

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	131°25.2'	176°37.2'	S 17°05.9'	189°52.1'	S 20°54.7'		178°46.0'	S 18°13.9'		183°40.7'	S 19°21.5'		91°43.5'	N 16°49.6'				
1	146°27.7'	191°37.1'	S 17°05.2'	204°51.2'	S 20°54.1'		193°47.9'	S 18°13.8'		198°42.9'	S 19°21.4'		106°44.7'	N 16°50.1'				
2	161°30.1'	206°37.0'	S 17°04.4'	219°50.4'	S 20°53.5'		208°49.7'	S 18°13.6'		213°45.0'	S 19°21.3'		121°45.8'	N 16°50.5'				
3	176°32.6'	221°36.9'	S 17°03.7'	234°49.6'	S 20°53.0'		223°51.6'	S 18°13.5'		228°47.2'	S 19°21.3'		136°46.9'	N 16°50.9'				
4	191°35.1'	236°36.8'	S 17°03.0'	249°48.7'	S 20°52.4'		238°53.4'	S 18°13.3'		243°49.3'	S 19°21.2'		151°48.1'	N 16°51.4'				
5	206°37.5'	251°36.7'	S 17°02.3'	264°47.9'	S 20°51.8'		253°55.3'	S 18°13.2'		258°51.5'	S 19°21.1'		166°49.2'	N 16°51.8'				
6	221°40.0'	266°36.7'	S 17°01.6'	279°47.0'	S 20°51.3'		268°57.2'	S 18°13.0'		273°53.7'	S 19°21.1'		181°50.4'	N 16°52.2'				
7	236°42.4'	281°36.6'	S 17°00.9'	294°46.2'	S 20°50.7'		283°59.0'	S 18°12.8'		288°55.8'	S 19°21.0'		196°51.5'	N 16°52.6'				
8	251°44.9'	296°36.5'	S 17°00.2'	309°45.4'	S 20°50.1'		299°00.9'	S 18°12.7'		303°58.0'	S 19°20.9'		211°52.7'	N 16°53.1'				
9	266°47.4'	311°36.4'	S 16°59.4'	324°44.5'	S 20°49.6'		314°02.7'	S 18°12.5'		319°00.1'	S 19°20.9'		226°53.8'	N 16°53.5'				
10	281°49.8'	326°36.3'	S 16°58.7'	339°43.7'	S 20°49.0'		329°04.6'	S 18°12.4'		334°02.3'	S 19°20.8'		241°54.9'	N 16°53.9'				
11	296°52.3'	341°36.3'	S 16°58.0'	354°42.9'	S 20°48.4'		344°06.5'	S 18°12.2'		349°04.5'	S 19°20.7'		256°56.1'	N 16°54.3'				
12	311°54.8'	356°36.2'	S 16°57.3'	9°42.1'	S 20°47.8'		359°08.3'	S 18°12.1'		4°06.6'	S 19°20.7'		271°57.2'	N 16°54.8'				
13	326°57.2'	11°36.1'	S 16°56.6'	24°41.2'	S 20°47.3'		14°10.2'	S 18°11.9'		19°08.8'	S 19°20.6'		286°58.3'	N 16°55.2'				
14	341°59.7'	26°36.0'	S 16°55.9'	39°40.4'	S 20°46.7'		29°12.1'	S 18°11.7'		34°10.9'	S 19°20.5'		301°59.5'	N 16°55.6'				
15	357°02.2'	41°35.9'	S 16°55.1'	54°39.6'	S 20°46.1'		44°13.9'	S 18°11.6'		49°13.1'	S 19°20.4'		317°00.6'	N 16°56.1'				
16	12°04.6'	56°35.9'	S 16°54.4'	69°38.7'	S 20°45.5'		59°15.8'	S 18°11.4'		64°15.3'	S 19°20.4'		332°01.8'	N 16°56.5'				
17	27°07.1'	71°35.8'	S 16°53.7'	84°37.9'	S 20°44.9'		74°17.6'	S 18°11.3'		79°17.4'	S 19°20.3'		347°02.9'	N 16°56.9'				
18	42°09.5'	86°35.7'	S 16°53.0'	99°37.1'	S 20°44.4'		89°19.5'	S 18°11.1'		94°19.6'	S 19°20.2'		2°04.0'	N 16°57.3'				
19	57°12.0'	101°35.6'	S 16°52.3'	114°36.2'	S 20°43.8'		104°21.4'	S 18°11.0'		109°21.7'	S 19°20.2'		17°05.2'	N 16°57.8'				
20	72°14.5'	116°35.5'	S 16°51.5'	129°35.4'	S 20°43.2'		119°23.2'	S 18°10.8'		124°23.9'	S 19°20.1'		32°06.3'	N 16°58.2'				
21	87°16.9'	131°35.5'	S 16°50.8'	144°34.6'	S 20°42.6'		134°25.1'	S 18°10.6'		139°26.0'	S 19°20.0'		47°07.4'	N 16°58.6'				
22	102°19.4'	146°35.4'	S 16°50.1'	159°33.8'	S 20°42.0'		149°26.9'	S 18°10.5'		154°28.2'	S 19°20.0'		62°08.6'	N 16°59.0'				
23	117°21.9'	161°35.3'	S 16°49.4'	174°32.9'	S 20°41.4'		164°28.8'	S 18°10.3'		169°30.4'	S 19°19.9'		77°09.7'	N 16°59.5'				
		SD 16.2'	d 0.7'		v -0.8'	d 0.6'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'			
Mer. pass.		12 h 13 m 36 s		11 h 21 m			12 h 3 m			11 h 44 m			17 h 52 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	315°34.0'	N 7°19.7'	11.1'	-14.2'	58.8'	73°18.8'	71°02.8'	38°59.0'	31°38.1'	23°34.8'	59°26.8'	60°23.2'	77°14.8'
1	330°04.1'	N 7°05.5'	11.1'	-14.3'	58.8'	72°55.7'	70°45.7'	38°34.4'	31°03.8'	24°09.3'	60°01.8'	60°55.8'	77°34.5'
2	344°34.2'	N 6°51.2'	11.2'	-14.3'	58.8'	72°32.6'	70°28.7'	38°10.1'	30°29.5'	24°43.8'	60°36.8'	61°28.4'	77°54.3'
3	359°04.4'	N 6°36.9'	11.2'	-14.4'	58.9'	72°09.6'	70°11.9'	37°45.9'	29°55.1'	25°18.3'	61°11.9'	62°01.0'	78°14.1'
4	13°34.6'	N 6°22.5'	11.2'	-14.4'	58.9'	71°46.6'	69°55.1'	37°22.0'	29°20.8'	25°52.9'	61°46.9'	62°33.6'	78°34.0'
5	28°04.8'	N 6°08.1'	11.2'	-14.4'	58.9'	71°23.7'	69°38.4'	36°58.4'	28°46.6'	26°27.5'	62°22.0'	63°06.3'	78°53.9'
6	42°35.0'	N 5°53.7'	11.2'	-14.5'	58.9'	71°00.9'	69°21.8'	36°35.0'	28°12.3'	27°02.2'	62°57.0'	63°39.1'	79°13.9'
7	57°05.3'	N 5°39.2'	11.3'	-14.5'	58.9'	70°38.1'	69°05.3'	36°11.9'	27°38.1'	27°36.9'	63°32.1'	64°11.8'	79°33.9'
8	71°35.5'	N 5°24.7'	11.3'	-14.5'	58.9'	70°15.4'	68°48.9'	35°49.0'	27°03.9'	28°11.6'	64°07.2'	64°44.6'	79°54.0'
9	86°05.8'	N 5°10.1'	11.3'	-14.6'	58.9'	69°52.8'	68°32.6'	35°26.5'	26°29.7'	28°46.3'	64°42.3'	65°17.4'	80°14.1'
10	100°36.1'	N 4°55.6'	11.3'	-14.6'	58.9'	69°30.2'	68°16.5'	35°04.2'	25°55.6'	29°21.1'	65°17.4'	65°50.3'	80°34.3'
11	115°06.4'	N 4°41.0'	11.3'	-14.6'	58.9'	69°07.7'	68°00.4'	34°42.3'	25°21.5'	29°55.9'	65°52.5'	66°23.1'	80°54.5'
12	129°36.7'	N 4°26.3'	11.3'	-14.7'	58.9'	68°45.3'	67°44.4'	34°20.6'	24°47.4'	30°30.7'	66°27.7'	66°56.1'	81°14.8'
13	144°07.1'	N 4°11.7'	11.4'	-14.7'	59.0'	68°23.0'	67°28.6'	33°59.3'	24°13.4'	31°05.5'	67°02.8'	67°29.0'	81°35.1'
14	158°37.4'	N 3°57.0'	11.4'	-14.7'	59.0'	68°00.7'	67°12.9'	33°38.4'	23°39.4'	31°40.4'	67°37.9'	68°01.9'	81°55.4'
15	173°07.8'	N 3°42.3'	11.4'	-14.7'	59.0'	67°38.5'	66°57.3'	33°17.7'	23°05.5'	32°15.3'	68°13.1'	68°34.9'	82°15.8'
16	187°38.2'	N 3°27.5'	11.4'	-14.8'	59.0'	67°16.5'	66°41.8'	32°57.5'	22°31.7'	32°50.1'	68°48.3'	69°07.9'	82°36.2'
17	202°08.6'	N 3°12.8'	11.4'	-14.8'	59.0'	66°54.5'	66°26.4'	32°37.6'	21°57.9'	33°25.1'	69°23.4'	69°41.0'	82°56.7'
18	216°39.0'	N 2°58.0'	11.4'	-14.8'	59.0'	66°32.6'	66°11.2'	32°18.1'	21°24.1'	33°60.0'	69°58.6'	70°14.0'	83°17.2'
19	231°09.4'	N 2°43.2'	11.4'	-14.8'	59.0'	66°10.7'		31°59.0'	20°50.5'	34°34.9'	70°33.8'	70°47.1'	83°37.7'
20	245°39.8'	N 2°28.4'	11.4'	-14.8'	59.0'	65°49.0'		31°40.3'	20°16.9'	35°09.9'	71°09.0'	71°20.2'	83°58.3'
21	260°10.2'	N 2°13.6'	11.4'	-14.8'	59.0'	65°27.4'		31°22.0'	19°43.4'	35°44.9'	71°44.2'	71°53.3'	84°18.8'
22	274°40.6'	N 1°58.8'	11.4'	-14.8'	59.0'	65°05.9'		31°04.2'	19°10.0'	36°19.8'	72°19.4'	72°26.4'	84°39.5'
23	289°11.1'	N 1°43.9'	11.4'	-14.9'	59.0'	64°44.4'		30°46.8'	18°36.8'	36°54.9'	72°54.6'	72°59.6'	85°00.1'
Mer. pass.		3 h 4 m SD 16.0'		phase 88%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.6'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.8'	N 5°10.2'	Polaris	+2.0	315°26.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.6'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.3'	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	132°24.3'	176°35.2'	S 16°48.7'	189°32.1'	S 20°40.9'		179°30.7'	S 18°10.2'		184°32.5'	S 19°19.8'		92°10.9'	N 16°59.9'				
1	147°26.8'	191°35.2'	S 16°47.9'	204°31.3'	S 20°40.3'		194°32.5'	S 18°10.0'		199°34.7'	S 19°19.8'		107°12.0'	N 17°00.3'				
2	162°29.3'	206°35.1'	S 16°47.2'	219°30.5'	S 20°39.7'		209°34.4'	S 18°09.9'		214°36.8'	S 19°19.7'		122°13.1'	N 17°00.8'				
3	177°31.7'	221°35.0'	S 16°46.5'	234°29.6'	S 20°39.1'		224°36.3'	S 18°09.7'		229°39.0'	S 19°19.6'		137°14.3'	N 17°01.2'				
4	192°34.2'	236°34.9'	S 16°45.8'	249°28.8'	S 20°38.5'		239°38.1'	S 18°09.5'		244°41.2'	S 19°19.5'		152°15.4'	N 17°01.6'				
5	207°36.7'	251°34.9'	S 16°45.0'	264°28.0'	S 20°37.9'		254°40.0'	S 18°09.4'		259°43.3'	S 19°19.5'		167°16.5'	N 17°02.0'				
6	222°39.1'	266°34.8'	S 16°44.3'	279°27.2'	S 20°37.3'		269°41.8'	S 18°09.2'		274°45.5'	S 19°19.4'		182°17.7'	N 17°02.5'				
7	237°41.6'	281°34.7'	S 16°43.6'	294°26.3'	S 20°36.7'		284°43.7'	S 18°09.1'		289°47.6'	S 19°19.3'		197°18.8'	N 17°02.9'				
8	252°44.0'	296°34.6'	S 16°42.8'	309°25.5'	S 20°36.1'		299°45.6'	S 18°08.9'		304°49.8'	S 19°19.3'		212°19.9'	N 17°03.3'				
9	267°46.5'	311°34.6'	S 16°42.1'	324°24.7'	S 20°35.5'		314°47.4'	S 18°08.8'		319°52.0'	S 19°19.2'		227°21.1'	N 17°03.7'				
10	282°49.0'	326°34.5'	S 16°41.4'	339°23.9'	S 20°34.9'		329°49.3'	S 18°08.6'		334°54.1'	S 19°19.1'		242°22.2'	N 17°04.2'				
11	297°51.4'	341°34.4'	S 16°40.7'	354°23.1'	S 20°34.3'		344°51.1'	S 18°08.4'		349°56.3'	S 19°19.1'		257°23.3'	N 17°04.6'				
12	312°53.9'	356°34.4'	S 16°39.9'	9°22.2'	S 20°33.7'		359°53.0'	S 18°08.3'		4°58.4'	S 19°19.0'		272°24.5'	N 17°05.0'				
13	327°56.4'	11°34.3'	S 16°39.2'	24°21.4'	S 20°33.1'		14°54.9'	S 18°08.1'		20°00.6'	S 19°18.9'		197°18.8'	N 17°05.4'				
14	342°58.8'	26°34.2'	S 16°38.5'	39°20.6'	S 20°32.5'		29°56.7'	S 18°08.0'		35°02.8'	S 19°18.9'		302°26.7'	N 17°05.9'				
15	358°01.3'	41°34.1'	S 16°37.7'	54°19.8'	S 20°31.9'		44°58.6'	S 18°07.8'		50°04.9'	S 19°18.8'		317°27.8'	N 17°06.3'				
16	13°03.8'	56°34.1'	S 16°37.0'	69°19.0'	S 20°31.3'		60°00.5'	S 18°07.7'		65°07.1'	S 19°18.7'		332°29.0'	N 17°06.7'				
17	28°06.2'	71°34.0'	S 16°36.3'	84°18.1'	S 20°30.7'		75°02.3'	S 18°07.5'		80°09.2'	S 19°18.6'		347°30.1'	N 17°07.1'				
18	43°08.7'	86°33.9'	S 16°35.5'	99°17.3'	S 20°30.1'		90°04.2'	S 18°07.3'		95°11.4'	S 19°18.6'		2°31.2'	N 17°07.6'				
19	58°11.2'	101°33.9'	S 16°34.8'	114°16.5'	S 20°29.5'		105°06.0'	S 18°07.2'		110°13.6'	S 19°18.5'		17°32.4'	N 17°08.0'				
20	73°13.6'	116°33.8'	S 16°34.1'	129°15.7'	S 20°28.9'		120°07.9'	S 18°07.0'		125°15.7'	S 19°18.4'		32°33.5'	N 17°08.4'				
21	88°16.1'	131°33.7'	S 16°33.3'	144°14.9'	S 20°28.3'		135°09.8'	S 18°06.9'		140°17.9'	S 19°18.4'		47°34.6'	N 17°08.8'				
22	103°18.5'	146°33.7'	S 16°32.6'	159°14.0'	S 20°27.7'		150°11.6'	S 18°06.7'		155°20.0'	S 19°18.3'		62°35.8'	N 17°09.3'				
23	118°21.0'	161°33.6'	S 16°31.9'	174°13.2'	S 20°27.0'		165°13.5'	S 18°06.6'		170°22.2'	S 19°18.2'		77°36.9'	N 17°09.7'				
		SD 16.2'	d 0.7'		v -0.8'	d 0.6'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'			
Mer. pass.		12 h 13 m 43 s		11 h 23 m			12 h 0 m			11 h 40 m			17 h 50 m					

h	Moon					Lunar distance												
	GHA	dec	v	d	HP	-Sun	-Antares	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara					
0	303°41.5'	N 1°29.1'	11.4'	-14.9'	59.0'		63°15.7'	30°29.8'	18°03.6'	37°29.9'	73°29.8'	73°32.8'	85°20.7'					
1	318°11.9'	N 1°14.2'	11.4'	-14.9'	59.0'		62°40.5'	30°13.4'	17°30.6'	38°04.9'	74°05.0'	74°06.0'	85°41.4'					
2	332°42.4'	N 0°59.3'	11.4'	-14.9'	59.1'		62°05.4'	29°57.4'	16°57.7'	38°39.9'	74°40.3'	74°39.2'	86°02.1'					
3	347°12.8'	N 0°44.4'	11.4'	-14.9'	59.1'		61°30.3'		16°24.9'	39°15.0'	75°15.5'	75°12.4'	86°22.8'					
4	1°43.2'	N 0°29.5'	11.4'	-14.9'	59.1'		60°55.2'		15°52.4'	39°50.1'	75°50.7'	75°45.6'	86°43.6'					
5	16°13.7'	N 0°14.6'	11.4'	-14.9'	59.1'		60°20.1'		15°20.0'	40°25.1'	76°26.0'	76°18.9'	87°04.3'					
6	30°44.1'	S 0°00.3'	11.4'	-14.9'	59.1'		59°44.9'		14°47.9'	41°00.2'	77°01.2'	76°52.2'	87°25.1'					
7	45°14.5'	S 0°15.2'	11.4'	-14.9'	59.1'		59°09.8'		14°15.9'	41°35.3'	77°36.5'	77°25.4'	87°45.9'					
8	59°45.0'	S 0°30.1'	11.4'	-14.9'	59.1'		58°34.7'		13°44.3'	42°10.4'	78°11.7'	77°58.7'	88°06.7'					
9	74°15.4'	S 0°45.0'	11.4'	-14.9'	59.1'		57°59.5'		13°13.0'	42°45.5'	78°47.0'	78°32.0'	88°27.5'					
10	88°45.8'	S 0°59.9'	11.4'	-14.9'	59.1'		57°24.4'		12°42.0'	43°20.7'	79°22.3'	79°05.4'	88°48.3'					
11	103°16.2'	S 1°14.8'	11.4'	-14.9'	59.1'	119°47.9'	56°49.3'		12°11.4'	43°55.8'	79°57.5'	79°38.7'	89°09.1'					
12	117°46.6'	S 1°29.7'	11.4'	-14.9'	59.1'	119°15.2'	56°14.1'		11°41.2'	44°30.9'	80°32.8'	80°12.0'	89°29.9'					
13	132°17.0'	S 1°44.6'	11.4'	-14.9'	59.1'	118°42.5'	55°39.0'		11°11.5'	45°06.1'	81°08.1'	80°45.4'	89°50.8'					
14	146°47.3'	S 1°59.4'	11.4'	-14.9'	59.1'	118°09.8'	55°03.8'		10°42.4'	45°41.2'	81°43.4'	81°18.8'	90°11.6'					
15	161°17.7'	S 2°14.3'	11.3'	-14.9'	59.1'	117°37.1'	54°28.7'		10°13.9'	46°16.4'	82°18.7'	81°52.1'	90°32.4'					
16	175°48.0'	S 2°29.2'	11.3'	-14.8'	59.1'	117°04.3'	53°53.6'			46°51.6'	82°54.0'	82°25.5'	90°53.2'					
17	190°18.4'	S 2°44.0'	11.3'	-14.8'	59.1'	116°31.6'	53°18.4'			47°26.7'	83°29.3'	82°58.9'	91°14.1'					
18	204°48.7'	S 2°58.9'	11.3'	-14.8'	59.1'	115°58.9'	52°43.3'			48°01.9'	84°04.5'	83°32.3'	91°34.9'					
19	219°19.0'	S 3°13.7'	11.3'	-14.8'	59.1'	115°26.2'	52°08.2'			48°37.1'	84°39.8'	84°05.7'	91°55.7'					
20	233°49.3'	S 3°28.5'	11.3'	-14.8'	59.1'	114°53.4'	51°33.0'			49°12.3'	85°15.1'	84°39.1'	92°16.5'					
21	248°19.5'	S 3°43.3'	11.2'	-14.8'	59.1'	114°20.7'	50°57.9'			49°47.5'	85°50.4'	85°12.5'	92°37.3'					
22	262°49.8'	S 3°58.0'	11.2'	-14.7'	59.1'	113°48.0'	50°22.8'			50°22.7'	86°25.7'	85°45.9'	92°58.1'					
23	277°20.0'	S 4°12.8'	11.2'	-14.7'	59.2'	113°15.2'	49°47.7'			50°57.9'	87°01.1'	86°19.3'	93°18.9'					
Mer. pass.		3 h 53 m SD 16.1'	phase 79%															

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.6'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.2'	Polaris	+2.0	315°26.7'	N 89°21.4'
Rigil Kent	-0.0	139°44.6'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.3'	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	133°23.5'	176°33.5'	S 16°31.1'	189°12.4'	S 20°26.4'		180°15.4'	S 18°06.4'		185°24.4'	S 19°18.2'		92°38.0'	N 17°10.1'				
1	148°25.9'	191°33.5'	S 16°30.4'	204°11.6'	S 20°25.8'		195°17.2'	S 18°06.2'		200°26.5'	S 19°18.1'		107°39.1'	N 17°10.5'				
2	163°28.4'	206°33.4'	S 16°29.7'	219°10.8'	S 20°25.2'		210°19.1'	S 18°06.1'		215°28.7'	S 19°18.0'		122°40.3'	N 17°11.0'				
3	178°30.9'	221°33.3'	S 16°28.9'	234°10.0'	S 20°24.6'		225°20.9'	S 18°05.9'		230°30.8'	S 19°18.0'		137°41.4'	N 17°11.4'				
4	193°33.3'	236°33.3'	S 16°28.2'	249°09.2'	S 20°24.0'		240°22.8'	S 18°05.8'		245°33.0'	S 19°17.9'		152°42.5'	N 17°11.8'				
5	208°35.8'	251°33.2'	S 16°27.5'	264°08.3'	S 20°23.4'		255°24.7'	S 18°05.6'		260°35.1'	S 19°17.8'		167°43.6'	N 17°12.2'				
6	223°38.3'	266°33.1'	S 16°26.7'	279°07.5'	S 20°22.7'		270°26.5'	S 18°05.5'		275°37.3'	S 19°17.7'		182°44.8'	N 17°12.7'				
7	238°40.7'	281°33.1'	S 16°26.0'	294°06.7'	S 20°22.1'		285°28.4'	S 18°05.3'		290°39.5'	S 19°17.7'		197°45.9'	N 17°13.1'				
8	253°43.2'	296°33.0'	S 16°25.2'	309°05.9'	S 20°21.5'		300°30.3'	S 18°05.1'		305°41.6'	S 19°17.6'		212°47.0'	N 17°13.5'				
9	268°45.6'	311°32.9'	S 16°24.5'	324°05.1'	S 20°20.9'		315°32.1'	S 18°05.0'		320°43.8'	S 19°17.5'		227°48.1'	N 17°13.9'				
10	283°48.1'	326°32.9'	S 16°23.8'	339°04.3'	S 20°20.2'		330°34.0'	S 18°04.8'		335°45.9'	S 19°17.5'		242°49.3'	N 17°14.4'				
11	298°50.6'	341°32.8'	S 16°23.0'	354°03.5'	S 20°19.6'		345°35.8'	S 18°04.7'		350°48.1'	S 19°17.4'		257°50.4'	N 17°14.8'				
12	313°53.0'	356°32.7'	S 16°22.3'	9°02.7'	S 20°19.0'		0°37.7'	S 18°04.5'		5°50.3'	S 19°17.3'		272°51.5'	N 17°15.2'				
13	328°55.5'	11°32.7'	S 16°21.5'	24°01.9'	S 20°18.4'		15°39.6'	S 18°04.3'		20°52.4'	S 19°17.3'		287°52.6'	N 17°15.6'				
14	343°58.0'	26°32.6'	S 16°20.8'	39°01.0'	S 20°17.7'		30°41.4'	S 18°04.2'		35°54.6'	S 19°17.2'		302°53.8'	N 17°16.0'				
15	359°00.4'	41°32.6'	S 16°20.1'	54°00.2'	S 20°17.1'		45°43.3'	S 18°04.0'		50°56.7'	S 19°17.1'		317°54.9'	N 17°16.5'				
16	14°02.9'	56°32.5'	S 16°19.3'	68°59.4'	S 20°16.5'		60°45.2'	S 18°03.9'		65°58.9'	S 19°17.1'		332°56.0'	N 17°16.9'				
17	29°05.4'	71°32.4'	S 16°18.6'	83°58.6'	S 20°15.9'		75°47.0'	S 18°03.7'		81°01.1'	S 19°17.0'		347°57.1'	N 17°17.3'				
18	44°07.8'	86°32.4'	S 16°17.8'	98°57.8'	S 20°15.2'		90°48.9'	S 18°03.6'		96°03.2'	S 19°16.9'		2°58.3'	N 17°17.7'				
19	59°10.3'	101°32.3'	S 16°17.1'	113°57.0'	S 20°14.6'		105°50.7'	S 18°03.4'		111°05.4'	S 19°16.8'		17°59.4'	N 17°18.2'				
20	74°12.8'	116°32.3'	S 16°16.3'	128°56.2'	S 20°14.0'		120°52.6'	S 18°03.2'		126°07.5'	S 19°16.8'		33°00.5'	N 17°18.6'				
21	89°15.2'	131°32.2'	S 16°15.6'	143°55.4'	S 20°13.3'		135°54.5'	S 18°03.1'		141°09.7'	S 19°16.7'		48°01.6'	N 17°19.0'				
22	104°17.7'	146°32.1'	S 16°14.8'	158°54.6'	S 20°12.7'		150°56.3'	S 18°02.9'		156°11.9'	S 19°16.6'		63°02.7'	N 17°19.4'				
23	119°20.1'	161°32.1'	S 16°14.1'	173°53.8'	S 20°12.0'		165°58.2'	S 18°02.8'		171°14.0'	S 19°16.6'		78°03.9'	N 17°19.8'				
		SD 16.2'	d 0.7'		v -0.8'	d 0.6'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'			
Mer. pass.		12 h 13 m 50 s		11 h 24 m			11 h 58 m			11 h 37 m			17 h 48 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	291°50.2'	S 4°27.5'	11.2'	-14.7'	59.2'	112°42.5'	56°30.1'	49°12.5'		51°33.1'	86°52.8'	87°36.4'	93°39.7'
1	306°20.4'	S 4°42.2'	11.2'	-14.7'	59.2'	112°09.8'	56°12.3'	48°37.4'		52°08.3'	87°26.2'	88°11.7'	94°00.4'
2	320°50.5'	S 4°56.9'	11.1'	-14.7'	59.2'	111°37.0'	55°54.7'	48°02.3'		52°43.5'	87°59.6'	88°47.0'	94°21.2'
3	335°20.7'	S 5°11.6'	11.1'	-14.6'	59.2'	111°04.3'	55°37.3'	47°27.2'		53°18.8'	88°33.0'	89°22.3'	94°41.9'
4	349°50.8'	S 5°26.2'	11.1'	-14.6'	59.2'	110°31.5'	55°20.1'	46°52.1'		53°54.0'	89°06.5'	89°57.6'	95°02.6'
5	4°20.8'	S 5°40.8'	11.0'	-14.6'	59.2'	109°58.8'	55°03.0'	46°17.0'		54°29.2'	89°39.9'	90°32.9'	95°23.3'
6	18°50.9'	S 5°55.4'	11.0'	-14.5'	59.2'	109°26.0'	54°46.2'	45°41.9'		55°04.5'	90°13.4'	91°08.2'	95°43.9'
7	33°20.9'	S 6°09.9'	11.0'	-14.5'	59.2'	108°53.3'	54°29.6'	45°06.8'		55°39.7'	90°46.8'	91°43.5'	96°04.6'
8	47°50.9'	S 6°24.4'	11.0'	-14.5'	59.2'	108°20.5'	54°13.1'	44°31.7'		56°14.9'	91°20.2'	92°18.8'	96°25.2'
9	62°20.9'	S 6°38.9'	10.9'	-14.4'	59.2'	107°47.8'	53°56.9'	43°56.6'		56°50.2'	91°53.7'	92°54.2'	96°45.7'
10	76°50.8'	S 6°53.3'	10.9'	-14.4'	59.2'	107°15.0'	53°40.9'	43°21.6'		57°25.4'	92°27.1'	93°29.5'	97°06.3'
11	91°20.7'	S 7°07.7'	10.9'	-14.4'	59.2'	106°42.3'	53°25.1'	42°46.5'		58°00.7'	93°00.5'	94°04.8'	97°26.8'
12	105°50.5'	S 7°22.1'	10.8'	-14.3'	59.2'	106°09.5'	53°09.5'	42°11.4'		58°35.9'	93°34.0'	94°40.1'	97°47.3'
13	120°20.4'	S 7°36.4'	10.8'	-14.3'	59.2'	105°36.8'	52°54.1'	41°36.4'		59°11.1'	94°07.4'	95°15.4'	98°07.8'
14	134°50.2'	S 7°50.7'	10.8'	-14.2'	59.2'	105°04.0'		41°01.3'		59°46.4'	94°40.8'	95°50.7'	98°28.2'
15	149°19.9'	S 8°04.9'	10.7'	-14.2'	59.2'	104°31.3'		40°26.3'		60°21.6'	95°14.2'	96°26.0'	98°48.6'
16	163°49.6'	S 8°19.1'	10.7'	-14.2'	59.2'	103°58.5'		39°51.3'		60°56.9'	95°47.6'	97°01.4'	99°08.9'
17	178°19.3'	S 8°33.3'	10.6'	-14.1'	59.2'	103°25.8'		39°16.3'		61°32.1'	96°21.1'	97°36.7'	99°29.2'
18	192°48.9'	S 8°47.4'	10.6'	-14.1'	59.2'	102°53.0'		38°41.3'		62°07.4'	96°54.5'	98°12.0'	99°49.5'
19	207°18.5'	S 9°01.4'	10.6'	-14.0'	59.2'	102°20.3'		38°06.3'	10°22.3'	62°42.6'	97°27.9'	98°47.3'	100°09.7'
20	221°48.1'	S 9°15.5'	10.5'	-14.0'	59.2'	101°47.5'		37°31.3'	10°51.0'	63°17.9'	98°01.3'	99°22.6'	100°29.9'
21	236°17.6'	S 9°29.4'	10.5'	-13.9'	59.2'	101°14.8'		36°56.3'	11°20.3'	63°53.1'	98°34.7'	99°57.9'	100°50.0'
22	250°47.1'	S 9°43.3'	10.4'	-13.9'	59.2'	100°42.0'		36°21.4'	11°50.2'	64°28.4'	99°08.0'	100°33.2'	101°10.1'
23	265°16.5'	S 9°57.2'	10.4'	-13.8'	59.2'	100°09.3'		35°46.4'	12°20.5'	65°03.7'	99°41.4'	101°08.5'	101°30.1'
Mer. pass.		4 h 42 m SD 16.1'	phase 69%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.6'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.2'	Polaris	+2.0	315°27.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.4'	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	134°22.6'	176°32.0'	S 16°13.3'	188°53.0'	S 20°11.4'		181°00.1'	S 18°02.6'		186°16.2'	S 19°16.5'		93°05.0'	N 17°20.3'				
1	149°25.1'	191°32.0'	S 16°12.6'	203°52.2'	S 20°10.8'		196°01.9'	S 18°02.4'		201°18.4'	S 19°16.4'		108°06.1'	N 17°20.7'				
2	164°27.5'	206°31.9'	S 16°11.9'	218°51.4'	S 20°10.1'		211°03.8'	S 18°02.3'		216°20.5'	S 19°16.4'		123°07.2'	N 17°21.1'				
3	179°30.0'	221°31.8'	S 16°11.1'	233°50.6'	S 20°09.5'		226°05.6'	S 18°02.1'		231°22.7'	S 19°16.3'		138°08.3'	N 17°21.5'				
4	194°32.5'	236°31.8'	S 16°10.4'	248°49.8'	S 20°08.8'		241°07.5'	S 18°02.0'		246°24.8'	S 19°16.2'		153°09.5'	N 17°22.0'				
5	209°34.9'	251°31.7'	S 16°09.6'	263°49.0'	S 20°08.2'		256°09.4'	S 18°01.8'		261°27.0'	S 19°16.2'		168°10.6'	N 17°22.4'				
6	224°37.4'	266°31.7'	S 16°08.9'	278°48.2'	S 20°07.6'		271°11.2'	S 18°01.7'		276°29.2'	S 19°16.1'		183°11.7'	N 17°22.8'				
7	239°39.9'	281°31.6'	S 16°08.1'	293°47.4'	S 20°06.9'		286°13.1'	S 18°01.5'		291°31.3'	S 19°16.0'		198°12.8'	N 17°23.2'				
8	254°42.3'	296°31.6'	S 16°07.4'	308°46.6'	S 20°06.3'		301°15.0'	S 18°01.3'		306°33.5'	S 19°15.9'		213°13.9'	N 17°23.6'				
9	269°44.8'	311°31.5'	S 16°06.6'	323°45.8'	S 20°05.6'		316°16.8'	S 18°01.2'		321°35.6'	S 19°15.9'		228°15.0'	N 17°24.1'				
10	284°47.2'	326°31.4'	S 16°05.8'	338°45.0'	S 20°05.0'		331°18.7'	S 18°01.0'		336°37.8'	S 19°15.8'		243°16.2'	N 17°24.5'				
11	299°49.7'	341°31.4'	S 16°05.1'	353°44.2'	S 20°04.3'		346°20.5'	S 18°00.9'		351°40.0'	S 19°15.7'		258°17.3'	N 17°24.9'				
12	314°52.2'	356°31.3'	S 16°04.3'	8°43.4'	S 20°03.7'		1°22.4'	S 18°00.7'		6°42.1'	S 19°15.7'		273°18.4'	N 17°25.3'				
13	329°54.6'	11°31.3'	S 16°03.6'	23°42.6'	S 20°03.0'		16°24.3'	S 18°00.5'		21°44.3'	S 19°15.6'		288°19.5'	N 17°25.7'				
14	344°57.1'	26°31.2'	S 16°02.8'	38°41.8'	S 20°02.4'		31°26.1'	S 18°00.4'		36°46.4'	S 19°15.5'		303°20.6'	N 17°26.2'				
15	359°59.6'	41°31.2'	S 16°02.1'	53°41.0'	S 20°01.7'		46°28.0'	S 18°00.2'		51°48.6'	S 19°15.5'		318°21.7'	N 17°26.6'				
16	15°02.0'	56°31.1'	S 16°01.3'	68°40.2'	S 20°01.1'		61°29.9'	S 18°00.1'		66°50.8'	S 19°15.4'		333°22.9'	N 17°27.0'				
17	30°04.5'	71°31.1'	S 16°00.6'	83°39.4'	S 20°00.4'		76°31.7'	S 17°59.9'		81°52.9'	S 19°15.3'		348°24.0'	N 17°27.4'				
18	45°07.0'	86°31.0'	S 15°59.8'	98°38.6'	S 19°59.8'		91°33.6'	S 17°59.8'		96°55.1'	S 19°15.3'		3°25.1'	N 17°27.8'				
19	60°09.4'	101°31.0'	S 15°59.1'	113°37.8'	S 19°59.1'		106°35.5'	S 17°59.6'		111°57.2'	S 19°15.2'		18°26.2'	N 17°28.3'				
20	75°11.9'	116°30.9'	S 15°58.3'	128°37.0'	S 19°58.4'		121°37.3'	S 17°59.4'		126°59.4'	S 19°15.1'		33°27.3'	N 17°28.7'				
21	90°14.4'	131°30.9'	S 15°57.5'	143°36.2'	S 19°57.8'		136°39.2'	S 17°59.3'		142°01.6'	S 19°15.0'		48°28.4'	N 17°29.1'				
22	105°16.8'	146°30.8'	S 15°56.8'	158°35.4'	S 19°57.1'		151°41.0'	S 17°59.1'		157°03.7'	S 19°15.0'		63°29.5'	N 17°29.5'				
23	120°19.3'	161°30.7'	S 15°56.0'	173°34.6'	S 19°56.5'		166°42.9'	S 17°59.0'		172°05.9'	S 19°14.9'		78°30.7'	N 17°29.9'				
		SD 16.2' d 0.8'		v -0.8' d 0.7'			v 1.9' d 0.2'			v 2.2' d 0.1'			v 1.1' d 0.4'					
Mer. pass.		12 h 13 m 55 s		11 h 25 m			11 h 55 m			11 h 33 m			17 h 46 m					

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Altair	-Rigil Kent	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	279°45.9'	S 10°11.0'	10.3'	-13.7'	59.2'	99°36.5'	85°05.8'	50°54.3'	35°11.5'	12°51.3'		65°38.9'	100°14.8'
1	294°15.2'	S 10°24.7'	10.3'	-13.7'	59.2'	99°03.8'	84°36.1'	50°38.7'	34°36.6'	13°22.4'	29°30.0'	66°14.2'	100°48.1'
2	308°44.5'	S 10°38.4'	10.2'	-13.6'	59.2'	98°31.0'	84°06.4'	50°23.3'	34°01.7'	13°53.9'	29°45.1'	66°49.4'	101°21.5'
3	323°13.7'	S 10°52.0'	10.2'	-13.6'	59.2'	97°58.3'	83°36.7'		33°26.8'	14°25.6'	30°00.7'	67°24.7'	101°54.8'
4	337°42.9'	S 11°05.6'	10.1'	-13.5'	59.2'	97°25.6'	83°07.0'		32°51.9'	14°57.6'	30°16.7'	67°59.9'	102°28.1'
5	352°12.1'	S 11°19.1'	10.1'	-13.4'	59.2'	96°52.8'	82°37.4'		32°17.1'	15°29.9'	30°33.3'	68°35.1'	103°01.4'
6	6°41.2'	S 11°32.5'	10.0'	-13.4'	59.2'	96°20.1'	82°07.8'		31°42.3'	16°02.4'	30°50.4'	69°10.4'	103°34.7'
7	21°10.2'	S 11°45.9'	10.0'	-13.3'	59.2'	95°47.4'	81°38.2'		31°07.5'	16°35.0'	31°07.9'	69°45.6'	104°08.0'
8	35°39.2'	S 11°59.2'	9.9'	-13.2'	59.2'	95°14.6'	81°08.6'		30°32.7'	17°07.8'	31°25.9'	70°20.9'	104°41.3'
9	50°08.1'	S 12°12.5'	9.9'	-13.2'	59.2'	94°41.9'	80°39.0'		29°57.9'	17°40.8'	31°44.3'	70°56.1'	105°14.6'
10	64°37.0'	S 12°25.6'	9.8'	-13.1'	59.2'	94°09.2'	80°09.5'		29°23.2'	18°14.0'	32°03.1'	71°31.4'	105°47.8'
11	79°05.8'	S 12°38.8'	9.8'	-13.0'	59.2'	93°36.5'	79°39.9'		28°48.4'	18°47.2'	32°22.3'	72°06.6'	106°21.1'
12	93°34.6'	S 12°51.8'	9.7'	-13.0'	59.2'	93°03.7'	79°10.4'		28°13.8'	19°20.6'	32°42.0'	72°41.8'	106°54.3'
13	108°03.3'	S 13°04.7'	9.7'	-12.9'	59.2'	92°31.0'	78°40.9'		27°39.1'	19°54.1'	33°02.0'	73°17.1'	107°27.5'
14	122°32.0'	S 13°17.6'	9.6'	-12.8'	59.2'	91°58.3'	78°11.5'		27°04.5'	20°27.6'	33°22.4'	73°52.3'	108°00.7'
15	137°00.6'	S 13°30.4'	9.5'	-12.7'	59.2'	91°25.6'	77°42.0'		26°29.9'	21°01.3'	33°43.2'	74°27.5'	108°33.8'
16	151°29.2'	S 13°43.2'	9.5'	-12.7'	59.2'	90°52.9'	77°12.6'		25°55.3'	21°35.0'	34°04.3'	75°02.7'	109°07.0'
17	165°57.6'	S 13°55.8'	9.4'	-12.6'	59.1'	90°20.2'	76°43.3'		25°20.8'	22°08.9'	34°25.7'	75°38.0'	109°40.1'
18	180°26.1'	S 14°08.4'	9.4'	-12.5'	59.1'	89°47.5'	76°13.9'		24°46.3'	22°42.8'	34°47.5'	76°13.2'	110°13.3'
19	194°54.5'	S 14°20.9'	9.3'	-12.4'	59.1'	89°14.8'	75°44.6'		24°11.9'	23°16.7'	35°09.6'	76°48.4'	110°46.3'
20	209°22.8'	S 14°33.3'	9.3'	-12.3'	59.1'	88°42.1'	75°15.3'		23°37.5'	23°50.7'	35°32.0'	77°23.6'	111°19.4'
21	223°51.0'	S 14°45.6'	9.2'	-12.2'	59.1'	88°09.4'	74°46.1'		23°03.1'	24°24.8'	35°54.7'	77°58.8'	111°52.5'
22	238°19.2'	S 14°57.9'	9.1'	-12.2'	59.1'	87°36.8'	74°16.8'		22°28.8'	24°58.9'	36°17.7'	78°34.0'	112°25.5'
23	252°47.3'	S 15°10.0'	9.1'	-12.1'	59.1'	87°04.1'	73°47.7'		21°54.6'	25°33.1'	36°41.0'	79°09.2'	112°58.5'
Mer. pass.		5 h 32 m SD 16.1'		phase 58%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.2'	Polaris	+2.0	315°27.7'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.4'	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	135°21.7'	176°30.7'	S 15°55.3'	188°33.8'	S 19°55.8'		181°44.8'	S 17°58.8'		187°08.0'	S 19°14.8'		93°31.8'	N 17°30.4'					
1	150°24.2'	191°30.6'	S 15°54.5'	203°33.0'	S 19°55.1'		196°46.6'	S 17°58.6'		202°10.2'	S 19°14.8'		108°32.9'	N 17°30.8'					
2	165°26.7'	206°30.6'	S 15°53.7'	218°32.2'	S 19°54.5'		211°48.5'	S 17°58.5'		217°12.4'	S 19°14.7'		123°34.0'	N 17°31.2'					
3	180°29.1'	221°30.5'	S 15°53.0'	233°31.4'	S 19°53.8'		226°50.4'	S 17°58.3'		232°14.5'	S 19°14.6'		138°35.1'	N 17°31.6'					
4	195°31.6'	236°30.5'	S 15°52.2'	248°30.6'	S 19°53.1'		241°52.2'	S 17°58.2'		247°16.7'	S 19°14.6'		153°36.2'	N 17°32.0'					
5	210°34.1'	251°30.4'	S 15°51.5'	263°29.8'	S 19°52.5'		256°54.1'	S 17°58.0'		262°18.8'	S 19°14.5'		168°37.3'	N 17°32.5'					
6	225°36.5'	266°30.4'	S 15°50.7'	278°29.1'	S 19°51.8'		271°56.0'	S 17°57.8'		277°21.0'	S 19°14.4'		183°38.4'	N 17°32.9'					
7	240°39.0'	281°30.4'	S 15°49.9'	293°28.3'	S 19°51.1'		286°57.8'	S 17°57.7'		292°23.2'	S 19°14.4'		198°39.5'	N 17°33.3'					
8	255°41.5'	296°30.3'	S 15°49.2'	308°27.5'	S 19°50.5'		301°59.7'	S 17°57.5'		307°25.3'	S 19°14.3'		213°40.7'	N 17°33.7'					
9	270°43.9'	311°30.3'	S 15°48.4'	323°26.7'	S 19°49.8'		317°01.5'	S 17°57.4'		322°27.5'	S 19°14.2'		228°41.8'	N 17°34.1'					
10	285°46.4'	326°30.2'	S 15°47.7'	338°25.9'	S 19°49.1'		332°03.4'	S 17°57.2'		337°29.7'	S 19°14.1'		243°42.9'	N 17°34.6'					
11	300°48.9'	341°30.2'	S 15°46.9'	353°25.1'	S 19°48.4'		347°05.3'	S 17°57.0'		352°31.8'	S 19°14.1'		258°44.0'	N 17°35.0'					
12	315°51.3'	356°30.1'	S 15°46.1'	8°24.3'	S 19°47.8'		2°07.1'	S 17°56.9'		7°34.0'	S 19°14.0'		273°45.1'	N 17°35.4'					
13	330°53.8'	11°30.1'	S 15°45.4'	23°23.5'	S 19°47.1'		17°09.0'	S 17°56.7'		22°36.1'	S 19°13.9'		288°46.2'	N 17°35.8'					
14	345°56.2'	26°30.0'	S 15°44.6'	38°22.7'	S 19°46.4'		32°10.9'	S 17°56.6'		37°38.3'	S 19°13.9'		303°47.3'	N 17°36.2'					
15	0°58.7'	41°30.0'	S 15°43.8'	53°22.0'	S 19°45.7'		47°12.7'	S 17°56.4'		52°40.5'	S 19°13.8'		318°48.4'	N 17°36.6'					
16	16°01.2'	56°29.9'	S 15°43.1'	68°21.2'	S 19°45.0'		62°14.6'	S 17°56.3'		67°42.6'	S 19°13.7'		333°49.5'	N 17°37.1'					
17	31°03.6'	71°29.9'	S 15°42.3'	83°20.4'	S 19°44.4'		77°16.5'	S 17°56.1'		82°44.8'	S 19°13.7'		348°50.6'	N 17°37.5'					
18	46°06.1'	86°29.8'	S 15°41.5'	98°19.6'	S 19°43.7'		92°18.3'	S 17°55.9'		97°46.9'	S 19°13.6'		3°51.7'	N 17°37.9'					
19	61°08.6'	101°29.8'	S 15°40.8'	113°18.8'	S 19°43.0'		107°20.2'	S 17°55.8'		112°49.1'	S 19°13.5'		18°52.8'	N 17°38.3'					
20	76°11.0'	116°29.8'	S 15°40.0'	128°18.0'	S 19°42.3'		122°22.0'	S 17°55.6'		127°51.3'	S 19°13.4'		33°54.0'	N 17°38.7'					
21	91°13.5'	131°29.7'	S 15°39.2'	143°17.2'	S 19°41.6'		137°23.9'	S 17°55.5'		142°53.4'	S 19°13.4'		48°55.1'	N 17°39.2'					
22	106°16.0'	146°29.7'	S 15°38.5'	158°16.5'	S 19°41.0'		152°25.8'	S 17°55.3'		157°55.6'	S 19°13.3'		63°56.2'	N 17°39.6'					
23	121°18.4'	161°29.6'	S 15°37.7'	173°15.7'	S 19°40.3'		167°27.6'	S 17°55.1'		172°57.8'	S 19°13.2'		78°57.3'	N 17°40.0'					
		SD 16.2'	d 0.8'		v -0.8'	d 0.7'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'				
Mer. pass.		12 h 14 m 0 s		11 h 26 m			11 h 52 m			11 h 30 m			17 h 45 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	267°15.4'	S 15°22.1'	9.0'	-12.0'	59.1'	86°31.4'	74°27.1'	73°18.5'	21°20.4'	26°07.3'	37°04.6'	79°44.4'	109°29.8'
1	281°43.4'	S 15°34.1'	8.9'	-11.9'	59.1'	85°58.7'	73°54.9'	72°49.4'	20°46.2'	26°41.6'	37°28.4'	80°19.6'	109°47.9'
2	296°11.4'	S 15°46.0'	8.9'	-11.8'	59.1'	85°26.1'	73°22.8'	72°20.3'	20°12.2'	27°15.8'	37°52.4'	80°54.8'	110°05.9'
3	310°39.2'	S 15°57.8'	8.8'	-11.7'	59.1'	84°53.4'	72°50.7'	71°51.3'	19°38.2'	27°50.2'	38°16.7'	81°30.0'	110°23.9'
4	325°07.1'	S 16°09.5'	8.8'	-11.6'	59.1'	84°20.8'	72°18.6'	71°22.3'	19°04.3'	28°24.5'	38°41.3'	82°05.2'	110°41.7'
5	339°34.8'	S 16°21.1'	8.7'	-11.5'	59.1'	83°48.1'	71°46.5'	70°53.4'	18°30.5'	28°58.9'	39°06.0'	82°40.4'	110°59.4'
6	354°02.5'	S 16°32.6'	8.6'	-11.4'	59.1'	83°15.5'	71°14.4'	70°24.5'	17°56.8'	29°33.3'	39°31.0'	83°15.6'	111°17.0'
7	8°30.1'	S 16°44.0'	8.6'	-11.3'	59.1'	82°42.8'	70°42.3'	69°55.6'	17°23.1'	30°07.8'	39°56.2'	83°50.7'	111°34.5'
8	22°57.7'	S 16°55.3'	8.5'	-11.2'	59.1'	82°10.2'	70°10.2'	69°26.8'	16°49.6'	30°42.2'	40°21.6'	84°25.9'	111°51.9'
9	37°25.2'	S 17°06.5'	8.4'	-11.1'	59.1'	81°37.6'	69°38.1'	68°58.1'	16°16.3'	31°16.7'	40°47.2'	85°01.1'	112°09.2'
10	51°52.6'	S 17°17.6'	8.4'	-11.0'	59.1'	81°04.9'	69°06.1'	68°29.4'	15°43.0'	31°51.2'	41°13.0'	85°36.2'	112°26.4'
11	66°20.0'	S 17°28.6'	8.3'	-10.9'	59.1'	80°32.3'	68°34.0'	68°00.7'	15°09.9'	32°25.7'	41°39.0'	86°11.4'	112°43.4'
12	80°47.3'	S 17°39.5'	8.2'	-10.8'	59.1'	79°59.7'	68°01.9'	67°32.1'	14°37.0'	33°00.3'	42°05.2'	86°46.5'	113°00.4'
13	95°14.5'	S 17°50.3'	8.2'	-10.7'	59.1'	79°27.1'	67°29.9'	67°03.6'	14°04.3'	33°34.8'	42°31.5'	87°21.7'	113°17.2'
14	109°41.7'	S 18°01.0'	8.1'	-10.6'	59.1'	78°54.5'	66°57.8'	66°35.1'	13°31.8'	34°09.4'	42°58.1'	87°56.8'	113°33.9'
15	124°08.8'	S 18°11.6'	8.0'	-10.5'	59.1'	78°21.9'	66°25.8'	66°06.7'	12°59.5'	34°44.0'	43°24.7'	88°31.9'	113°50.4'
16	138°35.8'	S 18°22.1'	8.0'	-10.4'	59.1'	77°49.3'	65°53.7'	65°38.3'	12°27.5'	35°18.6'	43°51.6'	89°07.0'	114°06.9'
17	153°02.8'	S 18°32.4'	7.9'	-10.2'	59.0'	77°16.7'	65°21.7'	65°10.0'	11°55.8'	35°53.2'	44°18.5'	89°42.2'	114°23.2'
18	167°29.7'	S 18°42.7'	7.8'	-10.1'	59.0'	76°44.2'	64°49.7'	64°41.8'	11°24.4'	36°27.9'	44°45.7'	90°17.3'	114°39.4'
19	181°56.6'	S 18°52.8'	7.8'	-10.0'	59.0'	76°11.6'	64°17.6'	64°13.6'	10°53.4'	37°02.5'	45°12.9'	90°52.4'	114°55.4'
20	196°23.3'	S 19°02.8'	7.7'	-9.9'	59.0'	75°39.0'	63°45.6'	63°45.5'	10°22.9'	37°37.1'	45°40.3'	91°27.5'	115°11.3'
21	210°50.1'	S 19°12.7'	7.6'	-9.8'	59.0'	75°06.5'	63°13.6'	63°17.4'	9°52.9'	38°11.8'	46°07.9'	92°02.6'	115°27.1'
22	225°16.7'	S 19°22.5'	7.6'	-9.7'	59.0'	74°33.9'	62°41.6'	62°49.5'	9°23.5'	38°46.5'	46°35.6'	92°37.7'	115°42.7'
23	239°43.3'	S 19°32.2'	7.5'	-9.5'	59.0'	74°01.4'	62°09.6'	62°21.6'		39°21.1'	47°03.4'	93°12.8'	115°58.2'
Mer. pass.		6 h 25 m SD 16.1'	phase 47%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°28.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.4'	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	136°20.9'	176°29.6'	S 15°36.9'	188°14.9'	S 19°39.6'		182°29.5'	S 17°55.0'		187°59.9'	S 19°13.2'		93°58.4'	N 17°40.4'				
1	151°23.4'	191°29.5'	S 15°36.1'	203°14.1'	S 19°38.9'		197°31.4'	S 17°54.8'		203°02.1'	S 19°13.1'		108°59.5'	N 17°40.8'				
2	166°25.8'	206°29.5'	S 15°35.4'	218°13.3'	S 19°38.2'		212°33.2'	S 17°54.7'		218°04.2'	S 19°13.0'		124°00.6'	N 17°41.2'				
3	181°28.3'	221°29.5'	S 15°34.6'	233°12.6'	S 19°37.5'		227°35.1'	S 17°54.5'		233°06.4'	S 19°13.0'		139°01.7'	N 17°41.7'				
4	196°30.7'	236°29.4'	S 15°33.8'	248°11.8'	S 19°36.8'		242°37.0'	S 17°54.3'		248°08.6'	S 19°12.9'		154°02.8'	N 17°42.1'				
5	211°33.2'	251°29.4'	S 15°33.1'	263°11.0'	S 19°36.1'		257°38.8'	S 17°54.2'		263°10.7'	S 19°12.8'		169°03.9'	N 17°42.5'				
6	226°35.7'	266°29.3'	S 15°32.3'	278°10.2'	S 19°35.4'		272°40.7'	S 17°54.0'		278°12.9'	S 19°12.8'		184°05.0'	N 17°42.9'				
7	241°38.1'	281°29.3'	S 15°31.5'	293°09.4'	S 19°34.7'		287°42.6'	S 17°53.9'		293°15.0'	S 19°12.7'		199°06.1'	N 17°43.3'				
8	256°40.6'	296°29.2'	S 15°30.7'	308°08.7'	S 19°34.1'		302°44.4'	S 17°53.7'		308°17.2'	S 19°12.6'		214°07.2'	N 17°43.7'				
9	271°43.1'	311°29.2'	S 15°30.0'	323°07.9'	S 19°33.4'		317°46.3'	S 17°53.5'		323°19.4'	S 19°12.5'		229°08.3'	N 17°44.2'				
10	286°45.5'	326°29.2'	S 15°29.2'	338°07.1'	S 19°32.7'		332°48.1'	S 17°53.4'		338°21.5'	S 19°12.5'		244°09.4'	N 17°44.6'				
11	301°48.0'	341°29.1'	S 15°28.4'	353°06.3'	S 19°32.0'		347°50.0'	S 17°53.2'		353°23.7'	S 19°12.4'		259°10.5'	N 17°45.0'				
12	316°50.5'	356°29.1'	S 15°27.6'	8°05.6'	S 19°31.3'		2°51.9'	S 17°53.1'		8°25.9'	S 19°12.3'		274°11.6'	N 17°45.4'				
13	331°52.9'	11°29.1'	S 15°26.9'	23°04.8'	S 19°30.6'		17°53.7'	S 17°52.9'		23°28.0'	S 19°12.3'		289°12.7'	N 17°45.8'				
14	346°55.4'	26°29.0'	S 15°26.1'	38°04.0'	S 19°29.9'		32°55.6'	S 17°52.7'		38°30.2'	S 19°12.2'		304°13.8'	N 17°46.2'				
15	1°57.8'	41°29.0'	S 15°25.3'	53°03.2'	S 19°29.2'		47°57.5'	S 17°52.6'		53°32.3'	S 19°12.1'		319°14.9'	N 17°46.6'				
16	17°00.3'	56°28.9'	S 15°24.5'	68°02.5'	S 19°28.5'		62°59.3'	S 17°52.4'		68°34.5'	S 19°12.1'		334°16.0'	N 17°47.1'				
17	32°02.8'	71°28.9'	S 15°23.7'	83°01.7'	S 19°27.8'		78°01.2'	S 17°52.3'		83°36.7'	S 19°12.0'		349°17.1'	N 17°47.5'				
18	47°05.2'	86°28.9'	S 15°23.0'	98°00.9'	S 19°27.0'		93°03.1'	S 17°52.1'		98°38.8'	S 19°11.9'		4°18.2'	N 17°47.9'				
19	62°07.7'	101°28.8'	S 15°22.2'	113°00.1'	S 19°26.3'		108°04.9'	S 17°51.9'		113°41.0'	S 19°11.9'		19°19.3'	N 17°48.3'				
20	77°10.2'	116°28.8'	S 15°21.4'	127°59.4'	S 19°25.6'		123°06.8'	S 17°51.8'		128°43.2'	S 19°11.8'		34°20.4'	N 17°48.7'				
21	92°12.6'	131°28.8'	S 15°20.6'	142°58.6'	S 19°24.9'		138°08.7'	S 17°51.6'		143°45.3'	S 19°11.7'		49°21.5'	N 17°49.1'				
22	107°15.1'	146°28.7'	S 15°19.9'	157°57.8'	S 19°24.2'		153°10.5'	S 17°51.5'		158°47.5'	S 19°11.6'		64°22.6'	N 17°49.6'				
23	122°17.6'	161°28.7'	S 15°19.1'	172°57.0'	S 19°23.5'		168°12.4'	S 17°51.3'		173°49.6'	S 19°11.6'		79°23.7'	N 17°50.0'				
		SD 16.2'	d 0.8'		v -0.8'	d 0.7'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'			
Mer. pass.		12 h 14 m 4 s		11 h 28 m			11 h 49 m			11 h 26 m			17 h 43 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Saturn	-Altair	-Venus	+Spica	+Arcturus	+Regulus	+Adhara
0	254°09.8'	S 19°41.7'	7.5'	-9.4'	59.0'	73°28.8'	61°57.1'	61°53.8'	61°37.6'	39°55.8'	47°31.3'	93°47.8'	116°13.6'
1	268°36.3'	S 19°51.2'	7.4'	-9.3'	59.0'	72°56.3'	61°22.3'	61°26.0'	61°05.7'	40°30.5'	47°59.3'	94°22.9'	116°28.8'
2	283°02.6'	S 20°00.5'	7.3'	-9.2'	59.0'	72°23.8'	60°47.5'	60°58.4'	60°33.7'	41°05.2'	48°27.4'	94°58.0'	
3	297°29.0'	S 20°09.7'	7.3'	-9.1'	59.0'	71°51.3'	60°12.8'	60°30.8'	60°01.7'	41°39.9'	48°55.7'	95°33.0'	
4	311°55.2'	S 20°18.7'	7.2'	-8.9'	59.0'	71°18.8'	59°38.0'	60°03.3'	59°29.8'	42°14.6'	49°24.0'	96°08.1'	
5	326°21.4'	S 20°27.6'	7.1'	-8.8'	59.0'	70°46.3'	59°03.2'	59°35.9'	58°57.8'	42°49.3'	49°52.5'	96°43.1'	
6	340°47.6'	S 20°36.4'	7.1'	-8.7'	59.0'	70°13.8'	58°28.4'	59°08.6'	58°25.9'	43°24.0'	50°21.1'	97°18.2'	
7	355°13.6'	S 20°45.1'	7.0'	-8.5'	59.0'	69°41.3'	57°53.7'	58°41.3'	57°53.9'	43°58.7'	50°49.7'	97°53.2'	
8	9°39.6'	S 20°53.6'	6.9'	-8.4'	58.9'	69°08.8'	57°18.9'	58°14.2'	57°22.0'	44°33.4'	51°18.5'	98°28.2'	
9	24°05.6'	S 21°02.1'	6.9'	-8.3'	58.9'	68°36.3'	56°44.2'	57°47.2'	56°50.1'	45°08.1'	51°47.3'	99°03.2'	
10	38°31.5'	S 21°10.3'	6.8'	-8.1'	58.9'	68°03.9'	56°09.4'	57°20.2'	56°18.2'	45°42.8'	52°16.2'	99°38.2'	
11	52°57.3'	S 21°18.5'	6.8'	-8.0'	58.9'	67°31.4'	55°34.7'	56°53.4'	55°46.3'	46°17.5'	52°45.2'	100°13.2'	
12	67°23.1'	S 21°26.5'	6.7'	-7.9'	58.9'	66°59.0'	55°00.0'	56°26.6'	55°14.4'	46°52.2'	53°14.3'	100°48.2'	
13	81°48.8'	S 21°34.4'	6.7'	-7.7'	58.9'	66°26.6'	54°25.3'	56°00.0'	54°42.5'	47°26.9'	53°43.4'	101°23.2'	
14	96°14.4'	S 21°42.1'	6.6'	-7.6'	58.9'	65°54.1'	53°50.6'	55°33.5'	54°10.6'	48°01.6'	54°12.7'	101°58.2'	
15	110°40.0'	S 21°49.7'	6.5'	-7.5'	58.9'	65°21.7'	53°15.9'	55°07.1'	53°38.7'	48°36.3'	54°42.0'	102°33.2'	
16	125°05.6'	S 21°57.2'	6.5'	-7.3'	58.9'	64°49.3'	52°41.2'	54°40.8'	53°06.9'	49°11.0'	55°11.3'	103°08.1'	
17	139°31.1'	S 22°04.5'	6.4'	-7.2'	58.9'	64°16.9'	52°06.6'	54°14.6'	52°35.0'	49°45.7'	55°40.8'	103°43.1'	
18	153°56.5'	S 22°11.7'	6.4'	-7.0'	58.9'	63°44.5'	51°31.9'	53°48.5'	52°03.2'	50°20.4'	56°10.3'	104°18.0'	
19	168°21.9'	S 22°18.7'	6.3'	-6.9'	58.9'	63°12.1'	50°57.3'	53°22.6'	51°31.3'	50°55.1'	56°39.8'	104°52.9'	
20	182°47.2'	S 22°25.6'	6.3'	-6.8'	58.8'	62°39.8'	50°22.6'	52°56.8'	50°59.5'	51°29.8'	57°09.4'	105°27.9'	
21	197°12.4'	S 22°32.4'	6.2'	-6.6'	58.8'	62°07.4'	49°48.0'	52°31.1'	50°27.7'	52°04.5'	57°39.1'	106°02.8'	
22	211°37.7'	S 22°39.0'	6.2'	-6.5'	58.8'	61°35.1'	49°13.4'	52°05.6'	49°55.9'	52°39.2'	58°08.9'	106°37.7'	
23	226°02.8'	S 22°45.4'	6.1'	-6.3'	58.8'	61°02.7'	48°38.8'	51°40.2'	49°24.1'	53°13.9'	58°38.6'	107°12.6'	
Mer. pass.		7 h 20 m SD 16.1'	phase 36%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	N 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°28.5'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.7'	S 16°44.9'				
Hadar	+0.6	148°40.3'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	137°20.0'	176°28.7'	S 15°18.3'	187°56.3'	S 19°22.8'	183°14.3'	S 17°51.1'	188°51.8'	S 19°11.5'	94°24.8'	N 17°50.4'							
1	152°22.5'	191°28.6'	S 15°17.5'	202°55.5'	S 19°22.1'	198°16.1'	S 17°51.0'	203°54.0'	S 19°11.4'	109°25.9'	N 17°50.8'							
2	167°25.0'	206°28.6'	S 15°16.7'	217°54.7'	S 19°21.4'	213°18.0'	S 17°50.8'	218°56.1'	S 19°11.4'	124°27.0'	N 17°51.2'							
3	182°27.4'	221°28.6'	S 15°15.9'	232°54.0'	S 19°20.7'	228°19.9'	S 17°50.7'	233°58.3'	S 19°11.3'	139°28.1'	N 17°51.6'							
4	197°29.9'	236°28.5'	S 15°15.2'	247°53.2'	S 19°19.9'	243°21.7'	S 17°50.5'	249°00.5'	S 19°11.2'	154°29.2'	N 17°52.0'							
5	212°32.3'	251°28.5'	S 15°14.4'	262°52.4'	S 19°19.2'	258°23.6'	S 17°50.3'	264°02.6'	S 19°11.2'	169°30.3'	N 17°52.5'							
6	227°34.8'	266°28.5'	S 15°13.6'	277°51.7'	S 19°18.5'	273°25.4'	S 17°50.2'	279°04.8'	S 19°11.1'	184°31.4'	N 17°52.9'							
7	242°37.3'	281°28.4'	S 15°12.8'	292°50.9'	S 19°17.8'	288°27.3'	S 17°50.0'	294°06.9'	S 19°11.0'	199°32.5'	N 17°53.3'							
8	257°39.7'	296°28.4'	S 15°12.0'	307°50.1'	S 19°17.1'	303°29.2'	S 17°49.9'	309°09.1'	S 19°11.0'	214°33.6'	N 17°53.7'							
9	272°42.2'	311°28.4'	S 15°11.2'	322°49.4'	S 19°16.4'	318°31.0'	S 17°49.7'	324°11.3'	S 19°10.9'	229°34.7'	N 17°54.1'							
10	287°44.7'	326°28.3'	S 15°10.5'	337°48.6'	S 19°15.6'	333°32.9'	S 17°49.5'	339°13.4'	S 19°10.8'	244°35.8'	N 17°54.5'							
11	302°47.1'	341°28.3'	S 15°09.7'	352°47.8'	S 19°14.9'	348°34.8'	S 17°49.4'	354°15.6'	S 19°10.7'	259°36.9'	N 17°54.9'							
12	317°49.6'	356°28.3'	S 15°08.9'	7°47.1'	S 19°14.2'	3°36.6'	S 17°49.2'	9°17.8'	S 19°10.7'	274°38.0'	N 17°55.3'							
13	332°52.1'	11°28.2'	S 15°08.1'	22°46.3'	S 19°13.5'	18°38.5'	S 17°49.1'	24°19.9'	S 19°10.6'	289°39.1'	N 17°55.8'							
14	347°54.5'	26°28.2'	S 15°07.3'	37°45.5'	S 19°12.7'	33°40.4'	S 17°48.9'	39°22.1'	S 19°10.5'	304°40.2'	N 17°56.2'							
15	2°57.0'	41°28.2'	S 15°06.5'	52°44.8'	S 19°12.0'	48°42.2'	S 17°48.7'	54°24.2'	S 19°10.5'	319°41.2'	N 17°56.6'							
16	17°59.5'	56°28.1'	S 15°05.7'	67°44.0'	S 19°11.3'	63°44.1'	S 17°48.6'	69°26.4'	S 19°10.4'	334°42.3'	N 17°57.0'							
17	33°01.9'	71°28.1'	S 15°04.9'	82°43.2'	S 19°10.6'	78°46.0'	S 17°48.4'	84°28.6'	S 19°10.3'	349°43.4'	N 17°57.4'							
18	48°04.4'	86°28.1'	S 15°04.2'	97°42.5'	S 19°09.8'	93°47.8'	S 17°48.3'	99°30.7'	S 19°10.3'	4°44.5'	N 17°57.8'							
19	63°06.8'	101°28.1'	S 15°03.4'	112°41.7'	S 19°09.1'	108°49.7'	S 17°48.1'	114°32.9'	S 19°10.2'	19°45.6'	N 17°58.2'							
20	78°09.3'	116°28.0'	S 15°02.6'	127°41.0'	S 19°08.4'	123°51.6'	S 17°47.9'	129°35.1'	S 19°10.1'	34°46.7'	N 17°58.6'							
21	93°11.8'	131°28.0'	S 15°01.8'	142°40.2'	S 19°07.7'	138°53.4'	S 17°47.8'	144°37.2'	S 19°10.0'	49°47.8'	N 17°59.1'							
22	108°14.2'	146°28.0'	S 15°01.0'	157°39.4'	S 19°06.9'	153°55.3'	S 17°47.6'	159°39.4'	S 19°10.0'	64°48.9'	N 17°59.5'							
23	123°16.7'	161°27.9'	S 15°00.2'	172°38.7'	S 19°06.2'	168°57.2'	S 17°47.5'	174°41.5'	S 19°09.9'	79°50.0'	N 17°59.9'							
		SD 16.2'	d 0.8'	v -0.8'	d 0.7'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.1'	d 0.4'							
Mer. pass.		12 h 14 m 8 s		11 h 29 m		11 h 46 m		11 h 23 m		17 h 41 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Altair	-Venus	-Saturn	+Antares	+Hadar	+Spica	+Arcturus
0	240°28.0'	S 22°51.8'	6.1'	-6.2'	58.8'	60°30.4'	51°14.9'	48°52.3'	48°04.2'	9°06.2'		53°48.6'	59°08.5'
1	254°53.0'	S 22°57.9'	6.0'	-6.0'	58.8'	59°58.1'	50°49.8'	48°20.6'	47°29.6'	9°35.0'		54°23.3'	59°38.4'
2	269°18.1'	S 23°04.0'	6.0'	-5.9'	58.8'	59°25.8'	50°24.8'	47°48.8'	46°55.0'	10°04.5'		54°57.9'	60°08.3'
3	283°43.0'	S 23°09.8'	5.9'	-5.7'	58.8'	58°53.5'	49°60.0'	47°17.1'	46°20.4'	10°34.5'		55°32.6'	60°38.3'
4	298°08.0'	S 23°15.6'	5.9'	-5.6'	58.8'	58°21.2'	49°35.3'	46°45.3'	45°45.9'	11°05.0'		56°07.3'	61°08.3'
5	312°32.9'	S 23°21.1'	5.9'	-5.4'	58.8'	57°48.9'	49°10.8'	46°13.6'	45°11.4'	11°35.9'		56°41.9'	61°38.4'
6	326°57.7'	S 23°26.6'	5.8'	-5.3'	58.7'	57°16.7'	48°46.4'	45°41.9'	44°36.8'	12°07.1'		57°16.6'	62°08.5'
7	341°22.6'	S 23°31.8'	5.8'	-5.1'	58.7'	56°44.4'	48°22.3'	45°10.2'	44°02.3'	12°38.7'		57°51.2'	62°38.7'
8	355°47.3'	S 23°36.9'	5.7'	-5.0'	58.7'	56°12.2'	47°58.3'	44°38.5'	43°27.8'	13°10.5'		58°25.9'	63°08.9'
9	10°12.1'	S 23°41.9'	5.7'	-4.8'	58.7'	55°40.0'	47°34.4'	44°06.8'	42°53.3'	13°42.6'		59°00.5'	63°39.1'
10	24°36.8'	S 23°46.7'	5.7'	-4.7'	58.7'	55°07.8'	47°10.8'	43°35.1'	42°18.8'	14°14.8'		59°35.1'	64°09.4'
11	39°01.4'	S 23°51.4'	5.6'	-4.5'	58.7'	54°35.6'	46°47.3'	43°03.5'	41°44.4'	14°47.3'		60°09.7'	64°39.6'
12	53°26.1'	S 23°55.9'	5.6'	-4.3'	58.7'	54°03.4'	46°24.0'	42°31.8'	41°09.9'	15°19.9'		60°44.4'	65°10.0'
13	67°50.7'	S 24°00.2'	5.6'	-4.2'	58.7'	53°31.2'	46°01.0'	42°00.2'	40°35.5'	15°52.7'		61°19.0'	65°40.3'
14	82°15.2'	S 24°04.4'	5.5'	-4.0'	58.7'	52°59.0'	45°38.1'	41°28.6'	40°01.1'	16°25.6'		61°53.6'	66°10.7'
15	96°39.8'	S 24°08.4'	5.5'	-3.9'	58.6'	52°26.9'	45°15.4'	40°57.0'	39°26.7'	16°58.6'		62°28.1'	66°41.1'
16	111°04.3'	S 24°12.3'	5.5'	-3.7'	58.6'	51°54.8'	44°52.9'	40°25.4'	38°52.3'	17°31.7'		63°02.7'	67°11.6'
17	125°28.8'	S 24°16.0'	5.5'	-3.6'	58.6'	51°22.6'	44°30.7'	39°53.8'	38°17.9'	18°04.9'		63°37.3'	67°42.0'
18	139°53.3'	S 24°19.6'	5.4'	-3.4'	58.6'	50°50.5'	44°08.7'	39°22.3'	37°43.5'	18°38.2'	52°50.7'	64°11.8'	68°12.5'
19	154°17.7'	S 24°23.0'	5.4'	-3.2'	58.6'	50°18.4'	43°46.9'	38°50.7'	37°09.2'	19°11.6'	53°05.7'	64°46.4'	68°43.0'
20	168°42.1'	S 24°26.2'	5.4'	-3.1'	58.6'	49°46.4'	43°25.3'	38°19.2'	36°34.9'	19°45.0'	53°21.0'	65°20.9'	69°13.6'
21	183°06.6'	S 24°29.3'	5.4'	-2.9'	58.6'	49°14.3'	43°04.0'	37°47.7'	36°00.5'	20°18.5'	53°36.5'	65°55.5'	69°44.1'
22	197°30.9'	S 24°32.2'	5.4'	-2.8'	58.6'	48°42.3'	42°42.9'	37°16.2'	35°26.2'	20°52.1'	53°52.2'	66°30.0'	70°14.7'
23	211°55.3'	S 24°35.0'	5.4'	-2.6'	58.5'	48°10.2'	42°22.0'	36°44.7'	34°52.0'	21°25.7'	54°08.0'	67°04.5'	70°45.3'
Mer. pass.		8 h 18 m SD 16.0'	phase 25%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.4'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.8'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.9'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°28.9'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	138°19.2'	176°27.9'	S 14°59.4'	187°37.9'	S 19°05.5'	183°59.0'	S 17°47.3'	189°43.7'	S 19°09.8'	94°51.1'	N 18°00.3'							
1	153°21.6'	191°27.9'	S 14°58.6'	202°37.2'	S 19°04.7'	199°00.9'	S 17°47.1'	204°45.9'	S 19°09.8'	109°52.2'	N 18°00.7'							
2	168°24.1'	206°27.9'	S 14°57.8'	217°36.4'	S 19°04.0'	214°02.8'	S 17°47.0'	219°48.0'	S 19°09.7'	124°53.3'	N 18°01.1'							
3	183°26.6'	221°27.8'	S 14°57.0'	232°35.7'	S 19°03.2'	229°04.6'	S 17°46.8'	234°50.2'	S 19°09.6'	139°54.3'	N 18°01.5'							
4	198°29.0'	236°27.8'	S 14°56.2'	247°34.9'	S 19°02.5'	244°06.5'	S 17°46.6'	249°52.4'	S 19°09.6'	154°55.4'	N 18°01.9'							
5	213°31.5'	251°27.8'	S 14°55.4'	262°34.1'	S 19°01.8'	259°08.4'	S 17°46.5'	264°54.5'	S 19°09.5'	169°56.5'	N 18°02.4'							
6	228°34.0'	266°27.8'	S 14°54.6'	277°33.4'	S 19°01.0'	274°10.2'	S 17°46.3'	279°56.7'	S 19°09.4'	184°57.6'	N 18°02.8'							
7	243°36.4'	281°27.7'	S 14°53.8'	292°32.6'	S 19°00.3'	289°12.1'	S 17°46.2'	294°58.8'	S 19°09.4'	199°58.7'	N 18°03.2'							
8	258°38.9'	296°27.7'	S 14°53.1'	307°31.9'	S 18°59.5'	304°14.0'	S 17°46.0'	310°01.0'	S 19°09.3'	214°59.8'	N 18°03.6'							
9	273°41.3'	311°27.7'	S 14°52.3'	322°31.1'	S 18°58.8'	319°15.8'	S 17°45.8'	325°03.2'	S 19°09.2'	230°00.9'	N 18°04.0'							
10	288°43.8'	326°27.7'	S 14°51.5'	337°30.4'	S 18°58.1'	334°17.7'	S 17°45.7'	340°05.3'	S 19°09.1'	245°02.0'	N 18°04.4'							
11	303°46.3'	341°27.7'	S 14°50.7'	352°29.6'	S 18°57.3'	349°19.6'	S 17°45.5'	355°07.5'	S 19°09.1'	260°03.0'	N 18°04.8'							
12	318°48.7'	356°27.6'	S 14°49.9'	7°28.9'	S 18°56.6'	4°21.4'	S 17°45.4'	10°09.7'	S 19°09.0'	275°04.1'	N 18°05.2'							
13	333°51.2'	11°27.6'	S 14°49.1'	22°28.1'	S 18°55.8'	19°23.3'	S 17°45.2'	25°11.8'	S 19°08.9'	290°05.2'	N 18°05.6'							
14	348°53.7'	26°27.6'	S 14°48.3'	37°27.4'	S 18°55.1'	34°25.2'	S 17°45.0'	40°14.0'	S 19°08.9'	305°06.3'	N 18°06.0'							
15	3°56.1'	41°27.6'	S 14°47.5'	52°26.6'	S 18°54.3'	49°27.0'	S 17°44.9'	55°16.2'	S 19°08.8'	320°07.4'	N 18°06.5'							
16	18°58.6'	56°27.5'	S 14°46.7'	67°25.9'	S 18°53.6'	64°28.9'	S 17°44.7'	70°18.3'	S 19°08.7'	335°08.5'	N 18°06.9'							
17	34°01.1'	71°27.5'	S 14°45.9'	82°25.1'	S 18°52.8'	79°30.8'	S 17°44.6'	85°20.5'	S 19°08.7'	350°09.6'	N 18°07.3'							
18	49°03.5'	86°27.5'	S 14°45.1'	97°24.4'	S 18°52.1'	94°32.6'	S 17°44.4'	100°22.6'	S 19°08.6'	5°10.7'	N 18°07.7'							
19	64°06.0'	101°27.5'	S 14°44.3'	112°23.6'	S 18°51.3'	109°34.5'	S 17°44.2'	115°24.8'	S 19°08.5'	20°11.7'	N 18°08.1'							
20	79°08.5'	116°27.5'	S 14°43.5'	127°22.9'	S 18°50.6'	124°36.4'	S 17°44.1'	130°27.0'	S 19°08.5'	35°12.8'	N 18°08.5'							
21	94°10.9'	131°27.4'	S 14°42.7'	142°22.1'	S 18°49.8'	139°38.2'	S 17°43.9'	145°29.1'	S 19°08.4'	50°13.9'	N 18°08.9'							
22	109°13.4'	146°27.4'	S 14°41.9'	157°21.4'	S 18°49.1'	154°40.1'	S 17°43.8'	160°31.3'	S 19°08.3'	65°15.0'	N 18°09.3'							
23	124°15.8'	161°27.4'	S 14°41.1'	172°20.6'	S 18°48.3'	169°42.0'	S 17°43.6'	175°33.5'	S 19°08.2'	80°16.1'	N 18°09.7'							
		SD 16.2' d 0.8'		v -0.8' d 0.7'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.1' d 0.4'								
Mer. pass.		12 h 14 m 10 s		11 h 30 m		11 h 43 m		11 h 19 m		17 h 39 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Altair	-Venus	-Saturn	+Antares	+Rigel Kent	+Hadar	+AcruX
0	226°19.7'	S 24°37.6'	5.4'	-2.4'	58.5'	47°38.2'	42°01.5'	36°13.2'	34°17.7'	21°59.3'	50°22.2'	54°24.1'	
1	240°44.0'	S 24°40.0'	5.3'	-2.3'	58.5'	47°06.2'	41°41.1'	35°41.7'	33°43.5'	22°33.0'	50°37.3'	54°40.4'	66°12.5'
2	255°08.4'	S 24°42.3'	5.3'	-2.1'	58.5'	46°34.2'	41°21.1'	35°10.3'	33°09.2'	23°06.7'	50°52.7'	54°56.8'	66°27.5'
3	269°32.7'	S 24°44.4'	5.3'	-1.9'	58.5'	46°02.3'	41°01.3'	34°38.9'	32°35.0'	23°40.5'	51°08.2'	55°13.5'	66°42.7'
4	283°57.0'	S 24°46.3'	5.3'	-1.8'	58.5'	45°30.3'	40°41.8'	34°07.5'	32°00.8'	24°14.3'	51°24.0'	55°30.3'	66°57.9'
5	298°21.4'	S 24°48.1'	5.3'	-1.6'	58.5'	44°58.4'	40°22.6'	33°36.1'	31°26.7'	24°48.1'	51°39.9'	55°47.3'	67°13.3'
6	312°45.7'	S 24°49.7'	5.3'	-1.5'	58.5'	44°26.4'	40°03.7'	33°04.7'	30°52.5'	25°21.9'	51°56.1'	56°04.5'	67°28.8'
7	327°10.0'	S 24°51.2'	5.3'	-1.3'	58.4'	43°54.5'	39°45.1'	32°33.4'	30°18.4'	25°55.8'	52°12.5'	56°21.8'	67°44.4'
8	341°34.3'	S 24°52.5'	5.3'	-1.1'	58.4'	43°22.7'	39°26.8'	32°02.0'	29°44.3'	26°29.7'	52°29.1'	56°39.3'	68°00.1'
9	355°58.6'	S 24°53.6'	5.3'	-1.0'	58.4'	42°50.8'	39°08.8'	31°30.7'	29°10.2'	27°03.6'	52°45.9'	56°57.0'	68°15.9'
10	10°23.0'	S 24°54.6'	5.3'	-0.8'	58.4'	42°19.0'	38°51.1'	30°59.4'	28°36.1'	27°37.5'	53°02.9'	57°14.8'	68°31.8'
11	24°47.3'	S 24°55.4'	5.3'	-0.7'	58.4'	41°47.1'	38°33.8'	30°28.1'	28°02.1'	28°11.4'	53°20.1'	57°32.8'	68°47.8'
12	39°11.6'	S 24°56.1'	5.4'	-0.5'	58.4'	41°15.3'	38°16.7'	29°56.9'	27°28.1'	28°45.3'	53°37.5'	57°50.9'	69°03.9'
13	53°36.0'	S 24°56.6'	5.4'	-0.3'	58.4'	40°43.5'	38°00.1'	29°25.6'	26°54.1'	29°19.3'	53°55.1'	58°09.2'	69°20.1'
14	68°00.3'	S 24°56.9'	5.4'	-0.2'	58.3'	40°11.8'	37°43.8'	28°54.4'	26°20.1'	29°53.2'	54°12.8'	58°27.7'	69°36.4'
15	82°24.7'	S 24°57.0'	5.4'	-0.0'	58.3'		37°27.8'	28°23.2'	25°46.2'	30°27.2'	54°30.7'	58°46.2'	69°52.8'
16	96°49.1'	S 24°57.1'	5.4'	0.2'	58.3'		37°12.2'	27°52.1'	25°12.3'	31°01.1'	54°48.8'	59°05.0'	70°09.3'
17	111°13.5'	S 24°56.9'	5.4'	0.3'	58.3'			27°20.9'	24°38.4'	31°35.1'	55°07.1'	59°23.8'	70°25.9'
18	125°38.0'	S 24°56.6'	5.5'	0.5'	58.3'			26°49.8'	24°04.6'	32°09.0'	55°25.5'	59°42.8'	70°42.6'
19	140°02.4'	S 24°56.1'	5.5'	0.6'	58.3'			26°18.7'	23°30.7'	32°43.0'	55°44.1'	60°02.0'	70°59.3'
20	154°26.9'	S 24°55.5'	5.5'	0.8'	58.2'			25°47.6'	22°56.9'	33°17.0'	56°02.8'	60°21.2'	71°16.2'
21	168°51.4'	S 24°54.6'	5.5'	1.0'	58.2'			25°16.5'	22°23.2'	33°50.9'	56°21.7'	60°40.6'	71°33.1'
22	183°15.9'	S 24°53.7'	5.6'	1.1'	58.2'			24°45.5'	21°49.5'	34°24.9'	56°40.7'	61°00.1'	71°50.1'
23	197°40.5'	S 24°52.6'	5.6'	1.3'	58.2'			24°14.5'	21°15.8'	34°58.8'	56°59.9'	61°19.7'	72°07.2'
Mer. pass.		9 h 17 m SD 16.0'	phase 16%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	AcruX	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°29.3'	N 89°21.4'
Rigel Kent	-0.0	139°44.5'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	139°18.3'	176°27.4'	S 14°40.3'	187°19.9'	S 18°47.6'	184°43.8'	S 17°43.4'	190°35.6'	S 19°08.2'	95°17.2'	N 18°10.1'	
1	154°20.8'	191°27.4'	S 14°39.5'	202°19.1'	S 18°46.8'	199°45.7'	S 17°43.3'	205°37.8'	S 19°08.1'	110°18.2'	N 18°10.5'	
2	169°23.2'	206°27.3'	S 14°38.7'	217°18.4'	S 18°46.0'	214°47.6'	S 17°43.1'	220°40.0'	S 19°08.0'	125°19.3'	N 18°11.0'	
3	184°25.7'	221°27.3'	S 14°37.9'	232°17.6'	S 18°45.3'	229°49.4'	S 17°42.9'	235°42.1'	S 19°08.0'	140°20.4'	N 18°11.4'	
4	199°28.2'	236°27.3'	S 14°37.1'	247°16.9'	S 18°44.5'	244°51.3'	S 17°42.8'	250°44.3'	S 19°07.9'	155°21.5'	N 18°11.8'	
5	214°30.6'	251°27.3'	S 14°36.2'	262°16.1'	S 18°43.8'	259°53.2'	S 17°42.6'	265°46.4'	S 19°07.8'	170°22.6'	N 18°12.2'	
6	229°33.1'	266°27.3'	S 14°35.4'	277°15.4'	S 18°43.0'	274°55.0'	S 17°42.5'	280°48.6'	S 19°07.8'	185°23.6'	N 18°12.6'	
7	244°35.6'	281°27.3'	S 14°34.6'	292°14.7'	S 18°42.2'	289°56.9'	S 17°42.3'	295°50.8'	S 19°07.7'	200°24.7'	N 18°13.0'	
8	259°38.0'	296°27.2'	S 14°33.8'	307°13.9'	S 18°41.5'	304°58.8'	S 17°42.1'	310°52.9'	S 19°07.6'	215°25.8'	N 18°13.4'	
9	274°40.5'	311°27.2'	S 14°33.0'	322°13.2'	S 18°40.7'	320°00.6'	S 17°42.0'	325°55.1'	S 19°07.6'	230°26.9'	N 18°13.8'	
10	289°43.0'	326°27.2'	S 14°32.2'	337°12.4'	S 18°39.9'	335°02.5'	S 17°41.8'	340°57.3'	S 19°07.5'	245°28.0'	N 18°14.2'	
11	304°45.4'	341°27.2'	S 14°31.4'	352°11.7'	S 18°39.2'	350°04.4'	S 17°41.7'	355°59.4'	S 19°07.4'	260°29.1'	N 18°14.6'	
12	319°47.9'	356°27.2'	S 14°30.6'	7°10.9'	S 18°38.4'	5°06.2'	S 17°41.5'	11°01.6'	S 19°07.3'	275°30.1'	N 18°15.0'	
13	334°50.3'	11°27.2'	S 14°29.8'	22°10.2'	S 18°37.6'	20°08.1'	S 17°41.3'	26°03.8'	S 19°07.3'	290°31.2'	N 18°15.4'	
14	349°52.8'	26°27.2'	S 14°29.0'	37°09.5'	S 18°36.9'	35°10.0'	S 17°41.2'	41°05.9'	S 19°07.2'	305°32.3'	N 18°15.9'	
15	4°55.3'	41°27.1'	S 14°28.2'	52°08.7'	S 18°36.1'	50°11.8'	S 17°41.0'	56°08.1'	S 19°07.1'	320°33.4'	N 18°16.3'	
16	19°57.7'	56°27.1'	S 14°27.4'	67°08.0'	S 18°35.3'	65°13.7'	S 17°40.8'	71°10.3'	S 19°07.1'	335°34.5'	N 18°16.7'	
17	35°00.2'	71°27.1'	S 14°26.6'	82°07.2'	S 18°34.5'	80°15.6'	S 17°40.7'	86°12.4'	S 19°07.0'	350°35.5'	N 18°17.1'	
18	50°02.7'	86°27.1'	S 14°25.7'	97°06.5'	S 18°33.8'	95°17.4'	S 17°40.5'	101°14.6'	S 19°06.9'	5°36.6'	N 18°17.5'	
19	65°05.1'	101°27.1'	S 14°24.9'	112°05.8'	S 18°33.0'	110°19.3'	S 17°40.4'	116°16.8'	S 19°06.9'	20°37.7'	N 18°17.9'	
20	80°07.6'	116°27.1'	S 14°24.1'	127°05.0'	S 18°32.2'	125°21.2'	S 17°40.2'	131°18.9'	S 19°06.8'	35°38.8'	N 18°18.3'	
21	95°10.1'	131°27.1'	S 14°23.3'	142°04.3'	S 18°31.4'	140°23.0'	S 17°40.0'	146°21.1'	S 19°06.7'	50°39.8'	N 18°18.7'	
22	110°12.5'	146°27.1'	S 14°22.5'	157°03.6'	S 18°30.7'	155°24.9'	S 17°39.9'	161°23.2'	S 19°06.7'	65°40.9'	N 18°19.1'	
23	125°15.0'	161°27.1'	S 14°21.7'	172°02.8'	S 18°29.9'	170°26.8'	S 17°39.7'	176°25.4'	S 19°06.6'	80°42.0'	N 18°19.5'	
		SD 16.2'	d 0.8'		v -0.7' d 0.8'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.1' d 0.4'	
Mer. pass.		12 h 14 m 12 s		11 h 31 m		11 h 40 m		11 h 16 m		17 h 38 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Venus	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux	+Spica	+Arcturus
0	212°05.0'	S 24°51.3'	5.6'	1.4'	58.2'	23°43.5'	20°42.2'	35°32.8'	57°19.3'	61°39.5'	72°24.3'	81°23.4'	83°32.6'
1	226°29.7'	S 24°49.8'	5.7'	1.6'	58.2'	23°12.6'	20°08.5'	36°06.7'	57°38.8'	61°59.3'	72°41.5'	81°57.6'	84°03.3'
2	240°54.3'	S 24°48.2'	5.7'	1.8'	58.1'	22°41.7'	19°35.0'	36°40.7'	57°58.4'	62°19.3'	72°58.8'	82°31.7'	84°34.0'
3	255°19.0'	S 24°46.5'	5.7'	1.9'	58.1'	22°10.8'	19°01.5'	37°14.6'	58°18.1'	62°39.4'	73°16.2'	83°05.9'	85°04.7'
4	269°43.7'	S 24°44.6'	5.8'	2.1'	58.1'	21°39.9'	18°28.0'	37°48.5'	58°38.0'	62°59.6'	73°33.6'	83°40.0'	85°35.4'
5	284°08.5'	S 24°42.5'	5.8'	2.2'	58.1'	21°09.1'	17°54.6'	38°22.5'	58°58.0'	63°19.9'	73°51.1'	84°14.1'	86°06.0'
6	298°33.3'	S 24°40.3'	5.8'	2.4'	58.1'	20°38.3'	17°21.2'	38°56.4'	59°18.2'	63°40.2'	74°08.7'	84°48.2'	86°36.7'
7	312°58.1'	S 24°37.9'	5.9'	2.5'	58.1'	20°07.6'	16°47.9'	39°30.3'	59°38.4'	64°00.7'	74°26.3'	85°22.3'	87°07.3'
8	327°23.0'	S 24°35.4'	5.9'	2.7'	58.0'	19°36.8'	16°14.7'	40°04.2'	59°58.8'	64°21.3'	74°44.0'	85°56.3'	87°37.9'
9	341°48.0'	S 24°32.7'	6.0'	2.8'	58.0'	19°06.2'	15°41.5'	40°38.1'	60°19.3'	64°42.0'	75°01.8'	86°30.3'	88°08.5'
10	356°13.0'	S 24°29.8'	6.0'	3.0'	58.0'	18°35.5'	15°08.4'	41°12.0'	60°39.9'	65°02.8'	75°19.6'	87°04.4'	88°39.1'
11	10°38.0'	S 24°26.8'	6.1'	3.1'	58.0'	18°04.9'	14°35.4'	41°45.8'	61°00.6'	65°23.6'	75°37.4'	87°38.4'	89°09.7'
12	25°03.1'	S 24°23.7'	6.1'	3.3'	58.0'	17°34.4'	14°02.5'	42°19.7'	61°21.5'	65°44.6'	75°55.3'	88°12.3'	89°40.3'
13	39°28.2'	S 24°20.4'	6.2'	3.4'	58.0'	17°03.9'	13°29.7'	42°53.5'	61°42.4'	66°05.6'	76°13.3'	88°46.3'	90°10.8'
14	53°53.4'	S 24°16.9'	6.2'	3.6'	57.9'	16°33.4'	12°56.9'	43°27.4'	62°03.4'	66°26.7'	76°31.3'	89°20.3'	90°41.3'
15	68°18.7'	S 24°13.3'	6.3'	3.7'	57.9'	16°03.0'	12°24.3'	44°01.2'	62°24.6'	66°47.9'	76°49.4'	89°54.2'	91°11.8'
16	82°44.0'	S 24°09.6'	6.4'	3.9'	57.9'	15°32.7'	11°51.8'	44°35.0'	62°45.8'	67°09.2'	77°07.5'	90°28.1'	91°42.3'
17	97°09.3'	S 24°05.7'	6.4'	4.0'	57.9'	15°02.4'	11°19.5'	45°08.8'	63°07.1'	67°30.5'	77°25.7'	91°02.0'	92°12.8'
18	111°34.7'	S 24°01.7'	6.5'	4.2'	57.9'	14°32.2'	10°47.3'	45°42.6'	63°28.5'	67°51.9'	77°43.9'	91°35.8'	92°43.3'
19	126°00.2'	S 23°57.5'	6.5'	4.3'	57.8'	14°02.1'	10°15.4'	46°16.3'	63°50.0'	68°13.4'	78°02.1'	92°09.7'	93°13.7'
20	140°25.8'	S 23°53.1'	6.6'	4.5'	57.8'	13°32.0'	9°43.6'	46°50.1'	64°11.6'	68°35.0'	78°20.4'	92°43.5'	93°44.1'
21	154°51.4'	S 23°48.7'	6.7'	4.6'	57.8'	13°02.0'	9°12.1'	47°23.8'	64°33.3'	68°56.6'	78°38.7'	93°17.3'	94°14.5'
22	169°17.1'	S 23°44.0'	6.7'	4.8'	57.8'	12°32.1'	8°40.9'	47°57.5'	64°55.1'	69°18.3'	78°57.1'	93°51.1'	94°44.8'
23	183°42.8'	S 23°39.3'	6.8'	4.9'	57.8'	12°02.3'	8°10.0'	48°31.2'	65°16.9'	69°40.0'	79°15.5'	94°24.9'	95°15.2'
Mer. pass.		10 h 16 m SD 15.9'			phase 9%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.8'	N 5°10.1'	Polaris	+2.0	315°29.8'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.8'	N 19°04.3'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	140°17.4'	176°27.0'	S 14°20.9'	187°02.1'	S 18°29.1'		185°28.6'	S 17°39.6'		191°27.6'	S 19°06.5'		95°43.1'	N 18°19.9'				
1	155°19.9'	191°27.0'	S 14°20.1'	202°01.4'	S 18°28.3'		200°30.5'	S 17°39.4'		206°29.7'	S 19°06.4'		110°44.1'	N 18°20.3'				
2	170°22.4'	206°27.0'	S 14°19.3'	217°00.6'	S 18°27.5'		215°32.4'	S 17°39.2'		221°31.9'	S 19°06.4'		125°45.2'	N 18°20.7'				
3	185°24.8'	221°27.0'	S 14°18.4'	231°59.9'	S 18°26.8'		230°34.2'	S 17°39.1'		236°34.1'	S 19°06.3'		140°46.3'	N 18°21.1'				
4	200°27.3'	236°27.0'	S 14°17.6'	246°59.2'	S 18°26.0'		245°36.1'	S 17°38.9'		251°36.2'	S 19°06.2'		155°47.4'	N 18°21.5'				
5	215°29.8'	251°27.0'	S 14°16.8'	261°58.4'	S 18°25.2'		260°38.0'	S 17°38.7'		266°38.4'	S 19°06.2'		170°48.4'	N 18°21.9'				
6	230°32.2'	266°27.0'	S 14°16.0'	276°57.7'	S 18°24.4'		275°39.8'	S 17°38.6'		281°40.6'	S 19°06.1'		185°49.5'	N 18°22.4'				
7	245°34.7'	281°27.0'	S 14°15.2'	291°57.0'	S 18°23.6'		290°41.7'	S 17°38.4'		296°42.7'	S 19°06.0'		200°50.6'	N 18°22.8'				
8	260°37.2'	296°27.0'	S 14°14.4'	306°56.2'	S 18°22.8'		305°43.6'	S 17°38.3'		311°44.9'	S 19°06.0'		215°51.7'	N 18°23.2'				
9	275°39.6'	311°27.0'	S 14°13.5'	321°55.5'	S 18°22.1'		320°45.4'	S 17°38.1'		326°47.1'	S 19°05.9'		230°52.7'	N 18°23.6'				
10	290°42.1'	326°27.0'	S 14°12.7'	336°54.8'	S 18°21.3'		335°47.3'	S 17°37.9'		341°49.2'	S 19°05.8'		245°53.8'	N 18°24.0'				
11	305°44.6'	341°26.9'	S 14°11.9'	351°54.0'	S 18°20.5'		350°49.2'	S 17°37.8'		356°51.4'	S 19°05.8'		260°54.9'	N 18°24.4'				
12	320°47.0'	356°26.9'	S 14°11.1'	6°53.3'	S 18°19.7'		5°51.1'	S 17°37.6'		11°53.6'	S 19°05.7'		275°56.0'	N 18°24.8'				
13	335°49.5'	11°26.9'	S 14°10.3'	21°52.6'	S 18°18.9'		20°52.9'	S 17°37.5'		26°55.7'	S 19°05.6'		290°57.0'	N 18°25.2'				
14	350°51.9'	26°26.9'	S 14°09.5'	36°51.9'	S 18°18.1'		35°54.8'	S 17°37.3'		41°57.9'	S 19°05.5'		305°58.1'	N 18°25.6'				
15	5°54.4'	41°26.9'	S 14°08.6'	51°51.1'	S 18°17.3'		50°56.7'	S 17°37.1'		57°00.1'	S 19°05.5'		320°59.2'	N 18°26.0'				
16	20°56.9'	56°26.9'	S 14°07.8'	66°50.4'	S 18°16.5'		65°58.5'	S 17°37.0'		72°02.2'	S 19°05.4'		336°00.2'	N 18°26.4'				
17	35°59.3'	71°26.9'	S 14°07.0'	81°49.7'	S 18°15.7'		81°00.4'	S 17°36.8'		87°04.4'	S 19°05.3'		351°01.3'	N 18°26.8'				
18	51°01.8'	86°26.9'	S 14°06.2'	96°49.0'	S 18°14.9'		96°02.3'	S 17°36.6'		102°06.5'	S 19°05.3'		6°02.4'	N 18°27.2'				
19	66°04.3'	101°26.9'	S 14°05.4'	111°48.2'	S 18°14.1'		111°04.1'	S 17°36.5'		117°08.7'	S 19°05.2'		21°03.5'	N 18°27.6'				
20	81°06.7'	116°26.9'	S 14°04.5'	126°47.5'	S 18°13.3'		126°06.0'	S 17°36.3'		132°10.9'	S 19°05.1'		36°04.5'	N 18°28.0'				
21	96°09.2'	131°26.9'	S 14°03.7'	141°46.8'	S 18°12.5'		141°07.9'	S 17°36.2'		147°13.0'	S 19°05.1'		51°05.6'	N 18°28.4'				
22	111°11.7'	146°26.9'	S 14°02.9'	156°46.1'	S 18°11.7'		156°09.7'	S 17°36.0'		162°15.2'	S 19°05.0'		66°06.7'	N 18°28.8'				
23	126°14.1'	161°26.9'	S 14°02.1'	171°45.3'	S 18°10.9'		171°11.6'	S 17°35.8'		177°17.4'	S 19°04.9'		81°07.7'	N 18°29.2'				
		SD 16.2'	d 0.8'		v -0.7'	d 0.8'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.1'	d 0.4'			
Mer. pass.		12 h 14 m 13 s		11 h 32 m			11 h 37 m			11 h 13 m			17 h 36 m					

h	Moon					Lunar distance												
	GHA	dec	v	d	HP	-Venus	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux	+Spica	+Arcturus					
0	198°08.6'	S 23°34.4'	6.9'	5.0'	57.8'	11°32.6'	7°39.5'	49°04.9'	65°38.8'	70°01.8'	79°33.9'	94°58.6'	95°45.5'					
1	212°34.5'	S 23°29.3'	6.9'	5.2'	57.7'	11°03.0'	7°09.5'	49°38.6'	66°00.8'	70°23.7'	79°52.4'	95°32.3'	96°15.8'					
2	227°00.4'	S 23°24.1'	7.0'	5.3'	57.7'	10°33.6'	6°40.1'	50°12.3'	66°22.9'	70°45.6'	80°10.8'	96°06.1'	96°46.0'					
3	241°26.5'	S 23°18.8'	7.1'	5.5'	57.7'	10°04.3'		50°45.9'	66°45.0'	71°07.6'	80°29.4'	96°39.7'	97°16.3'					
4	255°52.6'	S 23°13.3'	7.2'	5.6'	57.7'	9°35.2'		51°19.5'	67°07.2'	71°29.6'	80°47.9'	97°13.4'	97°46.5'					
5	270°18.7'	S 23°07.7'	7.2'	5.7'	57.7'	9°06.3'		51°53.1'	67°29.5'	71°51.7'	81°06.5'	97°47.0'	98°16.6'					
6	284°45.0'	S 23°02.0'	7.3'	5.9'	57.6'	8°37.6'		52°26.7'	67°51.8'	72°13.8'	81°25.1'	98°20.6'	98°46.8'					
7	299°11.3'	S 22°56.1'	7.4'	6.0'	57.6'	8°09.1'		53°00.3'	68°14.2'	72°36.0'	81°43.7'	98°54.2'	99°16.9'					
8	313°37.7'	S 22°50.1'	7.5'	6.1'	57.6'	7°41.0'		53°33.8'	68°36.7'	72°58.2'	82°02.4'	99°27.8'	99°47.0'					
9	328°04.1'	S 22°44.0'	7.5'	6.3'	57.6'	7°13.2'		54°07.3'	68°59.2'	73°20.5'	82°21.0'	100°01.4'	100°17.0'					
10	342°30.7'	S 22°37.8'	7.6'	6.4'	57.6'	6°45.9'		54°40.9'	69°21.7'	73°42.8'	82°39.7'	100°34.9'	100°47.1'					
11	356°57.3'	S 22°31.4'	7.7'	6.5'	57.5'	6°19.0'		55°14.3'	69°44.4'	74°05.1'	82°58.4'	101°08.4'	101°17.0'					
12	11°24.0'	S 22°24.9'	7.8'	6.6'	57.5'	5°52.8'		55°47.8'	70°07.0'	74°27.5'	83°17.1'	101°41.9'	101°47.0'					
13	25°50.8'	S 22°18.2'	7.9'	6.8'	57.5'			56°21.3'	70°29.8'	74°49.9'	83°35.9'	102°15.3'	102°16.9'					
14	40°17.7'	S 22°11.4'	8.0'	6.9'	57.5'			56°54.7'	70°52.5'	75°12.4'	83°54.6'	102°48.7'	102°46.8'					
15	54°44.6'	S 22°04.5'	8.0'	7.0'	57.4'			57°28.1'	71°15.3'	75°34.9'	84°13.4'	103°22.1'	103°16.6'					
16	69°11.7'	S 21°57.5'	8.1'	7.1'	57.4'			58°01.5'	71°38.2'	75°57.4'	84°32.1'	103°55.5'	103°46.4'					
17	83°38.8'	S 21°50.4'	8.2'	7.3'	57.4'			58°34.9'	72°01.1'	76°19.9'	84°50.9'	104°28.9'	104°16.2'					
18	98°06.0'	S 21°43.1'	8.3'	7.4'	57.4'			59°08.2'	72°24.1'	76°42.5'	85°09.7'	105°02.2'	104°45.9'					
19	112°33.3'	S 21°35.8'	8.4'	7.5'	57.4'			59°41.5'	72°47.0'	77°05.1'	85°28.5'	105°35.5'	105°15.6'					
20	127°00.7'	S 21°28.3'	8.5'	7.6'	57.3'			60°14.8'	73°10.1'	77°27.7'	85°47.3'	106°08.8'	105°45.3'					
21	141°28.1'	S 21°20.6'	8.5'	7.7'	57.3'			60°48.1'	73°33.1'	77°50.4'	86°06.1'	106°42.1'	106°14.9'					
22	155°55.7'	S 21°12.9'	8.6'	7.8'	57.3'		6°18.5'	61°21.4'	73°56.2'	78°13.0'	86°24.9'	107°15.3'	106°44.4'					
23	170°23.3'	S 21°05.1'	8.7'	8.0'	57.3'		6°47.0'	61°54.6'	74°19.3'	78°35.7'	86°43.7'	107°48.5'	107°14.0'					
Mer. pass.		11 h 13 m SD 15.7'	phase 4%															

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.8'	N 5°10.1'	Polaris	+2.0	315°30.3'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

Thursday 11 February 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	141°16.6'	176°26.9'	S 14°01.3'	186°44.6'	S 18°10.1'	186°13.5'	S 17°35.7'	192°19.5'	S 19°04.8'	96°08.8'	N 18°29.6'	
1	156°19.1'	191°26.9'	S 14°00.4'	201°43.9'	S 18°09.3'	201°15.3'	S 17°35.5'	207°21.7'	S 19°04.8'	111°09.9'	N 18°30.0'	
2	171°21.5'	206°26.9'	S 13°59.6'	216°43.2'	S 18°08.5'	216°17.2'	S 17°35.3'	222°23.9'	S 19°04.7'	126°10.9'	N 18°30.4'	
3	186°24.0'	221°26.9'	S 13°58.8'	231°42.4'	S 18°07.7'	231°19.1'	S 17°35.2'	237°26.0'	S 19°04.6'	141°12.0'	N 18°30.8'	
4	201°26.4'	236°26.9'	S 13°58.0'	246°41.7'	S 18°06.9'	246°21.0'	S 17°35.0'	252°28.2'	S 19°04.6'	156°13.1'	N 18°31.2'	
5	216°28.9'	251°26.9'	S 13°57.1'	261°41.0'	S 18°06.1'	261°22.8'	S 17°34.9'	267°30.4'	S 19°04.5'	171°14.2'	N 18°31.6'	
6	231°31.4'	266°26.9'	S 13°56.3'	276°40.3'	S 18°05.3'	276°24.7'	S 17°34.7'	282°32.5'	S 19°04.4'	186°15.2'	N 18°32.0'	
7	246°33.8'	281°26.9'	S 13°55.5'	291°39.6'	S 18°04.5'	291°26.6'	S 17°34.5'	297°34.7'	S 19°04.4'	201°16.3'	N 18°32.4'	
8	261°36.3'	296°26.9'	S 13°54.7'	306°38.8'	S 18°03.7'	306°28.4'	S 17°34.4'	312°36.9'	S 19°04.3'	216°17.4'	N 18°32.8'	
9	276°38.8'	311°26.9'	S 13°53.8'	321°38.1'	S 18°02.9'	321°30.3'	S 17°34.2'	327°39.0'	S 19°04.2'	231°18.4'	N 18°33.2'	
10	291°41.2'	326°26.9'	S 13°53.0'	336°37.4'	S 18°02.1'	336°32.2'	S 17°34.1'	342°41.2'	S 19°04.2'	246°19.5'	N 18°33.6'	
11	306°43.7'	341°26.9'	S 13°52.2'	351°36.7'	S 18°01.3'	351°34.0'	S 17°33.9'	357°43.4'	S 19°04.1'	261°20.6'	N 18°34.0'	
12	321°46.2'	356°26.9'	S 13°51.4'	6°36.0'	S 18°00.4'	6°35.9'	S 17°33.7'	12°45.5'	S 19°04.0'	276°21.6'	N 18°34.4'	
13	336°48.6'	11°26.9'	S 13°50.5'	21°35.3'	S 17°59.6'	21°37.8'	S 17°33.6'	27°47.7'	S 19°03.9'	291°22.7'	N 18°34.9'	
14	351°51.1'	26°26.9'	S 13°49.7'	36°34.5'	S 17°58.8'	36°39.6'	S 17°33.4'	42°49.9'	S 19°03.9'	306°23.8'	N 18°35.3'	
15	6°53.6'	41°26.9'	S 13°48.9'	51°33.8'	S 17°58.0'	51°41.5'	S 17°33.2'	57°52.0'	S 19°03.8'	321°24.8'	N 18°35.7'	
16	21°56.0'	56°26.9'	S 13°48.0'	66°33.1'	S 17°57.2'	66°43.4'	S 17°33.1'	72°54.2'	S 19°03.7'	336°25.9'	N 18°36.1'	
17	36°58.5'	71°26.9'	S 13°47.2'	81°32.4'	S 17°56.4'	81°45.3'	S 17°32.9'	87°56.4'	S 19°03.7'	351°26.9'	N 18°36.5'	
18	52°00.9'	86°26.9'	S 13°46.4'	96°31.7'	S 17°55.6'	96°47.1'	S 17°32.8'	102°58.5'	S 19°03.6'	6°28.0'	N 18°36.9'	
19	67°03.4'	101°26.9'	S 13°45.6'	111°31.0'	S 17°54.7'	111°49.0'	S 17°32.6'	118°00.7'	S 19°03.5'	21°29.1'	N 18°37.3'	
20	82°05.9'	116°26.9'	S 13°44.7'	126°30.3'	S 17°53.9'	126°50.9'	S 17°32.4'	133°02.9'	S 19°03.5'	36°30.1'	N 18°37.7'	
21	97°08.3'	131°26.9'	S 13°43.9'	141°29.6'	S 17°53.1'	141°52.7'	S 17°32.3'	148°05.0'	S 19°03.4'	51°31.2'	N 18°38.1'	
22	112°10.8'	146°26.9'	S 13°43.1'	156°28.8'	S 17°52.3'	156°54.6'	S 17°32.1'	163°07.2'	S 19°03.3'	66°32.3'	N 18°38.5'	
23	127°13.3'	161°26.9'	S 13°42.2'	171°28.1'	S 17°51.5'	171°56.5'	S 17°31.9'	178°09.4'	S 19°03.3'	81°33.3'	N 18°38.9'	
		SD 16.2'	d 0.8'	v -0.7'	d 0.8'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.1'	d 0.4'	
Mer. pass.		12 h 14 m 13 s		11 h 34 m		11 h 34 m		11 h 9 m		17 h 34 m		

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	+Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux	+Arcturus	+Spica
0	184°51.0'	S 20°57.1'	8.8'	8.1'	57.2'	7°16.1'	62°27.8'	74°42.5'	78°58.4'	87°02.5'	107°43.4'	108°21.7'
1	199°18.8'	S 20°49.1'	8.9'	8.2'	57.2'	7°45.6'	63°01.0'	75°05.7'	79°21.2'	87°21.3'	108°12.9'	108°54.8'
2	213°46.7'	S 20°40.9'	9.0'	8.3'	57.2'							
3	228°14.7'	S 20°32.6'	9.1'	8.4'	57.2'							
4	242°42.8'	S 20°24.2'	9.2'	8.5'	57.2'							
5	257°11.0'	S 20°15.7'	9.3'	8.6'	57.1'							
6	271°39.2'	S 20°07.1'	9.3'	8.7'	57.1'							
7	286°07.6'	S 19°58.4'	9.4'	8.8'	57.1'							
8	300°36.0'	S 19°49.6'	9.5'	8.9'	57.1'							
9	315°04.5'	S 19°40.7'	9.6'	9.0'	57.0'							
10	329°33.1'	S 19°31.7'	9.7'	9.1'	57.0'							
11	344°01.8'	S 19°22.6'	9.8'	9.2'	57.0'							
12	358°30.6'	S 19°13.4'	9.9'	9.3'	57.0'							
13	12°59.5'	S 19°04.1'	10.0'	9.4'	57.0'							
14	27°28.5'	S 18°54.7'	10.1'	9.5'	56.9'							
15	41°57.6'	S 18°45.2'	10.2'	9.6'	56.9'							
16	56°26.7'	S 18°35.6'	10.2'	9.7'	56.9'							
17	70°56.0'	S 18°25.9'	10.3'	9.8'	56.9'							
18	85°25.3'	S 18°16.2'	10.4'	9.8'	56.8'							
19	99°54.7'	S 18°06.4'	10.5'	9.9'	56.8'							
20	114°24.2'	S 17°56.4'	10.6'	10.0'	56.8'							
21	128°53.8'	S 17°46.4'	10.7'	10.1'	56.8'							
22	143°23.5'	S 17°36.3'	10.8'	10.2'	56.7'							
23	157°53.3'	S 17°26.1'	10.9'	10.3'	56.7'							
Mer. pass.	12 h 6 m	SD 15.6'	phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.7'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.8'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.8'	N 5°10.1'	Polaris	+2.0	315°30.8'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

Friday 12 February 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	142°15.7'	176°26.9'	S 13°41.4'	186°27.4'	S 17°50.6'	186°58.3'	S 17°31.8'	193°11.5'	S 19°03.2'	96°34.4'	N 18°39.3'	
1	157°18.2'	191°26.9'	S 13°40.6'	201°26.7'	S 17°49.8'	202°00.2'	S 17°31.6'	208°13.7'	S 19°03.1'	111°35.4'	N 18°39.7'	
2	172°20.7'	206°26.9'	S 13°39.7'	216°26.0'	S 17°49.0'	217°02.1'	S 17°31.5'	223°15.9'	S 19°03.0'	126°36.5'	N 18°40.1'	
3	187°23.1'	221°26.9'	S 13°38.9'	231°25.3'	S 17°48.2'	232°04.0'	S 17°31.3'	238°18.0'	S 19°03.0'	141°37.6'	N 18°40.5'	
4	202°25.6'	236°27.0'	S 13°38.1'	246°24.6'	S 17°47.3'	247°05.8'	S 17°31.1'	253°20.2'	S 19°02.9'	156°38.6'	N 18°40.9'	
5	217°28.0'	251°27.0'	S 13°37.2'	261°23.9'	S 17°46.5'	262°07.7'	S 17°31.0'	268°22.4'	S 19°02.8'	171°39.7'	N 18°41.3'	
6	232°30.5'	266°27.0'	S 13°36.4'	276°23.2'	S 17°45.7'	277°09.6'	S 17°30.8'	283°24.5'	S 19°02.8'	186°40.8'	N 18°41.7'	
7	247°33.0'	281°27.0'	S 13°35.6'	291°22.5'	S 17°44.8'	292°11.4'	S 17°30.6'	298°26.7'	S 19°02.7'	201°41.8'	N 18°42.1'	
8	262°35.4'	296°27.0'	S 13°34.7'	306°21.8'	S 17°44.0'	307°13.3'	S 17°30.5'	313°28.9'	S 19°02.6'	216°42.9'	N 18°42.5'	
9	277°37.9'	311°27.0'	S 13°33.9'	321°21.1'	S 17°43.2'	322°15.2'	S 17°30.3'	328°31.0'	S 19°02.6'	231°43.9'	N 18°42.9'	
10	292°40.4'	326°27.0'	S 13°33.1'	336°20.4'	S 17°42.4'	337°17.0'	S 17°30.2'	343°33.2'	S 19°02.5'	246°45.0'	N 18°43.2'	
11	307°42.8'	341°27.0'	S 13°32.2'	351°19.6'	S 17°41.5'	352°18.9'	S 17°30.0'	358°35.4'	S 19°02.4'	261°46.1'	N 18°43.6'	
12	322°45.3'	356°27.0'	S 13°31.4'	6°18.9'	S 17°40.7'	7°20.8'	S 17°29.8'	13°37.5'	S 19°02.4'	276°47.1'	N 18°44.0'	
13	337°47.8'	11°27.0'	S 13°30.5'	21°18.2'	S 17°39.9'	22°22.7'	S 17°29.7'	28°39.7'	S 19°02.3'	291°48.2'	N 18°44.4'	
14	352°50.2'	26°27.0'	S 13°29.7'	36°17.5'	S 17°39.0'	37°24.5'	S 17°29.5'	43°41.9'	S 19°02.2'	306°49.2'	N 18°44.8'	
15	7°52.7'	41°27.1'	S 13°28.9'	51°16.8'	S 17°38.2'	52°26.4'	S 17°29.3'	58°44.0'	S 19°02.2'	321°50.3'	N 18°45.2'	
16	22°55.2'	56°27.1'	S 13°28.0'	66°16.1'	S 17°37.3'	67°28.3'	S 17°29.2'	73°46.2'	S 19°02.1'	336°51.3'	N 18°45.6'	
17	37°57.6'	71°27.1'	S 13°27.2'	81°15.4'	S 17°36.5'	82°30.1'	S 17°29.0'	88°48.4'	S 19°02.0'	351°52.4'	N 18°46.0'	
18	53°00.1'	86°27.1'	S 13°26.4'	96°14.7'	S 17°35.7'	97°32.0'	S 17°28.9'	103°50.5'	S 19°01.9'	6°53.5'	N 18°46.4'	
19	68°02.5'	101°27.1'	S 13°25.5'	111°14.0'	S 17°34.8'	112°33.9'	S 17°28.7'	118°52.7'	S 19°01.9'	21°54.5'	N 18°46.8'	
20	83°05.0'	116°27.1'	S 13°24.7'	126°13.3'	S 17°34.0'	127°35.8'	S 17°28.5'	133°54.9'	S 19°01.8'	36°55.6'	N 18°47.2'	
21	98°07.5'	131°27.1'	S 13°23.8'	141°12.6'	S 17°33.2'	142°37.6'	S 17°28.4'	148°57.0'	S 19°01.7'	51°56.6'	N 18°47.6'	
22	113°09.9'	146°27.1'	S 13°23.0'	156°11.9'	S 17°32.3'	157°39.5'	S 17°28.2'	163°59.2'	S 19°01.7'	66°57.7'	N 18°48.0'	
23	128°12.4'	161°27.1'	S 13°22.2'	171°11.2'	S 17°31.5'	172°41.4'	S 17°28.0'	179°01.4'	S 19°01.6'	81°58.7'	N 18°48.4'	
		SD 16.2'	d 0.8'		v -0.7' d 0.8'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.1' d 0.4'	
Mer. pass.		12 h 14 m 13 s		11 h 35 m		11 h 31 m		11 h 6 m		17 h 32 m		

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Sirius	-Betelgeuse	-Adhara	-Capella	-Rigel	-Aldebaran	-Mars
0	172°23.2'	S 17°15.9'	11.0'	10.3'	56.7'							
1	186°53.1'	S 17°05.5'	11.0'	10.4'	56.7'							
2	201°23.2'	S 16°55.1'	11.1'	10.5'	56.6'							
3	215°53.3'	S 16°44.6'	11.2'	10.6'	56.6'							
4	230°23.5'	S 16°34.1'	11.3'	10.6'	56.6'							
5	244°53.9'	S 16°23.4'	11.4'	10.7'	56.6'							
6	259°24.2'	S 16°12.7'	11.5'	10.8'	56.6'							
7	273°54.7'	S 16°01.9'	11.6'	10.9'	56.5'							
8	288°25.3'	S 15°51.1'	11.7'	10.9'	56.5'							
9	302°55.9'	S 15°40.2'	11.7'	11.0'	56.5'							
10	317°26.7'	S 15°29.2'	11.8'	11.1'	56.5'							
11	331°57.5'	S 15°18.1'	11.9'	11.1'	56.4'							
12	346°28.4'	S 15°07.0'	12.0'	11.2'	56.4'							
13	0°59.4'	S 14°55.8'	12.1'	11.2'	56.4'	116°54.9'	113°21.1'	113°19.8'	109°29.0'	99°24.6'	96°30.6'	75°58.5'
14	15°30.5'	S 14°44.6'	12.2'	11.3'	56.4'	116°33.3'	112°50.4'	113°04.4'	108°59.4'	98°57.0'	95°58.4'	75°27.6'
15	30°01.6'	S 14°33.3'	12.2'	11.4'	56.3'	116°11.7'	112°19.7'	112°48.9'	108°29.8'	98°29.4'	95°26.2'	74°56.7'
16	44°32.8'	S 14°21.9'	12.3'	11.4'	56.3'	115°50.0'	111°49.1'	112°33.4'	108°00.2'	98°01.8'	94°54.0'	74°25.9'
17	59°04.2'	S 14°10.5'	12.4'	11.5'	56.3'	115°28.2'	111°18.4'	112°17.7'	107°30.6'	97°34.2'	94°21.8'	73°55.1'
18	73°35.5'	S 13°59.0'	12.5'	11.5'	56.3'	115°06.4'	110°47.8'	112°02.0'	107°01.0'	97°06.6'	93°49.7'	73°24.3'
19	88°07.0'	S 13°47.5'	12.6'	11.6'	56.2'	114°44.5'	110°17.2'	111°46.2'	106°31.5'	96°39.1'	93°17.6'	72°53.5'
20	102°38.6'	S 13°35.9'	12.6'	11.6'	56.2'	114°22.6'	109°46.6'	111°30.3'	106°01.9'	96°11.5'	92°45.5'	72°22.8'
21	117°10.2'	S 13°24.3'	12.7'	11.7'	56.2'	114°00.6'	109°16.0'	111°14.3'	105°32.4'	95°44.0'	92°13.4'	71°52.1'
22	131°41.9'	S 13°12.6'	12.8'	11.7'	56.2'	113°38.5'	108°45.4'	110°58.3'	105°02.8'	95°16.5'	91°41.4'	71°21.4'
23	146°13.7'	S 13°00.8'	12.9'	11.8'	56.1'	113°16.5'	108°14.9'	110°42.1'	104°33.3'	94°49.0'	91°09.4'	70°50.8'
Mer. pass.		12 h 56 m SD 15.5'	phase 0%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.8'	N 5°10.1'	Polaris	+2.0	315°31.3'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.1'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	143°14.9'	176°27.2'	S 13°21.3'	186°10.5'	S 17°30.6'	187°43.2'	S 17°27.9'	194°03.5'	S 19°01.5'	96°59.8'	N 18°48.8'	
1	158°17.3'	191°27.2'	S 13°20.5'	201°09.8'	S 17°29.8'	202°45.1'	S 17°27.7'	209°05.7'	S 19°01.5'	112°00.9'	N 18°49.2'	
2	173°19.8'	206°27.2'	S 13°19.6'	216°09.1'	S 17°28.9'	217°47.0'	S 17°27.5'	224°07.9'	S 19°01.4'	127°01.9'	N 18°49.6'	
3	188°22.3'	221°27.2'	S 13°18.8'	231°08.4'	S 17°28.1'	232°48.8'	S 17°27.4'	239°10.0'	S 19°01.3'	142°03.0'	N 18°50.0'	
4	203°24.7'	236°27.2'	S 13°17.9'	246°07.8'	S 17°27.2'	247°50.7'	S 17°27.2'	254°12.2'	S 19°01.3'	157°04.0'	N 18°50.4'	
5	218°27.2'	251°27.2'	S 13°17.1'	261°07.1'	S 17°26.4'	262°52.6'	S 17°27.1'	269°14.4'	S 19°01.2'	172°05.1'	N 18°50.8'	
6	233°29.6'	266°27.2'	S 13°16.3'	276°06.4'	S 17°25.5'	277°54.5'	S 17°26.9'	284°16.6'	S 19°01.1'	187°06.1'	N 18°51.2'	
7	248°32.1'	281°27.3'	S 13°15.4'	291°05.7'	S 17°24.7'	292°56.3'	S 17°26.7'	299°18.7'	S 19°01.0'	202°07.2'	N 18°51.6'	
8	263°34.6'	296°27.3'	S 13°14.6'	306°05.0'	S 17°23.8'	307°58.2'	S 17°26.6'	314°20.9'	S 19°01.0'	217°08.2'	N 18°52.0'	
9	278°37.0'	311°27.3'	S 13°13.7'	321°04.3'	S 17°23.0'	323°00.1'	S 17°26.4'	329°23.1'	S 19°00.9'	232°09.3'	N 18°52.4'	
10	293°39.5'	326°27.3'	S 13°12.9'	336°03.6'	S 17°22.1'	338°01.9'	S 17°26.2'	344°25.2'	S 19°00.8'	247°10.3'	N 18°52.8'	
11	308°42.0'	341°27.3'	S 13°12.0'	351°02.9'	S 17°21.3'	353°03.8'	S 17°26.1'	359°27.4'	S 19°00.8'	262°11.4'	N 18°53.2'	
12	323°44.4'	356°27.3'	S 13°11.2'	6°02.2'	S 17°20.4'	8°05.7'	S 17°25.9'	14°29.6'	S 19°00.7'	277°12.4'	N 18°53.6'	
13	338°46.9'	11°27.4'	S 13°10.3'	21°01.5'	S 17°19.6'	23°07.6'	S 17°25.8'	29°31.7'	S 19°00.6'	292°13.5'	N 18°54.0'	
14	353°49.4'	26°27.4'	S 13°09.5'	36°00.8'	S 17°18.7'	38°09.4'	S 17°25.6'	44°33.9'	S 19°00.6'	307°14.5'	N 18°54.4'	
15	8°51.8'	41°27.4'	S 13°08.6'	51°00.1'	S 17°17.9'	53°11.3'	S 17°25.4'	59°36.1'	S 19°00.5'	322°15.6'	N 18°54.7'	
16	23°54.3'	56°27.4'	S 13°07.8'	65°59.4'	S 17°17.0'	68°13.2'	S 17°25.3'	74°38.2'	S 19°00.4'	337°16.6'	N 18°55.1'	
17	38°56.8'	71°27.4'	S 13°07.0'	80°58.8'	S 17°16.2'	83°15.1'	S 17°25.1'	89°40.4'	S 19°00.4'	352°17.7'	N 18°55.5'	
18	53°59.2'	86°27.5'	S 13°06.1'	95°58.1'	S 17°15.3'	98°16.9'	S 17°24.9'	104°42.6'	S 19°00.3'	7°18.7'	N 18°55.9'	
19	69°01.7'	101°27.5'	S 13°05.3'	110°57.4'	S 17°14.4'	113°18.8'	S 17°24.8'	119°44.7'	S 19°00.2'	22°19.8'	N 18°56.3'	
20	84°04.1'	116°27.5'	S 13°04.4'	125°56.7'	S 17°13.6'	128°20.7'	S 17°24.6'	134°46.9'	S 19°00.1'	37°20.8'	N 18°56.7'	
21	99°06.6'	131°27.5'	S 13°03.6'	140°56.0'	S 17°12.7'	143°22.5'	S 17°24.4'	149°49.1'	S 19°00.1'	52°21.9'	N 18°57.1'	
22	114°09.1'	146°27.5'	S 13°02.7'	155°55.3'	S 17°11.8'	158°24.3'	S 17°24.3'	164°51.2'	S 19°00.0'	67°22.9'	N 18°57.5'	
23	129°11.5'	161°27.6'	S 13°01.9'	170°54.6'	S 17°11.0'	173°26.3'	S 17°24.1'	179°53.4'	S 18°59.9'	82°24.0'	N 18°57.9'	
		SD 16.2' d 0.8'		v -0.7' d 0.9'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.1' d 0.4'		
Mer. pass.		12 h 14 m 11 s		11 h 36 m		11 h 28 m		11 h 2 m		17 h 31 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sirius	-Adhara	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut
0	160°45.6'	S 12°49.0'	12.9'	11.8'	56.1'	112°54.3'	110°26.0'	107°44.3'	104°03.8'	94°21.5'	90°37.4'	70°20.2'	
1	175°17.5'	S 12°37.2'	13.0'	11.9'	56.1'	112°32.1'	110°09.7'	107°13.8'	103°34.3'	93°54.1'	90°05.5'	69°49.6'	
2	189°49.5'	S 12°25.3'	13.1'	11.9'	56.1'	112°09.9'	109°53.4'	106°43.3'	103°04.9'	93°26.6'	89°33.6'	69°19.0'	
3	204°21.6'	S 12°13.3'	13.2'	12.0'	56.0'	111°47.6'	109°37.0'	106°12.9'	102°35.4'	92°59.2'	89°01.7'	68°48.5'	
4	218°53.7'	S 12°01.4'	13.2'	12.0'	56.0'	111°25.3'	109°20.6'	105°42.4'	102°06.0'	92°31.8'	88°29.9'	68°18.0'	
5	233°26.0'	S 11°49.3'	13.3'	12.1'	56.0'	111°03.0'	109°04.1'	105°12.0'	101°36.5'	92°04.4'	87°58.1'	67°47.5'	
6	247°58.3'	S 11°37.3'	13.4'	12.1'	56.0'	110°40.6'	108°47.5'	104°41.6'	101°07.1'	91°37.1'	87°26.3'	67°17.1'	
7	262°30.6'	S 11°25.1'	13.4'	12.2'	55.9'	110°18.2'	108°30.9'	104°11.2'	100°37.8'	91°09.7'	86°54.5'	66°46.7'	
8	277°03.1'	S 11°13.0'	13.5'	12.2'	55.9'	109°55.7'	108°14.2'	103°40.8'	100°08.4'	90°42.4'	86°22.8'	66°16.3'	18°22.6'
9	291°35.6'	S 11°00.8'	13.6'	12.2'	55.9'	109°33.2'	107°57.4'	103°10.5'	99°39.0'	90°15.2'	85°51.1'	65°45.9'	18°37.7'
10	306°08.2'	S 10°48.6'	13.6'	12.3'	55.9'	109°10.7'	107°40.7'	102°40.1'	99°09.7'	89°47.9'	85°19.4'	65°15.6'	18°53.4'
11	320°40.8'	S 10°36.3'	13.7'	12.3'	55.9'	108°48.1'	107°23.8'	102°09.8'	98°40.4'	89°20.7'	84°47.7'	64°45.3'	19°09.7'
12	335°13.5'	S 10°24.0'	13.8'	12.3'	55.8'	108°25.5'	107°06.9'	101°39.5'	98°11.1'	88°53.4'	84°16.1'	64°15.1'	19°26.7'
13	349°46.3'	S 10°11.7'	13.8'	12.4'	55.8'	108°02.9'	106°50.0'	101°09.3'	97°41.8'	88°26.3'	83°44.5'	63°44.8'	19°44.2'
14	4°19.2'	S 9°59.3'	13.9'	12.4'	55.8'	107°40.3'	106°33.0'	100°39.0'	97°12.6'	87°59.1'	83°12.9'	63°14.6'	20°02.2'
15	18°52.1'	S 9°46.9'	14.0'	12.4'	55.8'	107°17.6'	106°16.0'	100°08.8'	96°43.3'	87°32.0'	82°41.4'	62°44.4'	20°20.8'
16	33°25.1'	S 9°34.4'	14.0'	12.5'	55.7'	106°55.0'	105°58.9'	99°38.6'	96°14.1'	87°04.9'	82°09.9'	62°14.3'	20°39.8'
17	47°58.1'	S 9°22.0'	14.1'	12.5'	55.7'	106°32.3'	105°41.8'	99°08.4'	95°44.9'	86°37.8'	81°38.4'	61°44.2'	20°59.4'
18	62°31.2'	S 9°09.5'	14.2'	12.5'	55.7'	106°09.5'	105°24.6'	98°38.3'	95°15.8'	86°10.8'	81°07.0'	61°14.1'	21°19.3'
19	77°04.3'	S 8°57.0'	14.2'	12.6'	55.7'	105°46.8'	105°07.4'	98°08.1'	94°46.6'	85°43.7'	80°35.6'	60°44.0'	21°39.7'
20	91°37.6'	S 8°44.4'	14.3'	12.6'	55.6'	105°24.0'	104°50.1'	97°38.0'	94°17.5'	85°16.8'	80°04.2'	60°14.0'	22°00.5'
21	106°10.8'	S 8°31.8'	14.3'	12.6'	55.6'	105°01.2'	104°32.9'	97°08.0'	93°48.4'	84°49.8'	79°32.8'	59°44.0'	22°21.7'
22	120°44.2'	S 8°19.2'	14.4'	12.6'	55.6'	104°38.4'	104°15.6'	96°37.9'	93°19.3'	84°22.9'	79°01.5'	59°14.0'	22°43.2'
23	135°17.6'	S 8°06.6'	14.4'	12.7'	55.6'	104°15.6'	103°58.2'	96°07.9'	92°50.3'	83°56.0'	78°30.2'	58°44.1'	23°05.0'
Mer. pass.		13 h 42 m SD 15.3'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.5'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.7'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°31.9'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	144°14.0'	176°27.6'	S 13°01.0'	185°53.9'	S 17°10.1'		188°28.2'	S 17°24.0'		194°55.6'	S 18°59.9'		97°25.0'	N 18°58.3'				
1	159°16.5'	191°27.6'	S 13°00.2'	200°53.3'	S 17°09.3'		203°30.0'	S 17°23.8'		209°57.8'	S 18°59.8'		112°26.1'	N 18°58.7'				
2	174°18.9'	206°27.6'	S 12°59.3'	215°52.6'	S 17°08.4'		218°31.9'	S 17°23.6'		224°59.9'	S 18°59.7'		127°27.1'	N 18°59.1'				
3	189°21.4'	221°27.6'	S 12°58.5'	230°51.9'	S 17°07.5'		233°33.8'	S 17°23.5'		240°02.1'	S 18°59.7'		142°28.2'	N 18°59.5'				
4	204°23.9'	236°27.7'	S 12°57.6'	245°51.2'	S 17°06.7'		248°35.6'	S 17°23.3'		255°04.3'	S 18°59.6'		157°29.2'	N 18°59.9'				
5	219°26.3'	251°27.7'	S 12°56.8'	260°50.5'	S 17°05.8'		263°37.5'	S 17°23.1'		270°06.4'	S 18°59.5'		172°30.3'	N 19°00.3'				
6	234°28.8'	266°27.7'	S 12°55.9'	275°49.8'	S 17°04.9'		278°39.4'	S 17°23.0'		285°08.6'	S 18°59.5'		187°31.3'	N 19°00.6'				
7	249°31.3'	281°27.7'	S 12°55.0'	290°49.2'	S 17°04.0'		293°41.3'	S 17°22.8'		300°10.8'	S 18°59.4'		202°32.4'	N 19°01.0'				
8	264°33.7'	296°27.8'	S 12°54.2'	305°48.5'	S 17°03.2'		308°43.1'	S 17°22.7'		315°12.9'	S 18°59.3'		217°33.4'	N 19°01.4'				
9	279°36.2'	311°27.8'	S 12°53.3'	320°47.8'	S 17°02.3'		323°45.0'	S 17°22.5'		330°15.1'	S 18°59.2'		232°34.5'	N 19°01.8'				
10	294°38.6'	326°27.8'	S 12°52.5'	335°47.1'	S 17°01.4'		338°46.9'	S 17°22.3'		345°17.3'	S 18°59.2'		247°35.5'	N 19°02.2'				
11	309°41.1'	341°27.8'	S 12°51.6'	350°46.4'	S 17°00.6'		353°48.8'	S 17°22.2'		0°19.4'	S 18°59.1'		262°36.6'	N 19°02.6'				
12	324°43.6'	356°27.9'	S 12°50.8'	5°45.8'	S 16°59.7'		8°50.6'	S 17°22.0'		15°21.6'	S 18°59.0'		277°37.6'	N 19°03.0'				
13	339°46.0'	11°27.9'	S 12°49.9'	20°45.1'	S 16°58.8'		23°52.5'	S 17°21.8'		30°23.8'	S 18°59.0'		292°38.6'	N 19°03.4'				
14	354°48.5'	26°27.9'	S 12°49.1'	35°44.4'	S 16°57.9'		38°54.4'	S 17°21.7'		45°26.0'	S 18°58.9'		307°39.7'	N 19°03.8'				
15	9°51.0'	41°27.9'	S 12°48.2'	50°43.7'	S 16°57.1'		53°56.3'	S 17°21.5'		60°28.1'	S 18°58.8'		322°40.7'	N 19°04.2'				
16	24°53.4'	56°28.0'	S 12°47.4'	65°43.1'	S 16°56.2'		68°58.1'	S 17°21.3'		75°30.3'	S 18°58.8'		337°41.8'	N 19°04.6'				
17	39°55.9'	71°28.0'	S 12°46.5'	80°42.4'	S 16°55.3'		83°60.0'	S 17°21.2'		90°32.5'	S 18°58.7'		352°42.8'	N 19°05.0'				
18	54°58.4'	86°28.0'	S 12°45.6'	95°41.7'	S 16°54.4'		99°01.9'	S 17°21.0'		105°34.6'	S 18°58.6'		7°43.9'	N 19°05.3'				
19	70°00.8'	101°28.0'	S 12°44.8'	110°41.0'	S 16°53.5'		114°03.7'	S 17°20.9'		120°36.8'	S 18°58.6'		22°44.9'	N 19°05.7'				
20	85°03.3'	116°28.1'	S 12°43.9'	125°40.3'	S 16°52.7'		129°05.6'	S 17°20.7'		135°39.0'	S 18°58.5'		37°46.0'	N 19°06.1'				
21	100°05.7'	131°28.1'	S 12°43.1'	140°39.7'	S 16°51.8'		144°07.5'	S 17°20.5'		150°41.1'	S 18°58.4'		52°47.0'	N 19°06.5'				
22	115°08.2'	146°28.1'	S 12°42.2'	155°39.0'	S 16°50.9'		159°09.4'	S 17°20.4'		165°43.3'	S 18°58.4'		67°48.0'	N 19°06.9'				
23	130°10.7'	161°28.1'	S 12°41.4'	170°38.3'	S 16°50.0'		174°11.2'	S 17°20.2'		180°45.5'	S 18°58.3'		82°49.1'	N 19°07.3'				
		SD 16.2'	d 0.9'	v -0.7'	d 0.9'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.0'	d 0.4'				
Mer. pass.		12 h 14 m 9 s		11 h 37 m			11 h 25 m			10 h 59 m			17 h 29 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Procyon	-Sirius	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut
0	149°51.0'	S 7°53.9'	14.5'	12.7'	55.6'			103°52.8'	92°21.2'	83°29.1'	77°58.9'	58°14.2'	23°27.2'
1	164°24.5'	S 7°41.3'	14.6'	12.7'	55.5'			103°30.0'	91°52.2'	83°02.3'	77°27.6'	57°44.3'	23°49.7'
2	178°58.1'	S 7°28.6'	14.6'	12.7'	55.5'			103°07.1'	91°23.2'	82°35.5'	76°56.4'	57°14.4'	24°12.5'
3	193°31.7'	S 7°15.9'	14.7'	12.7'	55.5'		119°38.1'	102°44.2'	90°54.3'	82°08.8'	76°25.2'	56°44.6'	24°35.5'
4	208°05.4'	S 7°03.1'	14.7'	12.8'	55.5'		119°09.2'	102°21.4'	90°25.4'	81°42.0'	75°54.0'	56°14.8'	24°58.9'
5	222°39.1'	S 6°50.4'	14.8'	12.8'	55.4'	119°30.3'	118°40.2'	101°58.5'	89°56.4'	81°15.3'	75°22.9'	55°45.0'	25°22.4'
6	237°12.9'	S 6°37.6'	14.8'	12.8'	55.4'	118°59.2'	118°11.2'	101°35.6'	89°27.6'	80°48.7'	74°51.8'	55°15.3'	25°46.2'
7	251°46.7'	S 6°24.8'	14.9'	12.8'	55.4'	118°28.1'	117°42.2'	101°12.7'	88°58.7'	80°22.1'	74°20.7'	54°45.5'	26°10.2'
8	266°20.5'	S 6°12.0'	14.9'	12.8'	55.4'	117°57.0'	117°13.3'	100°49.8'	88°29.9'	79°55.5'	73°49.7'	54°15.8'	26°34.5'
9	280°54.5'	S 5°59.2'	15.0'	12.8'	55.4'	117°25.9'	116°44.3'	100°26.9'	88°01.1'	79°28.9'	73°18.6'	53°46.2'	26°58.9'
10	295°28.4'	S 5°46.3'	15.0'	12.8'	55.3'	116°54.9'	116°15.3'	100°04.0'	87°32.3'	79°02.4'	72°47.6'	53°16.6'	27°23.5'
11	310°02.4'	S 5°33.5'	15.1'	12.9'	55.3'	116°23.9'	115°46.4'	99°41.1'	87°03.5'	78°36.0'	72°16.7'	52°46.9'	27°48.3'
12	324°36.5'	S 5°20.6'	15.1'	12.9'	55.3'	115°52.9'	115°17.5'	99°18.2'	86°34.8'	78°09.5'	71°45.7'	52°17.4'	28°13.3'
13	339°10.6'	S 5°07.8'	15.1'	12.9'	55.3'	115°21.9'	114°48.5'	98°55.2'	86°06.1'	77°43.1'	71°14.8'	51°47.8'	28°38.4'
14	353°44.7'	S 4°54.9'	15.2'	12.9'	55.2'	114°51.0'	114°19.6'	98°32.3'	85°37.4'	77°16.8'	70°43.9'	51°18.3'	29°03.7'
15	8°18.9'	S 4°42.0'	15.2'	12.9'	55.2'	114°20.1'	113°50.7'	98°09.4'	85°08.8'	76°50.5'	70°13.0'	50°48.8'	29°29.1'
16	22°53.1'	S 4°29.1'	15.3'	12.9'	55.2'	113°49.2'	113°21.8'	97°46.5'	84°40.2'	76°24.2'	69°42.2'	50°19.3'	29°54.7'
17	37°27.4'	S 4°16.2'	15.3'	12.9'	55.2'	113°18.3'	112°52.9'	97°23.6'	84°11.6'	75°58.0'	69°11.4'	49°49.9'	30°20.4'
18	52°01.7'	S 4°03.3'	15.3'	12.9'	55.2'	112°47.5'	112°24.0'	97°00.7'	83°43.0'	75°31.8'	68°40.6'	49°20.5'	30°46.2'
19	66°36.0'	S 3°50.4'	15.4'	12.9'	55.1'	112°16.7'	111°55.1'	96°37.8'	83°14.5'	75°05.6'	68°09.8'	48°51.1'	31°12.2'
20	81°10.4'	S 3°37.5'	15.4'	12.9'	55.1'	111°45.9'	111°26.2'	96°14.9'	82°46.0'	74°39.5'	67°39.1'	48°21.7'	31°38.2'
21	95°44.8'	S 3°24.5'	15.5'	12.9'	55.1'	111°15.1'	110°57.3'	95°52.0'	82°17.5'	74°13.5'	67°08.4'	47°52.4'	32°04.4'
22	110°19.3'	S 3°11.6'	15.5'	12.9'	55.1'	110°44.4'	110°28.5'	95°29.1'	81°49.0'	73°47.5'	66°37.7'	47°23.1'	32°30.6'
23	124°53.8'	S 2°58.7'	15.5'	12.9'	55.1'	110°13.7'	109°59.7'	95°06.2'	81°20.6'	73°21.5'	66°07.1'	46°53.8'	32°57.0'
Mer. pass.		14 h 26 m SD 15.1'	phase 5%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°32.4'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.3'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.2'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	145°13.1'	176°28.2'	S 12°40.5'	185°37.7'	S 16°49.1'		189°13.1'	S 17°20.0'		195°47.6'	S 18°58.2'		97°50.1'	N 19°07.7'				
1	160°15.6'	191°28.2'	S 12°39.6'	200°37.0'	S 16°48.2'		204°15.0'	S 17°19.9'		210°49.8'	S 18°58.1'		112°51.2'	N 19°08.1'				
2	175°18.1'	206°28.2'	S 12°38.8'	215°36.3'	S 16°47.4'		219°16.9'	S 17°19.7'		225°52.0'	S 18°58.1'		127°52.2'	N 19°08.5'				
3	190°20.5'	221°28.3'	S 12°37.9'	230°35.6'	S 16°46.5'		234°18.7'	S 17°19.5'		240°54.2'	S 18°58.0'		142°53.3'	N 19°08.9'				
4	205°23.0'	236°28.3'	S 12°37.1'	245°35.0'	S 16°45.6'		249°20.6'	S 17°19.4'		255°56.3'	S 18°57.9'		157°54.3'	N 19°09.2'				
5	220°25.5'	251°28.3'	S 12°36.2'	260°34.3'	S 16°44.7'		264°22.5'	S 17°19.2'		270°58.5'	S 18°57.9'		172°55.3'	N 19°09.6'				
6	235°27.9'	266°28.4'	S 12°35.3'	275°33.6'	S 16°43.8'		279°24.4'	S 17°19.1'		286°00.7'	S 18°57.8'		187°56.4'	N 19°10.0'				
7	250°30.4'	281°28.4'	S 12°34.5'	290°33.0'	S 16°42.9'		294°26.2'	S 17°18.9'		301°02.8'	S 18°57.7'		202°57.4'	N 19°10.4'				
8	265°32.9'	296°28.4'	S 12°33.6'	305°32.3'	S 16°42.0'		309°28.1'	S 17°18.7'		316°05.0'	S 18°57.7'		217°58.5'	N 19°10.8'				
9	280°35.3'	311°28.5'	S 12°32.8'	320°31.6'	S 16°41.1'		324°30.0'	S 17°18.6'		331°07.2'	S 18°57.6'		232°59.5'	N 19°11.2'				
10	295°37.8'	326°28.5'	S 12°31.9'	335°31.0'	S 16°40.2'		339°31.9'	S 17°18.4'		346°09.4'	S 18°57.5'		248°00.5'	N 19°11.6'				
11	310°40.2'	341°28.5'	S 12°31.0'	350°30.3'	S 16°39.4'		354°33.7'	S 17°18.2'		1°11.5'	S 18°57.5'		263°01.6'	N 19°12.0'				
12	325°42.7'	356°28.5'	S 12°30.2'	5°29.6'	S 16°38.5'		9°35.6'	S 17°18.1'		16°13.7'	S 18°57.4'		278°02.6'	N 19°12.4'				
13	340°45.2'	11°28.6'	S 12°29.3'	20°29.0'	S 16°37.6'		24°37.5'	S 17°17.9'		31°15.9'	S 18°57.3'		293°03.6'	N 19°12.7'				
14	355°47.6'	26°28.6'	S 12°28.4'	35°28.3'	S 16°36.7'		39°39.3'	S 17°17.7'		46°18.0'	S 18°57.3'		308°04.7'	N 19°13.1'				
15	10°50.1'	41°28.6'	S 12°27.6'	50°27.6'	S 16°35.8'		54°41.2'	S 17°17.6'		61°20.2'	S 18°57.2'		323°05.7'	N 19°13.5'				
16	25°52.6'	56°28.7'	S 12°26.7'	65°27.0'	S 16°34.9'		69°43.1'	S 17°17.4'		76°22.4'	S 18°57.1'		338°06.8'	N 19°13.9'				
17	40°55.0'	71°28.7'	S 12°25.8'	80°26.3'	S 16°34.0'		84°45.0'	S 17°17.2'		91°24.5'	S 18°57.0'		353°07.8'	N 19°14.3'				
18	55°57.5'	86°28.8'	S 12°25.0'	95°25.6'	S 16°33.1'		99°46.8'	S 17°17.1'		106°26.7'	S 18°57.0'		8°08.8'	N 19°14.7'				
19	70°60.0'	101°28.8'	S 12°24.1'	110°25.0'	S 16°32.2'		114°48.7'	S 17°16.9'		121°28.9'	S 18°56.9'		23°09.9'	N 19°15.1'				
20	86°02.4'	116°28.8'	S 12°23.2'	125°24.3'	S 16°31.3'		129°50.6'	S 17°16.8'		136°31.1'	S 18°56.8'		38°10.9'	N 19°15.5'				
21	101°04.9'	131°28.9'	S 12°22.4'	140°23.6'	S 16°30.4'		144°52.5'	S 17°16.6'		151°33.2'	S 18°56.8'		53°11.9'	N 19°15.8'				
22	116°07.3'	146°28.9'	S 12°21.5'	155°23.0'	S 16°29.5'		159°54.3'	S 17°16.4'		166°35.4'	S 18°56.7'		68°13.0'	N 19°16.2'				
23	131°09.8'	161°28.9'	S 12°20.6'	170°22.3'	S 16°28.6'		174°56.2'	S 17°16.3'		181°37.6'	S 18°56.6'		83°14.0'	N 19°16.6'				
		SD 16.2'	d 0.9'	v -0.7'	d 0.9'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.0'	d 0.4'				
Mer. pass.		12 h 14 m 7 s		11 h 38 m			11 h 22 m			10 h 55 m			17 h 27 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Procyon	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Sun
0	139°28.3'	S 2°45.7'	15.6'	12.9'	55.0'	109°43.0'	109°30.8'	80°52.2'	72°55.6'	65°36.5'	46°24.6'	33°23.4'	
1	154°02.9'	S 2°32.8'	15.6'	12.9'	55.0'	109°12.3'	109°02.0'	80°23.8'	72°29.7'	65°05.8'	45°55.3'	33°50.0'	
2	168°37.4'	S 2°19.9'	15.6'	12.9'	55.0'	108°41.7'	108°33.2'	79°55.5'	72°03.8'	64°35.3'	45°26.1'	34°16.6'	
3	183°12.1'	S 2°06.9'	15.6'	12.9'	55.0'	108°11.1'	108°04.4'	79°27.2'	71°38.1'	64°04.7'	44°57.0'	34°43.3'	
4	197°46.7'	S 1°54.0'	15.7'	12.9'	55.0'	107°40.5'	107°35.6'	78°58.9'	71°12.3'	63°34.2'	44°27.8'	35°10.0'	
5	212°21.4'	S 1°41.1'	15.7'	12.9'	54.9'	107°09.9'	107°06.9'	78°30.7'	70°46.6'	63°03.7'	43°58.7'	35°36.9'	40°14.8'
6	226°56.1'	S 1°28.1'	15.7'	12.9'	54.9'	106°39.4'	106°38.1'	78°02.5'	70°21.0'	62°33.2'	43°29.6'	36°03.8'	40°42.7'
7	241°30.8'	S 1°15.2'	15.8'	12.9'	54.9'	106°08.9'	106°09.4'	77°34.3'	69°55.4'	62°02.8'	43°00.5'	36°30.7'	41°10.5'
8	256°05.6'	S 1°02.3'	15.8'	12.9'	54.9'	105°38.4'	105°40.6'	77°06.1'	69°29.8'	61°32.3'	42°31.5'	36°57.8'	41°38.3'
9	270°40.4'	S 0°49.4'	15.8'	12.9'	54.9'	105°07.9'	105°11.9'	76°38.0'	69°04.3'	61°01.9'	42°02.5'	37°24.9'	42°06.1'
10	285°15.2'	S 0°36.5'	15.8'	12.9'	54.9'	104°37.4'	104°43.2'	76°09.9'	68°38.9'	60°31.6'	41°33.5'	37°52.0'	42°33.9'
11	299°50.0'	S 0°23.6'	15.9'	12.9'	54.8'	104°07.0'	104°14.5'	75°41.9'	68°13.5'	60°01.2'	41°04.5'	38°19.2'	43°01.7'
12	314°24.8'	S 0°10.7'	15.9'	12.9'	54.8'	103°36.6'	103°45.8'	75°13.8'	67°48.1'	59°30.9'	40°35.6'	38°46.4'	43°29.4'
13	328°59.7'	N 0°02.2'	15.9'	12.9'	54.8'	103°06.2'	103°17.2'	74°45.8'	67°22.9'	59°00.6'	40°06.6'	39°13.7'	43°57.2'
14	343°34.6'	N 0°15.1'	15.9'	12.9'	54.8'	102°35.8'	102°48.5'	74°17.9'	66°57.6'	58°30.3'	39°37.7'	39°41.1'	44°24.9'
15	358°09.5'	N 0°27.9'	15.9'	12.9'	54.8'	102°05.5'	102°19.9'	73°49.9'	66°32.4'	58°00.0'	39°08.9'	40°08.4'	44°52.6'
16	12°44.4'	N 0°40.8'	15.9'	12.8'	54.7'	101°35.2'	101°51.3'	73°22.0'	66°07.3'	57°29.8'	38°40.0'	40°35.8'	45°20.2'
17	27°19.4'	N 0°53.6'	16.0'	12.8'	54.7'	101°04.9'	101°22.6'	72°54.2'	65°42.2'	56°59.6'	38°11.2'	41°03.3'	45°47.9'
18	41°54.4'	N 1°06.5'	16.0'	12.8'	54.7'	100°34.6'	100°54.0'	72°26.3'	65°17.2'	56°29.4'	37°42.4'	41°30.8'	46°15.5'
19	56°29.3'	N 1°19.3'	16.0'	12.8'	54.7'	100°04.3'	100°25.5'	71°58.5'	64°52.3'	55°59.2'	37°13.6'	41°58.3'	46°43.1'
20	71°04.3'	N 1°32.1'	16.0'	12.8'	54.7'	99°34.1'	99°56.9'	71°30.7'	64°27.4'	55°29.1'	36°44.9'	42°25.9'	47°10.7'
21	85°39.3'	N 1°44.9'	16.0'	12.8'	54.7'	99°03.9'	99°28.3'	71°03.0'	64°02.5'	54°59.0'	36°16.2'	42°53.5'	47°38.3'
22	100°14.3'	N 1°57.6'	16.0'	12.8'	54.6'	98°33.7'	98°59.8'	70°35.3'	63°37.7'	54°28.9'	35°47.5'	43°21.1'	48°05.9'
23	114°49.4'	N 2°10.4'	16.0'	12.7'	54.6'	98°03.5'	98°31.3'	70°07.6'	63°13.0'	53°58.8'	35°18.8'	43°48.7'	48°33.4'
Mer. pass.		15 h 8 m SD 15.0'	phase 11%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°33.0'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.0'	S 29°00.3'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	146°12.3'	176°29.0'	S 12°19.8'	185°21.7'	S 16°27.7'		189°58.1'	S 17°16.1'		196°39.7'	S 18°56.6'		98°15.1'	N 19°17.0'				
1	161°14.7'	191°29.0'	S 12°18.9'	200°21.0'	S 16°26.8'		204°60.0'	S 17°15.9'		211°41.9'	S 18°56.5'		113°16.1'	N 19°17.4'				
2	176°17.2'	206°29.0'	S 12°18.0'	215°20.3'	S 16°25.9'		220°01.8'	S 17°15.8'		226°44.1'	S 18°56.4'		128°17.1'	N 19°17.8'				
3	191°19.7'	221°29.1'	S 12°17.2'	230°19.7'	S 16°25.0'		235°03.7'	S 17°15.6'		241°46.3'	S 18°56.4'		143°18.2'	N 19°18.2'				
4	206°22.1'	236°29.1'	S 12°16.3'	245°19.0'	S 16°24.0'		250°05.6'	S 17°15.4'		256°48.4'	S 18°56.3'		158°19.2'	N 19°18.5'				
5	221°24.6'	251°29.2'	S 12°15.4'	260°18.4'	S 16°23.1'		265°07.5'	S 17°15.3'		271°50.6'	S 18°56.2'		173°20.2'	N 19°18.9'				
6	236°27.1'	266°29.2'	S 12°14.6'	275°17.7'	S 16°22.2'		280°09.3'	S 17°15.1'		286°52.8'	S 18°56.1'		188°21.3'	N 19°19.3'				
7	251°29.5'	281°29.2'	S 12°13.7'	290°17.1'	S 16°21.3'		295°11.2'	S 17°15.0'		301°54.9'	S 18°56.1'		203°22.3'	N 19°19.7'				
8	266°32.0'	296°29.3'	S 12°12.8'	305°16.4'	S 16°20.4'		310°13.1'	S 17°14.8'		316°57.1'	S 18°56.0'		218°23.3'	N 19°20.1'				
9	281°34.5'	311°29.3'	S 12°12.0'	320°15.7'	S 16°19.5'		325°15.0'	S 17°14.6'		331°59.3'	S 18°55.9'		233°24.4'	N 19°20.5'				
10	296°36.9'	326°29.3'	S 12°11.1'	335°15.1'	S 16°18.6'		340°16.9'	S 17°14.5'		347°01.5'	S 18°55.9'		248°25.4'	N 19°20.9'				
11	311°39.4'	341°29.4'	S 12°10.2'	350°14.4'	S 16°17.7'		355°18.7'	S 17°14.3'		2°03.6'	S 18°55.8'		263°26.4'	N 19°21.2'				
12	326°41.8'	356°29.4'	S 12°09.3'	5°13.8'	S 16°16.8'		10°20.6'	S 17°14.1'		17°05.8'	S 18°55.7'		278°27.5'	N 19°21.6'				
13	341°44.3'	11°29.5'	S 12°08.5'	20°13.1'	S 16°15.9'		25°22.5'	S 17°14.0'		32°08.0'	S 18°55.7'		293°28.5'	N 19°22.0'				
14	356°46.8'	26°29.5'	S 12°07.6'	35°12.5'	S 16°14.9'		40°24.4'	S 17°13.8'		47°10.1'	S 18°55.6'		308°29.5'	N 19°22.4'				
15	11°49.2'	41°29.5'	S 12°06.7'	50°11.8'	S 16°14.0'		55°26.2'	S 17°13.6'		62°12.3'	S 18°55.5'		323°30.6'	N 19°22.8'				
16	26°51.7'	56°29.6'	S 12°05.9'	65°11.2'	S 16°13.1'		70°28.1'	S 17°13.5'		77°14.5'	S 18°55.5'		338°31.6'	N 19°23.2'				
17	41°54.2'	71°29.6'	S 12°05.0'	80°10.5'	S 16°12.2'		85°30.0'	S 17°13.3'		92°16.7'	S 18°55.4'		353°32.6'	N 19°23.6'				
18	56°56.6'	86°29.7'	S 12°04.1'	95°09.9'	S 16°11.3'		100°31.9'	S 17°13.1'		107°18.8'	S 18°55.3'		8°33.6'	N 19°23.9'				
19	71°59.1'	101°29.7'	S 12°03.2'	110°09.2'	S 16°10.4'		115°33.7'	S 17°13.0'		122°21.0'	S 18°55.3'		23°34.7'	N 19°24.3'				
20	87°01.6'	116°29.8'	S 12°02.4'	125°08.6'	S 16°09.4'		130°35.6'	S 17°12.8'		137°23.2'	S 18°55.2'		38°35.7'	N 19°24.7'				
21	102°04.0'	131°29.8'	S 12°01.5'	140°07.9'	S 16°08.5'		145°37.5'	S 17°12.7'		152°25.3'	S 18°55.1'		53°36.7'	N 19°25.1'				
22	117°06.5'	146°29.8'	S 12°00.6'	155°07.3'	S 16°07.6'		160°39.4'	S 17°12.5'		167°27.5'	S 18°55.0'		68°37.8'	N 19°25.5'				
23	132°08.9'	161°29.9'	S 11°59.7'	170°06.6'	S 16°06.7'		175°41.2'	S 17°12.3'		182°29.7'	S 18°55.0'		83°38.8'	N 19°25.9'				
		SD 16.2' d 0.9'		v -0.7' d 0.9'			v 1.9' d 0.2'			v 2.2' d 0.1'			v 1.0' d 0.4'					
Mer. pass.		12 h 14 m 3 s		11 h 39 m			11 h 19 m			10 h 52 m			17 h 26 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Procyon	-Pollux	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Sun
0	129°24.4'	N 2°23.1'	16.0'	12.7'	54.6'	98°02.8'	97°33.4'	69°40.0'	62°48.4'	53°28.7'	34°50.1'	44°16.4'	49°00.9'
1	143°59.5'	N 2°35.9'	16.1'	12.7'	54.6'	97°34.3'	97°03.2'	69°12.4'	62°23.8'	52°58.7'	34°21.5'	44°44.1'	49°28.4'
2	158°34.5'	N 2°48.6'	16.1'	12.7'	54.6'	97°05.8'	96°33.1'	68°44.8'	61°59.2'	52°28.7'	33°52.9'	45°11.8'	49°55.9'
3	173°09.6'	N 3°01.3'	16.1'	12.7'	54.6'	96°37.3'	96°03.0'	68°17.3'	61°34.8'	51°58.7'	33°24.3'	45°39.6'	50°23.4'
4	187°44.7'	N 3°13.9'	16.1'	12.6'	54.6'	96°08.9'	95°32.9'	67°49.8'	61°10.3'	51°28.7'	32°55.7'	46°07.4'	50°50.8'
5	202°19.7'	N 3°26.6'	16.1'	12.6'	54.5'	95°40.5'	95°02.9'	67°22.3'	60°46.0'	50°58.8'	32°27.2'	46°35.1'	51°18.3'
6	216°54.8'	N 3°39.2'	16.1'	12.6'	54.5'	95°12.0'	94°32.8'	66°54.9'	60°21.7'	50°28.9'	31°58.7'	47°03.0'	51°45.7'
7	231°29.9'	N 3°51.8'	16.1'	12.6'	54.5'	94°43.6'	94°02.8'	66°27.5'	59°57.5'	49°59.0'	31°30.2'	47°30.8'	52°13.1'
8	246°05.0'	N 4°04.4'	16.1'	12.6'	54.5'	94°15.2'	93°32.8'	66°00.1'	59°33.4'	49°29.1'	31°01.7'	47°58.6'	52°40.5'
9	260°40.1'	N 4°17.0'	16.1'	12.5'	54.5'	93°46.9'	93°02.8'	65°32.8'	59°09.3'	48°59.2'	30°33.3'	48°26.5'	53°07.9'
10	275°15.2'	N 4°29.5'	16.1'	12.5'	54.5'	93°18.5'	92°32.8'	65°05.5'	58°45.3'	48°29.4'	30°04.9'	48°54.4'	53°35.2'
11	289°50.3'	N 4°42.0'	16.1'	12.5'	54.5'	92°50.1'	92°02.9'	64°38.2'	58°21.4'	47°59.5'	29°36.5'	49°22.3'	54°02.6'
12	304°25.4'	N 4°54.5'	16.1'	12.5'	54.4'	92°21.8'	91°32.9'	64°11.0'	57°57.5'	47°29.7'	29°08.1'	49°50.2'	54°29.9'
13	319°00.4'	N 5°07.0'	16.1'	12.4'	54.4'	91°53.5'	91°03.0'	63°43.8'	57°33.7'	46°59.9'	28°39.7'	50°18.1'	54°57.2'
14	333°35.5'	N 5°19.4'	16.1'	12.4'	54.4'	91°25.2'	90°33.1'	63°16.7'	57°10.0'	46°30.2'	28°11.4'	50°46.1'	55°24.5'
15	348°10.6'	N 5°31.8'	16.1'	12.4'	54.4'	90°56.9'	90°03.2'	62°49.6'	56°46.4'	46°00.4'	27°43.1'	51°14.0'	55°51.8'
16	2°45.7'	N 5°44.2'	16.1'	12.4'	54.4'	90°28.6'	89°33.3'	62°22.5'	56°22.9'	45°30.7'	27°14.8'	51°42.0'	56°19.1'
17	17°20.8'	N 5°56.6'	16.1'	12.3'	54.4'	90°00.4'	89°03.4'	61°55.5'	55°59.4'	45°01.0'	26°46.6'	52°10.0'	56°46.3'
18	31°55.8'	N 6°08.9'	16.1'	12.3'	54.4'	89°32.1'	88°33.6'	61°28.5'	55°36.0'	44°31.3'	26°18.3'	52°38.0'	57°13.6'
19	46°30.9'	N 6°21.2'	16.0'	12.3'	54.4'	89°03.9'	88°03.8'	61°01.6'	55°12.7'	44°01.6'	25°50.1'	53°06.0'	57°40.8'
20	61°05.9'	N 6°33.5'	16.0'	12.2'	54.4'	88°35.6'	87°34.0'	60°34.7'	54°49.4'	43°32.0'	25°21.9'	53°34.0'	58°08.0'
21	75°41.0'	N 6°45.7'	16.0'	12.2'	54.3'	88°07.4'	87°04.1'	60°07.8'	54°26.3'	43°02.3'	24°53.7'	54°02.0'	58°35.2'
22	90°16.0'	N 6°57.9'	16.0'	12.2'	54.3'	87°39.3'	86°34.4'	59°41.0'	54°03.2'	42°32.7'	24°25.6'	54°30.0'	59°02.4'
23	104°51.0'	N 7°10.1'	16.0'	12.1'	54.3'	87°11.1'	86°04.6'	59°14.2'	53°40.3'	42°03.1'	23°57.5'	54°58.1'	59°29.6'
Mer. pass.		15 h 49 m SD 14.9'		phase 17%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.3'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°33.5'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°22.9'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	147°11.4'		176°29.9'	S 11°58.9'	185°06.0'	S 16°05.7'	190°43.1'	S 17°12.2'	197°31.9'	S 18°54.9'	98°39.8'	N 19°26.2'
1	162°13.9'		191°30.0'	S 11°58.0'	200°05.3'	S 16°04.8'	205°45.0'	S 17°12.0'	212°34.0'	S 18°54.8'	113°40.9'	N 19°26.6'
2	177°16.3'		206°30.0'	S 11°57.1'	215°04.7'	S 16°03.9'	220°46.9'	S 17°11.8'	227°36.2'	S 18°54.8'	128°41.9'	N 19°27.0'
3	192°18.8'		221°30.1'	S 11°56.2'	230°04.0'	S 16°03.0'	235°48.7'	S 17°11.7'	242°38.4'	S 18°54.7'	143°42.9'	N 19°27.4'
4	207°21.3'		236°30.1'	S 11°55.4'	245°03.4'	S 16°02.1'	250°50.6'	S 17°11.5'	257°40.6'	S 18°54.6'	158°43.9'	N 19°27.8'
5	222°23.7'		251°30.2'	S 11°54.5'	260°02.7'	S 16°01.1'	265°52.5'	S 17°11.3'	272°42.7'	S 18°54.6'	173°45.0'	N 19°28.1'
6	237°26.2'		266°30.2'	S 11°53.6'	275°02.1'	S 16°00.2'	280°54.4'	S 17°11.2'	287°44.9'	S 18°54.5'	188°46.0'	N 19°28.5'
7	252°28.7'		281°30.3'	S 11°52.7'	290°01.4'	S 15°59.3'	295°56.3'	S 17°11.0'	302°47.1'	S 18°54.4'	203°47.0'	N 19°28.9'
8	267°31.1'		296°30.3'	S 11°51.9'	305°00.8'	S 15°58.3'	310°58.1'	S 17°10.8'	317°49.2'	S 18°54.4'	218°48.0'	N 19°29.3'
9	282°33.6'		311°30.3'	S 11°51.0'	320°00.2'	S 15°57.4'	326°00.0'	S 17°10.7'	332°51.4'	S 18°54.3'	233°49.1'	N 19°29.7'
10	297°36.1'		326°30.4'	S 11°50.1'	334°59.5'	S 15°56.5'	341°01.9'	S 17°10.5'	347°53.6'	S 18°54.2'	248°50.1'	N 19°30.1'
11	312°38.5'		341°30.4'	S 11°49.2'	349°58.9'	S 15°55.5'	356°03.8'	S 17°10.3'	2°55.8'	S 18°54.2'	263°51.1'	N 19°30.4'
12	327°41.0'		356°30.5'	S 11°48.3'	4°58.2'	S 15°54.6'	11°05.6'	S 17°10.2'	17°57.9'	S 18°54.1'	278°52.2'	N 19°30.8'
13	342°43.4'		11°30.5'	S 11°47.5'	19°57.6'	S 15°53.7'	26°07.5'	S 17°10.0'	33°00.1'	S 18°54.0'	293°53.2'	N 19°31.2'
14	357°45.9'		26°30.6'	S 11°46.6'	34°56.9'	S 15°52.8'	41°09.4'	S 17°09.9'	48°02.3'	S 18°54.0'	308°54.2'	N 19°31.6'
15	12°48.4'		41°30.6'	S 11°45.7'	49°56.3'	S 15°51.8'	56°11.3'	S 17°09.7'	63°04.5'	S 18°53.9'	323°55.2'	N 19°32.0'
16	27°50.8'		56°30.7'	S 11°44.8'	64°55.7'	S 15°50.9'	71°13.1'	S 17°09.5'	78°06.6'	S 18°53.8'	338°56.3'	N 19°32.3'
17	42°53.3'		71°30.7'	S 11°43.9'	79°55.0'	S 15°49.9'	86°15.0'	S 17°09.4'	93°08.8'	S 18°53.7'	353°57.3'	N 19°32.7'
18	57°55.8'		86°30.8'	S 11°43.1'	94°54.4'	S 15°49.0'	101°16.9'	S 17°09.2'	108°11.0'	S 18°53.7'	8°58.3'	N 19°33.1'
19	72°58.2'		101°30.8'	S 11°42.2'	109°53.8'	S 15°48.1'	116°18.8'	S 17°09.0'	123°13.2'	S 18°53.6'	23°59.3'	N 19°33.5'
20	88°00.7'		116°30.9'	S 11°41.3'	124°53.1'	S 15°47.1'	131°20.7'	S 17°08.9'	138°15.3'	S 18°53.5'	39°00.4'	N 19°33.9'
21	103°03.2'		131°30.9'	S 11°40.4'	139°52.5'	S 15°46.2'	146°22.5'	S 17°08.7'	153°17.5'	S 18°53.5'	54°01.4'	N 19°34.2'
22	118°05.6'		146°31.0'	S 11°39.5'	154°51.8'	S 15°45.3'	161°24.4'	S 17°08.5'	168°19.7'	S 18°53.4'	69°02.4'	N 19°34.6'
23	133°08.1'		161°31.0'	S 11°38.6'	169°51.2'	S 15°44.3'	176°26.3'	S 17°08.4'	183°21.8'	S 18°53.3'	84°03.4'	N 19°35.0'
			SD 16.2'	d 0.9'	v -0.6'	d 0.9'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.0'	d 0.4'
Mer. pass.			12 h 13 m 59 s		11 h 40 m		11 h 16 m		10 h 48 m		17 h 24 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Sun
0	119°26.0'	N 7°22.3'	16.0'	12.1'	54.3'		86°42.9'	58°47.5'	53°17.4'	41°33.5'	23°29.4'	55°26.1'	59°56.8'
1	134°01.0'	N 7°34.4'	16.0'	12.1'	54.3'		86°14.8'	58°20.8'	52°54.6'	41°04.0'	23°01.3'	55°54.2'	60°23.9'
2	148°36.0'	N 7°46.5'	16.0'	12.0'	54.3'		85°46.6'	57°54.1'	52°31.9'	40°34.4'	22°33.3'	56°22.2'	60°51.1'
3	163°11.0'	N 7°58.5'	15.9'	12.0'	54.3'		85°18.5'	57°27.5'	52°09.2'	40°04.9'	22°05.3'	56°50.3'	61°18.2'
4	177°45.9'	N 8°10.5'	15.9'	12.0'	54.3'	119°41.4'	84°50.4'	57°00.9'	51°46.7'	39°35.4'	21°37.3'	57°18.4'	61°45.3'
5	192°20.8'	N 8°22.5'	15.9'	11.9'	54.3'	119°11.8'	84°22.3'	56°34.4'	51°24.3'	39°05.9'	21°09.3'	57°46.5'	62°12.4'
6	206°55.7'	N 8°34.4'	15.9'	11.9'	54.3'	118°42.2'	83°54.2'	56°07.9'	51°02.0'	38°36.4'	20°41.4'	58°14.6'	62°39.5'
7	221°30.6'	N 8°46.3'	15.9'	11.9'	54.3'	118°12.5'	83°26.2'	55°41.5'	50°39.8'	38°06.9'	20°13.5'	58°42.7'	63°06.6'
8	236°05.5'	N 8°58.2'	15.9'	11.8'	54.2'	117°42.9'	82°58.1'	55°15.1'	50°17.6'	37°37.5'	19°45.6'	59°10.8'	63°33.7'
9	250°40.4'	N 9°10.0'	15.8'	11.8'	54.2'	117°13.3'	82°30.1'	54°48.8'	49°55.6'	37°08.1'	19°17.8'	59°38.9'	64°00.8'
10	265°15.2'	N 9°21.8'	15.8'	11.7'	54.2'	116°43.7'	82°02.0'	54°22.5'	49°33.7'	36°38.7'	18°50.0'	60°07.0'	64°27.8'
11	279°50.0'	N 9°33.6'	15.8'	11.7'	54.2'	116°14.1'	81°34.0'	53°56.2'	49°11.9'	36°09.3'	18°22.2'	60°35.1'	64°54.9'
12	294°24.8'	N 9°45.3'	15.8'	11.7'	54.2'	115°44.5'	81°06.0'	53°30.0'	48°50.2'	35°39.9'	17°54.5'	61°03.3'	65°21.9'
13	308°59.6'	N 9°56.9'	15.7'	11.6'	54.2'	115°15.0'	80°38.0'	53°03.9'	48°28.6'	35°10.5'	17°26.8'	61°31.4'	65°49.0'
14	323°34.3'	N 10°08.6'	15.7'	11.6'	54.2'	114°45.4'	80°10.1'	52°37.8'	48°07.1'	34°41.2'	16°59.1'	61°59.5'	66°16.0'
15	338°09.0'	N 10°20.2'	15.7'	11.5'	54.2'	114°15.8'	79°42.1'	52°11.8'	47°45.8'	34°11.8'	16°31.5'	62°27.7'	66°43.0'
16	352°43.7'	N 10°31.7'	15.7'	11.5'	54.2'	113°46.3'	79°14.1'	51°45.8'	47°24.5'	33°42.5'	16°03.9'	62°55.8'	67°10.0'
17	7°18.4'	N 10°43.2'	15.6'	11.5'	54.2'	113°16.7'	78°46.2'	51°19.8'	47°03.4'	33°13.2'	15°36.4'	63°24.0'	67°37.0'
18	21°53.0'	N 10°54.6'	15.6'	11.4'	54.2'	112°47.2'	78°18.3'	50°54.0'	46°42.4'	32°44.0'	15°08.9'	63°52.2'	68°04.0'
19	36°27.6'	N 11°06.1'	15.6'	11.4'	54.2'	112°17.7'	77°50.4'	50°28.1'	46°21.6'	32°14.7'	14°41.5'	64°20.3'	68°31.0'
20	51°02.2'	N 11°17.4'	15.5'	11.3'	54.2'	111°48.1'	77°22.5'	50°02.4'	46°00.8'	31°45.4'	14°14.1'	64°48.5'	68°58.0'
21	65°36.7'	N 11°28.7'	15.5'	11.3'	54.2'	111°18.6'	76°54.6'	49°36.7'	45°40.2'	31°16.2'	13°46.8'	65°16.7'	69°25.0'
22	80°11.3'	N 11°40.0'	15.5'	11.2'	54.2'	110°49.1'	76°26.7'	49°11.0'	45°19.8'	30°47.0'	13°19.5'	65°44.9'	69°52.0'
23	94°45.7'	N 11°51.2'	15.4'	11.2'	54.2'	110°19.6'	75°58.9'	48°45.4'	44°59.4'	30°17.8'	12°52.4'	66°13.1'	70°18.9'
Mer. pass.			16 h 30 m SD 14.8'		phase 25%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°34.0'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	148°10.6'		176°31.1'	S 11°37.8'	184°50.6'	S 15°43.4'	191°28.2'	S 17°08.2'	198°24.0'	S 18°53.3'	99°04.4'	N 19°35.4'
1	163°13.0'		191°31.1'	S 11°36.9'	199°49.9'	S 15°42.4'	206°30.0'	S 17°08.0'	213°26.2'	S 18°53.2'	114°05.5'	N 19°35.8'
2	178°15.5'		206°31.2'	S 11°36.0'	214°49.3'	S 15°41.5'	221°31.9'	S 17°07.9'	228°28.4'	S 18°53.1'	129°06.5'	N 19°36.1'
3	193°17.9'		221°31.2'	S 11°35.1'	229°48.7'	S 15°40.5'	236°33.8'	S 17°07.7'	243°30.5'	S 18°53.1'	144°07.5'	N 19°36.5'
4	208°20.4'		236°31.3'	S 11°34.2'	244°48.0'	S 15°39.6'	251°35.7'	S 17°07.6'	258°32.7'	S 18°53.0'	159°08.5'	N 19°36.9'
5	223°22.9'		251°31.3'	S 11°33.3'	259°47.4'	S 15°38.7'	266°37.6'	S 17°07.4'	273°34.9'	S 18°52.9'	174°09.6'	N 19°37.3'
6	238°25.3'		266°31.4'	S 11°32.5'	274°46.8'	S 15°37.7'	281°39.4'	S 17°07.2'	288°37.1'	S 18°52.9'	189°10.6'	N 19°37.6'
7	253°27.8'		281°31.4'	S 11°31.6'	289°46.1'	S 15°36.8'	296°41.3'	S 17°07.1'	303°39.2'	S 18°52.8'	204°11.6'	N 19°38.0'
8	268°30.3'		296°31.5'	S 11°30.7'	304°45.5'	S 15°35.8'	311°43.2'	S 17°06.9'	318°41.4'	S 18°52.7'	219°12.6'	N 19°38.4'
9	283°32.7'		311°31.6'	S 11°29.8'	319°44.9'	S 15°34.9'	326°45.1'	S 17°06.7'	333°43.6'	S 18°52.6'	234°13.6'	N 19°38.8'
10	298°35.2'		326°31.6'	S 11°28.9'	334°44.2'	S 15°33.9'	341°47.0'	S 17°06.6'	348°45.8'	S 18°52.6'	249°14.7'	N 19°39.2'
11	313°37.7'		341°31.7'	S 11°28.0'	349°43.6'	S 15°33.0'	356°48.8'	S 17°06.4'	3°47.9'	S 18°52.5'	264°15.7'	N 19°39.5'
12	328°40.1'		356°31.7'	S 11°27.1'	4°43.0'	S 15°32.0'	11°50.7'	S 17°06.2'	18°50.1'	S 18°52.4'	279°16.7'	N 19°39.9'
13	343°42.6'		11°31.8'	S 11°26.3'	19°42.3'	S 15°31.1'	26°52.6'	S 17°06.1'	33°52.3'	S 18°52.4'	294°17.7'	N 19°40.3'
14	358°45.0'		26°31.8'	S 11°25.4'	34°41.7'	S 15°30.1'	41°54.5'	S 17°05.9'	48°54.5'	S 18°52.3'	309°18.7'	N 19°40.7'
15	13°47.5'		41°31.9'	S 11°24.5'	49°41.1'	S 15°29.2'	56°56.3'	S 17°05.7'	63°56.6'	S 18°52.2'	324°19.8'	N 19°41.0'
16	28°50.0'		56°31.9'	S 11°23.6'	64°40.5'	S 15°28.2'	71°58.2'	S 17°05.6'	78°58.8'	S 18°52.2'	339°20.8'	N 19°41.4'
17	43°52.4'		71°32.0'	S 11°22.7'	79°39.8'	S 15°27.3'	87°00.1'	S 17°05.4'	94°01.0'	S 18°52.1'	354°21.8'	N 19°41.8'
18	58°54.9'		86°32.1'	S 11°21.8'	94°39.2'	S 15°26.3'	102°02.0'	S 17°05.2'	109°03.2'	S 18°52.0'	9°22.8'	N 19°42.2'
19	73°57.4'		101°32.1'	S 11°20.9'	109°38.6'	S 15°25.4'	117°03.9'	S 17°05.1'	124°05.3'	S 18°52.0'	24°23.8'	N 19°42.5'
20	88°59.8'		116°32.2'	S 11°20.0'	124°38.0'	S 15°24.4'	132°05.7'	S 17°04.9'	139°07.5'	S 18°51.9'	39°24.8'	N 19°42.9'
21	104°02.3'		131°32.2'	S 11°19.1'	139°37.3'	S 15°23.4'	147°07.6'	S 17°04.7'	154°09.7'	S 18°51.8'	54°25.9'	N 19°43.3'
22	119°04.8'		146°32.3'	S 11°18.3'	154°36.7'	S 15°22.5'	162°09.5'	S 17°04.6'	169°11.9'	S 18°51.8'	69°26.9'	N 19°43.7'
23	134°07.2'		161°32.3'	S 11°17.4'	169°36.1'	S 15°21.5'	177°11.4'	S 17°04.4'	184°14.0'	S 18°51.7'	84°27.9'	N 19°44.0'
			SD 16.2'	d 0.9'	v -0.6'	d 1.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.0'	d 0.4'
Mer. pass.			12 h 13 m 54 s		11 h 41 m		11 h 13 m		10 h 45 m		17 h 23 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Achernar	+Sun
0	109°20.2'	N 12°02.4'	15.4'	11.1'	54.2'	109°50.1'	48°19.9'	44°39.2'	29°48.6'	12°25.3'	66°41.3'		70°45.9'
1	123°54.6'	N 12°13.6'	15.4'	11.1'	54.2'	109°20.6'	47°54.4'	44°19.2'	29°19.5'	11°58.3'	67°09.5'	70°25.2'	71°12.9'
2	138°29.0'	N 12°24.6'	15.3'	11.0'	54.2'	108°51.1'	47°29.0'	43°59.3'	28°50.3'	11°31.4'	67°37.7'	70°40.2'	71°39.8'
3	153°03.3'	N 12°35.7'	15.3'	11.0'	54.2'	108°21.6'	47°03.7'	43°39.5'	28°21.2'	11°04.6'	68°05.9'	70°55.3'	72°06.8'
4	167°37.6'	N 12°46.6'	15.3'	10.9'	54.2'	107°52.1'	46°38.4'	43°19.9'	27°52.1'	10°37.9'	68°34.1'	71°10.5'	72°33.7'
5	182°11.9'	N 12°57.6'	15.2'	10.9'	54.1'	107°22.6'	46°13.2'	43°00.4'	27°23.0'	10°11.4'	69°02.4'	71°25.7'	73°00.7'
6	196°46.1'	N 13°08.5'	15.2'	10.8'	54.1'	106°53.2'	45°48.1'	42°41.1'	26°54.0'	9°45.0'	69°30.6'	71°40.9'	73°27.6'
7	211°20.3'	N 13°19.3'	15.2'	10.8'	54.1'	106°23.7'	45°23.1'	42°22.0'	26°24.9'	9°18.8'	69°58.8'	71°56.3'	73°54.5'
8	225°54.5'	N 13°30.1'	15.1'	10.7'	54.1'	105°54.2'	44°58.1'	42°03.0'	25°55.9'	8°52.8'	70°27.1'	72°11.7'	74°21.5'
9	240°28.6'	N 13°40.8'	15.1'	10.7'	54.1'	105°24.7'	44°33.2'	41°44.2'	25°26.9'	8°27.0'	70°55.3'	72°27.1'	74°48.4'
10	255°02.6'	N 13°51.4'	15.0'	10.6'	54.1'	104°55.3'	44°08.3'	41°25.6'	24°57.9'	8°01.5'	71°23.6'	72°42.6'	75°15.4'
11	269°36.7'	N 14°02.0'	15.0'	10.6'	54.1'	104°25.8'	43°43.6'	41°07.1'	24°29.0'	7°36.3'	71°51.8'	72°58.2'	75°42.3'
12	284°10.7'	N 14°12.6'	14.9'	10.5'	54.1'	103°56.3'	43°18.9'	40°48.9'	24°00.0'	7°11.4'	72°20.1'	73°13.8'	76°09.2'
13	298°44.6'	N 14°23.1'	14.9'	10.4'	54.1'	103°26.8'	42°54.3'	40°30.8'	23°31.1'	6°47.0'	72°48.4'	73°29.5'	76°36.2'
14	313°18.5'	N 14°33.5'	14.9'	10.4'	54.1'	102°57.4'	42°29.8'	40°12.9'	23°02.3'	6°23.1'	73°16.6'	73°45.2'	77°03.1'
15	327°52.4'	N 14°43.9'	14.8'	10.3'	54.1'	102°27.9'	42°05.4'	39°55.1'	22°33.4'	5°59.8'	73°44.9'	74°01.0'	77°30.0'
16	342°26.2'	N 14°54.3'	14.8'	10.3'	54.1'	101°58.4'	41°41.1'	39°37.6'	22°04.6'		74°13.2'	74°16.9'	77°57.0'
17	356°59.9'	N 15°04.5'	14.7'	10.2'	54.2'	101°28.9'	41°16.8'	39°20.3'	21°35.8'		74°41.5'	74°32.8'	78°23.9'
18	11°33.6'	N 15°14.7'	14.7'	10.1'	54.2'	100°59.5'	40°52.7'	39°03.2'	21°07.1'		75°09.8'	74°48.7'	78°50.8'
19	26°07.3'	N 15°24.9'	14.6'	10.1'	54.2'	100°30.0'	40°28.6'	38°46.3'	20°38.3'		75°38.1'	75°04.7'	79°17.8'
20	40°40.9'	N 15°35.0'	14.6'	10.0'	54.2'	100°00.5'	40°04.7'	38°29.6'	20°09.7'		76°06.5'	75°20.7'	79°44.7'
21	55°14.5'	N 15°45.0'	14.5'	10.0'	54.2'	99°31.0'	39°40.9'	38°13.1'	19°41.0'		76°34.8'	75°36.8'	80°11.6'
22	69°48.0'	N 15°54.9'	14.5'	9.9'	54.2'	99°01.5'	39°17.1'	37°56.9'	19°12.4'		77°03.1'	75°53.0'	80°38.6'
23	84°21.5'	N 16°04.8'	14.4'	9.8'	54.2'	98°32.0'	38°53.5'	37°40.9'	18°43.9'		77°31.5'	76°09.1'	81°05.5'
Mer. pass.			17 h 12 m SD 14.8'		phase 34%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.9'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°12.7'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°34.4'	N 89°21.4'
Rigel Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.4'	S 52°42.7'				

Friday 19 February 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	149°09.7'	176°32.4'	S 11°16.5'	184°35.5'	S 15°20.6'		192°13.3'	S 17°04.3'		199°16.2'	S 18°51.6'		99°28.9'	N 19°44.4'				
1	164°12.2'	191°32.5'	S 11°15.6'	199°34.8'	S 15°19.6'		207°15.1'	S 17°04.1'		214°18.4'	S 18°51.6'		114°29.9'	N 19°44.8'				
2	179°14.6'	206°32.5'	S 11°14.7'	214°34.2'	S 15°18.6'		222°17.0'	S 17°03.9'		229°20.6'	S 18°51.5'		129°30.9'	N 19°45.2'				
3	194°17.1'	221°32.6'	S 11°13.8'	229°33.6'	S 15°17.7'		237°18.9'	S 17°03.8'		244°22.7'	S 18°51.4'		144°32.0'	N 19°45.5'				
4	209°19.5'	236°32.6'	S 11°12.9'	244°33.0'	S 15°16.7'		252°20.8'	S 17°03.6'		259°24.9'	S 18°51.3'		159°33.0'	N 19°45.9'				
5	224°22.0'	251°32.7'	S 11°12.0'	259°32.4'	S 15°15.8'		267°22.7'	S 17°03.4'		274°27.1'	S 18°51.3'		174°34.0'	N 19°46.3'				
6	239°24.5'	266°32.8'	S 11°11.1'	274°31.7'	S 15°14.8'		282°24.5'	S 17°03.3'		289°29.3'	S 18°51.2'		189°35.0'	N 19°46.7'				
7	254°26.9'	281°32.8'	S 11°10.2'	289°31.1'	S 15°13.8'		297°26.4'	S 17°03.1'		304°31.4'	S 18°51.1'		204°36.0'	N 19°47.0'				
8	269°29.4'	296°32.9'	S 11°09.3'	304°30.5'	S 15°12.9'		312°28.3'	S 17°02.9'		319°33.6'	S 18°51.1'		219°37.0'	N 19°47.4'				
9	284°31.9'	311°32.9'	S 11°08.4'	319°29.9'	S 15°11.9'		327°30.2'	S 17°02.8'		334°35.8'	S 18°51.0'		234°38.0'	N 19°47.8'				
10	299°34.3'	326°33.0'	S 11°07.6'	334°29.3'	S 15°10.9'		342°32.1'	S 17°02.6'		349°38.0'	S 18°50.9'		249°39.1'	N 19°48.2'				
11	314°36.8'	341°33.1'	S 11°06.7'	349°28.6'	S 15°10.0'		357°33.9'	S 17°02.4'		4°40.1'	S 18°50.9'		264°40.1'	N 19°48.5'				
12	329°39.3'	356°33.1'	S 11°05.8'	4°28.0'	S 15°09.0'		12°35.8'	S 17°02.3'		19°42.3'	S 18°50.8'		279°41.1'	N 19°48.9'				
13	344°41.7'	11°33.2'	S 11°04.9'	19°27.4'	S 15°08.0'		27°37.7'	S 17°02.1'		34°44.5'	S 18°50.7'		294°42.1'	N 19°49.3'				
14	359°44.2'	26°33.3'	S 11°04.0'	34°26.8'	S 15°07.1'		42°39.6'	S 17°01.9'		49°46.7'	S 18°50.7'		309°43.1'	N 19°49.7'				
15	14°46.7'	41°33.3'	S 11°03.1'	49°26.2'	S 15°06.1'		57°41.5'	S 17°01.8'		64°48.8'	S 18°50.6'		324°44.1'	N 19°50.0'				
16	29°49.1'	56°33.4'	S 11°02.2'	64°25.6'	S 15°05.1'		72°43.3'	S 17°01.6'		79°51.0'	S 18°50.5'		339°45.1'	N 19°50.4'				
17	44°51.6'	71°33.4'	S 11°01.3'	79°24.9'	S 15°04.2'		87°45.2'	S 17°01.4'		94°53.2'	S 18°50.5'		354°46.2'	N 19°50.8'				
18	59°54.0'	86°33.5'	S 11°00.4'	94°24.3'	S 15°03.2'		102°47.1'	S 17°01.3'		109°55.4'	S 18°50.4'		9°47.2'	N 19°51.2'				
19	74°56.5'	101°33.6'	S 10°59.5'	109°23.7'	S 15°02.2'		117°49.0'	S 17°01.1'		124°57.5'	S 18°50.3'		24°48.2'	N 19°51.5'				
20	89°59.0'	116°33.6'	S 10°58.6'	124°23.1'	S 15°01.2'		132°50.9'	S 17°01.0'		139°59.7'	S 18°50.3'		39°49.2'	N 19°51.9'				
21	105°01.4'	131°33.7'	S 10°57.7'	139°22.5'	S 15°00.3'		147°52.7'	S 17°00.8'		155°01.9'	S 18°50.2'		54°50.2'	N 19°52.3'				
22	120°03.9'	146°33.8'	S 10°56.8'	154°21.9'	S 14°59.3'		162°54.6'	S 17°00.6'		170°04.1'	S 18°50.1'		69°51.2'	N 19°52.6'				
23	135°06.4'	161°33.8'	S 10°55.9'	169°21.3'	S 14°58.3'		177°56.5'	S 17°00.5'		185°06.2'	S 18°50.0'		84°52.2'	N 19°53.0'				
		SD 16.2'	d 0.9'	v -0.6'	d 1.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.0'	d 0.4'				
Mer. pass.		12 h 13 m 48 s		11 h 42 m			11 h 10 m			10 h 41 m			17 h 21 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Capella	-Rigel	-Aldebaran	-Mars	+Achernar	+Fomalhaut	+Sun
0	98°54.9'	N 16°14.7'	14.4'	9.8'	54.2'	98°02.6'	38°30.0'	37°25.1'	18°15.3'		76°25.4'	77°59.8'	81°32.5'
1	113°28.3'	N 16°24.4'	14.3'	9.7'	54.2'	97°33.1'	38°06.6'	37°09.5'	17°46.9'		76°41.6'	78°28.2'	81°59.5'
2	128°01.6'	N 16°34.1'	14.3'	9.6'	54.2'	97°03.6'	37°43.3'	36°54.2'	17°18.5'		76°58.0'	78°56.5'	82°26.4'
3	142°34.8'	N 16°43.8'	14.2'	9.6'	54.2'	96°34.1'	37°20.2'		16°50.2'		77°14.3'	79°24.9'	82°53.4'
4	157°08.0'	N 16°53.3'	14.2'	9.5'	54.2'	96°04.5'	36°57.2'		16°21.9'		77°30.7'	79°53.3'	83°20.3'
5	171°41.2'	N 17°02.8'	14.1'	9.4'	54.2'	95°35.0'	36°34.3'		15°53.7'		77°47.2'	80°21.7'	83°47.3'
6	186°14.3'	N 17°12.3'	14.0'	9.4'	54.2'	95°05.5'	36°11.5'		15°25.6'		78°03.6'	80°50.1'	84°14.3'
7	200°47.3'	N 17°21.6'	14.0'	9.3'	54.2'	94°36.0'	35°48.9'		14°57.6'		78°20.2'	81°18.5'	84°41.3'
8	215°20.3'	N 17°30.9'	13.9'	9.2'	54.2'	94°06.5'	35°26.4'		14°29.6'		78°36.7'	81°46.9'	85°08.3'
9	229°53.2'	N 17°40.2'	13.9'	9.2'	54.2'	93°36.9'	35°04.1'		14°01.8'		78°53.3'	82°15.3'	85°35.3'
10	244°26.1'	N 17°49.3'	13.8'	9.1'	54.2'	93°07.4'	34°41.9'		13°34.1'		79°10.0'	82°43.8'	86°02.3'
11	258°58.9'	N 17°58.4'	13.8'	9.0'	54.2'	92°37.8'	34°19.9'		13°06.5'		79°26.7'	83°12.2'	86°29.3'
12	273°31.7'	N 18°07.4'	13.7'	8.9'	54.2'	92°08.2'	33°58.0'		12°39.1'	6°03.8'	79°43.4'	83°40.7'	86°56.3'
13	288°04.4'	N 18°16.3'	13.6'	8.9'	54.3'	91°38.7'	33°36.3'		12°11.9'	6°27.2'	80°00.1'	84°09.2'	87°23.4'
14	302°37.0'	N 18°25.2'	13.6'	8.8'	54.3'	91°09.1'	33°14.8'		11°44.8'	6°51.3'	80°16.9'	84°37.6'	87°50.4'
15	317°09.6'	N 18°34.0'	13.5'	8.7'	54.3'	90°39.5'	32°53.5'		11°17.9'	7°15.9'	80°33.8'	85°06.1'	88°17.4'
16	331°42.1'	N 18°42.7'	13.5'	8.6'	54.3'	90°09.9'	32°32.4'		10°51.3'	7°40.9'	80°50.6'	85°34.6'	88°44.5'
17	346°14.6'	N 18°51.3'	13.4'	8.6'	54.3'	89°40.3'	32°11.4'		10°24.9'	8°06.3'	81°07.5'	86°03.1'	89°11.6'
18	0°47.0'	N 18°59.9'	13.3'	8.5'	54.3'	89°10.7'	31°50.7'		9°58.8'	8°32.0'	81°24.4'	86°31.7'	89°38.6'
19	15°19.3'	N 19°08.3'	13.3'	8.4'	54.3'	88°41.1'	31°30.1'		9°33.1'	8°57.9'	81°41.4'	87°00.2'	90°05.7'
20	29°51.5'	N 19°16.7'	13.2'	8.3'	54.3'	88°11.4'	31°09.8'		9°07.7'	9°24.1'	81°58.4'	87°28.7'	90°32.8'
21	44°23.8'	N 19°25.1'	13.1'	8.2'	54.3'	87°41.8'	30°49.7'		8°42.8'	9°50.5'	82°15.4'	87°57.3'	90°59.9'
22	58°55.9'	N 19°33.3'	13.1'	8.2'	54.3'	87°12.1'	30°29.8'		8°18.4'	10°17.1'	82°32.4'	88°25.9'	91°27.1'
23	73°28.0'	N 19°41.4'	13.0'	8.1'	54.3'	86°42.4'	30°10.2'		7°54.6'	10°43.8'	82°49.5'	88°54.4'	91°54.2'
Mer. pass.		17 h 57 m SD 14.8'		phase 43%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.7'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.8'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°34.9'	N 89°21.4'
Rigel Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	150°08.8'	176°33.9'	S 10°55.0'	184°20.7'	S 14°57.3'		192°58.4'	S 17°00.3'		200°08.4'	S 18°50.0'		99°53.2'	N 19°53.4'				
1	165°11.3'	191°34.0'	S 10°54.1'	199°20.0'	S 14°56.4'		208°00.3'	S 17°00.1'		215°10.6'	S 18°49.9'		114°54.2'	N 19°53.8'				
2	180°13.8'	206°34.0'	S 10°53.2'	214°19.4'	S 14°55.4'		223°02.1'	S 16°60.0'		230°12.8'	S 18°49.8'		129°55.3'	N 19°54.1'				
3	195°16.2'	221°34.1'	S 10°52.3'	229°18.8'	S 14°54.4'		238°04.0'	S 16°59.8'		245°15.0'	S 18°49.8'		144°56.3'	N 19°54.5'				
4	210°18.7'	236°34.2'	S 10°51.4'	244°18.2'	S 14°53.4'		253°05.9'	S 16°59.6'		260°17.1'	S 18°49.7'		159°57.3'	N 19°54.9'				
5	225°21.1'	251°34.2'	S 10°50.5'	259°17.6'	S 14°52.4'		268°07.8'	S 16°59.5'		275°19.3'	S 18°49.6'		174°58.3'	N 19°55.2'				
6	240°23.6'	266°34.3'	S 10°49.6'	274°17.0'	S 14°51.5'		283°09.7'	S 16°59.3'		290°21.5'	S 18°49.6'		189°59.3'	N 19°55.6'				
7	255°26.1'	281°34.4'	S 10°48.7'	289°16.4'	S 14°50.5'		298°11.6'	S 16°59.1'		305°23.7'	S 18°49.5'		205°00.3'	N 19°56.0'				
8	270°28.5'	296°34.4'	S 10°47.8'	304°15.8'	S 14°49.5'		313°13.4'	S 16°59.0'		320°25.8'	S 18°49.4'		220°01.3'	N 19°56.3'				
9	285°31.0'	311°34.5'	S 10°46.9'	319°15.2'	S 14°48.5'		328°15.3'	S 16°58.8'		335°28.0'	S 18°49.4'		235°02.3'	N 19°56.7'				
10	300°33.5'	326°34.6'	S 10°46.0'	334°14.6'	S 14°47.5'		343°17.2'	S 16°58.6'		350°30.2'	S 18°49.3'		250°03.3'	N 19°57.1'				
11	315°35.9'	341°34.6'	S 10°45.1'	349°14.0'	S 14°46.6'		358°19.1'	S 16°58.5'		5°32.4'	S 18°49.2'		265°04.3'	N 19°57.5'				
12	330°38.4'	356°34.7'	S 10°44.2'	4°13.4'	S 14°45.6'		13°21.0'	S 16°58.3'		20°34.5'	S 18°49.2'		280°05.3'	N 19°57.8'				
13	345°40.9'	11°34.8'	S 10°43.3'	19°12.7'	S 14°44.6'		28°22.8'	S 16°58.1'		35°36.7'	S 18°49.1'		295°06.3'	N 19°58.2'				
14	0°43.3'	26°34.8'	S 10°42.4'	34°12.1'	S 14°43.6'		43°24.7'	S 16°58.0'		50°38.9'	S 18°49.0'		310°07.4'	N 19°58.6'				
15	15°45.8'	41°34.9'	S 10°41.5'	49°11.5'	S 14°42.6'		58°26.6'	S 16°57.8'		65°41.1'	S 18°49.0'		325°08.4'	N 19°58.9'				
16	30°48.3'	56°35.0'	S 10°40.6'	64°10.9'	S 14°41.6'		73°28.5'	S 16°57.6'		80°43.3'	S 18°48.9'		340°09.4'	N 19°59.3'				
17	45°50.7'	71°35.1'	S 10°39.7'	79°10.3'	S 14°40.6'		88°30.4'	S 16°57.5'		95°45.4'	S 18°48.8'		355°10.4'	N 19°59.7'				
18	60°53.2'	86°35.1'	S 10°38.8'	94°09.7'	S 14°39.6'		103°32.3'	S 16°57.3'		110°47.6'	S 18°48.8'		10°11.4'	N 20°00.0'				
19	75°55.6'	101°35.2'	S 10°37.9'	109°09.1'	S 14°38.7'		118°34.1'	S 16°57.1'		125°49.8'	S 18°48.7'		25°12.4'	N 20°00.4'				
20	90°58.1'	116°35.3'	S 10°37.0'	124°08.5'	S 14°37.7'		133°36.0'	S 16°57.0'		140°52.0'	S 18°48.6'		40°13.4'	N 20°00.8'				
21	106°00.6'	131°35.3'	S 10°36.1'	139°07.9'	S 14°36.7'		148°37.9'	S 16°56.8'		155°54.1'	S 18°48.5'		55°14.4'	N 20°01.1'				
22	121°03.0'	146°35.4'	S 10°35.2'	154°07.3'	S 14°35.7'		163°39.8'	S 16°56.7'		170°56.3'	S 18°48.5'		70°15.4'	N 20°01.5'				
23	136°05.5'	161°35.5'	S 10°34.3'	169°06.7'	S 14°34.7'		178°41.7'	S 16°56.5'		185°58.5'	S 18°48.4'		85°16.4'	N 20°01.9'				
		SD 16.2'	d 0.9'		v -0.6'	d 1.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.0'	d 0.4'			
Mer. pass.		12 h 13 m 42 s		11 h 43 m			11 h 7 m			10 h 38 m			17 h 19 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sirius	-Pollux	-Capella	-Betelgeuse	+Mars	+Achernar	+Fomalhaut	+Sun
0	87°60.0'	N 19°49.5'	12.9'	8.0'	54.4'	53°13.7'	50°05.8'	29°50.8'	28°54.1'	11°10.7'	83°06.6'	89°23.0'	92°21.3'
1	102°31.9'	N 19°57.5'	12.9'	7.9'	54.4'	52°57.2'	49°36.1'	29°31.6'	28°30.5'	11°37.7'	83°23.8'	89°51.6'	92°48.5'
2	117°03.8'	N 20°05.4'	12.8'	7.8'	54.4'	52°40.9'	49°06.4'	29°12.7'	28°07.1'	12°04.8'	83°40.9'	90°20.2'	93°15.7'
3	131°35.6'	N 20°13.2'	12.8'	7.7'	54.4'	52°24.7'	48°36.7'	28°54.1'	27°43.9'	12°32.1'	83°58.1'	90°48.9'	93°42.8'
4	146°07.4'	N 20°21.0'	12.7'	7.7'	54.4'	52°08.7'	48°07.0'	28°35.8'	27°20.8'	12°59.4'	84°15.3'	91°17.5'	94°10.0'
5	160°39.1'	N 20°28.6'	12.6'	7.6'	54.4'	51°52.8'	47°37.3'	28°17.8'	26°57.9'	13°26.8'	84°32.6'	91°46.2'	94°37.3'
6	175°10.7'	N 20°36.2'	12.6'	7.5'	54.4'	51°37.0'	47°07.5'	28°00.0'	26°35.2'	13°54.3'	84°49.9'	92°14.8'	95°04.5'
7	189°42.3'	N 20°43.7'	12.5'	7.4'	54.4'	51°21.3'	46°37.8'	27°42.6'	26°12.8'	14°21.8'	85°07.1'	92°43.5'	95°31.7'
8	204°13.8'	N 20°51.1'	12.4'	7.3'	54.5'	51°05.8'	46°08.0'	27°25.5'	25°50.5'	14°49.5'	85°24.5'	93°12.2'	95°59.0'
9	218°45.2'	N 20°58.4'	12.4'	7.2'	54.5'	50°50.5'	45°38.2'	27°08.7'	25°28.5'	15°17.2'	85°41.8'	93°40.9'	96°26.3'
10	233°16.5'	N 21°05.6'	12.3'	7.1'	54.5'	50°35.3'	45°08.4'	26°52.3'	25°06.8'	15°44.9'	85°59.2'	94°09.7'	96°53.5'
11	247°47.8'	N 21°12.7'	12.2'	7.0'	54.5'		44°38.6'	26°36.2'	24°45.2'	16°12.8'	86°16.5'	94°38.4'	97°20.8'
12	262°19.0'	N 21°19.7'	12.2'	6.9'	54.5'		44°08.8'	26°20.4'	24°24.0'	16°40.6'	86°33.9'	95°07.1'	97°48.2'
13	276°50.2'	N 21°26.7'	12.1'	6.8'	54.5'		43°39.0'		24°03.0'	17°08.6'	86°51.4'	95°35.9'	98°15.5'
14	291°21.3'	N 21°33.5'	12.0'	6.7'	54.5'		43°09.1'		23°42.3'	17°36.5'	87°08.8'	96°04.7'	98°42.9'
15	305°52.3'	N 21°40.2'	11.9'	6.7'	54.6'		42°39.2'		23°22.0'	18°04.6'	87°26.3'	96°33.5'	99°10.2'
16	320°23.2'	N 21°46.9'	11.9'	6.6'	54.6'		42°09.3'		23°01.9'	18°32.6'	87°43.8'	97°02.3'	99°37.6'
17	334°54.1'	N 21°53.5'	11.8'	6.5'	54.6'		41°39.4'		22°42.2'	19°00.7'	88°01.3'	97°31.1'	100°05.0'
18	349°24.9'	N 21°59.9'	11.7'	6.4'	54.6'		41°09.5'		22°22.8'	19°28.9'	88°18.8'	97°60.0'	100°32.4'
19	3°55.7'	N 22°06.3'	11.7'	6.3'	54.6'		40°39.6'		22°03.8'	19°57.1'	88°36.3'	98°28.8'	100°59.9'
20	18°26.4'	N 22°12.5'	11.6'	6.2'	54.6'		40°09.6'		21°45.2'	20°25.3'	88°53.9'	98°57.7'	101°27.4'
21	32°57.0'	N 22°18.7'	11.5'	6.1'	54.7'		39°39.6'		21°26.9'	20°53.6'	89°11.4'	99°26.6'	101°54.8'
22	47°27.5'	N 22°24.8'	11.5'	6.0'	54.7'		39°09.7'		21°09.1'	21°21.9'	89°29.0'	99°55.5'	102°22.4'
23	61°58.0'	N 22°30.7'	11.4'	5.9'	54.7'		38°39.7'		20°51.8'	21°50.3'	89°46.6'	100°24.4'	102°49.9'
Mer. pass.		18 h 44 m SD 14.8'		phase 52%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.2'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.7'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°35.3'	N 89°21.4'
Rigil Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

Sunday 21 February 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	151°08.0'		176°35.6'	S 10°33.4'	184°06.1'	S 14°33.7'	193°43.5'	S 16°56.3'	201°00.7'	S 18°48.3'	100°17.4'	N 20°02.2'
1	166°10.4'		191°35.6'	S 10°32.5'	199°05.5'	S 14°32.7'	208°45.4'	S 16°56.2'	216°02.8'	S 18°48.3'	115°18.4'	N 20°02.6'
2	181°12.9'		206°35.7'	S 10°31.6'	214°04.9'	S 14°31.7'	223°47.3'	S 16°56.0'	231°05.0'	S 18°48.2'	130°19.4'	N 20°03.0'
3	196°15.4'		221°35.8'	S 10°30.7'	229°04.3'	S 14°30.7'	238°49.2'	S 16°55.8'	246°07.2'	S 18°48.1'	145°20.4'	N 20°03.3'
4	211°17.8'		236°35.9'	S 10°29.8'	244°03.7'	S 14°29.7'	253°51.1'	S 16°55.7'	261°09.4'	S 18°48.1'	160°21.4'	N 20°03.7'
5	226°20.3'		251°35.9'	S 10°28.9'	259°03.1'	S 14°28.7'	268°53.0'	S 16°55.5'	276°11.6'	S 18°48.0'	175°22.4'	N 20°04.1'
6	241°22.8'		266°36.0'	S 10°27.9'	274°02.5'	S 14°27.7'	283°54.8'	S 16°55.3'	291°13.7'	S 18°47.9'	190°23.4'	N 20°04.4'
7	256°25.2'		281°36.1'	S 10°27.0'	289°01.9'	S 14°26.7'	298°56.7'	S 16°55.2'	306°15.9'	S 18°47.9'	205°24.4'	N 20°04.8'
8	271°27.7'		296°36.2'	S 10°26.1'	304°01.3'	S 14°25.7'	313°58.6'	S 16°55.0'	321°18.1'	S 18°47.8'	220°25.4'	N 20°05.2'
9	286°30.1'		311°36.2'	S 10°25.2'	319°00.8'	S 14°24.7'	329°00.5'	S 16°54.8'	336°20.3'	S 18°47.7'	235°26.4'	N 20°05.5'
10	301°32.6'		326°36.3'	S 10°24.3'	334°00.2'	S 14°23.7'	344°02.4'	S 16°54.7'	351°22.5'	S 18°47.7'	250°27.4'	N 20°05.9'
11	316°35.1'		341°36.4'	S 10°23.4'	348°59.6'	S 14°22.7'	359°04.3'	S 16°54.5'	6°24.6'	S 18°47.6'	265°28.4'	N 20°06.3'
12	331°37.5'		356°36.5'	S 10°22.5'	3°59.0'	S 14°21.7'	14°06.1'	S 16°54.3'	21°26.8'	S 18°47.5'	280°29.4'	N 20°06.6'
13	346°40.0'		11°36.5'	S 10°21.6'	18°58.4'	S 14°20.7'	29°08.0'	S 16°54.2'	36°29.0'	S 18°47.5'	295°30.4'	N 20°07.0'
14	1°42.5'		26°36.6'	S 10°20.7'	33°57.8'	S 14°19.7'	44°09.9'	S 16°54.0'	51°31.2'	S 18°47.4'	310°31.4'	N 20°07.4'
15	16°44.9'		41°36.7'	S 10°19.8'	48°57.2'	S 14°18.7'	59°11.8'	S 16°53.8'	66°33.3'	S 18°47.3'	325°32.4'	N 20°07.7'
16	31°47.4'		56°36.8'	S 10°18.9'	63°56.6'	S 14°17.7'	74°13.7'	S 16°53.7'	81°35.5'	S 18°47.3'	340°33.4'	N 20°08.1'
17	46°49.9'		71°36.8'	S 10°18.0'	78°56.0'	S 14°16.7'	89°15.6'	S 16°53.5'	96°37.7'	S 18°47.2'	355°34.4'	N 20°08.5'
18	61°52.3'		86°36.9'	S 10°17.1'	93°55.4'	S 14°15.7'	104°17.4'	S 16°53.3'	111°39.9'	S 18°47.1'	10°35.4'	N 20°08.8'
19	76°54.8'		101°37.0'	S 10°16.1'	108°54.8'	S 14°14.7'	119°19.3'	S 16°53.2'	126°42.1'	S 18°47.1'	25°36.4'	N 20°09.2'
20	91°57.3'		116°37.1'	S 10°15.2'	123°54.2'	S 14°13.7'	134°21.2'	S 16°53.0'	141°44.2'	S 18°47.0'	40°37.4'	N 20°09.6'
21	106°59.7'		131°37.2'	S 10°14.3'	138°53.7'	S 14°12.7'	149°23.1'	S 16°52.8'	156°46.4'	S 18°46.9'	55°38.4'	N 20°09.9'
22	122°02.2'		146°37.2'	S 10°13.4'	153°53.1'	S 14°11.7'	164°25.0'	S 16°52.7'	171°48.6'	S 18°46.9'	70°39.4'	N 20°10.3'
23	137°04.6'		161°37.3'	S 10°12.5'	168°52.5'	S 14°10.7'	179°26.9'	S 16°52.5'	186°50.8'	S 18°46.8'	85°40.4'	N 20°10.6'
			SD 16.2'	d 0.9'	v -0.6'	d 1.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.0'	d 0.4'
Mer. pass.			12 h 13 m 35 s		11 h 44 m		11 h 4 m		10 h 34 m		17 h 18 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Mars	+Achernar	+Sun
0	76°28.4'	N 22°36.6'	11.3'	5.8'	54.7'	74°15.7'	42°44.9'	38°09.6'	20°34.9'	7°53.9'	22°18.7'	90°04.2'	103°17.4'
1	90°58.7'	N 22°42.4'	11.3'	5.7'	54.7'	73°45.6'	42°18.5'	37°39.6'	20°18.4'	8°18.0'	22°47.1'	90°21.8'	103°45.0'
2	105°29.0'	N 22°48.0'	11.2'	5.6'	54.8'	73°15.5'	41°52.2'	37°09.5'	20°02.5'	8°42.8'	23°15.6'	90°39.4'	104°12.6'
3	119°59.2'	N 22°53.6'	11.1'	5.5'	54.8'	72°45.3'	41°25.9'	36°39.5'		9°08.1'	23°44.0'	90°57.1'	104°40.2'
4	134°29.3'	N 22°59.0'	11.1'	5.3'	54.8'	72°15.1'	40°59.6'	36°09.4'		9°33.9'	24°12.6'	91°14.7'	105°07.8'
5	148°59.4'	N 23°04.4'	11.0'	5.2'	54.8'	71°44.9'	40°33.5'	35°39.2'		10°00.2'	24°41.1'	91°32.4'	105°35.5'
6	163°29.4'	N 23°09.6'	10.9'	5.1'	54.8'	71°14.7'	40°07.4'	35°09.1'		10°26.8'	25°09.7'	91°50.0'	106°03.2'
7	177°59.3'	N 23°14.7'	10.9'	5.0'	54.9'	70°44.5'	39°41.3'	34°39.0'		10°53.8'	25°38.4'	92°07.7'	106°30.9'
8	192°29.2'	N 23°19.8'	10.8'	4.9'	54.9'	70°14.2'	39°15.3'	34°08.8'		11°21.1'	26°07.0'	92°25.4'	106°58.6'
9	206°59.0'	N 23°24.7'	10.7'	4.8'	54.9'	69°43.9'	38°49.4'	33°38.6'		11°48.7'	26°35.7'	92°43.1'	107°26.3'
10	221°28.7'	N 23°29.5'	10.7'	4.7'	54.9'	69°13.6'	38°23.5'	33°08.4'		12°16.4'	27°04.5'	93°00.8'	107°54.1'
11	235°58.4'	N 23°34.2'	10.6'	4.6'	54.9'	68°43.3'	37°57.8'	32°38.2'		12°44.5'	27°33.2'	93°18.5'	108°21.9'
12	250°28.0'	N 23°38.8'	10.5'	4.5'	55.0'	68°12.9'	37°32.1'	32°07.9'		13°12.7'	28°02.0'	93°36.2'	108°49.7'
13	264°57.5'	N 23°43.2'	10.5'	4.4'	55.0'	67°42.5'	37°06.4'	31°37.6'		13°41.1'	28°30.9'	93°53.9'	109°17.6'
14	279°27.0'	N 23°47.6'	10.4'	4.2'	55.0'	67°12.1'	36°40.9'	31°07.4'		14°09.6'	28°59.7'	94°11.6'	109°45.4'
15	293°56.4'	N 23°51.8'	10.3'	4.1'	55.0'	66°41.7'	36°15.5'	30°37.0'		14°38.3'	29°28.6'	94°29.3'	110°13.3'
16	308°25.7'	N 23°56.0'	10.3'	4.0'	55.0'	66°11.2'	35°50.1'	30°06.7'		15°07.2'	29°57.6'	94°47.0'	110°41.2'
17	322°55.0'	N 23°60.0'	10.2'	3.9'	55.1'	65°40.7'	35°24.8'	29°36.4'		15°36.2'	30°26.5'	95°04.7'	111°09.2'
18	337°24.2'	N 24°03.9'	10.1'	3.8'	55.1'	65°10.2'	34°59.7'	29°06.0'		16°05.3'	30°55.5'	95°22.5'	111°37.2'
19	351°53.3'	N 24°07.7'	10.1'	3.7'	55.1'	64°39.7'	34°34.6'	28°35.6'		16°34.5'	31°24.6'	95°40.2'	112°05.2'
20	6°22.4'	N 24°11.3'	10.0'	3.5'	55.1'	64°09.1'	34°09.7'	28°05.2'		17°03.9'	31°53.6'	95°57.9'	112°33.2'
21	20°51.4'	N 24°14.9'	10.0'	3.4'	55.2'	63°38.5'	33°44.9'	27°34.8'		17°33.3'	32°22.7'	96°15.6'	113°01.3'
22	35°20.4'	N 24°18.3'	9.9'	3.3'	55.2'	63°07.9'	33°20.2'	27°04.4'		18°02.8'	32°51.9'	96°33.3'	113°29.3'
23	49°49.3'	N 24°21.6'	9.8'	3.2'	55.2'	62°37.2'	32°55.6'	26°33.9'		18°32.4'	33°21.0'	96°51.0'	113°57.5'
Mer. pass.			19 h 34 m SD 14.9'		phase 61%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.7'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°35.7'	N 89°21.4'
Rigil Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

Monday 22 February 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	152°07.1'	176°37.4'	S 10°11.6'	183°51.9'	S 14°09.7'		194°28.8'	S 16°52.3'		201°53.0'	S 18°46.7'		100°41.4'	N 20°11.0'				
1	167°09.6'	191°37.5'	S 10°10.7'	198°51.3'	S 14°08.6'		209°30.6'	S 16°52.2'		216°55.1'	S 18°46.6'		115°42.4'	N 20°11.4'				
2	182°12.0'	206°37.5'	S 10°09.8'	213°50.7'	S 14°07.6'		224°32.5'	S 16°52.0'		231°57.3'	S 18°46.6'		130°43.4'	N 20°11.7'				
3	197°14.5'	221°37.6'	S 10°08.9'	228°50.1'	S 14°06.6'		239°34.4'	S 16°51.8'		246°59.5'	S 18°46.5'		145°44.4'	N 20°12.1'				
4	212°17.0'	236°37.7'	S 10°07.9'	243°49.5'	S 14°05.6'		254°36.3'	S 16°51.7'		262°01.7'	S 18°46.4'		160°45.4'	N 20°12.5'				
5	227°19.4'	251°37.8'	S 10°07.0'	258°49.0'	S 14°04.6'		269°38.2'	S 16°51.5'		277°03.9'	S 18°46.4'		175°46.4'	N 20°12.8'				
6	242°21.9'	266°37.9'	S 10°06.1'	273°48.4'	S 14°03.6'		284°40.1'	S 16°51.4'		292°06.0'	S 18°46.3'		190°47.4'	N 20°13.2'				
7	257°24.4'	281°38.0'	S 10°05.2'	288°47.8'	S 14°02.6'		299°41.9'	S 16°51.2'		307°08.2'	S 18°46.2'		205°48.4'	N 20°13.5'				
8	272°26.8'	296°38.0'	S 10°04.3'	303°47.2'	S 14°01.6'		314°43.8'	S 16°51.0'		322°10.4'	S 18°46.2'		220°49.4'	N 20°13.9'				
9	287°29.3'	311°38.1'	S 10°03.4'	318°46.6'	S 14°00.5'		329°45.7'	S 16°50.9'		337°12.6'	S 18°46.1'		235°50.4'	N 20°14.3'				
10	302°31.7'	326°38.2'	S 10°02.5'	333°46.0'	S 13°59.5'		344°47.6'	S 16°50.7'		352°14.8'	S 18°46.0'		250°51.4'	N 20°14.6'				
11	317°34.2'	341°38.3'	S 10°01.5'	348°45.5'	S 13°58.5'		359°49.5'	S 16°50.5'		7°16.9'	S 18°46.0'		265°52.4'	N 20°15.0'				
12	332°36.7'	356°38.4'	S 10°00.6'	3°44.9'	S 13°57.5'		14°51.4'	S 16°50.4'		22°19.1'	S 18°45.9'		280°53.4'	N 20°15.4'				
13	347°39.1'	11°38.4'	S 9°59.7'	18°44.3'	S 13°56.5'		29°53.3'	S 16°50.2'		37°21.3'	S 18°45.8'		295°54.4'	N 20°15.7'				
14	2°41.6'	26°38.5'	S 9°58.8'	33°43.7'	S 13°55.4'		44°55.1'	S 16°50.0'		52°23.5'	S 18°45.8'		310°55.4'	N 20°16.1'				
15	17°44.1'	41°38.6'	S 9°57.9'	48°43.1'	S 13°54.4'		59°57.0'	S 16°49.9'		67°25.7'	S 18°45.7'		325°56.4'	N 20°16.4'				
16	32°46.5'	56°38.7'	S 9°57.0'	63°42.6'	S 13°53.4'		74°58.9'	S 16°49.7'		82°27.8'	S 18°45.6'		340°57.4'	N 20°16.8'				
17	47°49.0'	71°38.8'	S 9°56.1'	78°42.0'	S 13°52.4'		90°00.8'	S 16°49.5'		97°30.0'	S 18°45.6'		355°58.4'	N 20°17.2'				
18	62°51.5'	86°38.9'	S 9°55.1'	93°41.4'	S 13°51.4'		105°02.7'	S 16°49.4'		112°32.2'	S 18°45.5'		10°59.4'	N 20°17.5'				
19	77°53.9'	101°38.9'	S 9°54.2'	108°40.8'	S 13°50.3'		120°04.6'	S 16°49.2'		127°34.4'	S 18°45.4'		26°00.4'	N 20°17.9'				
20	92°56.4'	116°39.0'	S 9°53.3'	123°40.2'	S 13°49.3'		135°06.5'	S 16°49.0'		142°36.6'	S 18°45.4'		41°01.4'	N 20°18.2'				
21	107°58.9'	131°39.1'	S 9°52.4'	138°39.7'	S 13°48.3'		150°08.3'	S 16°48.9'		157°38.7'	S 18°45.3'		56°02.4'	N 20°18.6'				
22	123°01.3'	146°39.2'	S 9°51.5'	153°39.1'	S 13°47.3'		165°10.2'	S 16°48.7'		172°40.9'	S 18°45.2'		71°03.4'	N 20°19.0'				
23	138°03.8'	161°39.3'	S 9°50.6'	168°38.5'	S 13°46.2'		180°12.1'	S 16°48.5'		187°43.1'	S 18°45.2'		86°04.3'	N 20°19.3'				
		SD 16.2'	d 0.9'		v -0.6'	d 1.0'		v 1.9'	d 0.2'		v 2.2'	d 0.1'		v 1.0'	d 0.4'			
Mer. pass.		12 h 13 m 27 s		11 h 45 m			11 h 1 m			10 h 31 m			17 h 16 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Aldebaran	+Capella	+Sun
0	64°18.1'	N 24°24.8'	9.8'	3.1'	55.2'	112°01.2'	62°06.6'	32°31.1'	26°03.4'		19°02.2'		114°25.6'
1	78°46.9'	N 24°27.9'	9.7'	2.9'	55.3'	111°34.2'	61°35.9'	32°06.8'	25°32.9'		19°31.9'		114°53.8'
2	93°15.6'	N 24°30.8'	9.7'	2.8'	55.3'	111°07.2'	61°05.1'	31°42.7'	25°02.4'		20°01.8'		115°22.0'
3	107°44.3'	N 24°33.6'	9.6'	2.7'	55.3'	110°40.1'	60°34.4'	31°18.6'	24°31.9'		20°31.8'		115°50.2'
4	122°12.9'	N 24°36.3'	9.5'	2.6'	55.3'	110°12.9'	60°03.6'	30°54.8'	24°01.4'		21°01.8'		116°18.4'
5	136°41.4'	N 24°38.9'	9.5'	2.4'	55.4'	109°45.8'	59°32.7'	30°31.1'	23°30.8'		21°31.9'		116°46.7'
6	151°09.9'	N 24°41.4'	9.4'	2.3'	55.4'	109°18.5'	59°01.9'	30°07.6'	23°00.2'		22°02.0'		117°15.0'
7	165°38.3'	N 24°43.7'	9.4'	2.2'	55.4'	108°51.2'	58°31.0'	29°44.3'	22°29.6'		22°32.2'		117°43.4'
8	180°06.7'	N 24°45.9'	9.3'	2.1'	55.4'	108°23.9'	58°00.1'	29°21.1'	21°59.1'		23°02.5'		118°11.8'
9	194°35.0'	N 24°47.9'	9.3'	1.9'	55.5'	107°56.5'	57°29.1'	28°58.2'	21°28.4'		23°32.9'		118°40.2'
10	209°03.3'	N 24°49.9'	9.2'	1.8'	55.5'	107°29.1'	56°58.2'	28°35.5'	20°57.8'		24°03.3'		119°08.6'
11	223°31.5'	N 24°51.7'	9.2'	1.7'	55.5'	107°01.6'	56°27.2'	28°12.9'	20°27.2'		24°33.8'		119°37.1'
12	237°59.6'	N 24°53.4'	9.1'	1.6'	55.6'	106°34.1'	55°56.1'	27°50.7'	19°56.6'		25°04.3'		
13	252°27.7'	N 24°54.9'	9.1'	1.4'	55.6'	106°06.5'	55°25.1'	27°28.6'	19°25.9'		25°34.9'		
14	266°55.8'	N 24°56.4'	9.0'	1.3'	55.6'	105°38.9'	54°54.0'	27°06.8'	18°55.3'		26°05.5'		
15	281°23.8'	N 24°57.7'	9.0'	1.2'	55.6'	105°11.2'	54°22.8'	26°45.3'	18°24.6'		26°36.2'		
16	295°51.8'	N 24°58.8'	8.9'	1.0'	55.7'	104°43.5'	53°51.7'	26°24.1'	17°54.0'		27°06.9'		
17	310°19.7'	N 24°59.9'	8.9'	0.9'	55.7'	104°15.8'	53°20.5'	26°03.1'	17°23.4'		27°37.7'		
18	324°47.5'	N 25°00.8'	8.8'	0.8'	55.7'	103°48.0'	52°49.2'	25°42.5'	16°52.7'	19°35.2'	28°08.6'	25°42.6'	
19	339°15.4'	N 25°01.5'	8.8'	0.6'	55.7'	103°20.1'	52°18.0'	25°22.2'	16°22.1'	19°50.8'	28°39.5'	25°58.1'	
20	353°43.1'	N 25°02.2'	8.7'	0.5'	55.8'	102°52.2'	51°46.7'	25°02.2'	15°51.5'	20°06.9'	29°10.4'	26°14.0'	
21	8°10.9'	N 25°02.7'	8.7'	0.4'	55.8'	102°24.3'	51°15.4'	24°42.5'	15°20.9'	20°23.7'	29°41.4'	26°30.4'	
22	22°38.5'	N 25°03.0'	8.6'	0.2'	55.8'	101°56.3'	50°44.0'	24°23.2'	14°50.4'	20°41.0'	30°12.5'	26°47.2'	
23	37°06.2'	N 25°03.3'	8.6'	0.1'	55.9'	101°28.2'	50°12.6'	24°04.4'	14°19.9'	20°58.9'	30°43.6'	27°04.4'	
Mer. pass.		20 h 26 m SD 15.1'			phase 71%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°36.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.7'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.1'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	153°06.2'	S 9°49.6'	176°39.4'	S 9°49.6'	183°37.9'	S 13°45.2'	195°14.0'	S 16°48.4'	202°45.3'	S 18°45.1'	101°05.3'	N 20°19.7'
1	168°08.7'	S 9°48.7'	191°39.5'	S 9°48.7'	198°37.4'	S 13°44.2'	210°15.9'	S 16°48.2'	217°47.5'	S 18°45.0'	116°06.3'	N 20°20.0'
2	183°11.2'	S 9°47.8'	206°39.5'	S 9°47.8'	213°36.8'	S 13°43.2'	225°17.8'	S 16°48.0'	232°49.6'	S 18°45.0'	131°07.3'	N 20°20.4'
3	198°13.6'	S 9°46.9'	221°39.6'	S 9°46.9'	228°36.2'	S 13°42.1'	240°19.7'	S 16°47.9'	247°51.8'	S 18°44.9'	146°08.3'	N 20°20.8'
4	213°16.1'	S 9°46.0'	236°39.7'	S 9°46.0'	243°35.6'	S 13°41.1'	255°21.5'	S 16°47.7'	262°54.0'	S 18°44.8'	161°09.3'	N 20°21.1'
5	228°18.6'	S 9°45.0'	251°39.8'	S 9°45.0'	258°35.1'	S 13°40.1'	270°23.4'	S 16°47.5'	277°56.2'	S 18°44.8'	176°10.3'	N 20°21.5'
6	243°21.0'	S 9°44.1'	266°39.9'	S 9°44.1'	273°34.5'	S 13°39.1'	285°25.3'	S 16°47.4'	292°58.4'	S 18°44.7'	191°11.3'	N 20°21.8'
7	258°23.5'	S 9°43.2'	281°40.0'	S 9°43.2'	288°33.9'	S 13°38.0'	300°27.2'	S 16°47.2'	308°00.5'	S 18°44.6'	206°12.3'	N 20°22.2'
8	273°26.0'	S 9°42.3'	296°40.1'	S 9°42.3'	303°33.3'	S 13°37.0'	315°29.1'	S 16°47.0'	323°02.7'	S 18°44.5'	221°13.3'	N 20°22.5'
9	288°28.4'	S 9°41.4'	311°40.2'	S 9°41.4'	318°32.8'	S 13°36.0'	330°31.0'	S 16°46.9'	338°04.9'	S 18°44.5'	236°14.3'	N 20°22.9'
10	303°30.9'	S 9°40.5'	326°40.3'	S 9°40.5'	333°32.2'	S 13°34.9'	345°32.9'	S 16°46.7'	353°07.1'	S 18°44.4'	251°15.3'	N 20°23.3'
11	318°33.4'	S 9°39.5'	341°40.3'	S 9°39.5'	348°31.6'	S 13°33.9'	0°34.7'	S 16°46.5'	8°09.3'	S 18°44.3'	266°16.2'	N 20°23.6'
12	333°35.8'	S 9°38.6'	356°40.4'	S 9°38.6'	3°31.1'	S 13°32.9'	15°36.6'	S 16°46.4'	23°11.5'	S 18°44.3'	281°17.2'	N 20°24.0'
13	348°38.3'	S 9°37.7'	11°40.5'	S 9°37.7'	18°30.5'	S 13°31.8'	30°38.5'	S 16°46.2'	38°13.6'	S 18°44.2'	296°18.2'	N 20°24.3'
14	3°40.7'	S 9°36.8'	26°40.6'	S 9°36.8'	33°29.9'	S 13°30.8'	45°40.4'	S 16°46.0'	53°15.8'	S 18°44.1'	311°19.2'	N 20°24.7'
15	18°43.2'	S 9°35.8'	41°40.7'	S 9°35.8'	48°29.3'	S 13°29.8'	60°42.3'	S 16°45.9'	68°18.0'	S 18°44.1'	326°20.2'	N 20°25.0'
16	33°45.7'	S 9°34.9'	56°40.8'	S 9°34.9'	63°28.8'	S 13°28.7'	75°44.2'	S 16°45.7'	83°20.2'	S 18°44.0'	341°21.2'	N 20°25.4'
17	48°48.1'	S 9°34.0'	71°40.9'	S 9°34.0'	78°28.2'	S 13°27.7'	90°46.1'	S 16°45.5'	98°22.4'	S 18°43.9'	356°22.2'	N 20°25.8'
18	63°50.6'	S 9°33.1'	86°41.0'	S 9°33.1'	93°27.6'	S 13°26.7'	105°48.0'	S 16°45.4'	113°24.5'	S 18°43.9'	11°23.2'	N 20°26.1'
19	78°53.1'	S 9°32.2'	101°41.1'	S 9°32.2'	108°27.1'	S 13°25.6'	120°49.8'	S 16°45.2'	128°26.7'	S 18°43.8'	26°24.2'	N 20°26.5'
20	93°55.5'	S 9°31.2'	116°41.2'	S 9°31.2'	123°26.5'	S 13°24.6'	135°51.7'	S 16°45.0'	143°28.9'	S 18°43.7'	41°25.1'	N 20°26.8'
21	108°58.0'	S 9°30.3'	131°41.2'	S 9°30.3'	138°25.9'	S 13°23.5'	150°53.6'	S 16°44.9'	158°31.1'	S 18°43.7'	56°26.1'	N 20°27.2'
22	124°00.5'	S 9°29.4'	146°41.3'	S 9°29.4'	153°25.4'	S 13°22.5'	165°55.5'	S 16°44.7'	173°33.3'	S 18°43.6'	71°27.1'	N 20°27.5'
23	139°02.9'	S 9°28.5'	161°41.4'	S 9°28.5'	168°24.8'	S 13°21.5'	180°57.4'	S 16°44.6'	188°35.5'	S 18°43.5'	86°28.1'	N 20°27.9'
		SD 16.2' d 0.9'		v -0.6' d 1.0'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.0' d 0.4'		
Mer. pass.		12 h 13 m 19 s		11 h 46 m		10 h 58 m		10 h 27 m		17 h 15 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	51°33.8'	N 25°03.4'	8.6'	-0.0'	55.9'	101°00.2'	49°41.2'	23°45.9'	13°49.4'	21°17.3'	27°22.0'	31°14.8'	39°53.7'
1	66°01.4'	N 25°03.3'	8.5'	-0.2'	55.9'	100°32.1'	49°09.7'	23°27.8'	13°18.9'	21°36.1'	27°40.1'	31°45.9'	40°12.6'
2	80°28.9'	N 25°03.1'	8.5'	-0.3'	56.0'	100°03.9'	48°38.2'	23°10.1'	12°48.6'	21°55.5'	27°58.5'	32°17.2'	40°31.8'
3	94°56.4'	N 25°02.8'	8.4'	-0.5'	56.0'	99°35.7'	48°06.7'	22°53.0'	12°18.3'	22°15.4'	28°17.3'	32°48.5'	40°51.2'
4	109°23.8'	N 25°02.4'	8.4'	-0.6'	56.0'	99°07.4'	47°35.2'	22°36.2'	11°48.1'	22°35.7'	28°36.5'	33°19.8'	41°10.8'
5	123°51.2'	N 25°01.8'	8.4'	-0.7'	56.0'	98°39.1'	47°03.6'	22°20.0'	11°17.9'	22°56.4'	28°56.1'	33°51.2'	41°30.7'
6	138°18.6'	N 25°01.1'	8.3'	-0.9'	56.1'	98°10.8'	46°31.9'	22°04.3'	10°47.9'	23°17.6'	29°15.9'	34°22.7'	41°50.8'
7	152°46.0'	N 25°00.2'	8.3'	-1.0'	56.1'	97°42.4'	46°00.3'		10°18.1'	23°39.2'	29°36.2'	34°54.1'	42°11.1'
8	167°13.3'	N 24°59.2'	8.3'	-1.1'	56.1'	97°14.0'	45°28.6'		9°48.4'	24°01.1'	29°56.8'	35°25.7'	42°31.6'
9	181°40.5'	N 24°58.0'	8.3'	-1.3'	56.2'	96°45.6'	44°56.9'		9°18.9'	24°23.4'	30°17.6'	35°57.2'	42°52.3'
10	196°07.8'	N 24°56.8'	8.2'	-1.4'	56.2'	96°17.1'	44°25.1'		8°49.7'	24°46.1'	30°38.8'	36°28.9'	43°13.3'
11	210°35.0'	N 24°55.3'	8.2'	-1.6'	56.2'	95°48.5'	43°53.3'		8°20.8'	25°09.1'	31°00.4'	37°00.5'	43°34.4'
12	225°02.2'	N 24°53.8'	8.2'	-1.7'	56.3'	95°20.0'	43°21.5'		7°52.2'	25°32.4'	31°22.2'	37°32.2'	43°55.8'
13	239°29.4'	N 24°52.1'	8.1'	-1.8'	56.3'	94°51.3'	42°49.6'		7°24.1'	25°56.1'	31°44.2'	38°04.0'	44°17.3'
14	253°56.5'	N 24°50.2'	8.1'	-2.0'	56.3'	94°22.7'	42°17.7'		6°56.5'	26°20.1'	32°06.6'	38°35.8'	44°39.1'
15	268°23.6'	N 24°48.2'	8.1'	-2.1'	56.4'	93°54.0'	41°45.8'			26°44.3'	32°29.2'	39°07.6'	45°01.0'
16	282°50.7'	N 24°46.1'	8.1'	-2.3'	56.4'	93°25.2'	41°13.8'			27°08.8'	32°52.1'	39°39.5'	45°23.1'
17	297°17.8'	N 24°43.8'	8.1'	-2.4'	56.4'	92°56.5'	40°41.8'			27°33.7'	33°15.3'	40°11.5'	45°45.4'
18	311°44.9'	N 24°41.4'	8.0'	-2.6'	56.4'	92°27.7'	40°09.8'			27°58.7'	33°38.7'	40°43.4'	46°07.9'
19	326°11.9'	N 24°38.9'	8.0'	-2.7'	56.5'	91°58.8'	39°37.7'			28°24.1'	34°02.3'	41°15.5'	46°30.5'
20	340°38.9'	N 24°36.2'	8.0'	-2.8'	56.5'	91°29.9'	39°05.6'			28°49.6'	34°26.2'	41°47.5'	46°53.3'
21	355°05.9'	N 24°33.3'	8.0'	-3.0'	56.5'	91°01.0'	38°33.5'			29°15.4'	34°50.3'	42°19.7'	47°16.3'
22	9°32.9'	N 24°30.4'	8.0'	-3.1'	56.6'	90°32.0'	38°01.3'			29°41.5'	35°14.7'	42°51.8'	47°39.5'
23	23°59.9'	N 24°27.2'	8.0'	-3.3'	56.6'	90°03.1'	37°29.1'			30°07.7'	35°39.2'	43°24.0'	48°02.8'
Mer. pass.		21 h 20 m SD 15.2'		phase 79%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°48.0'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°36.6'	N 89°21.4'
Rigel Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.2'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	154°05.4'	176°41.5'	S 9°27.5'	183°24.2'	S 13°20.4'	195°59.3'	S 16°44.4'	203°37.6'	S 18°43.5'	101°29.1'	N 20°28.2'
1	169°07.9'	191°41.6'	S 9°26.6'	198°23.7'	S 13°19.4'	211°01.2'	S 16°44.2'	218°39.8'	S 18°43.4'	116°30.1'	N 20°28.6'
2	184°10.3'	206°41.7'	S 9°25.7'	213°23.1'	S 13°18.3'	226°03.1'	S 16°44.1'	233°42.0'	S 18°43.3'	131°31.1'	N 20°28.9'
3	199°12.8'	221°41.8'	S 9°24.8'	228°22.6'	S 13°17.3'	241°04.9'	S 16°43.9'	248°44.2'	S 18°43.3'	146°32.1'	N 20°29.3'
4	214°15.2'	236°41.9'	S 9°23.8'	243°22.0'	S 13°16.3'	256°06.8'	S 16°43.7'	263°46.4'	S 18°43.2'	161°33.0'	N 20°29.7'
5	229°17.7'	251°42.0'	S 9°22.9'	258°21.4'	S 13°15.2'	271°08.7'	S 16°43.6'	278°48.5'	S 18°43.1'	176°34.0'	N 20°30.0'
6	244°20.2'	266°42.1'	S 9°22.0'	273°20.9'	S 13°14.2'	286°10.6'	S 16°43.4'	293°50.7'	S 18°43.1'	191°35.0'	N 20°30.4'
7	259°22.6'	281°42.2'	S 9°21.1'	288°20.3'	S 13°13.1'	301°12.5'	S 16°43.2'	308°52.9'	S 18°43.0'	206°36.0'	N 20°30.7'
8	274°25.1'	296°42.3'	S 9°20.1'	303°19.7'	S 13°12.1'	316°14.4'	S 16°43.1'	323°55.1'	S 18°42.9'	221°37.0'	N 20°31.1'
9	289°27.6'	311°42.4'	S 9°19.2'	318°19.2'	S 13°11.0'	331°16.3'	S 16°42.9'	338°57.3'	S 18°42.9'	236°38.0'	N 20°31.4'
10	304°30.0'	326°42.5'	S 9°18.3'	333°18.6'	S 13°10.0'	346°18.2'	S 16°42.7'	353°59.5'	S 18°42.8'	251°39.0'	N 20°31.8'
11	319°32.5'	341°42.6'	S 9°17.4'	348°18.1'	S 13°08.9'	1°20.0'	S 16°42.6'	9°01.6'	S 18°42.7'	266°39.9'	N 20°32.1'
12	334°35.0'	356°42.6'	S 9°16.4'	3°17.5'	S 13°07.9'	16°21.9'	S 16°42.4'	24°03.8'	S 18°42.7'	281°40.9'	N 20°32.5'
13	349°37.4'	11°42.7'	S 9°15.5'	18°17.0'	S 13°06.8'	31°23.8'	S 16°42.2'	39°06.0'	S 18°42.6'	296°41.9'	N 20°32.8'
14	4°39.9'	26°42.8'	S 9°14.6'	33°16.4'	S 13°05.8'	46°25.7'	S 16°42.1'	54°08.2'	S 18°42.5'	311°42.9'	N 20°33.2'
15	19°42.3'	41°42.9'	S 9°13.7'	48°15.8'	S 13°04.7'	61°27.6'	S 16°41.9'	69°10.4'	S 18°42.5'	326°43.9'	N 20°33.5'
16	34°44.8'	56°43.0'	S 9°12.7'	63°15.3'	S 13°03.7'	76°29.5'	S 16°41.7'	84°12.6'	S 18°42.4'	341°44.9'	N 20°33.9'
17	49°47.3'	71°43.1'	S 9°11.8'	78°14.7'	S 13°02.6'	91°31.4'	S 16°41.6'	99°14.7'	S 18°42.3'	356°45.8'	N 20°34.2'
18	64°49.7'	86°43.2'	S 9°10.9'	93°14.2'	S 13°01.6'	106°33.3'	S 16°41.4'	114°16.9'	S 18°42.3'	11°46.8'	N 20°34.6'
19	79°52.2'	101°43.3'	S 9°10.0'	108°13.6'	S 13°00.5'	121°35.2'	S 16°41.2'	129°19.1'	S 18°42.2'	26°47.8'	N 20°34.9'
20	94°54.7'	116°43.4'	S 9°09.0'	123°13.1'	S 12°59.5'	136°37.0'	S 16°41.1'	144°21.3'	S 18°42.1'	41°48.8'	N 20°35.3'
21	109°57.1'	131°43.5'	S 9°08.1'	138°12.5'	S 12°58.4'	151°38.9'	S 16°40.9'	159°23.5'	S 18°42.1'	56°49.8'	N 20°35.6'
22	124°59.6'	146°43.6'	S 9°07.2'	153°11.9'	S 12°57.4'	166°40.8'	S 16°40.7'	174°25.7'	S 18°42.0'	71°50.8'	N 20°36.0'
23	140°02.1'	161°43.7'	S 9°06.2'	168°11.4'	S 12°56.3'	181°42.7'	S 16°40.6'	189°27.8'	S 18°41.9'	86°51.7'	N 20°36.3'
		SD 16.2'	d 0.9'	v -0.6'	d 1.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 1.0'	d 0.4'
Mer. pass.		12 h 13 m 10 s		11 h 47 m		10 h 55 m		10 h 24 m		17 h 13 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	38°26.8'	N 24°24.0'	7.9'	-3.4'	56.6'	89°34.0'	89°56.8'			30°34.2'	36°04.0'	43°56.3'	48°26.3'
1	52°53.8'	N 24°20.6'	7.9'	-3.5'	56.7'	89°05.0'	36°24.6'			31°00.9'	36°29.0'	44°28.6'	48°50.0'
2	67°20.7'	N 24°17.0'	7.9'	-3.7'	56.7'	88°35.9'	35°52.3'			31°27.7'	36°54.1'	45°00.9'	49°13.8'
3	81°47.6'	N 24°13.3'	7.9'	-3.8'	56.7'	88°06.7'	35°19.9'			31°54.8'	37°19.5'	45°33.3'	49°37.7'
4	96°14.5'	N 24°09.5'	7.9'	-4.0'	56.8'	87°37.6'	34°47.6'			32°22.1'	37°45.1'	46°05.7'	50°01.8'
5	110°41.4'	N 24°05.5'	7.9'	-4.1'	56.8'	87°08.4'	34°15.2'			32°49.5'	38°10.8'	46°38.2'	50°26.1'
6	125°08.3'	N 24°01.4'	7.9'	-4.3'	56.8'	86°39.1'	33°42.7'			33°17.1'	38°36.7'	47°10.7'	50°50.5'
7	139°35.2'	N 23°57.1'	7.9'	-4.4'	56.9'	86°09.9'	33°10.3'			33°44.9'	39°02.8'	47°43.3'	51°15.0'
8	154°02.1'	N 23°52.7'	7.9'	-4.5'	56.9'	85°40.6'	32°37.8'			34°12.8'	39°29.1'	48°15.9'	51°39.7'
9	168°29.0'	N 23°48.2'	7.9'	-4.7'	56.9'	85°11.2'	32°05.2'			34°40.9'	39°55.5'	48°48.5'	52°04.5'
10	182°55.9'	N 23°43.5'	7.9'	-4.8'	57.0'	84°41.9'	31°32.7'			35°09.2'	40°22.2'	49°21.2'	52°29.4'
11	197°22.8'	N 23°38.7'	7.9'	-5.0'	57.0'	84°12.5'	31°00.1'			35°37.6'	40°48.9'	49°53.9'	52°54.5'
12	211°49.6'	N 23°33.7'	7.9'	-5.1'	57.0'	83°43.1'	30°27.5'		7°02.8'	36°06.1'	41°15.8'	50°26.7'	53°19.7'
13	226°16.5'	N 23°28.6'	7.9'	-5.3'	57.1'	83°13.6'	29°54.8'		7°31.3'	36°34.8'	41°42.9'	50°59.5'	53°45.1'
14	240°43.4'	N 23°23.3'	7.9'	-5.4'	57.1'	82°44.1'	29°22.2'		8°00.5'	37°03.7'	42°10.2'	51°32.4'	54°10.6'
15	255°10.3'	N 23°17.9'	7.9'	-5.5'	57.1'	82°14.6'	28°49.5'		8°30.2'	37°32.6'	42°37.5'	52°05.3'	54°36.2'
16	269°37.2'	N 23°12.4'	7.9'	-5.7'	57.2'	81°45.1'	28°16.7'		9°00.3'	38°01.7'	43°05.0'	52°38.3'	55°01.9'
17	284°04.1'	N 23°06.7'	7.9'	-5.8'	57.2'	81°15.5'	27°44.0'		9°30.7'	38°31.0'	43°32.7'	53°11.3'	55°27.7'
18	298°31.0'	N 23°00.9'	7.9'	-6.0'	57.2'	80°45.9'	27°11.2'		10°01.5'	39°00.3'	44°00.5'	53°44.3'	55°53.7'
19	312°57.9'	N 22°54.9'	7.9'	-6.1'	57.3'	80°16.3'	26°38.4'		10°32.6'	39°29.8'	44°28.4'	54°17.4'	56°19.7'
20	327°24.8'	N 22°48.8'	7.9'	-6.2'	57.3'	79°46.7'	26°05.6'		11°04.0'	39°59.4'	44°56.5'	54°50.5'	56°45.9'
21	341°51.8'	N 22°42.6'	7.9'	-6.4'	57.3'	79°17.0'	25°32.8'	21°33.9'	11°35.5'	40°29.1'	45°24.7'	55°23.7'	57°12.2'
22	356°18.7'	N 22°36.2'	8.0'	-6.5'	57.4'	78°47.3'	24°59.9'	21°49.2'	12°07.3'	40°58.9'	45°53.0'	55°56.9'	57°38.6'
23	10°45.7'	N 22°29.7'	8.0'	-6.7'	57.4'	78°17.6'	24°27.0'	22°05.1'	12°39.2'	41°28.9'	46°21.4'	56°30.2'	58°05.1'
Mer. pass.		22 h 15 m SD 15.4'		phase 87%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°37.0'	N 89°21.4'
Rigel Kent	-0.0	139°44.3'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.1'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	155°04.5'	176°43.8' S	9°05.3'	183°10.8' S	12°55.3'	196°44.6' S	16°40.4'	204°30.0' S	18°41.9'	101°52.7' N	20°36.7'	
1	170°07.0'	191°43.9' S	9°04.4'	198°10.3' S	12°54.2'	211°46.5' S	16°40.2'	219°32.2' S	18°41.8'	116°53.7' N	20°37.0'	
2	185°09.5'	206°44.0' S	9°03.5'	213°09.7' S	12°53.1'	226°48.4' S	16°40.1'	234°34.4' S	18°41.7'	131°54.7' N	20°37.4'	
3	200°11.9'	221°44.1' S	9°02.5'	228°09.2' S	12°52.1'	241°50.3' S	16°39.9'	249°36.6' S	18°41.7'	146°55.7' N	20°37.7'	
4	215°14.4'	236°44.2' S	9°01.6'	243°08.6' S	12°51.0'	256°52.2' S	16°39.7'	264°38.8' S	18°41.6'	161°56.6' N	20°38.1'	
5	230°16.8'	251°44.3' S	9°00.7'	258°08.1' S	12°50.0'	271°54.1' S	16°39.6'	279°41.0' S	18°41.5'	176°57.6' N	20°38.4'	
6	245°19.3'	266°44.4' S	8°59.7'	273°07.5' S	12°48.9'	286°55.9' S	16°39.4'	294°43.1' S	18°41.5'	191°58.6' N	20°38.8'	
7	260°21.8'	281°44.5' S	8°58.8'	288°07.0' S	12°47.9'	301°57.8' S	16°39.2'	309°45.3' S	18°41.4'	206°59.6' N	20°39.1'	
8	275°24.2'	296°44.6' S	8°57.9'	303°06.4' S	12°46.8'	316°59.7' S	16°39.1'	324°47.5' S	18°41.3'	222°00.6' N	20°39.5'	
9	290°26.7'	311°44.7' S	8°56.9'	318°05.9' S	12°45.7'	332°01.6' S	16°38.9'	339°49.7' S	18°41.3'	237°01.5' N	20°39.8'	
10	305°29.2'	326°44.8' S	8°56.0'	333°05.3' S	12°44.7'	347°03.5' S	16°38.7'	354°51.9' S	18°41.2'	252°02.5' N	20°40.2'	
11	320°31.6'	341°44.9' S	8°55.1'	348°04.8' S	12°43.6'	2°05.4' S	16°38.6'	9°54.1' S	18°41.1'	267°03.5' N	20°40.5'	
12	335°34.1'	356°45.0' S	8°54.1'	3°04.2' S	12°42.5'	17°07.3' S	16°38.4'	24°56.2' S	18°41.1'	282°04.5' N	20°40.9'	
13	350°36.6'	11°45.1' S	8°53.2'	18°03.7' S	12°41.5'	32°09.2' S	16°38.2'	39°58.4' S	18°41.0'	297°05.5' N	20°41.2'	
14	5°39.0'	26°45.2' S	8°52.3'	33°03.1' S	12°40.4'	47°11.1' S	16°38.1'	55°00.6' S	18°40.9'	312°06.4' N	20°41.6'	
15	20°41.5'	41°45.3' S	8°51.3'	48°02.6' S	12°39.4'	62°13.0' S	16°37.9'	70°02.8' S	18°40.9'	327°07.4' N	20°41.9'	
16	35°44.0'	56°45.4' S	8°50.4'	63°02.0' S	12°38.3'	77°14.8' S	16°37.7'	85°05.0' S	18°40.8'	342°08.4' N	20°42.3'	
17	50°46.4'	71°45.5' S	8°49.5'	78°01.5' S	12°37.2'	92°16.7' S	16°37.6'	100°07.2' S	18°40.7'	357°09.4' N	20°42.6'	
18	65°48.9'	86°45.6' S	8°48.5'	93°01.0' S	12°36.2'	107°18.6' S	16°37.4'	115°09.4' S	18°40.6'	12°10.3' N	20°43.0'	
19	80°51.3'	101°45.7' S	8°47.6'	108°00.4' S	12°35.1'	122°20.5' S	16°37.2'	130°11.5' S	18°40.6'	27°11.3' N	20°43.3'	
20	95°53.8'	116°45.8' S	8°46.7'	122°59.9' S	12°34.0'	137°22.4' S	16°37.1'	145°13.7' S	18°40.5'	42°12.3' N	20°43.7'	
21	110°56.3'	131°45.9' S	8°45.7'	137°59.3' S	12°33.0'	152°24.3' S	16°36.9'	160°15.9' S	18°40.4'	57°13.3' N	20°44.0'	
22	125°58.7'	146°46.0' S	8°44.8'	152°58.8' S	12°31.9'	167°26.2' S	16°36.7'	175°18.1' S	18°40.4'	72°14.3' N	20°44.4'	
23	141°01.2'	161°46.2' S	8°43.9'	167°58.2' S	12°30.8'	182°28.1' S	16°36.6'	190°20.3' S	18°40.3'	87°15.2' N	20°44.7'	
		SD 16.2' d 0.9'		v -0.5' d 1.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.0' d 0.3'		
Mer. pass.		12 h 13 m 1 s		11 h 48 m		10 h 52 m		10 h 21 m		17 h 11 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	25°12.7' N	22°23.1' S	8.0'	-6.8'	57.4'	96°31.1'	77°52.3'	77°47.9'	23°54.1'	13°11.3'	22°21.7'	41°58.9'	46°49.9'
1	39°39.6' N	22°16.3' S	8.0'	-6.9'	57.5'	96°12.4'	77°18.9'	77°18.2'	23°21.2'	13°43.5'	22°38.9'	42°29.1'	47°18.6'
2	54°06.6' N	22°09.3' S	8.0'	-7.1'	57.5'	95°53.6'	76°45.6'	76°48.4'	22°48.3'	14°15.9'	22°56.7'	42°59.3'	47°47.4'
3	68°33.7' N	22°02.3' S	8.0'	-7.2'	57.5'	95°34.8'	76°12.2'	76°18.6'	22°15.4'	14°48.4'	23°15.0'	43°29.7'	48°16.3'
4	83°00.7' N	21°55.1' S	8.1'	-7.3'	57.6'	95°15.9'	75°38.7'	75°48.8'	21°42.4'	15°21.0'	23°33.9'	44°00.2'	48°45.3'
5	97°27.7' N	21°47.7' S	8.1'	-7.5'	57.6'	94°57.0'	75°05.3'	75°19.0'	21°09.5'	15°53.7'	23°53.3'	44°30.7'	49°14.4'
6	111°54.8' N	21°40.3' S	8.1'	-7.6'	57.6'	94°38.0'	74°31.7'	74°49.1'	20°36.5'	16°26.5'	24°13.3'	45°01.4'	49°43.7'
7	126°21.9' N	21°32.7' S	8.1'	-7.7'	57.7'	94°19.0'	73°58.2'	74°19.3'	20°03.6'	16°59.4'	24°33.7'	45°32.1'	50°13.0'
8	140°49.0' N	21°24.9' S	8.1'	-7.9'	57.7'	93°60.0'	73°24.6'	73°49.4'	19°30.7'	17°32.5'	24°54.7'	46°03.0'	50°42.4'
9	155°16.1' N	21°17.1' S	8.2'	-8.0'	57.7'	93°40.9'	72°51.0'	73°19.5'	18°57.7'	18°05.6'	25°16.0'	46°33.9'	51°12.0'
10	169°43.3' N	21°09.1' S	8.2'	-8.1'	57.8'	93°21.8'	72°17.3'	72°49.6'	18°24.8'	18°38.7'	25°37.9'	47°04.9'	51°41.6'
11	184°10.5' N	21°00.9' S	8.2'	-8.3'	57.8'	93°02.6'	71°43.6'	72°19.7'	17°51.9'	19°12.0'	26°00.1'	47°36.0'	52°11.3'
12	198°37.7' N	20°52.7' S	8.2'	-8.4'	57.8'	92°43.4'	71°09.8'	71°49.8'	17°19.1'	19°45.3'	26°22.8'	48°07.2'	52°41.1'
13	213°04.9' N	20°44.3' S	8.2'	-8.5'	57.9'	92°24.2'	70°36.0'	71°19.8'	16°46.2'	20°18.7'	26°45.8'	48°38.5'	53°11.1'
14	227°32.1' N	20°35.7' S	8.3'	-8.7'	57.9'	92°05.0'	70°02.2'	70°49.9'	16°13.4'	20°52.2'	27°09.3'	49°09.8'	53°41.1'
15	241°59.4' N	20°27.1' S	8.3'	-8.8'	57.9'	91°45.7'	69°28.3'	70°19.9'	15°40.7'	21°25.8'	27°33.1'	49°41.3'	54°11.2'
16	256°26.7' N	20°18.3' S	8.3'	-8.9'	58.0'	91°26.4'	68°54.4'	69°50.0'	15°08.0'	21°59.4'	27°57.3'	50°12.8'	54°41.4'
17	270°54.0' N	20°09.4' S	8.3'	-9.0'	58.0'	91°07.0'	68°20.5'	69°20.0'	14°35.3'	22°33.0'	28°21.8'	50°44.4'	55°11.6'
18	285°21.4' N	20°00.3' S	8.4'	-9.2'	58.0'	90°47.6'	67°46.5'	68°50.0'	14°02.8'	23°06.8'	28°46.6'	51°16.0'	55°42.0'
19	299°48.7' N	19°51.2' S	8.4'	-9.3'	58.1'	90°28.2'	67°12.5'	68°20.1'	13°30.3'	23°40.6'	29°11.8'	51°47.8'	56°12.4'
20	314°16.1' N	19°41.9' S	8.4'	-9.4'	58.1'	90°08.8'	66°38.5'	67°50.1'	12°58.0'	24°14.4'	29°37.2'	52°19.6'	56°43.0'
21	328°43.6' N	19°32.5' S	8.5'	-9.5'	58.1'	89°49.4'	66°04.4'	67°20.1'	12°25.8'	24°48.3'	30°03.0'	52°51.5'	57°13.6'
22	343°11.0' N	19°22.9' S	8.5'	-9.7'	58.1'	89°29.9'	65°30.3'	66°50.1'	11°53.7'	25°22.3'	30°29.0'	53°23.4'	57°44.3'
23	357°38.5' N	19°13.3' S	8.5'	-9.8'	58.2'	89°10.4'	64°56.1'	66°20.2'	11°21.9'	25°56.3'	30°55.4'	53°55.4'	58°15.0'
Mer. pass.		23 h 10 m SD 15.7'		phase 93%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°37.5'	N 89°21.4'
Rigil Kent	-0.0	139°44.2'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.1'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	156°03.7'	176°46.3'	S 8°42.9'	182°57.7'	S 12°29.7'	197°30.0'	S 16°36.4'	205°22.5'	S 18°40.2'	102°16.2'	N 20°45.0'
1	171°06.1'	191°46.4'	S 8°42.0'	197°57.2'	S 12°28.7'	212°31.9'	S 16°36.2'	220°24.7'	S 18°40.2'	117°17.2'	N 20°45.4'
2	186°08.6'	206°46.5'	S 8°41.1'	212°56.6'	S 12°27.6'	227°33.8'	S 16°36.1'	235°26.8'	S 18°40.1'	132°18.2'	N 20°45.7'
3	201°11.1'	221°46.6'	S 8°40.1'	227°56.1'	S 12°26.5'	242°35.7'	S 16°35.9'	250°29.0'	S 18°40.0'	147°19.1'	N 20°46.1'
4	216°13.5'	236°46.7'	S 8°39.2'	242°55.5'	S 12°25.5'	257°37.5'	S 16°35.7'	265°31.2'	S 18°40.0'	162°20.1'	N 20°46.4'
5	231°16.0'	251°46.8'	S 8°38.3'	257°55.0'	S 12°24.4'	272°39.4'	S 16°35.6'	280°33.4'	S 18°39.9'	177°21.1'	N 20°46.8'
6	246°18.4'	266°46.9'	S 8°37.3'	272°54.4'	S 12°23.3'	287°41.3'	S 16°35.4'	295°35.6'	S 18°39.8'	192°22.1'	N 20°47.1'
7	261°20.9'	281°47.0'	S 8°36.4'	287°53.9'	S 12°22.2'	302°43.2'	S 16°35.2'	310°37.8'	S 18°39.8'	207°23.0'	N 20°47.5'
8	276°23.4'	296°47.1'	S 8°35.5'	302°53.4'	S 12°21.2'	317°45.1'	S 16°35.1'	325°40.0'	S 18°39.7'	222°24.0'	N 20°47.8'
9	291°25.8'	311°47.2'	S 8°34.5'	317°52.8'	S 12°20.1'	332°47.0'	S 16°34.9'	340°42.1'	S 18°39.6'	237°25.0'	N 20°48.2'
10	306°28.3'	326°47.3'	S 8°33.6'	332°52.3'	S 12°19.0'	347°48.9'	S 16°34.7'	355°44.3'	S 18°39.6'	252°26.0'	N 20°48.5'
11	321°30.8'	341°47.4'	S 8°32.6'	347°51.8'	S 12°17.9'	2°50.8'	S 16°34.6'	10°46.5'	S 18°39.5'	267°26.9'	N 20°48.8'
12	336°33.2'	356°47.5'	S 8°31.7'	2°51.2'	S 12°16.9'	17°52.7'	S 16°34.4'	25°48.7'	S 18°39.4'	282°27.9'	N 20°49.2'
13	351°35.7'	11°47.5'	S 8°30.8'	17°50.7'	S 12°15.8'	32°54.6'	S 16°34.2'	40°50.9'	S 18°39.4'	297°28.9'	N 20°49.5'
14	6°38.2'	26°47.7'	S 8°29.8'	32°50.1'	S 12°14.7'	47°56.5'	S 16°34.1'	55°53.1'	S 18°39.3'	312°29.8'	N 20°49.9'
15	21°40.6'	41°47.9'	S 8°28.9'	47°49.6'	S 12°13.6'	62°58.4'	S 16°33.9'	70°55.3'	S 18°39.2'	327°30.8'	N 20°50.2'
16	36°43.1'	56°48.0'	S 8°28.0'	62°49.1'	S 12°12.5'	78°00.3'	S 16°33.7'	85°57.4'	S 18°39.2'	342°31.8'	N 20°50.6'
17	51°45.6'	71°48.1'	S 8°27.0'	77°48.5'	S 12°11.5'	93°02.1'	S 16°33.6'	100°59.6'	S 18°39.1'	357°32.8'	N 20°50.9'
18	66°48.0'	86°48.2'	S 8°26.1'	92°48.0'	S 12°10.4'	108°04.0'	S 16°33.4'	116°01.8'	S 18°39.0'	12°33.7'	N 20°51.2'
19	81°50.5'	101°48.3'	S 8°25.1'	107°47.5'	S 12°09.3'	123°05.9'	S 16°33.2'	131°04.0'	S 18°39.0'	27°34.7'	N 20°51.6'
20	96°52.9'	116°48.4'	S 8°24.2'	122°46.9'	S 12°08.2'	138°07.8'	S 16°33.1'	146°06.2'	S 18°38.9'	42°35.7'	N 20°51.9'
21	111°55.4'	131°48.5'	S 8°23.3'	137°46.4'	S 12°07.1'	153°09.7'	S 16°32.9'	161°08.4'	S 18°38.8'	57°36.7'	N 20°52.3'
22	126°57.9'	146°48.6'	S 8°22.3'	152°45.9'	S 12°06.1'	168°11.6'	S 16°32.8'	176°10.6'	S 18°38.8'	72°37.6'	N 20°52.6'
23	142°00.3'	161°48.7'	S 8°21.4'	167°45.3'	S 12°05.0'	183°13.5'	S 16°32.6'	191°12.8'	S 18°38.7'	87°38.6'	N 20°53.0'
		SD 16.1' d 0.9'		v -0.5' d 1.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.0' d 0.3'	
Mer. pass.		12 h 12 m 51 s		11 h 49 m		10 h 49 m		10 h 17 m		17 h 10 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	12°06.1'	N 19°03.5'	8.6'	-9.9'	58.2'	88°50.9'	65°50.2'	64°21.9'	10°50.2'	26°30.4'	31°21.9'	54°27.5'	54°58.9'
1	26°33.6'	N 18°53.6'	8.6'	-10.0'	58.2'	88°31.4'	65°20.2'	63°47.7'	10°18.8'	27°04.5'	31°48.8'	54°59.7'	55°19.0'
2	41°01.2'	N 18°43.6'	8.6'	-10.1'	58.3'	88°11.9'	64°50.3'	63°13.4'	9°47.8'	27°38.7'	32°15.9'	55°31.9'	55°39.2'
3	55°28.8'	N 18°33.4'	8.6'	-10.3'	58.3'	87°52.3'	64°20.3'	62°39.1'	9°17.0'	28°12.9'	32°43.2'	56°04.2'	55°59.7'
4	69°56.5'	N 18°23.2'	8.7'	-10.4'	58.3'	87°32.7'	63°50.4'	62°04.8'	8°46.8'	28°47.2'	33°10.7'	56°36.6'	56°20.3'
5	84°24.1'	N 18°12.8'	8.7'	-10.5'	58.4'	87°13.2'	63°20.4'	61°30.4'	8°17.0'	29°21.5'	33°38.5'	57°09.0'	56°41.1'
6	98°51.9'	N 18°02.3'	8.7'	-10.6'	58.4'	86°53.6'	62°50.5'	60°56.0'	7°47.9'	29°55.9'	34°06.5'	57°41.5'	57°02.0'
7	113°19.6'	N 17°51.7'	8.8'	-10.7'	58.4'	86°34.0'	62°20.6'	60°21.6'		30°30.3'	34°34.7'	58°14.0'	57°23.2'
8	127°47.4'	N 17°41.0'	8.8'	-10.8'	58.4'	86°14.4'	61°50.7'	59°47.1'		31°04.7'	35°03.1'	58°46.6'	57°44.5'
9	142°15.2'	N 17°30.1'	8.8'	-10.9'	58.5'	85°54.8'	61°20.9'	59°12.6'		31°39.2'	35°31.6'	59°19.3'	58°05.9'
10	156°43.0'	N 17°19.2'	8.9'	-11.1'	58.5'	85°35.2'	60°51.0'	58°38.0'		32°13.8'	36°00.4'	59°52.0'	58°27.5'
11	171°10.9'	N 17°08.1'	8.9'	-11.2'	58.5'	85°15.6'	60°21.2'	58°03.5'		32°48.4'	36°29.4'	60°24.8'	58°49.3'
12	185°38.8'	N 16°56.9'	8.9'	-11.3'	58.6'	84°56.0'	59°51.4'	57°28.9'		33°23.0'	36°58.5'	60°57.6'	59°11.2'
13	200°06.8'	N 16°45.7'	9.0'	-11.4'	58.6'	84°36.3'	59°21.6'	56°54.2'		33°57.7'	37°27.8'	61°30.5'	59°33.2'
14	214°34.8'	N 16°34.3'	9.0'	-11.5'	58.6'	84°16.7'	58°51.8'	56°19.6'		34°32.4'	37°57.3'	62°03.4'	59°55.4'
15	229°02.8'	N 16°22.8'	9.1'	-11.6'	58.7'	83°57.1'	58°22.1'	55°44.9'		35°07.1'	38°26.9'	62°36.4'	60°17.8'
16	243°30.8'	N 16°11.2'	9.1'	-11.7'	58.7'	83°37.5'	57°52.4'	55°10.2'		35°41.9'	38°56.7'	63°09.5'	60°40.3'
17	257°58.9'	N 15°59.5'	9.1'	-11.8'	58.7'	83°18.0'	57°22.8'	54°35.4'		36°16.8'	39°26.6'	63°42.6'	61°02.9'
18	272°27.0'	N 15°47.7'	9.2'	-11.9'	58.7'	82°58.4'	56°53.2'	54°00.6'		36°51.7'	39°56.6'	64°15.7'	61°25.7'
19	286°55.2'	N 15°35.8'	9.2'	-12.0'	58.8'	82°38.8'	56°23.6'	53°25.8'		37°26.6'	40°26.9'	64°48.9'	61°48.6'
20	301°23.4'	N 15°23.8'	9.2'	-12.1'	58.8'	82°19.3'	55°54.1'	52°51.0'		38°01.5'	40°57.2'	65°22.2'	62°11.6'
21	315°51.6'	N 15°11.7'	9.3'	-12.2'	58.8'	81°59.7'	55°24.6'	52°16.1'		38°36.5'	41°27.7'	65°55.5'	62°34.7'
22	330°19.9'	N 14°59.5'	9.3'	-12.3'	58.8'	81°40.2'	54°55.1'	51°41.2'		39°11.5'	41°58.3'	66°28.8'	62°58.0'
23	344°48.2'	N 14°47.2'	9.3'	-12.4'	58.9'	81°20.7'	54°25.7'	51°06.3'		39°46.6'	42°29.0'	67°02.2'	63°21.4'
Mer. pass.		0 h 3 m SD 15.9'		phase 98%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.3'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°38.0'	N 89°21.4'
Rigil Kent	-0.0	139°44.2'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.1'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	157°02.8'	S 8°20.4'	176°48.8'	S 8°20.4'	182°44.8'	S 12°03.9'	198°15.4'	S 16°32.4'	206°14.9'	S 18°38.6'	102°39.6'	N 20°53.3'
1	172°05.3'	S 8°19.5'	191°49.0'	S 8°19.5'	197°44.3'	S 12°02.8'	213°17.3'	S 16°32.3'	221°17.1'	S 18°38.6'	117°40.5'	N 20°53.6'
2	187°07.7'	S 8°18.6'	206°49.1'	S 8°18.6'	212°43.7'	S 12°01.7'	228°19.2'	S 16°32.1'	236°19.3'	S 18°38.5'	132°41.5'	N 20°54.0'
3	202°10.2'	S 8°17.6'	221°49.2'	S 8°17.6'	227°43.2'	S 12°00.6'	243°21.1'	S 16°31.9'	251°21.5'	S 18°38.4'	147°42.5'	N 20°54.3'
4	217°12.7'	S 8°16.7'	236°49.3'	S 8°16.7'	242°42.7'	S 11°59.6'	258°23.0'	S 16°31.8'	266°23.7'	S 18°38.4'	162°43.4'	N 20°54.7'
5	232°15.1'	S 8°15.7'	251°49.4'	S 8°15.7'	257°42.2'	S 11°58.5'	273°24.9'	S 16°31.6'	281°25.9'	S 18°38.3'	177°44.4'	N 20°55.0'
6	247°17.6'	S 8°14.8'	266°49.5'	S 8°14.8'	272°41.6'	S 11°57.4'	288°26.8'	S 16°31.4'	296°28.1'	S 18°38.2'	192°45.4'	N 20°55.3'
7	262°20.1'	S 8°13.9'	281°49.6'	S 8°13.9'	287°41.1'	S 11°56.3'	303°28.6'	S 16°31.3'	311°30.3'	S 18°38.2'	207°46.4'	N 20°55.7'
8	277°22.5'	S 8°12.9'	296°49.7'	S 8°12.9'	302°40.6'	S 11°55.2'	318°30.5'	S 16°31.1'	326°32.4'	S 18°38.1'	222°47.3'	N 20°56.0'
9	292°25.0'	S 8°12.0'	311°49.8'	S 8°12.0'	317°40.0'	S 11°54.1'	333°32.4'	S 16°30.9'	341°34.6'	S 18°38.0'	237°48.3'	N 20°56.4'
10	307°27.4'	S 8°11.0'	326°50.0'	S 8°11.0'	332°39.5'	S 11°53.0'	348°34.3'	S 16°30.8'	356°36.8'	S 18°38.0'	252°49.3'	N 20°56.7'
11	322°29.9'	S 8°10.1'	341°50.1'	S 8°10.1'	347°39.0'	S 11°51.9'	3°36.2'	S 16°30.6'	11°39.0'	S 18°37.9'	267°50.2'	N 20°57.0'
12	337°32.4'	S 8°09.1'	356°50.2'	S 8°09.1'	2°38.5'	S 11°50.9'	18°38.1'	S 16°30.4'	26°41.2'	S 18°37.8'	282°51.2'	N 20°57.4'
13	352°34.8'	S 8°08.2'	11°50.3'	S 8°08.2'	17°37.9'	S 11°49.8'	33°40.0'	S 16°30.3'	41°43.4'	S 18°37.8'	297°52.2'	N 20°57.7'
14	7°37.3'	S 8°07.3'	26°50.4'	S 8°07.3'	32°37.4'	S 11°48.7'	48°41.9'	S 16°30.1'	56°45.6'	S 18°37.7'	312°53.1'	N 20°58.0'
15	22°39.8'	S 8°06.3'	41°50.5'	S 8°06.3'	47°36.9'	S 11°47.6'	63°43.8'	S 16°29.9'	71°47.8'	S 18°37.7'	327°54.1'	N 20°58.4'
16	37°42.2'	S 8°05.4'	56°50.6'	S 8°05.4'	62°36.4'	S 11°46.5'	78°45.7'	S 16°29.8'	86°49.9'	S 18°37.6'	342°55.1'	N 20°58.7'
17	52°44.7'	S 8°04.4'	71°50.8'	S 8°04.4'	77°35.8'	S 11°45.4'	93°47.6'	S 16°29.6'	101°52.1'	S 18°37.5'	357°56.0'	N 20°59.1'
18	67°47.2'	S 8°03.5'	86°50.9'	S 8°03.5'	92°35.3'	S 11°44.3'	108°49.5'	S 16°29.4'	116°54.3'	S 18°37.5'	12°57.0'	N 20°59.4'
19	82°49.6'	S 8°02.5'	101°51.0'	S 8°02.5'	107°34.8'	S 11°43.2'	123°51.4'	S 16°29.3'	131°56.5'	S 18°37.4'	27°58.0'	N 20°59.7'
20	97°52.1'	S 8°01.6'	116°51.1'	S 8°01.6'	122°34.3'	S 11°42.1'	138°53.3'	S 16°29.1'	146°58.7'	S 18°37.3'	42°58.9'	N 21°00.1'
21	112°54.5'	S 8°00.7'	131°51.2'	S 8°00.7'	137°33.7'	S 11°41.0'	153°55.2'	S 16°28.9'	162°00.9'	S 18°37.3'	57°59.9'	N 21°00.4'
22	127°57.0'	S 7°59.7'	146°51.3'	S 7°59.7'	152°33.2'	S 11°39.9'	168°57.1'	S 16°28.8'	177°03.1'	S 18°37.2'	73°00.9'	N 21°00.7'
23	142°59.5'	S 7°58.8'	161°51.4'	S 7°58.8'	167°32.7'	S 11°38.8'	183°59.0'	S 16°28.6'	192°05.3'	S 18°37.1'	88°01.8'	N 21°01.1'
		SD 16.1' d 0.9'		v -0.5' d 1.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.0' d 0.3'		
Mer. pass.		12 h 12 m 40 s		11 h 49 m		10 h 46 m		10 h 14 m		17 h 8 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	359°16.5'	N 14°34.8'	9.4'	-12.5'	58.9'	86°18.8'	81°01.2'	53°56.4'	50°31.3'		40°21.7'	42°59.9'	63°45.0'
1	13°44.9'	N 14°22.3'	9.4'	-12.6'	58.9'	85°54.3'	80°41.7'	53°27.1'	49°56.3'		40°56.8'	43°30.9'	64°08.6'
2	28°13.2'	N 14°09.8'	9.4'	-12.7'	58.9'	85°29.8'	80°22.3'	52°57.9'	49°21.3'		41°32.0'	44°01.9'	64°32.4'
3	42°41.7'	N 13°57.1'	9.5'	-12.8'	59.0'	85°05.2'	80°02.9'	52°28.7'	48°46.3'		42°07.2'	44°33.1'	64°56.3'
4	57°10.1'	N 13°44.3'	9.5'	-12.8'	59.0'	84°40.6'	79°43.5'	51°59.6'	48°11.3'		42°42.5'	45°04.4'	65°20.3'
5	71°38.6'	N 13°31.5'	9.5'	-12.9'	59.0'	84°16.1'	79°24.2'	51°30.6'	47°36.2'	8°12.1'	43°17.7'	45°35.8'	65°44.4'
6	86°07.2'	N 13°18.5'	9.6'	-13.0'	59.0'	83°51.5'	79°04.8'	51°01.6'	47°01.1'	8°42.4'	43°53.0'	46°07.4'	66°08.6'
7	100°35.7'	N 13°05.5'	9.6'	-13.1'	59.1'	83°26.9'	78°45.6'	50°32.8'	46°26.0'	9°13.4'	44°28.4'	46°39.0'	66°32.9'
8	115°04.3'	N 12°52.4'	9.6'	-13.2'	59.1'	83°02.4'	78°26.3'	50°04.0'	45°50.9'	9°45.0'	45°03.7'	47°10.7'	66°57.3'
9	129°32.9'	N 12°39.2'	9.7'	-13.3'	59.1'	82°37.8'	78°07.1'	49°35.2'	45°15.7'	10°16.9'	45°39.1'	47°42.5'	67°21.8'
10	144°01.6'	N 12°25.9'	9.7'	-13.4'	59.1'	82°13.3'	77°47.9'	49°06.6'	44°40.5'	10°49.3'	46°14.6'	48°14.4'	67°46.5'
11	158°30.3'	N 12°12.6'	9.7'	-13.4'	59.2'	81°48.7'	77°28.8'	48°38.1'	44°05.3'	11°22.0'	46°50.0'	48°46.4'	68°11.2'
12	172°59.0'	N 11°59.2'	9.7'	-13.5'	59.2'	81°24.2'	77°09.7'	48°09.6'	43°30.1'	11°55.0'	47°25.5'	49°18.4'	68°36.0'
13	187°27.7'	N 11°45.7'	9.8'	-13.6'	59.2'	80°59.6'	76°50.6'	47°41.3'	42°54.9'	12°28.3'	48°01.0'	49°50.6'	69°00.9'
14	201°56.5'	N 11°32.1'	9.8'	-13.7'	59.2'	80°35.1'	76°31.6'	47°13.0'	42°19.6'	13°01.8'	48°36.6'	50°22.8'	69°25.9'
15	216°25.3'	N 11°18.4'	9.8'	-13.7'	59.3'	80°10.6'	76°12.7'	46°44.9'	41°44.3'	13°35.5'	49°12.2'	50°55.1'	69°51.0'
16	230°54.2'	N 11°04.7'	9.9'	-13.8'	59.3'	79°46.1'	75°53.8'	46°16.9'	41°09.1'	14°09.4'	49°47.8'	51°27.5'	70°16.2'
17	245°23.0'	N 10°50.9'	9.9'	-13.9'	59.3'	79°21.7'	75°34.9'	45°49.0'	40°33.8'	14°43.5'	50°23.4'	51°60.0'	70°41.4'
18	259°51.9'	N 10°37.0'	9.9'	-13.9'	59.3'	78°57.2'	75°16.1'	45°21.2'	39°58.5'	15°17.7'	50°59.1'	52°32.5'	71°06.8'
19	274°20.9'	N 10°23.0'	10.0'	-14.0'	59.3'	78°32.8'	74°57.4'	44°53.6'	39°23.1'	15°52.1'	51°34.8'	53°05.1'	71°32.2'
20	288°49.8'	N 10°09.0'	10.0'	-14.1'	59.4'	78°08.4'	74°38.7'	44°26.0'	38°47.8'	16°26.5'	52°10.5'	53°37.8'	71°57.7'
21	303°18.8'	N 9°54.9'	10.0'	-14.1'	59.4'	77°44.0'	74°20.1'	43°58.7'	38°12.4'	17°01.1'	52°46.2'	54°10.5'	72°23.3'
22	317°47.8'	N 9°40.8'	10.0'	-14.2'	59.4'	77°19.7'	74°01.6'	43°31.4'	37°37.1'	17°35.8'	53°22.0'	54°43.4'	72°48.9'
23	332°16.8'	N 9°26.6'	10.1'	-14.3'	59.4'	76°55.3'	73°43.1'	43°04.4'	37°01.7'	18°10.6'	53°57.8'	55°16.2'	73°14.6'
Mer. pass.		0 h 3 m SD 16.1' phase 100%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°38.5'	N 89°21.4'
Rigil Kent	-0.0	139°44.2'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.1'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	158°01.9'	176°51.6'	S 7°57.8'	182°32.2'	S 11°37.7'	199°00.9'	S 16°28.4'	207°07.5'	S 18°37.1'	103°02.8'	N 21°01.4'	
1	173°04.4'	191°51.7'	S 7°56.9'	197°31.7'	S 11°36.6'	214°02.8'	S 16°28.3'	222°09.6'	S 18°37.0'	118°03.8'	N 21°01.8'	
2	188°06.9'	206°51.8'	S 7°55.9'	212°31.1'	S 11°35.5'	229°04.6'	S 16°28.1'	237°11.8'	S 18°36.9'	133°04.7'	N 21°02.1'	
3	203°09.3'	221°51.9'	S 7°55.0'	227°30.6'	S 11°34.4'	244°06.5'	S 16°27.9'	252°14.0'	S 18°36.9'	148°05.7'	N 21°02.4'	
4	218°11.8'	236°52.0'	S 7°54.0'	242°30.1'	S 11°33.3'	259°08.4'	S 16°27.8'	267°16.2'	S 18°36.8'	163°06.7'	N 21°02.8'	
5	233°14.3'	251°52.1'	S 7°53.1'	257°29.6'	S 11°32.2'	274°10.3'	S 16°27.6'	282°18.4'	S 18°36.7'	178°07.6'	N 21°03.1'	
6	248°16.7'	266°52.3'	S 7°52.2'	272°29.1'	S 11°31.1'	289°12.2'	S 16°27.4'	297°20.6'	S 18°36.7'	193°08.6'	N 21°03.4'	
7	263°19.2'	281°52.4'	S 7°51.2'	287°28.5'	S 11°30.0'	304°14.1'	S 16°27.3'	312°22.8'	S 18°36.6'	208°09.5'	N 21°03.8'	
8	278°21.7'	296°52.5'	S 7°50.3'	302°28.0'	S 11°28.9'	319°16.0'	S 16°27.1'	327°25.0'	S 18°36.5'	223°10.5'	N 21°04.1'	
9	293°24.1'	311°52.6'	S 7°49.3'	317°27.5'	S 11°27.8'	334°17.9'	S 16°26.9'	342°27.2'	S 18°36.5'	238°11.5'	N 21°04.4'	
10	308°26.6'	326°52.7'	S 7°48.4'	332°27.0'	S 11°26.7'	349°19.8'	S 16°26.8'	357°29.3'	S 18°36.4'	253°12.4'	N 21°04.8'	
11	323°29.0'	341°52.9'	S 7°47.4'	347°26.5'	S 11°25.6'	4°21.7'	S 16°26.6'	12°31.5'	S 18°36.3'	268°13.4'	N 21°05.1'	
12	338°31.5'	356°53.0'	S 7°46.5'	2°25.9'	S 11°24.5'	19°23.6'	S 16°26.4'	27°33.7'	S 18°36.3'	283°14.4'	N 21°05.4'	
13	353°34.0'	11°53.1'	S 7°45.5'	17°25.4'	S 11°23.4'	34°25.5'	S 16°26.3'	42°35.9'	S 18°36.2'	298°15.3'	N 21°05.8'	
14	8°36.4'	26°53.2'	S 7°44.6'	32°24.9'	S 11°22.3'	49°27.4'	S 16°26.1'	57°38.1'	S 18°36.1'	313°16.3'	N 21°06.1'	
15	23°38.9'	41°53.3'	S 7°43.6'	47°24.4'	S 11°21.2'	64°29.3'	S 16°25.9'	72°40.3'	S 18°36.1'	328°17.2'	N 21°06.4'	
16	38°41.4'	56°53.4'	S 7°42.7'	62°23.9'	S 11°20.1'	79°31.2'	S 16°25.8'	87°42.5'	S 18°36.0'	343°18.2'	N 21°06.8'	
17	53°43.8'	71°53.6'	S 7°41.7'	77°23.4'	S 11°19.0'	94°33.1'	S 16°25.6'	102°44.7'	S 18°35.9'	358°19.2'	N 21°07.1'	
18	68°46.3'	86°53.7'	S 7°40.8'	92°22.9'	S 11°17.9'	109°35.0'	S 16°25.4'	117°46.9'	S 18°35.9'	13°20.1'	N 21°07.4'	
19	83°48.8'	101°53.8'	S 7°39.8'	107°22.3'	S 11°16.8'	124°36.9'	S 16°25.3'	132°49.1'	S 18°35.8'	28°21.1'	N 21°07.8'	
20	98°51.2'	116°53.9'	S 7°38.9'	122°21.8'	S 11°15.7'	139°38.8'	S 16°25.1'	147°51.2'	S 18°35.7'	43°22.1'	N 21°08.1'	
21	113°53.7'	131°54.0'	S 7°37.9'	137°21.3'	S 11°14.6'	154°40.7'	S 16°24.9'	162°53.4'	S 18°35.7'	58°23.0'	N 21°08.4'	
22	128°56.1'	146°54.2'	S 7°37.0'	152°20.8'	S 11°13.5'	169°42.6'	S 16°24.8'	177°55.6'	S 18°35.6'	73°24.0'	N 21°08.8'	
23	143°58.6'	161°54.3'	S 7°36.0'	167°20.3'	S 11°12.4'	184°44.5'	S 16°24.6'	192°57.8'	S 18°35.5'	88°24.9'	N 21°09.1'	
		SD 16.1' d 0.9'		v -0.5' d 1.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 1.0' d 0.3'		
Mer. pass.		12 h 12 m 29 s		11 h 50 m		10 h 43 m		10 h 10 m		17 h 7 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	346°45.9'	N 9°12.3'	10.1'	-14.3'	59.4'	76°31.0'	73°24.7'	42°37.5'	36°26.4'	18°45.5'	54°33.6'	55°49.2'	73°40.4'
1	1°15.0'	N 8°58.0'	10.1'	-14.4'	59.5'	76°06.8'	73°06.3'	42°10.7'	35°51.0'	19°20.4'	55°09.4'	56°22.2'	74°06.3'
2	15°44.1'	N 8°43.6'	10.1'	-14.4'	59.5'	75°42.6'	72°48.1'	41°44.1'	35°15.6'	19°55.5'	55°45.3'	56°55.2'	74°32.2'
3	30°13.2'	N 8°29.1'	10.2'	-14.5'	59.5'	75°18.4'	72°29.9'	41°17.7'	34°40.2'	20°30.6'	56°21.2'	57°28.3'	74°58.2'
4	44°42.4'	N 8°14.6'	10.2'	-14.6'	59.5'	74°54.2'	72°11.8'	40°51.5'	34°04.8'	21°05.8'	56°57.1'	58°01.5'	75°24.3'
5	59°11.6'	N 8°00.1'	10.2'	-14.6'	59.5'	74°30.1'	71°53.7'	40°25.5'	33°29.4'	21°41.0'	57°33.0'	58°34.7'	75°50.4'
6	73°40.7'	N 7°45.5'	10.2'	-14.7'	59.5'	74°06.1'	71°35.8'	39°59.6'	32°54.1'	22°16.3'	58°08.9'	59°08.0'	76°16.6'
7	88°10.0'	N 7°30.8'	10.2'	-14.7'	59.6'	73°42.1'	71°17.9'	39°34.0'	32°18.7'	22°51.6'	58°44.9'	59°41.3'	76°42.8'
8	102°39.2'	N 7°16.1'	10.3'	-14.8'	59.6'	73°18.1'	71°00.1'	39°08.6'	31°43.3'	23°27.0'	59°20.9'	60°14.7'	77°09.1'
9	117°08.5'	N 7°01.3'	10.3'	-14.8'	59.6'	72°54.2'	70°42.5'	38°43.4'	31°07.9'	24°02.5'	59°56.9'	60°48.1'	77°35.4'
10	131°37.7'	N 6°46.5'	10.3'	-14.9'	59.6'	72°30.4'	70°24.9'	38°18.5'	30°32.5'	24°38.0'	60°32.9'	61°21.6'	78°01.8'
11	146°07.0'	N 6°31.7'	10.3'	-14.9'	59.6'	72°06.6'	70°07.4'	37°53.8'	29°57.2'	25°13.5'	61°09.0'	61°55.1'	78°28.3'
12	160°36.4'	N 6°16.8'	10.3'	-14.9'	59.6'	71°42.8'	69°49.9'	37°29.3'	29°21.8'	25°49.1'	61°45.0'	62°28.7'	78°54.8'
13	175°05.7'	N 6°01.8'	10.3'	-15.0'	59.7'	71°19.1'	69°32.6'	37°05.1'	28°46.5'	26°24.8'	62°21.1'	63°02.3'	79°21.3'
14	189°35.0'	N 5°46.9'	10.4'	-15.0'	59.7'	70°55.5'	69°15.4'	36°41.2'	28°11.2'	27°00.4'	62°57.2'	63°35.9'	79°47.9'
15	204°04.4'	N 5°31.9'	10.4'	-15.1'	59.7'	70°32.0'	68°58.3'	36°17.6'	27°35.9'	27°36.1'	63°33.3'	64°09.6'	80°14.5'
16	218°33.8'	N 5°16.8'	10.4'	-15.1'	59.7'	70°08.5'	68°41.3'	35°54.2'	27°00.6'	28°11.9'	64°09.4'	64°43.3'	80°41.2'
17	233°03.2'	N 5°01.7'	10.4'	-15.1'	59.7'	69°45.1'	68°24.5'	35°31.2'	26°25.4'	28°47.6'	64°45.6'	65°17.1'	81°07.9'
18	247°32.6'	N 4°46.6'	10.4'	-15.2'	59.7'	69°21.7'	68°07.7'	35°08.4'	25°50.2'	29°23.4'	65°21.7'	65°50.8'	81°34.6'
19	262°02.0'	N 4°31.4'	10.4'	-15.2'	59.7'	68°58.5'	67°51.0'	34°46.0'	25°15.0'	29°59.3'	65°57.9'	66°24.7'	82°01.4'
20	276°31.4'	N 4°16.2'	10.4'	-15.2'	59.7'	68°35.3'	67°34.5'	34°23.9'	24°39.8'	30°35.1'	66°34.1'	66°58.5'	82°28.2'
21	291°00.8'	N 4°01.0'	10.4'	-15.2'	59.8'	68°12.2'	67°18.1'	34°02.2'	24°04.7'	31°11.0'	67°10.3'	67°32.4'	82°55.1'
22	305°30.3'	N 3°45.8'	10.5'	-15.3'	59.8'	67°49.2'	67°01.8'	33°40.9'	23°29.7'	31°46.9'	67°46.5'	68°06.4'	83°21.9'
23	319°59.7'	N 3°30.5'	10.5'	-15.3'	59.8'	67°26.2'	66°45.6'	33°19.9'	22°54.6'	32°22.9'	68°22.7'	68°40.3'	83°48.8'
Mer. pass.		0 h 55 m SD 16.2'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.8'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°12.8'	Capella	+0.1	280°26.4'	N 46°01.2'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°06.8'	S 8°10.9'
Vega	+0.0	80°35.5'	N 38°47.9'	Pollux	+1.2	243°20.9'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.7'	S 26°28.6'	Procyon	+0.4	244°53.9'	N 5°10.1'	Polaris	+2.0	315°39.0'	N 89°21.4'
Rigil Kent	-0.0	139°44.2'	S 60°55.0'	Adhara	+1.5	255°08.1'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°08.1'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.8'	S 16°44.9'				
Hadar	+0.6	148°40.0'	S 60°28.2'	Canopus	-0.6	263°53.5'	S 52°42.7'				