312°03.5'	S 19°24.7'	335°27.1'	S 16°11.7'		280°14.4'	S 10°29.6'		300°30.2'	S 17°17.8'		348°36.1'	S 23°49.3'				
10	272°43.3'	327°03.3'	S 19°24.1'	350°30.2'	S 16°11.7'		295°16.3'	S 10°29.3'		315°32.4'	S 17°17.7'		3°36.6'	S 23°49.4'				
11	287°45.8'	342°03.2'	S 19°23.6'	5°33.3'	S 16°11.6'		310°18.3'	S 10°29.1'		330°34.6'	S 17°17.6'		18°37.0'	S 23°49.4'				
12	302°48.2'	357°03.0'	S 19°23.0'	20°36.4'	S 16°11.6'		325°20.2'	S 10°28.9'		345°36.7'	S 17°17.5'		33°37.5'	S 23°49.5'				
13	317°50.7'	12°02.9'	S 19°22.4'	35°39.5'	S 16°11.5'		340°22.1'	S 10°28.7'		0°38.9'	S 17°17.4'		48°38.0'	S 23°49.5'				
14	332°53.2'	27°02.7'	S 19°21.8'	50°42.6'	S 16°11.5'		355°24.1'	S 10°28.5'		15°41.1'	S 17°17.3'		63°38.5'	S 23°49.5'				
15	347°55.6'	42°02.5'	S 19°21.2'	65°45.7'	S 16°11.4'		10°26.0'	S 10°28.3'		30°43.2'	S 17°17.3'		78°39.0'	S 23°49.6'				
16	2°58.1'	57°02.4'	S 19°20.6'	80°48.8'	S 16°11.4'		25°27.9'	S 10°28.1'		45°45.4'	S 17°17.2'		93°39.5'	S 23°49.6'				
17	18°00.5'	72°02.2'	S 19°20.0'	95°51.8'	S 16°11.3'		40°29.9'	S 10°27.9'		60°47.6'	S 17°17.1'		108°39.9'	S 23°49.7'				
18	33°03.0'	87°02.1'	S 19°19.4'	110°54.9'	S 16°11.3'		55°31.8'	S 10°27.7'		75°49.7'	S 17°17.0'		123°40.4'	S 23°49.7'				
19	48°05.5'	102°01.9'	S 19°18.8'	125°58.0'	S 16°11.2'		70°33.8'	S 10°27.5'		90°51.9'	S 17°16.9'		138°40.9'	S 23°49.7'				
20	63°07.9'	117°01.8'	S 19°18.2'	141°01.1'	S 16°11.2'		85°35.7'	S 10°27.3'		105°54.1'	S 17°16.8'		153°41.4'	S 23°49.8'				
21	78°10.4'	132°01.6'	S 19°17.6'	156°04.1'	S 16°11.2'		100°37.6'	S 10°27.1'		120°56.2'	S 17°16.7'		168°41.9'	S 23°49.8'				
22	93°12.9'	147°01.5'	S 19°17.0'	171°07.2'	S 16°11.1'		115°39.6'	S 10°26.9'		135°58.4'	S 17°16.7'		183°42.4'	S 23°49.8'				
23	108°15.3'	162°01.3'	S 19°16.4'	186°10.2'	S 16°11.1'		130°41.5'	S 10°26.7'		151°00.6'	S 17°16.6'		198°42.8'	S 23°49.9'				
		SD 16.2'	d 0.6'	v 3.1'	d 0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.0'				
Mer. pass.		12 h 11 m 48 s		10 h 38 m			14 h 18 m			12 h 57 m			9 h 46 m					

h	Moon					Lunar distance											
	GHA	dec	v	d	HP	-Sun	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara				
0	299°36.8'	N 3°31.9'	14.0'	-14.4'	56.9'		66°49.5'	34°26.2'	23°55.5'	31°08.2'	67°13.8'	67°22.7'	81°07.4'				
1	314°09.9'	N 3°17.5'	14.0'	-14.5'	56.9'		66°34.1'	34°07.8'	23°23.5'	31°40.5'	67°46.5'	67°53.0'	81°25.6'				
2	328°42.9'	N 3°03.0'	14.0'	-14.5'	56.9'		66°18.7'	33°49.7'	22°51.6'	32°12.9'	68°19.2'	68°23.4'	81°43.9'				
3	343°15.9'	N 2°48.5'	14.0'	-14.5'	56.9'		66°03.5'	33°31.9'	22°19.7'	32°45.3'	68°52.0'	68°53.9'	82°02.2'				
4	357°48.9'	N 2°34.0'	14.0'	-14.5'	57.0'	119°45.9'	65°48.3'	33°14.4'	21°47.7'	33°17.7'	69°24.7'	69°24.3'	82°20.5'				
5	12°21.9'	N 2°19.5'	14.0'	-14.5'	57.0'	119°15.7'		32°57.2'	21°15.8'	33°50.2'	69°57.5'	69°54.8'	82°38.9'				
6	26°54.9'	N 2°05.0'	14.0'	-14.6'	57.0'	118°45.5'		32°40.4'	20°43.9'	34°22.7'	70°30.4'	70°25.4'	82°57.4'				
7	41°27.9'	N 1°50.4'	14.0'	-14.6'	57.0'	118°15.3'		32°23.9'	20°12.1'	34°55.3'	71°03.2'	70°56.0'	83°15.8'				
8	56°00.8'	N 1°35.8'	13.9'	-14.6'	57.1'	117°45.1'		32°07.8'	19°40.3'	35°27.9'	71°36.1'	71°26.6'	83°34.3'				
9	70°33.8'	N 1°21.2'	13.9'	-14.6'	57.1'	117°14.8'		31°52.1'	19°08.5'	36°00.5'	72°09.0'	71°57.3'	83°52.9'				
10	85°06.7'	N 1°06.6'	13.9'	-14.6'	57.1'	116°44.5'			18°36.7'	36°33.2'	72°41.9'	72°28.0'	84°11.5'				
11	99°39.6'	N 0°51.9'	13.9'	-14.7'	57.1'	116°14.2'			18°05.0'	37°05.8'	73°14.8'	72°58.7'	84°30.1'				
12	114°12.5'	N 0°37.3'	13.9'	-14.7'	57.2'	115°43.8'			17°33.3'	37°38.6'	73°47.8'	73°29.5'	84°48.7'				
13	128°45.3'	N 0°22.6'	13.8'	-14.7'	57.2'	115°13.4'			17°01.7'	38°11.3'	74°20.8'	74°00.3'	85°07.4'				
14	143°18.2'	N 0°07.9'	13.8'	-14.7'	57.2'	114°43.0'			16°30.2'	38°44.1'	74°53.8'	74°31.2'	85°26.2'				
15	157°51.0'	S 0°06.8'	13.8'	-14.7'	57.2'	114°12.6'			15°58.7'	39°16.9'	75°26.9'	75°02.1'	85°44.9'				
16	172°23.8'	S 0°21.5'	13.8'	-14.7'	57.3'	113°42.2'			15°27.3'	39°49.8'	75°60.0'	75°33.0'	86°03.7'				
17	186°56.5'	S 0°36.2'	13.7'	-14.7'	57.3'	113°11.7'			14°56.0'	40°22.7'	76°33.1'	76°04.0'	86°22.5'				
18	201°29.3'	S 0°51.0'	13.7'	-14.7'	57.3'	112°41.2'			14°24.9'	40°55.6'	77°06.2'	76°35.0'	86°41.4'				
19	216°02.0'	S 1°05.7'	13.7'	-14.7'	57.3'	112°10.6'			13°53.8'	41°28.5'	77°39.4'	77°06.0'	87°00.2'				
20	230°34.7'	S 1°20.4'	13.7'	-14.8'	57.4'	111°40.1'			13°22.9'	42°01.5'	78°12.6'	77°37.0'	87°19.1'				
21	245°07.3'	S 1°35.2'	13.6'	-14.8'	57.4'	111°09.5'			12°52.2'	42°34.5'	78°45.8'	78°08.2'	87°38.1'				
22	259°39.9'	S 1°50.0'	13.6'	-14.8'	57.4'	110°38.8'			12°21.6'	43°07.6'	79°19.1'	78°39.3'	87°57.0'				
23	274°12.5'	S 2°04.7'	13.6'	-14.8'	57.4'	110°08.2'			11°51.3'	43°40.7'	79°52.3'	79°10.5'	88°16.0'				
Mer. pass.		4 h 9 m SD 15.5'	phase 76%														

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.7'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°02.0'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°04.0'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	123°17.8'	177°01.2'	S 19°15.8'	201°13.3'	S 16°11.0'		145°43.4'	S 10°26.5'		166°02.7'	S 17°16.5'		213°43.3'	S 23°49.9'		213°43.3'	S 23°49.9'	
1	138°20.3'	192°01.0'	S 19°15.2'	216°16.3'	S 16°11.0'		160°45.4'	S 10°26.2'		181°04.9'	S 17°16.4'		228°43.8'	S 23°49.9'		228°43.8'	S 23°49.9'	
2	153°22.7'	207°00.8'	S 19°14.6'	231°19.4'	S 16°10.9'		175°47.3'	S 10°26.0'		196°07.1'	S 17°16.3'		243°44.3'	S 23°50.0'		243°44.3'	S 23°50.0'	
3	168°25.2'	222°00.7'	S 19°14.0'	246°22.4'	S 16°10.9'		190°49.2'	S 10°25.8'		211°09.2'	S 17°16.2'		258°44.8'	S 23°50.0'		258°44.8'	S 23°50.0'	
4	183°27.6'	237°00.5'	S 19°13.4'	261°25.4'	S 16°10.9'		205°51.2'	S 10°25.6'		226°11.4'	S 17°16.2'		273°45.2'	S 23°50.0'		273°45.2'	S 23°50.0'	
5	198°30.1'	252°00.4'	S 19°12.8'	276°28.4'	S 16°10.8'		220°53.1'	S 10°25.4'		241°13.6'	S 17°16.1'		288°45.7'	S 23°50.1'		288°45.7'	S 23°50.1'	
6	213°32.6'	267°00.2'	S 19°12.2'	291°31.5'	S 16°10.8'		235°55.0'	S 10°25.2'		256°15.7'	S 17°16.0'		303°46.2'	S 23°50.1'		303°46.2'	S 23°50.1'	
7	228°35.0'	282°00.1'	S 19°11.6'	306°34.5'	S 16°10.8'		250°57.0'	S 10°25.0'		271°17.9'	S 17°15.9'		318°46.7'	S 23°50.1'		318°46.7'	S 23°50.1'	
8	243°37.5'	296°59.9'	S 19°11.0'	321°37.5'	S 16°10.7'		265°58.9'	S 10°24.8'		286°20.1'	S 17°15.8'		333°47.2'	S 23°50.2'		333°47.2'	S 23°50.2'	
9	258°40.0'	311°59.8'	S 19°10.4'	336°40.5'	S 16°10.7'		281°00.9'	S 10°24.6'		301°22.2'	S 17°15.7'		348°47.7'	S 23°50.2'		348°47.7'	S 23°50.2'	
10	273°42.4'	326°59.6'	S 19°09.8'	351°43.5'	S 16°10.7'		296°02.8'	S 10°24.4'		316°24.4'	S 17°15.7'		3°48.1'	S 23°50.2'		3°48.1'	S 23°50.2'	
11	288°44.9'	341°59.5'	S 19°09.2'	6°46.5'	S 16°10.6'		311°04.7'	S 10°24.2'		331°26.6'	S 17°15.6'		18°48.6'	S 23°50.3'		18°48.6'	S 23°50.3'	
12	303°47.4'	356°59.3'	S 19°08.6'	21°49.5'	S 16°10.6'		326°06.7'	S 10°24.0'		346°28.7'	S 17°15.5'		33°49.1'	S 23°50.3'		33°49.1'	S 23°50.3'	
13	318°49.8'	11°59.2'	S 19°08.0'	36°52.5'	S 16°10.6'		341°08.6'	S 10°23.8'		1°30.9'	S 17°15.4'		48°49.6'	S 23°50.3'		48°49.6'	S 23°50.3'	
14	333°52.3'	26°59.0'	S 19°07.4'	51°55.5'	S 16°10.5'		356°10.5'	S 10°23.6'		16°33.1'	S 17°15.3'		63°50.1'	S 23°50.4'		63°50.1'	S 23°50.4'	
15	348°54.8'	41°58.9'	S 19°06.8'	66°58.4'	S 16°10.5'		11°12.5'	S 10°23.3'		31°35.2'	S 17°15.2'		78°50.5'	S 23°50.4'		78°50.5'	S 23°50.4'	
16	3°57.2'	56°58.7'	S 19°06.2'	82°01.4'	S 16°10.5'		26°14.4'	S 10°23.1'		46°37.4'	S 17°15.1'		93°51.0'	S 23°50.4'		93°51.0'	S 23°50.4'	
17	18°59.7'	71°58.6'	S 19°05.6'	97°04.4'	S 16°10.4'		41°16.3'	S 10°22.9'		61°39.6'	S 17°15.1'		108°51.5'	S 23°50.4'		108°51.5'	S 23°50.4'	
18	34°02.1'	86°58.4'	S 19°05.0'	112°07.4'	S 16°10.4'		56°18.3'	S 10°22.7'		76°41.7'	S 17°15.0'		123°52.0'	S 23°50.5'		123°52.0'	S 23°50.5'	
19	49°04.6'	101°58.3'	S 19°04.4'	127°10.3'	S 16°10.4'		71°20.2'	S 10°22.5'		91°43.9'	S 17°14.9'		138°52.5'	S 23°50.5'		138°52.5'	S 23°50.5'	
20	64°07.1'	116°58.1'	S 19°03.7'	142°13.3'	S 16°10.4'		86°22.1'	S 10°22.3'		106°46.1'	S 17°14.8'		153°53.0'	S 23°50.5'		153°53.0'	S 23°50.5'	
21	79°09.5'	131°58.0'	S 19°03.1'	157°16.2'	S 16°10.3'		101°24.1'	S 10°22.1'		121°48.2'	S 17°14.7'		168°53.4'	S 23°50.6'		168°53.4'	S 23°50.6'	
22	94°12.0'	146°57.9'	S 19°02.5'	172°19.2'	S 16°10.3'		116°26.0'	S 10°21.9'		136°50.4'	S 17°14.6'		183°53.9'	S 23°50.6'		183°53.9'	S 23°50.6'	
23	109°14.5'	161°57.7'	S 19°01.9'	187°22.1'	S 16°10.3'		131°27.9'	S 10°21.7'		151°52.6'	S 17°14.6'		198°54.4'	S 23°50.6'		198°54.4'	S 23°50.6'	
		SD 16.2'	d 0.6'		v 3.0'	d 0.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.0'			
Mer. pass.		12 h 12 m 3 s		10 h 33 m			14 h 15 m			12 h 54 m			9 h 45 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	288°45.1'	S 2°19.5'	13.5'	-14.8'	57.5'	109°37.5'	59°33.3'	56°19.0'	11°21.2'	44°13.8'	79°41.7'	80°25.6'	88°35.0'
1	303°17.6'	S 2°34.3'	13.5'	-14.8'	57.5'	109°06.8'	59°13.9'	55°45.7'	10°51.4'	44°46.9'	80°12.9'	80°59.0'	88°54.0'
2	317°50.1'	S 2°49.0'	13.4'	-14.8'	57.5'	108°36.1'	58°54.5'	55°12.4'	10°21.9'	45°20.1'	80°44.2'	81°32.3'	89°13.1'
3	332°22.5'	S 3°03.8'	13.4'	-14.8'	57.5'	108°05.3'	58°35.3'	54°39.1'	9°52.8'	45°53.3'	81°15.5'	82°05.7'	89°32.1'
4	346°54.9'	S 3°18.6'	13.4'	-14.8'	57.6'	107°34.5'	58°16.2'	54°05.7'	9°24.2'	46°26.6'	81°46.8'	82°39.1'	89°51.2'
5	1°27.3'	S 3°33.3'	13.3'	-14.8'	57.6'	107°03.7'	57°57.2'	53°32.4'	8°56.1'	46°59.8'	82°18.2'	83°12.6'	90°10.3'
6	15°59.6'	S 3°48.1'	13.3'	-14.8'	57.6'	106°32.8'	57°38.4'	52°59.0'	8°28.6'	47°33.1'	82°49.6'	83°46.0'	90°29.4'
7	30°31.9'	S 4°02.8'	13.2'	-14.7'	57.6'	106°02.0'	57°19.6'	52°25.5'		48°06.5'	83°21.0'	84°19.5'	90°48.5'
8	45°04.1'	S 4°17.6'	13.2'	-14.7'	57.7'	105°31.0'	57°01.0'	51°52.1'		48°39.8'	83°52.4'	84°53.1'	91°07.6'
9	59°36.3'	S 4°32.3'	13.1'	-14.7'	57.7'	105°00.1'	56°42.5'	51°18.6'		49°13.2'	84°23.9'	85°26.6'	91°26.8'
10	74°08.5'	S 4°47.1'	13.1'	-14.7'	57.7'	104°29.1'	56°24.2'	50°45.1'		49°46.7'	84°55.5'	86°00.2'	91°45.9'
11	88°40.6'	S 5°01.8'	13.0'	-14.7'	57.7'	103°58.1'	56°06.0'	50°11.5'		50°20.1'	85°27.0'	86°33.8'	92°05.1'
12	103°12.6'	S 5°16.5'	13.0'	-14.7'	57.8'	103°27.1'	55°47.9'	49°38.0'		50°53.6'	85°58.6'	87°07.5'	92°24.3'
13	117°44.6'	S 5°31.2'	12.9'	-14.7'	57.8'	102°56.1'	55°30.0'	49°04.4'		51°27.2'	86°30.2'	87°41.2'	92°43.5'
14	132°16.5'	S 5°45.9'	12.9'	-14.7'	57.8'	102°25.0'	55°12.2'	48°30.8'		52°00.7'	87°01.9'	88°14.9'	93°02.7'
15	146°48.4'	S 6°00.6'	12.8'	-14.7'	57.9'	101°53.9'	54°54.6'	47°57.1'		52°34.3'	87°33.5'	88°48.6'	93°21.9'
16	161°20.3'	S 6°15.2'	12.8'	-14.6'	57.9'	101°22.7'	54°37.2'	47°23.4'		53°07.9'	88°05.2'	89°22.4'	93°41.1'
17	175°52.0'	S 6°29.9'	12.7'	-14.6'	57.9'	100°51.5'	54°19.9'	46°49.7'		53°41.6'	88°37.0'	89°56.2'	94°00.3'
18	190°23.8'	S 6°44.5'	12.7'	-14.6'	57.9'	100°20.3'	54°02.7'	46°16.0'		54°15.3'	89°08.7'	90°30.0'	94°19.5'
19	204°55.4'	S 6°59.1'	12.6'	-14.6'	58.0'	99°49.1'	53°45.7'	45°42.3'		54°49.0'	89°40.5'	91°03.8'	94°38.7'
20	219°27.0'	S 7°13.7'	12.5'	-14.6'	58.0'	99°17.8'	53°28.9'	45°08.5'		55°22.8'	90°12.3'	91°37.7'	94°57.9'
21	233°58.6'	S 7°28.2'	12.5'	-14.5'	58.0'	98°46.6'	53°12.3'	44°34.7'		55°56.5'	90°44.2'	92°11.6'	95°17.0'
22	248°30.1'	S 7°42.8'	12.4'	-14.5'	58.0'	98°15.2'	52°55.8'	44°00.8'		56°30.4'	91°16.1'	92°45.6'	95°36.2'
23	263°01.5'	S 7°57.3'	12.4'	-14.5'	58.1'	97°43.9'	52°39.6'	43°27.0'		57°04.2'	91°48.0'	93°19.5'	95°55.4'
Mer. pass.		4 h 54 m SD 15.7'	phase 67%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°12.9'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°05.9'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°02.5'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.2'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	124°16.9'	176°57.6'	S 19°01.3'	202°25.1'	S 16°10.3'	146°29.9'	S 10°21.5'	166°54.7'	S 17°14.5'	213°54.9'	S 23°50.6'	
1	139°19.4'	191°57.4'	S 19°00.7'	217°28.0'	S 16°10.2'	161°31.8'	S 10°21.3'	181°56.9'	S 17°14.4'	228°55.4'	S 23°50.7'	
2	154°21.9'	206°57.3'	S 19°00.1'	232°30.9'	S 16°10.2'	176°33.7'	S 10°21.1'	196°59.1'	S 17°14.3'	243°55.8'	S 23°50.7'	
3	169°24.3'	221°57.1'	S 18°59.5'	247°33.8'	S 16°10.2'	191°35.7'	S 10°20.9'	212°01.2'	S 17°14.2'	258°56.3'	S 23°50.7'	
4	184°26.8'	236°57.0'	S 18°58.8'	262°36.8'	S 16°10.2'	206°37.6'	S 10°20.6'	227°03.4'	S 17°14.1'	273°56.8'	S 23°50.7'	
5	199°29.2'	251°56.8'	S 18°58.2'	277°39.7'	S 16°10.1'	221°39.5'	S 10°20.4'	242°05.6'	S 17°14.0'	288°57.3'	S 23°50.8'	
6	214°31.7'	266°56.7'	S 18°57.6'	292°42.6'	S 16°10.1'	236°41.5'	S 10°20.2'	257°07.7'	S 17°14.0'	303°57.8'	S 23°50.8'	
7	229°34.2'	281°56.5'	S 18°57.0'	307°45.5'	S 16°10.1'	251°43.4'	S 10°20.0'	272°09.9'	S 17°13.9'	318°58.2'	S 23°50.8'	
8	244°36.6'	296°56.4'	S 18°56.4'	322°48.4'	S 16°10.1'	266°45.3'	S 10°19.8'	287°12.1'	S 17°13.8'	333°58.7'	S 23°50.8'	
9	259°39.1'	311°56.3'	S 18°55.8'	337°51.3'	S 16°10.1'	281°47.3'	S 10°19.6'	302°14.2'	S 17°13.7'	348°59.2'	S 23°50.8'	
10	274°41.6'	326°56.1'	S 18°55.1'	352°54.2'	S 16°10.0'	296°49.2'	S 10°19.4'	317°16.4'	S 17°13.6'	3°59.7'	S 23°50.9'	
11	289°44.0'	341°56.0'	S 18°54.5'	7°57.1'	S 16°10.0'	311°51.1'	S 10°19.2'	332°18.6'	S 17°13.5'	19°00.2'	S 23°50.9'	
12	304°46.5'	356°55.8'	S 18°53.9'	22°60.0'	S 16°10.0'	326°53.1'	S 10°19.0'	347°20.7'	S 17°13.4'	34°00.6'	S 23°50.9'	
13	319°49.0'	11°55.7'	S 18°53.3'	38°02.8'	S 16°10.1'	341°55.0'	S 10°18.8'	2°22.9'	S 17°13.4'	49°01.1'	S 23°50.9'	
14	334°51.4'	26°55.6'	S 18°52.7'	53°05.7'	S 16°10.0'	356°56.9'	S 10°18.6'	17°25.1'	S 17°13.3'	64°01.6'	S 23°50.9'	
15	349°53.9'	41°55.4'	S 18°52.0'	68°08.6'	S 16°10.0'	11°58.9'	S 10°18.4'	32°27.2'	S 17°13.2'	79°02.1'	S 23°51.0'	
16	4°56.4'	56°55.3'	S 18°51.4'	83°11.4'	S 16°10.0'	27°00.8'	S 10°18.1'	47°29.4'	S 17°13.1'	94°02.6'	S 23°51.0'	
17	19°58.8'	71°55.1'	S 18°50.8'	98°14.3'	S 16°09.9'	42°02.7'	S 10°17.9'	62°31.6'	S 17°13.0'	109°03.0'	S 23°51.0'	
18	35°01.3'	86°55.0'	S 18°50.2'	113°17.2'	S 16°09.9'	57°04.7'	S 10°17.7'	77°33.7'	S 17°12.9'	124°03.5'	S 23°51.0'	
19	50°03.7'	101°54.9'	S 18°49.5'	128°20.0'	S 16°09.9'	72°06.6'	S 10°17.5'	92°35.9'	S 17°12.9'	139°04.0'	S 23°51.0'	
20	65°06.2'	116°54.7'	S 18°48.9'	143°22.9'	S 16°09.9'	87°08.5'	S 10°17.3'	107°38.1'	S 17°12.8'	154°04.5'	S 23°51.0'	
21	80°08.7'	131°54.6'	S 18°48.3'	158°25.7'	S 16°09.9'	102°10.5'	S 10°17.1'	122°40.2'	S 17°12.7'	169°05.0'	S 23°51.1'	
22	95°11.1'	146°54.4'	S 18°47.7'	173°28.5'	S 16°09.9'	117°12.4'	S 10°16.9'	137°42.4'	S 17°12.6'	184°05.4'	S 23°51.1'	
23	110°13.6'	161°54.3'	S 18°47.0'	188°31.4'	S 16°09.9'	132°14.3'	S 10°16.7'	152°44.6'	S 17°12.5'	199°05.9'	S 23°51.1'	
		SD 16.2'	d 0.6'		v 2.9' d 0.0'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d -0.0'	
Mer. pass.		12 h 12 m 17 s		10 h 28 m		14 h 12 m		12 h 51 m		9 h 44 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Rigil Kent	-Hadar	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	277°32.9'	S 8°11.8'	12.3'	-14.5'	58.1'	97°12.5'	53°40.8'	52°23.5'	42°53.1'			57°38.1'	92°19.9'
1	292°04.1'	S 8°26.3'	12.2'	-14.4'	58.1'	96°41.1'	53°22.2'	52°07.6'	42°19.1'			58°12.0'	92°51.9'
2	306°35.4'	S 8°40.7'	12.2'	-14.4'	58.1'	96°09.6'	53°03.8'	51°51.9'	41°45.2'			58°45.9'	93°23.8'
3	321°06.5'	S 8°55.1'	12.1'	-14.4'	58.2'	95°38.2'	52°45.5'	51°36.3'	41°11.2'			59°19.9'	93°55.8'
4	335°37.6'	S 9°09.5'	12.0'	-14.3'	58.2'	95°06.6'	52°27.4'	51°21.0'	40°37.2'			59°53.9'	94°27.9'
5	350°08.6'	S 9°23.8'	11.9'	-14.3'	58.2'	94°35.1'	52°09.4'		40°03.2'			60°28.0'	94°59.9'
6	4°39.6'	S 9°38.1'	11.9'	-14.3'	58.3'	94°03.5'	51°51.7'		39°29.1'			61°02.1'	95°32.0'
7	19°10.4'	S 9°52.4'	11.8'	-14.2'	58.3'	93°31.9'	51°34.1'		38°55.1'	8°46.3'		61°36.2'	96°04.1'
8	33°41.2'	S 10°06.6'	11.7'	-14.2'	58.3'	93°00.3'	51°16.7'		38°20.9'	9°14.8'		62°10.3'	96°36.3'
9	48°12.0'	S 10°20.8'	11.6'	-14.2'	58.3'	92°28.6'	50°59.5'		37°46.8'	9°44.0'		62°44.5'	97°08.4'
10	62°42.6'	S 10°35.0'	11.6'	-14.1'	58.4'	91°57.0'	50°42.5'		37°12.6'	10°13.8'		63°18.7'	97°40.6'
11	77°13.2'	S 10°49.1'	11.5'	-14.1'	58.4'	91°25.2'	50°25.6'		36°38.5'	10°44.0'		63°52.9'	98°12.8'
12	91°43.7'	S 11°03.2'	11.4'	-14.0'	58.4'	90°53.5'	50°09.0'		36°04.2'	11°14.7'		64°27.2'	98°45.1'
13	106°14.1'	S 11°17.2'	11.3'	-14.0'	58.4'	90°21.7'	49°52.6'		35°30.0'	11°45.7'		65°01.5'	99°17.3'
14	120°44.4'	S 11°31.2'	11.2'	-13.9'	58.5'	89°49.9'	49°36.4'		34°55.7'	12°17.1'		65°35.8'	99°49.6'
15	135°14.6'	S 11°45.2'	11.2'	-13.9'	58.5'	89°18.0'	49°20.4'		34°21.5'	12°48.7'		66°10.2'	100°21.9'
16	149°44.8'	S 11°59.1'	11.1'	-13.8'	58.5'	88°46.2'	49°04.7'		33°47.1'	13°20.6'	31°04.0'	66°44.6'	100°54.2'
17	164°14.9'	S 12°12.9'	11.0'	-13.8'	58.5'	88°14.2'	48°49.1'		33°12.8'	13°52.8'	31°19.2'	67°19.0'	101°26.5'
18	178°44.9'	S 12°26.7'	10.9'	-13.7'	58.6'	87°42.3'	48°33.8'		32°38.4'	14°25.1'	31°34.8'	67°53.5'	101°58.9'
19	193°14.8'	S 12°40.5'	10.8'	-13.7'	58.6'	87°10.3'			32°04.0'	14°57.7'	31°50.9'	68°28.0'	102°31.3'
20	207°44.6'	S 12°54.2'	10.7'	-13.6'	58.6'	86°38.3'			31°29.6'	15°30.4'	32°07.4'	69°02.5'	103°03.7'
21	222°14.3'	S 13°07.8'	10.6'	-13.6'	58.7'	86°06.3'			30°55.2'	16°03.3'	32°24.4'	69°37.1'	103°36.1'
22	236°43.9'	S 13°21.4'	10.5'	-13.5'	58.7'	85°34.2'			30°20.7'	16°36.3'	32°41.8'	70°11.7'	104°08.6'
23	251°13.5'	S 13°34.9'	10.5'	-13.5'	58.7'	85°02.1'			29°46.3'	17°09.5'	32°59.6'	70°46.3'	104°41.0'
Mer. pass.		5 h 41 m SD 15.8'	phase 56%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°02.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.7'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	125°16.1'		176°54.2'	S 18°46.4'	203°34.2'	S 16°09.9'	147°16.3'	S 10°16.5'	167°46.7'	S 17°12.4'	214°06.4'	S 23°51.1'
1	140°18.5'		191°54.0'	S 18°45.8'	218°37.0'	S 16°09.9'	162°18.2'	S 10°16.3'	182°48.9'	S 17°12.3'	229°06.9'	S 23°51.1'
2	155°21.0'		206°53.9'	S 18°45.2'	233°39.8'	S 16°09.9'	177°20.1'	S 10°16.1'	197°51.1'	S 17°12.3'	244°07.3'	S 23°51.1'
3	170°23.5'		221°53.8'	S 18°44.5'	248°42.7'	S 16°09.9'	192°22.1'	S 10°15.8'	212°53.2'	S 17°12.2'	259°07.8'	S 23°51.2'
4	185°25.9'		236°53.6'	S 18°43.9'	263°45.5'	S 16°09.9'	207°24.0'	S 10°15.6'	227°55.4'	S 17°12.1'	274°08.3'	S 23°51.2'
5	200°28.4'		251°53.5'	S 18°43.3'	278°48.3'	S 16°09.9'	222°25.9'	S 10°15.4'	242°57.5'	S 17°12.0'	289°08.8'	S 23°51.2'
6	215°30.9'		266°53.3'	S 18°42.6'	293°51.1'	S 16°09.9'	237°27.9'	S 10°15.2'	257°59.7'	S 17°11.9'	304°09.3'	S 23°51.2'
7	230°33.3'		281°53.2'	S 18°42.0'	308°53.9'	S 16°09.9'	252°29.8'	S 10°15.0'	273°01.9'	S 17°11.8'	319°09.7'	S 23°51.2'
8	245°35.8'		296°53.1'	S 18°41.4'	323°56.7'	S 16°09.8'	267°31.7'	S 10°14.8'	288°04.0'	S 17°11.7'	334°10.2'	S 23°51.2'
9	260°38.2'		311°52.9'	S 18°40.7'	338°59.4'	S 16°09.8'	282°33.6'	S 10°14.6'	303°06.2'	S 17°11.7'	349°10.7'	S 23°51.2'
10	275°40.7'		326°52.8'	S 18°40.1'	354°02.2'	S 16°09.8'	297°35.6'	S 10°14.4'	318°08.4'	S 17°11.6'	4°11.2'	S 23°51.2'
11	290°43.2'		341°52.7'	S 18°39.5'	9°05.0'	S 16°09.8'	312°37.5'	S 10°14.2'	333°10.5'	S 17°11.5'	19°11.6'	S 23°51.3'
12	305°45.6'		356°52.5'	S 18°38.8'	24°07.8'	S 16°09.8'	327°39.4'	S 10°14.0'	348°12.7'	S 17°11.4'	34°12.1'	S 23°51.3'
13	320°48.1'		11°52.4'	S 18°38.2'	39°10.5'	S 16°09.8'	342°41.4'	S 10°13.7'	3°14.9'	S 17°11.3'	49°12.6'	S 23°51.3'
14	335°50.6'		26°52.3'	S 18°37.6'	54°13.3'	S 16°09.9'	357°43.3'	S 10°13.5'	18°17.0'	S 17°11.2'	64°13.1'	S 23°51.3'
15	350°53.0'		41°52.1'	S 18°36.9'	69°16.1'	S 16°09.9'	12°45.2'	S 10°13.3'	33°19.2'	S 17°11.2'	79°13.6'	S 23°51.3'
16	5°55.5'		56°52.0'	S 18°36.3'	84°18.8'	S 16°09.9'	27°47.2'	S 10°13.1'	48°21.4'	S 17°11.1'	94°14.0'	S 23°51.3'
17	20°58.0'		71°51.9'	S 18°35.7'	99°21.6'	S 16°09.9'	42°49.1'	S 10°12.9'	63°23.5'	S 17°11.0'	109°14.5'	S 23°51.3'
18	36°00.4'		86°51.7'	S 18°35.0'	114°24.3'	S 16°09.9'	57°51.0'	S 10°12.7'	78°25.7'	S 17°10.9'	124°15.0'	S 23°51.3'
19	51°02.9'		101°51.6'	S 18°34.4'	129°27.1'	S 16°09.9'	72°53.0'	S 10°12.5'	93°27.9'	S 17°10.8'	139°15.5'	S 23°51.3'
20	66°05.4'		116°51.5'	S 18°33.7'	144°29.8'	S 16°09.9'	87°54.9'	S 10°12.3'	108°30.0'	S 17°10.7'	154°15.9'	S 23°51.3'
21	81°07.8'		131°51.4'	S 18°33.1'	159°32.5'	S 16°09.9'	102°56.8'	S 10°12.1'	123°32.2'	S 17°10.6'	169°16.4'	S 23°51.3'
22	96°10.3'		146°51.2'	S 18°32.5'	174°35.3'	S 16°09.9'	117°58.7'	S 10°11.9'	138°34.4'	S 17°10.6'	184°16.9'	S 23°51.3'
23	111°12.7'		161°51.1'	S 18°31.8'	189°38.0'	S 16°09.9'	133°00.7'	S 10°11.6'	153°36.5'	S 17°10.5'	199°17.4'	S 23°51.4'
			SD 16.2'	d 0.6'	v 2.8'	d -0.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d -0.0'
Mer. pass.			12 h 12 m 30 s		10 h 24 m		14 h 9 m		12 h 47 m		9 h 43 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Venus	-Mars	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	265°42.9'	S 13°48.4'	10.4'	-13.4'	58.7'	84°30.0'	59°51.2'	49°36.2'	29°11.8'	17°42.8'	33°17.8'	71°21.0'	103°49.2'
1	280°12.3'	S 14°01.8'	10.3'	-13.3'	58.8'	83°57.8'	59°16.7'	49°03.3'	28°37.2'	18°16.2'	33°36.5'	71°55.7'	104°07.7'
2	294°41.6'	S 14°15.1'	10.2'	-13.3'	58.8'	83°25.6'	58°42.3'	48°30.3'	28°02.7'	18°49.7'	33°55.5'	72°30.4'	104°26.2'
3	309°10.7'	S 14°28.4'	10.1'	-13.2'	58.8'	82°53.4'	58°07.9'	47°57.3'	27°28.1'	19°23.4'	34°14.9'	73°05.1'	104°44.6'
4	323°39.8'	S 14°41.6'	10.0'	-13.1'	58.8'	82°21.2'	57°33.4'	47°24.2'	26°53.5'	19°57.1'	34°34.7'	73°39.9'	105°03.0'
5	338°08.8'	S 14°54.7'	9.9'	-13.1'	58.9'	81°48.9'	56°58.9'	46°51.1'	26°19.0'	20°31.0'	34°54.9'	74°14.7'	105°21.4'
6	352°37.6'	S 15°07.8'	9.8'	-13.0'	58.9'	81°16.6'	56°24.4'	46°18.0'	25°44.3'	21°04.9'	35°15.4'	74°49.6'	105°39.6'
7	7°06.4'	S 15°20.8'	9.7'	-12.9'	58.9'	80°44.2'	55°49.9'	45°44.9'	25°09.7'	21°38.9'	35°36.3'	75°24.5'	105°57.9'
8	21°35.1'	S 15°33.7'	9.6'	-12.9'	58.9'	80°11.8'	55°15.4'	45°11.7'	24°35.1'	22°13.0'	35°57.5'	75°59.4'	106°16.0'
9	36°03.7'	S 15°46.6'	9.5'	-12.8'	59.0'	79°39.4'	54°40.8'	44°38.5'	24°00.4'	22°47.1'	36°19.0'	76°34.4'	106°34.1'
10	50°32.1'	S 15°59.3'	9.4'	-12.7'	59.0'	79°07.0'	54°06.2'	44°05.3'	23°25.7'	23°21.4'	36°40.8'	77°09.3'	106°52.2'
11	65°00.5'	S 16°12.0'	9.3'	-12.6'	59.0'	78°34.5'	53°31.7'	43°32.0'	22°51.0'	23°55.7'	37°03.0'	77°44.4'	107°10.2'
12	79°28.8'	S 16°24.6'	9.2'	-12.5'	59.0'	78°02.0'	52°57.1'	42°58.7'	22°16.3'	24°30.1'	37°25.5'	78°19.4'	107°28.1'
13	93°56.9'	S 16°37.2'	9.1'	-12.5'	59.1'	77°29.5'	52°22.5'	42°25.4'	21°41.6'	25°04.5'	37°48.2'	78°54.5'	107°45.9'
14	108°25.0'	S 16°49.6'	8.9'	-12.4'	59.1'	76°56.9'	51°47.9'	41°52.1'	21°06.9'	25°39.0'	38°11.3'	79°29.6'	108°03.7'
15	122°52.9'	S 17°02.0'	8.8'	-12.3'	59.1'	76°24.3'	51°13.2'	41°18.7'	20°32.2'	26°13.6'	38°34.6'	80°04.7'	108°21.4'
16	137°20.8'	S 17°14.3'	8.7'	-12.2'	59.1'	75°51.7'	50°38.6'	40°45.3'	19°57.5'	26°48.2'	38°58.2'	80°39.9'	108°39.1'
17	151°48.5'	S 17°26.5'	8.6'	-12.1'	59.2'	75°19.0'	50°03.9'	40°11.8'	19°22.8'	27°22.9'	39°22.1'	81°15.1'	108°56.6'
18	166°16.1'	S 17°38.6'	8.5'	-12.0'	59.2'	74°46.4'	49°29.3'	39°38.4'	18°48.1'	27°57.6'	39°46.2'	81°50.4'	109°14.1'
19	180°43.6'	S 17°50.6'	8.4'	-11.9'	59.2'	74°13.6'	48°54.6'	39°04.9'	18°13.4'	28°32.4'	40°10.6'	82°25.6'	109°31.5'
20	195°11.0'	S 18°02.5'	8.3'	-11.8'	59.2'	73°40.9'	48°19.9'	38°31.3'	17°38.8'	29°07.2'	40°35.2'	83°00.9'	109°48.8'
21	209°38.3'	S 18°14.3'	8.2'	-11.7'	59.3'	73°08.1'	47°45.3'	37°57.8'	17°04.1'	29°42.1'	41°00.1'	83°36.3'	110°06.0'
22	224°05.5'	S 18°26.1'	8.1'	-11.6'	59.3'	72°35.3'	47°10.6'	37°24.2'	16°29.5'	30°17.1'	41°25.2'	84°11.6'	110°23.2'
23	238°32.6'	S 18°37.7'	8.0'	-11.5'	59.3'	72°02.5'	46°35.9'	36°50.6'	15°54.9'	30°52.1'	41°50.5'	84°47.0'	110°40.2'
Mer. pass.			6 h 31 m SD 16.0'	phase 45%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°03.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	126°15.2'	176°51.0'	S 18°31.2'	204°40.7'	S 16°09.9'		148°02.6'	S 10°11.4'		168°38.7'	S 17°10.4'		214°17.9'	S 23°51.4'				
1	141°17.7'	191°50.8'	S 18°30.5'	219°43.4'	S 16°09.9'		163°04.5'	S 10°11.2'		183°40.9'	S 17°10.3'		229°18.3'	S 23°51.4'				
2	156°20.1'	206°50.7'	S 18°29.9'	234°46.1'	S 16°09.9'		178°06.5'	S 10°11.0'		198°43.0'	S 17°10.2'		244°18.8'	S 23°51.4'				
3	171°22.6'	221°50.6'	S 18°29.3'	249°48.8'	S 16°09.9'		193°08.4'	S 10°10.8'		213°45.2'	S 17°10.1'		259°19.3'	S 23°51.4'				
4	186°25.1'	236°50.4'	S 18°28.6'	264°51.5'	S 16°09.9'		208°10.3'	S 10°10.6'		228°47.4'	S 17°10.0'		274°19.8'	S 23°51.4'				
5	201°27.5'	251°50.3'	S 18°28.0'	279°54.2'	S 16°10.0'		223°12.3'	S 10°10.4'		243°49.5'	S 17°10.0'		289°20.2'	S 23°51.4'				
6	216°30.0'	266°50.2'	S 18°27.3'	294°56.9'	S 16°10.0'		238°14.2'	S 10°10.2'		258°51.7'	S 17°09.9'		304°20.7'	S 23°51.4'				
7	231°32.5'	281°50.1'	S 18°26.7'	309°59.6'	S 16°10.0'		253°16.1'	S 10°10.0'		273°53.8'	S 17°09.8'		319°21.2'	S 23°51.4'				
8	246°34.9'	296°49.9'	S 18°26.0'	325°02.3'	S 16°10.0'		268°18.0'	S 10°09.8'		288°56.0'	S 17°09.7'		334°21.7'	S 23°51.4'				
9	261°37.4'	311°49.8'	S 18°25.4'	340°05.0'	S 16°10.0'		283°20.0'	S 10°09.5'		303°58.2'	S 17°09.6'		349°22.1'	S 23°51.4'				
10	276°39.8'	326°49.7'	S 18°24.7'	355°07.6'	S 16°10.0'		298°21.9'	S 10°09.3'		319°00.3'	S 17°09.5'		4°22.6'	S 23°51.4'				
11	291°42.3'	341°49.6'	S 18°24.1'	10°10.3'	S 16°10.0'		313°23.8'	S 10°09.1'		334°02.5'	S 17°09.4'		19°23.1'	S 23°51.4'				
12	306°44.8'	356°49.4'	S 18°23.4'	25°13.0'	S 16°10.1'		328°25.8'	S 10°08.9'		349°04.7'	S 17°09.4'		34°23.6'	S 23°51.4'				
13	321°47.2'	11°49.3'	S 18°22.8'	40°15.6'	S 16°10.1'		343°27.7'	S 10°08.7'		4°06.8'	S 17°09.3'		49°24.0'	S 23°51.4'				
14	336°49.7'	26°49.2'	S 18°22.1'	55°18.3'	S 16°10.1'		358°29.6'	S 10°08.5'		19°09.0'	S 17°09.2'		64°24.5'	S 23°51.4'				
15	351°52.2'	41°49.1'	S 18°21.5'	70°20.9'	S 16°10.1'		13°31.6'	S 10°08.3'		34°11.2'	S 17°09.1'		79°25.0'	S 23°51.4'				
16	6°54.6'	56°48.9'	S 18°20.8'	85°23.6'	S 16°10.1'		28°33.5'	S 10°08.1'		49°13.3'	S 17°09.0'		94°25.5'	S 23°51.4'				
17	21°57.1'	71°48.8'	S 18°20.2'	100°26.2'	S 16°10.1'		43°35.4'	S 10°07.9'		64°15.5'	S 17°08.9'		109°25.9'	S 23°51.4'				
18	36°59.6'	86°48.7'	S 18°19.5'	115°28.9'	S 16°10.2'		58°37.3'	S 10°07.6'		79°17.7'	S 17°08.8'		124°26.4'	S 23°51.4'				
19	52°02.0'	101°48.6'	S 18°18.9'	130°31.5'	S 16°10.2'		73°39.3'	S 10°07.4'		94°19.8'	S 17°08.8'		139°26.9'	S 23°51.4'				
20	67°04.5'	116°48.4'	S 18°18.2'	145°34.1'	S 16°10.2'		88°41.2'	S 10°07.2'		109°22.0'	S 17°08.7'		154°27.4'	S 23°51.4'				
21	82°07.0'	131°48.3'	S 18°17.6'	160°36.7'	S 16°10.2'		103°43.1'	S 10°07.0'		124°24.2'	S 17°08.6'		169°27.9'	S 23°51.4'				
22	97°09.4'	146°48.2'	S 18°16.9'	175°39.4'	S 16°10.2'		118°45.1'	S 10°06.8'		139°26.3'	S 17°08.5'		184°28.3'	S 23°51.4'				
23	112°11.9'	161°48.1'	S 18°16.3'	190°42.0'	S 16°10.3'		133°47.0'	S 10°06.6'		154°28.5'	S 17°08.4'		199°28.8'	S 23°51.4'				
		SD 16.2'	d 0.6'		v 2.7'	d -0.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d -0.0'			
Mer. pass.		12 h 12 m 42 s		10 h 19 m			14 h 6 m			12 h 44 m			9 h 43 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Mars	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	252°59.6'	S 18°49.2'	7.9'	-11.4'	59.3'	71°29.6'	46°01.2'	36°16.9'	15°20.3'	31°27.1'	42°16.1'	85°22.4'	110°57.2'
1	267°26.4'	S 19°00.6'	7.7'	-11.3'	59.4'	70°56.7'	45°26.5'	35°43.3'	14°45.8'	32°02.2'	42°41.9'	85°57.9'	111°14.1'
2	281°53.2'	S 19°12.0'	7.6'	-11.2'	59.4'	70°23.8'	44°51.8'	35°09.6'	14°11.4'	32°37.3'	43°07.8'	86°33.4'	111°30.8'
3	296°19.8'	S 19°23.2'	7.5'	-11.1'	59.4'	69°50.8'	44°17.1'	34°35.8'	13°37.0'	33°12.5'	43°34.0'	87°08.9'	111°47.5'
4	310°46.3'	S 19°34.3'	7.4'	-11.0'	59.4'	69°17.8'	43°42.3'	34°02.1'	13°02.7'	33°47.7'	44°00.4'	87°44.4'	112°04.1'
5	325°12.7'	S 19°45.3'	7.3'	-10.9'	59.5'	68°44.8'	43°07.6'	33°28.3'	12°28.4'	34°23.0'	44°27.0'	88°20.0'	112°20.5'
6	339°39.0'	S 19°56.1'	7.2'	-10.8'	59.5'	68°11.8'	42°32.9'	32°54.5'	11°54.3'	34°58.3'	44°53.7'	88°55.6'	112°36.9'
7	354°05.2'	S 20°06.9'	7.1'	-10.7'	59.5'	67°38.7'	41°58.2'	32°20.7'	11°20.4'	35°33.6'	45°20.7'	89°31.3'	112°53.1'
8	8°31.2'	S 20°17.6'	7.0'	-10.5'	59.5'	67°05.6'	41°23.5'	31°46.8'	10°46.6'	36°09.0'	45°47.8'	90°06.9'	113°09.3'
9	22°57.2'	S 20°28.1'	6.8'	-10.4'	59.6'	66°32.5'	40°48.8'	31°12.9'	10°12.9'	36°44.5'	46°15.1'	90°42.6'	113°25.3'
10	37°23.0'	S 20°38.5'	6.7'	-10.3'	59.6'	65°59.3'	40°14.2'	30°39.0'	9°39.6'	37°19.9'	46°42.6'	91°18.4'	113°41.2'
11	51°48.8'	S 20°48.8'	6.6'	-10.2'	59.6'	65°26.1'	39°39.5'	30°05.1'	9°06.5'	37°55.4'	47°10.3'	91°54.1'	113°57.0'
12	66°14.4'	S 20°59.0'	6.5'	-10.1'	59.6'	64°52.9'	39°04.8'	29°31.1'	8°33.7'	38°31.0'	47°38.1'	92°29.9'	114°12.7'
13	80°39.9'	S 21°09.0'	6.4'	-9.9'	59.6'	64°19.7'	38°30.2'	28°57.1'	8°01.4'	39°06.6'	48°06.0'	93°05.7'	114°28.2'
14	95°05.3'	S 21°19.0'	6.3'	-9.8'	59.7'	63°46.4'	37°55.5'	28°23.1'	7°29.5'	39°42.2'	48°34.1'	93°41.6'	114°43.6'
15	109°30.5'	S 21°28.8'	6.2'	-9.7'	59.7'	63°13.1'	37°20.9'	27°49.1'		40°17.9'	49°02.4'	94°17.4'	114°58.9'
16	123°55.7'	S 21°38.4'	6.0'	-9.5'	59.7'	62°39.8'	36°46.3'	27°15.0'		40°53.6'	49°30.8'	94°53.3'	115°14.1'
17	138°20.7'	S 21°48.0'	5.9'	-9.4'	59.7'	62°06.5'	36°11.7'	26°40.9'		41°29.3'	49°59.4'	95°29.2'	
18	152°45.7'	S 21°57.4'	5.8'	-9.3'	59.7'	61°33.1'	35°37.2'	26°06.8'		42°05.0'	50°28.1'	96°05.2'	
19	167°10.5'	S 22°06.6'	5.7'	-9.1'	59.8'	60°59.7'	35°02.6'	25°32.7'		42°40.8'	50°56.9'	96°41.2'	
20	181°35.2'	S 22°15.8'	5.6'	-9.0'	59.8'	60°26.3'	34°28.1'	24°58.6'		43°16.7'	51°25.9'	97°17.2'	
21	195°59.8'	S 22°24.7'	5.5'	-8.8'	59.8'	59°52.8'	33°53.7'	24°24.4'		43°52.6'	51°55.0'	97°53.2'	
22	210°24.3'	S 22°33.6'	5.4'	-8.7'	59.8'	59°19.3'	33°19.2'	23°50.2'		44°28.5'	52°24.2'	98°29.3'	
23	224°48.7'	S 22°42.3'	5.3'	-8.6'	59.9'	58°45.8'	32°44.9'	23°16.0'		45°04.4'	52°53.6'	99°05.4'	
Mer. pass.		7 h 25 m SD 16.2'	phase 34%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°03.8'	N 89°21.7'
Rigil Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.1'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.4'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

Friday 28 January 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	127°14.3'	176°48.0'	S 18°15.6'	205°44.6'	S 16°10.3'		148°48.9'	S 10°06.4'		169°30.7'	S 17°08.3'		214°29.3'	S 23°51.4'				
1	142°16.8'	191°47.8'	S 18°15.0'	220°47.2'	S 16°10.3'		163°50.8'	S 10°06.2'		184°32.8'	S 17°08.2'		229°29.8'	S 23°51.4'				
2	157°19.3'	206°47.7'	S 18°14.3'	235°49.8'	S 16°10.3'		178°52.8'	S 10°06.0'		199°35.0'	S 17°08.2'		244°30.2'	S 23°51.3'				
3	172°21.7'	221°47.6'	S 18°13.6'	250°52.4'	S 16°10.4'		193°54.7'	S 10°05.7'		214°37.2'	S 17°08.1'		259°30.7'	S 23°51.3'				
4	187°24.2'	236°47.5'	S 18°13.0'	265°55.0'	S 16°10.4'		208°56.6'	S 10°05.5'		229°39.3'	S 17°08.0'		274°31.2'	S 23°51.3'				
5	202°26.7'	251°47.4'	S 18°12.3'	280°57.6'	S 16°10.4'		223°58.5'	S 10°05.3'		244°41.5'	S 17°07.9'		289°31.7'	S 23°51.3'				
6	217°29.1'	266°47.2'	S 18°11.7'	296°00.1'	S 16°10.4'		239°00.5'	S 10°05.1'		259°43.6'	S 17°07.8'		304°32.1'	S 23°51.3'				
7	232°31.6'	281°47.1'	S 18°11.0'	311°02.7'	S 16°10.5'		254°02.4'	S 10°04.9'		274°45.8'	S 17°07.7'		319°32.6'	S 23°51.3'				
8	247°34.1'	296°47.0'	S 18°10.4'	326°05.3'	S 16°10.5'		269°04.3'	S 10°04.7'		289°48.0'	S 17°07.6'		334°33.1'	S 23°51.3'				
9	262°36.5'	311°46.9'	S 18°09.7'	341°07.9'	S 16°10.5'		284°06.3'	S 10°04.5'		304°50.1'	S 17°07.6'		349°33.6'	S 23°51.3'				
10	277°39.0'	326°46.8'	S 18°09.0'	356°10.4'	S 16°10.6'		299°08.2'	S 10°04.3'		319°52.3'	S 17°07.5'		4°34.0'	S 23°51.3'				
11	292°41.5'	341°46.6'	S 18°08.4'	11°13.0'	S 16°10.6'		314°10.1'	S 10°04.1'		334°54.5'	S 17°07.4'		19°34.5'	S 23°51.3'				
12	307°43.9'	356°46.5'	S 18°07.7'	26°15.6'	S 16°10.6'		329°12.0'	S 10°03.8'		349°56.6'	S 17°07.3'		34°35.0'	S 23°51.3'				
13	322°46.4'	11°46.4'	S 18°07.0'	41°18.1'	S 16°10.6'		344°14.0'	S 10°03.6'		4°58.8'	S 17°07.2'		49°35.4'	S 23°51.3'				
14	337°48.8'	26°46.3'	S 18°06.4'	56°20.6'	S 16°10.7'		359°15.9'	S 10°03.4'		20°01.0'	S 17°07.1'		64°35.9'	S 23°51.3'				
15	352°51.3'	41°46.2'	S 18°05.7'	71°23.2'	S 16°10.7'		14°17.8'	S 10°03.2'		35°03.1'	S 17°07.0'		79°36.4'	S 23°51.2'				
16	7°53.8'	56°46.1'	S 18°05.1'	86°25.7'	S 16°10.7'		29°19.8'	S 10°03.0'		50°05.3'	S 17°07.0'		94°36.9'	S 23°51.2'				
17	22°56.2'	71°45.9'	S 18°04.4'	101°28.3'	S 16°10.8'		44°21.7'	S 10°02.8'		65°07.5'	S 17°06.9'		109°37.3'	S 23°51.2'				
18	37°58.7'	86°45.8'	S 18°03.7'	116°30.8'	S 16°10.8'		59°23.6'	S 10°02.6'		80°09.6'	S 17°06.8'		124°37.8'	S 23°51.2'				
19	53°01.2'	101°45.7'	S 18°03.1'	131°33.3'	S 16°10.8'		74°25.5'	S 10°02.4'		95°11.8'	S 17°06.7'		139°38.3'	S 23°51.2'				
20	68°03.6'	116°45.6'	S 18°02.4'	146°35.8'	S 16°10.9'		89°27.5'	S 10°02.2'		110°14.0'	S 17°06.6'		154°38.8'	S 23°51.2'				
21	83°06.1'	131°45.5'	S 18°01.7'	161°38.3'	S 16°10.9'		104°29.4'	S 10°01.9'		125°16.1'	S 17°06.5'		169°39.2'	S 23°51.2'				
22	98°08.6'	146°45.4'	S 18°01.1'	176°40.9'	S 16°10.9'		119°31.3'	S 10°01.7'		140°18.3'	S 17°06.4'		184°39.7'	S 23°51.2'				
23	113°11.0'	161°45.3'	S 18°00.4'	191°43.4'	S 16°11.0'		134°33.2'	S 10°01.5'		155°20.4'	S 17°06.4'		199°40.2'	S 23°51.1'				
		SD 16.2'	d 0.7'		v 2.6'	d -0.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d 0.0'			
Mer. pass.		12 h 12 m 54 s		10 h 15 m			14 h 3 m			12 h 40 m			9 h 42 m					

h	Moon					Lunar distance												
	GHA	dec	v	d	HP	-Deneb	-Sun	-Venus	-Mars	-Antares	+Spica	+Arcturus	+Regulus					
0	239°13.0'	S 22°50.9'	5.2'	-8.4'	59.9'		58°12.3'	32°10.5'	22°41.8'		45°40.4'	53°23.0'	99°41.5'					
1	253°37.1'	S 22°59.3'	5.1'	-8.3'	59.9'		57°38.8'	31°36.2'	22°07.6'		46°16.3'	53°52.6'	100°17.6'					
2	268°01.2'	S 23°07.5'	5.0'	-8.1'	59.9'		57°05.2'	31°02.0'	21°33.3'		46°52.4'	54°22.3'	100°53.8'					
3	282°25.2'	S 23°15.6'	4.9'	-8.0'	59.9'	87°56.2'	56°31.6'	30°27.8'	20°59.0'		47°28.4'	54°52.1'	101°30.0'					
4	296°49.0'	S 23°23.6'	4.8'	-7.8'	59.9'	87°40.9'	55°58.0'	29°53.6'	20°24.8'		48°04.5'	55°22.0'	102°06.2'					
5	311°12.8'	S 23°31.4'	4.6'	-7.7'	60.0'	87°25.5'	55°24.3'	29°19.5'	19°50.5'		48°40.6'	55°52.0'	102°42.4'					
6	325°36.4'	S 23°39.1'	4.5'	-7.5'	60.0'	87°10.2'	54°50.7'	28°45.5'	19°16.2'		49°16.8'	56°22.2'	103°18.7'					
7	339°60.0'	S 23°46.6'	4.4'	-7.3'	60.0'	86°54.9'	54°17.0'	28°11.6'	18°41.9'		49°53.0'	56°52.4'	103°55.0'					
8	354°23.4'	S 23°53.9'	4.3'	-7.2'	60.0'	86°39.5'	53°43.3'	27°37.8'	18°07.6'		50°29.2'	57°22.7'	104°31.3'					
9	8°46.8'	S 24°01.1'	4.2'	-7.0'	60.0'	86°24.2'	53°09.6'	27°04.0'	17°33.2'		51°05.4'	57°53.1'	105°07.6'					
10	23°10.0'	S 24°08.1'	4.2'	-6.9'	60.1'	86°08.9'	52°35.8'	26°30.4'	16°58.9'		51°41.7'	58°23.6'	105°44.0'					
11	37°33.2'	S 24°15.0'	4.1'	-6.7'	60.1'	85°53.6'	52°02.0'	25°56.8'	16°24.6'		52°18.0'	58°54.2'	106°20.4'					
12	51°56.2'	S 24°21.7'	4.0'	-6.5'	60.1'	85°38.3'	51°28.3'	25°23.4'	15°50.3'	7°37.5'	52°54.3'	59°24.9'	106°56.8'					
13	66°19.2'	S 24°28.2'	3.9'	-6.4'	60.1'	85°23.1'	50°54.4'	24°50.0'	15°16.0'	8°10.0'	53°30.6'	59°55.7'	107°33.2'					
14	80°42.1'	S 24°34.6'	3.8'	-6.2'	60.1'	85°07.8'	50°20.6'	24°16.9'	14°41.7'	8°43.0'	54°07.0'	60°26.6'	108°09.6'					
15	95°04.8'	S 24°40.7'	3.7'	-6.0'	60.1'	84°52.6'	49°46.8'	23°43.8'	14°07.4'	9°16.5'	54°43.4'	60°57.5'	108°46.1'					
16	109°27.5'	S 24°46.8'	3.6'	-5.8'	60.2'	84°37.4'	49°12.9'	23°10.9'	13°33.1'	9°50.4'	55°19.8'	61°28.5'	109°22.6'					
17	123°50.1'	S 24°52.6'	3.5'	-5.7'	60.2'	84°22.2'	48°39.0'	22°38.2'	12°58.9'	10°24.6'	55°56.2'	61°59.6'	109°59.1'					
18	138°12.7'	S 24°58.3'	3.4'	-5.5'	60.2'	84°07.0'	48°05.1'	22°05.7'	12°24.7'	10°59.1'	56°32.7'	62°30.8'	110°35.6'					
19	152°35.1'	S 25°03.8'	3.4'	-5.3'	60.2'	83°51.9'	47°31.2'	21°33.3'	11°50.6'	11°33.9'	57°09.2'	63°02.1'	111°12.2'					
20	166°57.5'	S 25°09.1'	3.3'	-5.1'	60.2'	83°36.7'	46°57.3'	21°01.2'	11°16.4'	12°08.8'	57°45.7'	63°33.4'	111°48.7'					
21	181°19.8'	S 25°14.2'	3.2'	-5.0'	60.2'	83°21.6'	46°23.3'	20°29.3'	10°42.4'	12°43.9'	58°22.2'	64°04.8'	112°25.3'					
22	195°42.0'	S 25°19.2'	3.1'	-4.8'	60.2'	83°06.6'	45°49.4'	19°57.7'	10°08.4'	13°19.2'	58°58.8'	64°36.2'	113°01.9'					
23	210°04.1'	S 25°24.0'	3.1'	-4.6'	60.2'		45°15.4'	19°26.3'	9°34.5'	13°54.6'	59°35.3'	65°07.7'	113°38.6'					
Mer. pass.		8 h 23 m SD 16.3'	phase 24%															

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.8'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°04.2'	N 89°21.7'
Rigil Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	128°13.5'	176°45.1'	S 17°59.7'	206°45.9'	S 16°11.0'	149°35.2'	S 10°01.3'	170°22.6'	S 17°06.3'	214°40.7'	S 23°51.1'	
1	143°16.0'	191°45.0'	S 17°59.0'	221°48.4'	S 16°11.1'	164°37.1'	S 10°01.1'	185°24.8'	S 17°06.2'	229°41.1'	S 23°51.1'	
2	158°18.4'	206°44.9'	S 17°58.4'	236°50.9'	S 16°11.1'	179°39.0'	S 10°00.9'	200°26.9'	S 17°06.1'	244°41.6'	S 23°51.1'	
3	173°20.9'	221°44.8'	S 17°57.7'	251°53.3'	S 16°11.1'	194°40.9'	S 10°00.7'	215°29.1'	S 17°06.0'	259°42.1'	S 23°51.1'	
4	188°23.3'	236°44.7'	S 17°57.0'	266°55.8'	S 16°11.2'	209°42.9'	S 10°00.5'	230°31.3'	S 17°05.9'	274°42.6'	S 23°51.1'	
5	203°25.8'	251°44.6'	S 17°56.4'	281°58.3'	S 16°11.2'	224°44.8'	S 10°00.2'	245°33.4'	S 17°05.8'	289°43.0'	S 23°51.0'	
6	218°28.3'	266°44.5'	S 17°55.7'	297°00.8'	S 16°11.3'	239°46.7'	S 10°00.0'	260°35.6'	S 17°05.8'	304°43.5'	S 23°51.0'	
7	233°30.7'	281°44.4'	S 17°55.0'	312°03.3'	S 16°11.3'	254°48.7'	S 9°59.8'	275°37.8'	S 17°05.7'	319°44.0'	S 23°51.0'	
8	248°33.2'	296°44.3'	S 17°54.3'	327°05.7'	S 16°11.3'	269°50.6'	S 9°59.6'	290°39.9'	S 17°05.6'	334°44.4'	S 23°51.0'	
9	263°35.7'	311°44.1'	S 17°53.7'	342°08.2'	S 16°11.4'	284°52.5'	S 9°59.4'	305°42.1'	S 17°05.5'	349°44.9'	S 23°51.0'	
10	278°38.1'	326°44.0'	S 17°53.0'	357°10.6'	S 16°11.4'	299°54.4'	S 9°59.2'	320°44.3'	S 17°05.4'	4°45.4'	S 23°51.0'	
11	293°40.6'	341°43.9'	S 17°52.3'	12°13.1'	S 16°11.5'	314°56.4'	S 9°59.0'	335°46.4'	S 17°05.3'	19°45.9'	S 23°50.9'	
12	308°43.1'	356°43.8'	S 17°51.6'	27°15.5'	S 16°11.5'	329°58.3'	S 9°58.8'	350°48.6'	S 17°05.2'	34°46.3'	S 23°50.9'	
13	323°45.5'	11°43.7'	S 17°51.0'	42°18.0'	S 16°11.5'	345°00.2'	S 9°58.5'	5°50.8'	S 17°05.2'	49°46.8'	S 23°50.9'	
14	338°48.0'	26°43.6'	S 17°50.3'	57°20.4'	S 16°11.6'	0°02.1'	S 9°58.3'	20°52.9'	S 17°05.1'	64°47.3'	S 23°50.9'	
15	353°50.5'	41°43.5'	S 17°49.6'	72°22.9'	S 16°11.6'	15°04.1'	S 9°58.1'	35°55.1'	S 17°05.0'	79°47.8'	S 23°50.9'	
16	8°52.9'	56°43.4'	S 17°48.9'	87°25.3'	S 16°11.7'	30°06.0'	S 9°57.9'	50°57.2'	S 17°04.9'	94°48.2'	S 23°50.8'	
17	23°55.4'	71°43.3'	S 17°48.3'	102°27.7'	S 16°11.7'	45°07.9'	S 9°57.7'	65°59.4'	S 17°04.8'	109°48.7'	S 23°50.8'	
18	38°57.8'	86°43.2'	S 17°47.6'	117°30.1'	S 16°11.8'	60°09.8'	S 9°57.5'	81°01.6'	S 17°04.7'	124°49.2'	S 23°50.8'	
19	54°00.3'	101°43.1'	S 17°46.9'	132°32.6'	S 16°11.8'	75°11.8'	S 9°57.3'	96°03.7'	S 17°04.6'	139°49.6'	S 23°50.8'	
20	69°02.8'	116°43.0'	S 17°46.2'	147°35.0'	S 16°11.9'	90°13.7'	S 9°57.0'	111°05.9'	S 17°04.6'	154°50.1'	S 23°50.7'	
21	84°05.2'	131°42.8'	S 17°45.5'	162°37.4'	S 16°11.9'	105°15.6'	S 9°56.8'	126°08.1'	S 17°04.5'	169°50.6'	S 23°50.7'	
22	99°07.7'	146°42.7'	S 17°44.9'	177°39.8'	S 16°12.0'	120°17.5'	S 9°56.6'	141°10.2'	S 17°04.4'	184°51.1'	S 23°50.7'	
23	114°10.2'	161°42.6'	S 17°44.2'	192°42.2'	S 16°12.0'	135°19.5'	S 9°56.4'	156°12.4'	S 17°04.3'	199°51.5'	S 23°50.7'	
		SD 16.2'	d 0.7'	v 2.4'	d -0.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.0'	
Mer. pass.		12 h 13 m 5 s		10 h 11 m		14 h 0 m		12 h 37 m		9 h 41 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Sun	-Venus	-Mars	+Antares	+Rigel Kent	+Hadar	+Spica
0	224°26.2'	S 25°28.6'	3.0'	-4.4'	60.3'	47°50.5'	44°41.4'	18°55.3'	9°00.8'	14°30.2'			60°11.9'
1	238°48.1'	S 25°33.0'	2.9'	-4.2'	60.3'	47°26.3'	44°07.4'	18°24.5'	8°27.2'	15°05.9'		50°02.9'	60°48.5'
2	253°10.1'	S 25°37.2'	2.9'	-4.0'	60.3'	47°02.2'	43°33.4'	17°54.2'	7°53.7'	15°41.6'		50°18.2'	61°25.2'
3	267°31.9'	S 25°41.3'	2.8'	-3.9'	60.3'	46°38.4'	42°59.4'	17°24.2'	7°20.5'	16°17.5'		50°33.7'	62°01.8'
4	281°53.7'	S 25°45.1'	2.7'	-3.7'	60.3'	46°14.8'	42°25.3'	16°54.6'	6°47.6'	16°53.4'		50°49.4'	62°38.5'
5	296°15.4'	S 25°48.8'	2.7'	-3.5'	60.3'	45°51.3'	41°51.3'	16°25.6'	6°15.0'	17°29.5'		51°05.5'	63°15.2'
6	310°37.1'	S 25°52.3'	2.6'	-3.3'	60.3'	45°28.1'	41°17.2'	15°57.0'	5°42.9'	18°05.6'	47°26.5'	51°21.8'	63°51.9'
7	324°58.7'	S 25°55.6'	2.6'	-3.1'	60.3'	45°05.2'	40°43.2'	15°29.0'		18°41.7'	47°41.6'	51°38.4'	64°28.6'
8	339°20.3'	S 25°58.7'	2.5'	-2.9'	60.4'	44°42.4'	40°09.1'	15°01.6'		19°17.9'	47°56.9'	51°55.2'	65°05.4'
9	353°41.8'	S 26°01.6'	2.5'	-2.7'	60.4'	44°19.9'		14°34.9'		19°54.2'	48°12.6'	52°12.3'	65°42.1'
10	8°03.2'	S 26°04.3'	2.4'	-2.5'	60.4'	43°57.7'				20°30.5'	48°28.6'	52°29.6'	66°18.9'
11	22°24.7'	S 26°06.9'	2.4'	-2.3'	60.4'	43°35.7'				21°06.9'	48°44.9'	52°47.2'	66°55.7'
12	36°46.0'	S 26°09.2'	2.3'	-2.1'	60.4'	43°13.9'				21°43.3'	49°01.5'	53°05.0'	67°32.5'
13	51°07.4'	S 26°11.4'	2.3'	-1.9'	60.4'	42°52.5'				22°19.8'	49°18.3'	53°23.0'	68°09.3'
14	65°28.7'	S 26°13.3'	2.3'	-1.8'	60.4'	42°31.3'				22°56.3'	49°35.4'	53°41.3'	68°46.1'
15	79°49.9'	S 26°15.1'	2.2'	-1.6'	60.4'	42°10.4'				23°32.8'	49°52.8'	53°59.8'	69°23.0'
16	94°11.1'	S 26°16.6'	2.2'	-1.4'	60.4'	41°49.8'				24°09.3'	50°10.5'	54°18.5'	69°59.8'
17	108°32.3'	S 26°18.0'	2.2'	-1.2'	60.4'	41°29.5'				24°45.9'	50°28.4'	54°37.5'	70°36.7'
18	122°53.5'	S 26°19.1'	2.1'	-1.0'	60.4'	41°09.5'				25°22.6'	50°46.6'	54°56.6'	71°13.6'
19	137°14.7'	S 26°20.1'	2.1'	-0.8'	60.4'	40°49.8'				25°59.2'	51°05.0'	55°16.0'	71°50.5'
20	151°35.8'	S 26°20.9'	2.1'	-0.6'	60.4'	40°30.5'				26°35.9'	51°23.6'	55°35.6'	72°27.4'
21	165°56.9'	S 26°21.5'	2.1'	-0.4'	60.4'	40°11.5'				27°12.6'	51°42.6'	55°55.3'	73°04.3'
22	180°18.0'	S 26°21.8'	2.1'	-0.2'	60.4'	39°52.8'				27°49.3'	52°01.7'	56°15.3'	73°41.2'
23	194°39.1'	S 26°22.0'	2.1'	0.0'	60.4'	39°34.5'			5°20.8'	28°26.1'	52°21.1'	56°35.5'	74°18.1'
Mer. pass.		9 h 26 m SD 16.4'	phase 14%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°04.6'	N 89°21.7'
Rigel Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	129°12.6'	176°42.5'	S 17°43.5'	207°44.6'	S 16°12.1'		150°21.4'	S 9°56.2'		171°14.6'	S 17°04.2'		214°52.0'	S 23°50.6'				
1	144°15.1'	191°42.4'	S 17°42.8'	222°47.0'	S 16°12.1'		165°23.3'	S 9°56.0'		186°16.7'	S 17°04.1'		229°52.5'	S 23°50.6'				
2	159°17.6'	206°42.3'	S 17°42.1'	237°49.4'	S 16°12.2'		180°25.2'	S 9°55.8'		201°18.9'	S 17°04.0'		244°53.0'	S 23°50.6'				
3	174°20.0'	221°42.2'	S 17°41.4'	252°51.7'	S 16°12.2'		195°27.2'	S 9°55.6'		216°21.1'	S 17°04.0'		259°53.4'	S 23°50.6'				
4	189°22.5'	236°42.1'	S 17°40.8'	267°54.1'	S 16°12.3'		210°29.1'	S 9°55.3'		231°23.2'	S 17°03.9'		274°53.9'	S 23°50.5'				
5	204°25.0'	251°42.0'	S 17°40.1'	282°56.5'	S 16°12.3'		225°31.0'	S 9°55.1'		246°25.4'	S 17°03.8'		289°54.4'	S 23°50.5'				
6	219°27.4'	266°41.9'	S 17°39.4'	297°58.9'	S 16°12.4'		240°32.9'	S 9°54.9'		261°27.5'	S 17°03.7'		304°54.8'	S 23°50.5'				
7	234°29.9'	281°41.8'	S 17°38.7'	313°01.2'	S 16°12.4'		255°34.9'	S 9°54.7'		276°29.7'	S 17°03.6'		319°55.3'	S 23°50.5'				
8	249°32.3'	296°41.7'	S 17°38.0'	328°03.6'	S 16°12.5'		270°36.8'	S 9°54.5'		291°31.9'	S 17°03.5'		334°55.8'	S 23°50.4'				
9	264°34.8'	311°41.6'	S 17°37.3'	343°06.0'	S 16°12.5'		285°38.7'	S 9°54.3'		306°34.0'	S 17°03.4'		349°56.3'	S 23°50.4'				
10	279°37.3'	326°41.5'	S 17°36.6'	358°08.3'	S 16°12.6'		300°40.6'	S 9°54.1'		321°36.2'	S 17°03.4'		4°56.7'	S 23°50.4'				
11	294°39.7'	341°41.4'	S 17°36.0'	13°10.7'	S 16°12.6'		315°42.6'	S 9°53.8'		336°38.4'	S 17°03.3'		19°57.2'	S 23°50.4'				
12	309°42.2'	356°41.3'	S 17°35.3'	28°13.0'	S 16°12.7'		330°44.5'	S 9°53.6'		351°40.5'	S 17°03.2'		34°57.7'	S 23°50.3'				
13	324°44.7'	11°41.2'	S 17°34.6'	43°15.3'	S 16°12.7'		345°46.4'	S 9°53.4'		6°42.7'	S 17°03.1'		49°58.1'	S 23°50.3'				
14	339°47.1'	26°41.1'	S 17°33.9'	58°17.7'	S 16°12.8'		0°48.3'	S 9°53.2'		21°44.9'	S 17°03.0'		64°58.6'	S 23°50.3'				
15	354°49.6'	41°41.0'	S 17°33.2'	73°20.0'	S 16°12.9'		15°50.3'	S 9°53.0'		36°47.0'	S 17°02.9'		79°59.1'	S 23°50.2'				
16	9°52.1'	56°40.9'	S 17°32.5'	88°22.3'	S 16°12.9'		30°52.2'	S 9°52.8'		51°49.2'	S 17°02.8'		94°59.6'	S 23°50.2'				
17	24°54.5'	71°40.8'	S 17°31.8'	103°24.6'	S 16°13.0'		45°54.1'	S 9°52.6'		66°51.4'	S 17°02.8'		110°00.0'	S 23°50.2'				
18	39°57.0'	86°40.7'	S 17°31.1'	118°27.0'	S 16°13.0'		60°56.0'	S 9°52.4'		81°53.5'	S 17°02.7'		125°00.5'	S 23°50.1'				
19	54°59.5'	101°40.6'	S 17°30.4'	133°29.3'	S 16°13.1'		75°57.9'	S 9°52.1'		96°55.7'	S 17°02.6'		140°01.0'	S 23°50.1'				
20	70°01.9'	116°40.5'	S 17°29.7'	148°31.6'	S 16°13.1'		90°59.9'	S 9°51.9'		111°57.8'	S 17°02.5'		155°01.4'	S 23°50.1'				
21	85°04.4'	131°40.4'	S 17°29.0'	163°33.9'	S 16°13.2'		106°01.8'	S 9°51.7'		127°00.0'	S 17°02.4'		170°01.9'	S 23°50.0'				
22	100°06.8'	146°40.3'	S 17°28.3'	178°36.2'	S 16°13.3'		121°03.7'	S 9°51.5'		142°02.2'	S 17°02.3'		185°02.4'	S 23°50.0'				
23	115°09.3'	161°40.2'	S 17°27.7'	193°38.5'	S 16°13.3'		136°05.6'	S 9°51.3'		157°04.3'	S 17°02.2'		200°02.9'	S 23°50.0'				
		SD 16.2'	d 0.7'	v 2.3'	d -0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d 0.0'				
Mer. pass.		12 h 13 m 15 s		10 h 7 m			13 h 57 m			12 h 33 m			9 h 40 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Venus	+Mars	+Antares	+Rigil Kent	+Hadar	+AcruX	+Spica
0	209°00.2'	S 26°22.0'	2.1'	0.2'	60.5'	39°16.6'		5°52.7'	29°02.8'	52°40.7'	56°55.8'	68°03.8'	74°55.1'
1	223°21.2'	S 26°21.8'	2.1'	0.4'	60.5'	38°59.0'		6°25.1'	29°39.6'	53°00.5'	57°16.4'	68°21.9'	75°32.0'
2	237°42.3'	S 26°21.3'	2.1'	0.6'	60.5'	38°41.8'		6°58.0'	30°16.4'	53°20.6'	57°37.1'	68°40.2'	76°08.9'
3	252°03.4'	S 26°20.7'	2.1'	0.8'	60.5'	38°25.1'		7°31.3'	30°53.2'	53°40.8'	57°58.0'	68°58.6'	76°45.9'
4	266°24.4'	S 26°19.9'	2.1'	1.0'	60.5'	38°08.7'		8°04.8'	31°30.1'	54°01.3'	58°19.0'	69°17.1'	77°22.9'
5	280°45.5'	S 26°18.9'	2.1'	1.2'	60.5'	37°52.7'		8°38.6'	32°06.9'	54°22.0'	58°40.3'	69°35.8'	77°59.8'
6	295°06.6'	S 26°17.7'	2.1'	1.4'	60.5'	37°37.1'		9°12.6'	32°43.8'	54°42.8'	59°01.7'	69°54.5'	78°36.8'
7	309°27.7'	S 26°16.2'	2.1'	1.6'	60.5'			9°46.7'	33°20.6'	55°03.9'	59°23.2'	70°13.4'	79°13.8'
8	323°48.8'	S 26°14.6'	2.1'	1.8'	60.5'			10°21.0'	33°57.5'	55°25.2'	59°45.0'	70°32.3'	79°50.7'
9	338°10.0'	S 26°12.8'	2.2'	2.0'	60.5'			10°55.4'	34°34.4'	55°46.6'	60°06.9'	70°51.4'	80°27.7'
10	352°31.1'	S 26°10.8'	2.2'	2.2'	60.5'			11°29.8'	35°11.3'	56°08.2'	60°28.9'	71°10.6'	81°04.7'
11	6°52.3'	S 26°08.6'	2.2'	2.4'	60.5'			12°04.4'	35°48.2'	56°30.0'	60°51.1'	71°29.9'	81°41.7'
12	21°13.5'	S 26°06.2'	2.2'	2.6'	60.5'			12°39.0'	36°25.1'	56°52.0'	61°13.4'	71°49.2'	82°18.6'
13	35°34.7'	S 26°03.6'	2.3'	2.8'	60.5'			13°13.7'	37°02.0'	57°14.2'	61°35.8'	72°08.7'	82°55.6'
14	49°56.0'	S 26°00.8'	2.3'	3.0'	60.5'			13°48.4'	37°38.9'	57°36.5'	61°58.4'	72°28.3'	83°32.6'
15	64°17.3'	S 25°57.8'	2.3'	3.2'	60.4'			14°23.2'	38°15.9'	57°59.0'	62°21.2'	72°47.9'	84°09.6'
16	78°38.7'	S 25°54.7'	2.4'	3.4'	60.4'			14°58.0'	38°52.8'	58°21.6'	62°44.0'	73°07.7'	84°46.6'
17	93°00.0'	S 25°51.3'	2.4'	3.6'	60.4'			15°32.8'	39°29.7'	58°44.4'	63°07.0'	73°27.5'	85°23.5'
18	107°21.5'	S 25°47.7'	2.5'	3.8'	60.4'			16°07.7'	40°06.6'	59°07.3'	63°30.1'	73°47.4'	86°00.5'
19	121°43.0'	S 25°44.0'	2.5'	3.9'	60.4'		14°31.3'	16°42.6'	40°43.6'	59°30.4'	63°53.3'	74°07.4'	86°37.5'
20	136°04.5'	S 25°40.0'	2.6'	4.1'	60.4'		14°58.0'	17°17.5'	41°20.5'	59°53.6'	64°16.7'	74°27.5'	87°14.4'
21	150°26.1'	S 25°35.9'	2.6'	4.3'	60.4'		15°25.3'	17°52.4'	41°57.4'	60°16.9'	64°40.1'	74°47.6'	87°51.4'
22	164°47.7'	S 25°31.6'	2.7'	4.5'	60.4'		15°53.3'	18°27.3'	42°34.4'	60°40.4'	65°03.7'	75°07.8'	88°28.3'
23	179°09.4'	S 25°27.0'	2.8'	4.7'	60.4'		16°21.8'	19°02.3'	43°11.3'	61°04.1'	65°27.4'	75°28.1'	89°05.3'
Mer. pass.		10 h 31 m SD 16.5'	phase 7%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	AcruX	+0.8	173°02.4'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°05.0'	N 89°21.7'
Rigil Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	130°11.8'	176°40.1'	S 17°27.0'	208°40.8'	S 16°13.4'		151°07.6'	S 9°51.1'		172°06.5'	S 17°02.2'		215°03.3'	S 23°49.9'				
1	145°14.2'	191°40.0'	S 17°26.3'	223°43.1'	S 16°13.4'		166°09.5'	S 9°50.9'		187°08.7'	S 17°02.1'		230°03.8'	S 23°49.9'				
2	160°16.7'	206°39.9'	S 17°25.6'	238°45.4'	S 16°13.5'		181°11.4'	S 9°50.6'		202°10.8'	S 17°02.0'		245°04.3'	S 23°49.9'				
3	175°19.2'	221°39.8'	S 17°24.9'	253°47.6'	S 16°13.6'		196°13.3'	S 9°50.4'		217°13.0'	S 17°01.9'		260°04.7'	S 23°49.8'				
4	190°21.6'	236°39.7'	S 17°24.2'	268°49.9'	S 16°13.6'		211°15.3'	S 9°50.2'		232°15.2'	S 17°01.8'		275°05.2'	S 23°49.8'				
5	205°24.1'	251°39.6'	S 17°23.5'	283°52.2'	S 16°13.7'		226°17.2'	S 9°50.0'		247°17.3'	S 17°01.7'		290°05.7'	S 23°49.8'				
6	220°26.6'	266°39.6'	S 17°22.8'	298°54.4'	S 16°13.8'		241°19.1'	S 9°49.8'		262°19.5'	S 17°01.6'		305°06.2'	S 23°49.7'				
7	235°29.0'	281°39.5'	S 17°22.1'	313°56.7'	S 16°13.8'		256°21.0'	S 9°49.6'		277°21.7'	S 17°01.5'		320°06.6'	S 23°49.7'				
8	250°31.5'	296°39.4'	S 17°21.4'	328°59.0'	S 16°13.9'		271°22.9'	S 9°49.4'		292°23.8'	S 17°01.5'		335°07.1'	S 23°49.6'				
9	265°33.9'	311°39.3'	S 17°20.7'	344°01.2'	S 16°14.0'		286°24.9'	S 9°49.1'		307°26.0'	S 17°01.4'		350°07.6'	S 23°49.6'				
10	280°36.4'	326°39.2'	S 17°20.0'	359°03.5'	S 16°14.0'		301°26.8'	S 9°48.9'		322°28.1'	S 17°01.3'		5°08.0'	S 23°49.6'				
11	295°38.9'	341°39.1'	S 17°19.3'	14°05.7'	S 16°14.1'		316°28.7'	S 9°48.7'		337°30.3'	S 17°01.2'		20°08.5'	S 23°49.5'				
12	310°41.3'	356°39.0'	S 17°18.6'	29°07.9'	S 16°14.1'		331°30.6'	S 9°48.5'		352°32.5'	S 17°01.1'		35°09.0'	S 23°49.5'				
13	325°43.8'	11°38.9'	S 17°17.9'	44°10.2'	S 16°14.2'		346°32.6'	S 9°48.3'		7°34.6'	S 17°01.0'		50°09.4'	S 23°49.4'				
14	340°46.3'	26°38.8'	S 17°17.2'	59°12.4'	S 16°14.3'		1°34.5'	S 9°48.1'		22°36.8'	S 17°00.9'		65°09.9'	S 23°49.4'				
15	355°48.7'	41°38.7'	S 17°16.5'	74°14.6'	S 16°14.3'		16°36.4'	S 9°47.9'		37°39.0'	S 17°00.9'		80°10.4'	S 23°49.4'				
16	10°51.2'	56°38.6'	S 17°15.8'	89°16.9'	S 16°14.4'		31°38.3'	S 9°47.6'		52°41.1'	S 17°00.8'		95°10.9'	S 23°49.3'				
17	25°53.7'	71°38.5'	S 17°15.1'	104°19.1'	S 16°14.5'		46°40.3'	S 9°47.4'		67°43.3'	S 17°00.7'		110°11.3'	S 23°49.3'				
18	40°56.1'	86°38.4'	S 17°14.3'	119°21.3'	S 16°14.6'		61°42.2'	S 9°47.2'		82°45.5'	S 17°00.6'		125°11.8'	S 23°49.2'				
19	55°58.6'	101°38.4'	S 17°13.6'	134°23.5'	S 16°14.6'		76°44.1'	S 9°47.0'		97°47.6'	S 17°00.5'		140°12.3'	S 23°49.2'				
20	71°01.1'	116°38.3'	S 17°12.9'	149°25.7'	S 16°14.7'		91°46.0'	S 9°46.8'		112°49.8'	S 17°00.4'		155°12.7'	S 23°49.2'				
21	86°03.5'	131°38.2'	S 17°12.2'	164°27.9'	S 16°14.8'		106°47.9'	S 9°46.6'		127°52.0'	S 17°00.3'		170°13.2'	S 23°49.1'				
22	101°06.0'	146°38.1'	S 17°11.5'	179°30.1'	S 16°14.8'		121°49.9'	S 9°46.3'		142°54.1'	S 17°00.3'		185°13.7'	S 23°49.1'				
23	116°08.4'	161°38.0'	S 17°10.8'	194°32.3'	S 16°14.9'		136°51.8'	S 9°46.1'		157°56.3'	S 17°00.2'		200°14.2'	S 23°49.0'				
		SD 16.2'	d 0.7'		v 2.2'	d -0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 0.5'	d 0.0'			
Mer. pass.		12 h 13 m 24 s		10 h 4 m			13 h 54 m			12 h 30 m			9 h 39 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Venus	+Mars	+Antares	+Rigil Kent	+Hadar	+AcruX	+Spica	+Arcturus
0	193°31.1'	S 25°22.3'	2.8'	4.9'	60.4'	16°50.8'	19°37.3'	43°48.2'	61°27.8'	65°51.2'	75°48.5'	89°42.2'	91°38.6'
1	207°52.9'	S 25°17.4'	2.9'	5.1'	60.4'	17°20.3'	20°12.2'	44°25.1'	61°51.7'	66°15.0'	76°08.9'	90°19.1'	92°11.4'
2	222°14.8'	S 25°12.4'	2.9'	5.3'	60.4'	17°50.3'	20°47.2'	45°02.0'	62°15.7'	66°39.0'	76°29.4'	90°56.1'	92°44.2'
3	236°36.8'	S 25°07.1'	3.0'	5.4'	60.4'	18°20.6'	21°22.2'	45°38.9'	62°39.8'	67°03.1'	76°50.0'	91°33.0'	93°16.9'
4	250°58.8'	S 25°01.7'	3.1'	5.6'	60.4'	18°51.3'	21°57.2'	46°15.8'	63°04.0'	67°27.2'	77°10.6'	92°09.9'	93°49.7'
5	265°20.9'	S 24°56.1'	3.2'	5.8'	60.4'	19°22.4'	22°32.2'	46°52.7'	63°28.3'	67°51.5'	77°31.3'	92°46.8'	94°22.4'
6	279°43.0'	S 24°50.3'	3.2'	6.0'	60.3'	19°53.7'	23°07.2'	47°29.6'	63°52.7'	68°15.8'	77°52.0'	93°23.6'	94°55.1'
7	294°05.3'	S 24°44.3'	3.3'	6.2'	60.3'	20°25.3'	23°42.1'	48°06.5'	64°17.3'	68°40.2'	78°12.8'	94°00.5'	95°27.8'
8	308°27.6'	S 24°38.1'	3.4'	6.3'	60.3'	20°57.2'	24°17.1'	48°43.3'	64°41.9'	69°04.7'	78°33.6'	94°37.4'	96°00.5'
9	322°50.0'	S 24°31.8'	3.5'	6.5'	60.3'	21°29.3'	24°52.1'	49°20.2'	65°06.6'	69°29.3'	78°54.5'	95°14.2'	96°33.2'
10	337°12.5'	S 24°25.3'	3.6'	6.7'	60.3'	22°01.7'	25°27.1'	49°57.0'	65°31.5'	69°54.0'	79°15.4'	95°51.0'	97°05.8'
11	351°35.0'	S 24°18.6'	3.6'	6.8'	60.3'	22°34.2'	26°02.0'	50°33.9'	65°56.4'	70°18.7'	79°36.4'	96°27.9'	97°38.4'
12	5°57.7'	S 24°11.8'	3.7'	7.0'	60.3'	23°06.9'	26°37.0'	51°10.7'	66°21.4'	70°43.5'	79°57.4'	97°04.7'	98°11.0'
13	20°20.4'	S 24°04.8'	3.8'	7.2'	60.3'	23°39.8'	27°11.9'	51°47.5'	66°46.5'	71°08.3'	80°18.4'	97°41.5'	98°43.6'
14	34°43.2'	S 23°57.6'	3.9'	7.4'	60.2'	24°12.8'	27°46.9'	52°24.3'	67°11.6'	71°33.2'	80°39.5'	98°18.2'	99°16.1'
15	49°06.2'	S 23°50.2'	4.0'	7.5'	60.2'								
16	63°29.2'	S 23°42.7'	4.1'	7.7'	60.2'								
17	77°52.3'	S 23°35.0'	4.2'	7.8'	60.2'								
18	92°15.5'	S 23°27.2'	4.3'	8.0'	60.2'								
19	106°38.8'	S 23°19.2'	4.4'	8.2'	60.2'								
20	121°02.2'	S 23°11.0'	4.5'	8.3'	60.2'								
21	135°25.7'	S 23°02.7'	4.6'	8.5'	60.1'								
22	149°49.3'	S 22°54.2'	4.7'	8.6'	60.1'								
23	164°13.0'	S 22°45.6'	4.8'	8.8'	60.1'								
Mer. pass.		11 h 35 m SD 16.5'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	AcruX	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°05.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.6'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.2'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				