

Sunday 01 March 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	159°15.4'	S 7°29.5'	176°54.8'	S 7°29.5'	136°05.8'	N 10°52.2'	228°06.2'	S 22°01.2'	218°59.2'	S 20°32.8'	239°05.2'	S 23°31.1'
1	174°17.9'	S 7°28.5'	191°55.0'	S 7°28.5'	151°05.7'	N 10°53.4'	243°08.1'	S 22°01.1'	234°01.4'	S 20°32.8'	254°05.7'	S 23°31.1'
2	189°20.3'	S 7°27.6'	206°55.1'	S 7°27.6'	166°05.6'	N 10°54.6'	258°10.1'	S 22°01.0'	249°03.6'	S 20°32.7'	269°06.3'	S 23°31.0'
3	204°22.8'	S 7°26.6'	221°55.2'	S 7°26.6'	181°05.5'	N 10°55.8'	273°12.1'	S 22°01.0'	264°05.8'	S 20°32.7'	284°06.9'	S 23°30.9'
4	219°25.2'	S 7°25.7'	236°55.3'	S 7°25.7'	196°05.4'	N 10°57.0'	288°14.1'	S 22°00.9'	279°08.0'	S 20°32.6'	299°07.5'	S 23°30.8'
5	234°27.7'	S 7°24.7'	251°55.5'	S 7°24.7'	211°05.3'	N 10°58.2'	303°16.0'	S 22°00.9'	294°10.2'	S 20°32.6'	314°08.1'	S 23°30.7'
6	249°30.2'	S 7°23.8'	266°55.6'	S 7°23.8'	226°05.2'	N 10°59.4'	318°18.0'	S 22°00.8'	309°12.5'	S 20°32.5'	329°08.7'	S 23°30.6'
7	264°32.6'	S 7°22.8'	281°55.7'	S 7°22.8'	241°05.1'	N 11°00.6'	333°20.0'	S 22°00.7'	324°14.7'	S 20°32.5'	344°09.2'	S 23°30.6'
8	279°35.1'	S 7°21.8'	296°55.8'	S 7°21.8'	256°05.0'	N 11°01.8'	348°21.9'	S 22°00.7'	339°16.9'	S 20°32.4'	359°09.8'	S 23°30.5'
9	294°37.6'	S 7°20.9'	311°56.0'	S 7°20.9'	271°04.9'	N 11°03.0'	3°23.9'	S 22°00.6'	354°19.1'	S 20°32.4'	14°10.4'	S 23°30.4'
10	309°40.0'	S 7°19.9'	326°56.1'	S 7°19.9'	286°04.8'	N 11°04.2'	18°25.9'	S 22°00.5'	9°21.3'	S 20°32.3'	29°11.0'	S 23°30.3'
11	324°42.5'	S 7°19.0'	341°56.2'	S 7°19.0'	301°04.7'	N 11°05.4'	33°27.9'	S 22°00.5'	24°23.5'	S 20°32.3'	44°11.6'	S 23°30.2'
12	339°45.0'	S 7°18.0'	356°56.3'	S 7°18.0'	316°04.6'	N 11°06.6'	48°29.8'	S 22°00.4'	39°25.7'	S 20°32.3'	59°12.1'	S 23°30.1'
13	354°47.4'	S 7°17.1'	11°56.4'	S 7°17.1'	331°04.5'	N 11°07.8'	63°31.8'	S 22°00.4'	54°27.9'	S 20°32.2'	74°12.7'	S 23°30.1'
14	9°49.9'	S 7°16.1'	26°56.6'	S 7°16.1'	346°04.4'	N 11°09.0'	78°33.8'	S 22°00.3'	69°30.1'	S 20°32.2'	89°13.3'	S 23°30.0'
15	24°52.3'	S 7°15.2'	41°56.7'	S 7°15.2'	1°04.3'	N 11°10.2'	93°35.8'	S 22°00.2'	84°32.3'	S 20°32.1'	104°13.9'	S 23°29.9'
16	39°54.8'	S 7°14.2'	56°56.8'	S 7°14.2'	16°04.2'	N 11°11.4'	108°37.7'	S 22°00.2'	99°34.6'	S 20°32.1'	119°14.5'	S 23°29.8'
17	54°57.3'	S 7°13.3'	71°56.9'	S 7°13.3'	31°04.1'	N 11°12.6'	123°39.7'	S 22°00.1'	114°36.8'	S 20°32.0'	134°15.1'	S 23°29.7'
18	69°59.7'	S 7°12.3'	86°57.1'	S 7°12.3'	46°04.0'	N 11°13.8'	138°41.7'	S 22°00.1'	129°39.0'	S 20°32.0'	149°15.6'	S 23°29.6'
19	85°02.2'	S 7°11.4'	101°57.2'	S 7°11.4'	61°03.9'	N 11°15.0'	153°43.7'	S 21°60.0'	144°41.2'	S 20°31.9'	164°16.2'	S 23°29.5'
20	100°04.7'	S 7°10.4'	116°57.3'	S 7°10.4'	76°03.8'	N 11°16.2'	168°45.6'	S 21°59.9'	159°43.4'	S 20°31.9'	179°16.8'	S 23°29.4'
21	115°07.1'	S 7°09.4'	131°57.4'	S 7°09.4'	91°03.7'	N 11°17.4'	183°47.6'	S 21°59.9'	174°45.6'	S 20°31.8'	194°17.4'	S 23°29.4'
22	130°09.6'	S 7°08.5'	146°57.6'	S 7°08.5'	106°03.6'	N 11°18.6'	198°49.6'	S 21°59.8'	189°47.8'	S 20°31.8'	209°18.0'	S 23°29.3'
23	145°12.1'	S 7°07.5'	161°57.7'	S 7°07.5'	121°03.5'	N 11°19.8'	213°51.6'	S 21°59.7'	204°50.0'	S 20°31.8'	224°18.6'	S 23°29.2'
		SD 16.1' d 1.0'		v -0.1' d 1.2'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 12 m 15 s		14 h 56 m		8 h 46 m		9 h 23 m		8 h 3 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Betelgeuse	-Rigel	-Aldebaran	+Venus	+Sun	+Achernar	+Fomalhaut
0	110°30.1'	N 14°17.7'	13.9'	9.7'	54.7'	40°54.4'	40°07.6'	37°23.4'	19°53.5'	25°12.0'	69°22.4'	74°11.7'	75°42.0'
1	125°03.0'	N 14°27.4'	13.9'	9.6'	54.7'	40°30.8'	39°40.1'	37°05.7'	19°23.7'	25°38.6'	69°50.0'	74°27.8'	76°10.8'
2	139°35.9'	N 14°37.0'	13.8'	9.6'	54.8'	40°07.3'	39°12.6'	36°48.3'	18°53.9'	26°05.3'	70°17.7'	74°44.0'	76°39.7'
3	154°08.7'	N 14°46.6'	13.7'	9.5'	54.8'	39°43.9'	38°45.2'	36°31.0'	18°24.1'	26°32.0'	70°45.3'	75°00.2'	77°08.6'
4	168°41.4'	N 14°56.1'	13.7'	9.5'	54.8'	39°20.6'	38°17.8'	36°14.0'	17°54.4'	26°58.8'	71°13.0'	75°16.5'	77°37.5'
5	183°14.1'	N 15°05.6'	13.6'	9.4'	54.8'	38°57.4'	37°50.4'	35°57.2'	17°24.6'	27°25.6'	71°40.6'	75°32.8'	78°06.4'
6	197°46.7'	N 15°15.0'	13.5'	9.4'	54.8'	38°34.3'	37°23.1'	35°40.7'	16°54.9'	27°52.5'	72°08.4'	75°49.2'	78°35.4'
7	212°19.2'	N 15°24.4'	13.5'	9.3'	54.9'	38°11.4'	36°55.8'	35°24.4'	16°25.1'	28°19.4'	72°36.1'	76°05.7'	79°04.4'
8	226°51.7'	N 15°33.7'	13.4'	9.2'	54.9'	37°48.5'	36°28.6'	35°08.4'	15°55.4'	28°46.3'	73°03.8'	76°22.2'	79°33.4'
9	241°24.1'	N 15°42.9'	13.3'	9.2'	54.9'	37°25.9'	36°01.4'	34°52.7'	15°25.7'	29°13.3'	73°31.6'	76°38.8'	80°02.5'
10	255°56.4'	N 15°52.1'	13.3'	9.1'	54.9'	37°03.3'	35°34.3'	34°37.2'	14°56.0'	29°40.3'	73°59.4'	76°55.4'	80°31.5'
11	270°28.7'	N 16°01.2'	13.2'	9.0'	54.9'	36°40.9'	35°07.3'		14°26.3'	30°07.4'	74°27.2'	77°12.1'	81°00.6'
12	285°00.9'	N 16°10.2'	13.1'	9.0'	55.0'	36°18.7'	34°40.3'		13°56.7'	30°34.5'	74°55.1'	77°28.8'	81°29.8'
13	299°33.0'	N 16°19.2'	13.0'	8.9'	55.0'	35°56.6'	34°13.3'		13°27.1'	31°01.6'	75°23.0'	77°45.6'	81°58.9'
14	314°05.1'	N 16°28.1'	13.0'	8.9'	55.0'	35°34.7'	33°46.5'		12°57.5'	31°28.8'	75°50.9'	78°02.5'	82°28.1'
15	328°37.0'	N 16°37.0'	12.9'	8.8'	55.0'	35°12.9'	33°19.7'		12°28.0'	31°56.0'	76°18.8'	78°19.4'	82°57.3'
16	343°08.9'	N 16°45.8'	12.8'	8.7'	55.1'	34°51.3'	32°53.0'		11°58.6'	32°23.3'	76°46.7'	78°36.4'	83°26.5'
17	357°40.8'	N 16°54.5'	12.8'	8.6'	55.1'	34°29.9'	32°26.3'		11°29.2'	32°50.6'	77°14.7'	78°53.4'	83°55.8'
18	12°12.5'	N 17°03.1'	12.7'	8.6'	55.1'	34°08.7'	31°59.8'		10°59.9'	33°17.9'	77°42.7'	79°10.5'	84°25.1'
19	26°44.2'	N 17°11.7'	12.6'	8.5'	55.1'	33°47.6'	31°33.3'		10°30.7'	33°45.3'	78°10.7'	79°27.6'	84°54.4'
20	41°15.8'	N 17°20.2'	12.5'	8.4'	55.2'	33°26.8'	31°06.9'		10°01.7'	34°12.7'	78°38.8'	79°44.8'	85°23.8'
21	55°47.4'	N 17°28.6'	12.5'	8.4'	55.2'	33°06.2'	30°40.6'		9°32.7'	34°40.1'	79°06.9'	80°02.0'	85°53.1'
22	70°18.8'	N 17°37.0'	12.4'	8.3'	55.2'	32°45.8'	30°14.4'		9°03.9'	35°07.6'	79°35.0'	80°19.2'	86°22.6'
23	84°50.2'	N 17°45.3'	12.3'	8.2'	55.2'	32°25.6'	29°48.3'		8°35.4'	35°35.1'	80°03.1'	80°36.6'	86°52.0'
Mer. pass.		17 h 10 m SD 14.9'		phase 32%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.8'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.5'	N 46°01.1'
Altair	+0.8	62°04.0'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.6'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	315°58.1'	N 89°21.1'
Rigil Kent	-0.0	139°45.2'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.5'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°41.0'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars		
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	160°14.5'	176°57.8'	S 7°06.6'	136°03.4'	N 11°21.0'	228°53.5'	S 21°59.7'	219°52.2'	S 20°31.7'	239°19.1'	S 23°29.1'		
1	175°17.0'	191°58.0'	S 7°05.6'	151°03.3'	N 11°22.2'	243°55.5'	S 21°59.6'	234°54.5'	S 20°31.7'	254°19.7'	S 23°29.0'		
2	190°19.5'	206°58.1'	S 7°04.7'	166°03.2'	N 11°23.4'	258°57.5'	S 21°59.6'	249°56.7'	S 20°31.6'	269°20.3'	S 23°28.9'		
3	205°21.9'	221°58.2'	S 7°03.7'	181°03.1'	N 11°24.6'	273°59.5'	S 21°59.5'	264°58.9'	S 20°31.6'	284°20.9'	S 23°28.8'		
4	220°24.4'	236°58.3'	S 7°02.8'	196°03.0'	N 11°25.8'	289°01.4'	S 21°59.4'	280°01.1'	S 20°31.5'	299°21.5'	S 23°28.7'		
5	235°26.8'	251°58.5'	S 7°01.8'	211°02.9'	N 11°27.0'	304°03.4'	S 21°59.4'	295°03.3'	S 20°31.5'	314°22.1'	S 23°28.6'		
6	250°29.3'	266°58.6'	S 7°00.8'	226°02.8'	N 11°28.1'	319°05.4'	S 21°59.3'	310°05.5'	S 20°31.4'	329°22.6'	S 23°28.5'		
7	265°31.8'	281°58.7'	S 6°59.9'	241°02.7'	N 11°29.3'	334°07.4'	S 21°59.2'	325°07.7'	S 20°31.4'	344°23.2'	S 23°28.5'		
8	280°34.2'	296°58.9'	S 6°58.9'	256°02.6'	N 11°30.5'	349°09.4'	S 21°59.2'	340°09.9'	S 20°31.3'	359°23.8'	S 23°28.4'		
9	295°36.7'	311°59.0'	S 6°58.0'	271°02.5'	N 11°31.7'	4°11.3'	S 21°59.1'	355°12.1'	S 20°31.3'	14°24.4'	S 23°28.3'		
10	310°39.2'	326°59.1'	S 6°57.0'	286°02.4'	N 11°32.9'	19°13.3'	S 21°59.1'	10°14.4'	S 20°31.3'	29°25.0'	S 23°28.2'		
11	325°41.6'	341°59.2'	S 6°56.1'	301°02.3'	N 11°34.1'	34°15.3'	S 21°59.0'	25°16.6'	S 20°31.2'	44°25.6'	S 23°28.1'		
12	340°44.1'	356°59.4'	S 6°55.1'	316°02.2'	N 11°35.3'	49°17.3'	S 21°58.9'	40°18.8'	S 20°31.2'	59°26.1'	S 23°28.0'		
13	355°46.6'	11°59.5'	S 6°54.1'	331°02.1'	N 11°36.5'	64°19.2'	S 21°58.9'	55°21.0'	S 20°31.1'	74°26.7'	S 23°27.9'		
14	10°49.0'	26°59.6'	S 6°53.2'	346°02.1'	N 11°37.7'	79°21.2'	S 21°58.8'	70°23.2'	S 20°31.1'	89°27.3'	S 23°27.8'		
15	25°51.5'	41°59.8'	S 6°52.2'	1°02.0'	N 11°38.9'	94°23.2'	S 21°58.8'	85°25.4'	S 20°31.0'	104°27.9'	S 23°27.7'		
16	40°54.0'	56°59.9'	S 6°51.3'	16°01.9'	N 11°40.0'	109°25.2'	S 21°58.7'	100°27.6'	S 20°31.0'	119°28.5'	S 23°27.6'		
17	55°56.4'	72°00.0'	S 6°50.3'	31°01.8'	N 11°41.2'	124°27.2'	S 21°58.6'	115°29.8'	S 20°30.9'	134°29.1'	S 23°27.5'		
18	70°58.9'	87°00.1'	S 6°49.4'	46°01.7'	N 11°42.4'	139°29.1'	S 21°58.6'	130°32.1'	S 20°30.9'	149°29.6'	S 23°27.4'		
19	86°01.3'	102°00.3'	S 6°48.4'	61°01.6'	N 11°43.6'	154°31.1'	S 21°58.5'	145°34.3'	S 20°30.8'	164°30.2'	S 23°27.3'		
20	101°03.8'	117°00.4'	S 6°47.4'	76°01.5'	N 11°44.8'	169°33.1'	S 21°58.4'	160°36.5'	S 20°30.8'	179°30.8'	S 23°27.2'		
21	116°06.3'	132°00.5'	S 6°46.5'	91°01.4'	N 11°46.0'	184°35.1'	S 21°58.4'	175°38.7'	S 20°30.8'	194°31.4'	S 23°27.1'		
22	131°08.7'	147°00.7'	S 6°45.5'	106°01.3'	N 11°47.2'	199°37.1'	S 21°58.3'	190°40.9'	S 20°30.7'	209°32.0'	S 23°27.0'		
23	146°11.2'	162°00.8'	S 6°44.6'	121°01.2'	N 11°48.3'	214°39.0'	S 21°58.3'	205°43.1'	S 20°30.7'	224°32.6'	S 23°26.9'		
		SD 16.1'	d 1.0'	v -0.1'	d 1.2'		v 2.0'	d 0.1'		v 2.2'	d 0.0'	v 0.6'	d 0.1'
Mer. pass.		12 h 12 m 3 s		14 h 56 m		8 h 43 m		9 h 19 m		8 h 2 m			

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Pollux	-Capella	-Betelgeuse	-Aldebaran	+Venus	+Sun	+Achernar	+Fomalhaut
0	99°21.5'	N 17°53.5'	12.2'	8.1'	55.3'	51°53.8'	32°05.6'	29°22.4'	8°07.0'	36°02.7'	80°31.3'	80°53.9'	87°21.4'
1	113°52.7'	N 18°01.6'	12.2'	8.1'	55.3'	51°23.2'	31°45.9'	28°56.5'	7°39.0'	36°30.3'	80°59.5'	81°11.3'	87°50.9'
2	128°23.9'	N 18°09.7'	12.1'	8.0'	55.3'	50°52.5'	31°26.4'	28°30.8'	7°11.3'	36°57.9'	81°27.7'	81°28.8'	88°20.5'
3	142°55.0'	N 18°17.7'	12.0'	7.9'	55.4'	50°21.9'	31°07.2'	28°05.2'	6°44.0'	37°25.6'	81°56.0'	81°46.3'	88°50.0'
4	157°26.0'	N 18°25.6'	11.9'	7.8'	55.4'	49°51.2'	30°48.2'	27°39.7'	6°17.3'	37°53.3'	82°24.3'	82°03.8'	89°19.6'
5	171°56.9'	N 18°33.4'	11.8'	7.8'	55.4'	49°20.5'	30°29.6'	27°14.4'		38°21.1'	82°52.6'	82°21.4'	89°49.2'
6	186°27.7'	N 18°41.2'	11.8'	7.7'	55.4'	48°49.7'	30°11.2'	26°49.3'		38°48.9'	83°21.0'	82°39.1'	90°18.8'
7	200°58.5'	N 18°48.9'	11.7'	7.6'	55.5'	48°19.0'	29°53.1'	26°24.3'		39°16.7'	83°49.3'	82°56.7'	90°48.5'
8	215°29.1'	N 18°56.5'	11.6'	7.5'	55.5'	47°48.2'	29°35.3'	25°59.5'		39°44.6'	84°17.8'	83°14.5'	91°18.2'
9	229°59.7'	N 19°04.0'	11.5'	7.4'	55.5'	47°17.3'	29°17.8'	25°34.9'		40°12.5'	84°46.2'	83°32.2'	91°47.9'
10	244°30.3'	N 19°11.4'	11.4'	7.3'	55.6'	46°46.5'	29°00.6'	25°10.4'		40°40.4'	85°14.7'	83°50.0'	92°17.7'
11	259°00.7'	N 19°18.7'	11.4'	7.3'	55.6'	46°15.6'	28°43.8'	24°46.2'		41°08.4'	85°43.2'	84°07.8'	92°47.5'
12	273°31.0'	N 19°26.0'	11.3'	7.2'	55.6'	45°44.7'	28°27.4'	24°22.2'		41°36.4'	86°11.7'	84°25.7'	93°17.3'
13	288°01.3'	N 19°33.1'	11.2'	7.1'	55.6'	45°13.8'	28°11.3'	23°58.4'		42°04.5'	86°40.3'	84°43.6'	93°47.1'
14	302°31.5'	N 19°40.2'	11.1'	7.0'	55.7'	44°42.8'	27°55.5'	23°34.9'		42°32.6'	87°08.9'	85°01.6'	94°17.0'
15	317°01.6'	N 19°47.2'	11.0'	6.9'	55.7'	44°11.8'		23°11.6'		43°00.7'	87°37.5'	85°19.5'	94°46.9'
16	331°31.6'	N 19°54.1'	10.9'	6.8'	55.7'	43°40.8'		22°48.6'		43°28.9'	88°06.2'	85°37.6'	95°16.8'
17	346°01.6'	N 20°00.9'	10.9'	6.7'	55.8'	43°09.7'		22°26.0'		43°57.1'	88°34.9'	85°55.6'	95°46.8'
18	0°31.4'	N 20°07.6'	10.8'	6.6'	55.8'	42°38.6'		22°03.6'		44°25.4'	89°03.7'	86°13.7'	96°16.8'
19	15°01.2'	N 20°14.3'	10.7'	6.5'	55.8'	42°07.5'		21°41.5'		44°53.7'	89°32.4'	86°31.8'	96°46.8'
20	29°30.9'	N 20°20.8'	10.6'	6.4'	55.9'	41°36.4'		21°19.8'		45°22.0'	90°01.3'	86°50.0'	97°16.9'
21	44°00.5'	N 20°27.2'	10.5'	6.3'	55.9'	41°05.2'		20°58.4'		45°50.4'	90°30.1'	87°08.2'	97°47.0'
22	58°30.0'	N 20°33.6'	10.4'	6.2'	55.9'	40°34.0'		20°37.5'		46°18.8'	90°59.0'	87°26.4'	98°17.1'
23	72°59.5'	N 20°39.8'	10.4'	6.1'	56.0'	40°02.8'		20°16.9'		46°47.3'	91°27.9'	87°44.6'	98°47.3'
Mer. pass.		17 h 58 m SD 15.1'		phase 42%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°15.9'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.8'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°04.0'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.6'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	315°58.5'	N 89°21.1'
Rigil Kent	-0.0	139°45.2'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.5'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°41.0'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	161°13.7'	177°00.9' S	6°43.6'	136°01.1' N	11°49.5'	229°41.0' S	21°58.2'	220°45.3' S	20°30.6'	239°33.1' S	23°26.8'	
1	176°16.1'	192°01.1' S	6°42.6'	151°01.0' N	11°50.7'	244°43.0' S	21°58.1'	235°47.6' S	20°30.6'	254°33.7' S	23°26.7'	
2	191°18.6'	207°01.2' S	6°41.7'	166°00.9' N	11°51.9'	259°45.0' S	21°58.1'	250°49.8' S	20°30.5'	269°34.3' S	23°26.6'	
3	206°21.1'	222°01.3' S	6°40.7'	181°00.8' N	11°53.1'	274°47.0' S	21°58.0'	265°52.0' S	20°30.5'	284°34.9' S	23°26.5'	
4	221°23.5'	237°01.5' S	6°39.8'	196°00.7' N	11°54.3'	289°48.9' S	21°57.9'	280°54.2' S	20°30.4'	299°35.5' S	23°26.4'	
5	236°26.0'	252°01.6' S	6°38.8'	211°00.6' N	11°55.4'	304°50.9' S	21°57.9'	295°56.4' S	20°30.4'	314°36.1' S	23°26.3'	
6	251°28.4'	267°01.7' S	6°37.8'	226°00.5' N	11°56.6'	319°52.9' S	21°57.8'	310°58.6' S	20°30.3'	329°36.6' S	23°26.2'	
7	266°30.9'	282°01.9' S	6°36.9'	241°00.4' N	11°57.8'	334°54.9' S	21°57.8'	326°00.8' S	20°30.3'	344°37.2' S	23°26.1'	
8	281°33.4'	297°02.0' S	6°35.9'	256°00.3' N	11°59.0'	349°56.9' S	21°57.7'	341°03.1' S	20°30.3'	359°37.8' S	23°26.0'	
9	296°35.8'	312°02.1' S	6°35.0'	271°00.2' N	12°00.2'	4°58.8' S	21°57.6'	356°05.3' S	20°30.2'	14°38.4' S	23°25.9'	
10	311°38.3'	327°02.3' S	6°34.0'	286°00.1' N	12°01.3'	20°00.8' S	21°57.6'	11°07.5' S	20°30.2'	29°39.0' S	23°25.8'	
11	326°40.8'	342°02.4' S	6°33.0'	301°00.0' N	12°02.5'	35°02.8' S	21°57.5'	26°09.7' S	20°30.1'	44°39.6' S	23°25.7'	
12	341°43.2'	357°02.5' S	6°32.1'	315°59.9' N	12°03.7'	50°04.8' S	21°57.5'	41°11.9' S	20°30.1'	59°40.1' S	23°25.6'	
13	356°45.7'	12°02.7' S	6°31.1'	330°59.8' N	12°04.9'	65°06.8' S	21°57.4'	56°14.1' S	20°30.0'	74°40.7' S	23°25.5'	
14	11°48.2'	27°02.8' S	6°30.1'	345°59.7' N	12°06.1'	80°08.8' S	21°57.3'	71°16.3' S	20°30.0'	89°41.3' S	23°25.4'	
15	26°50.6'	42°02.9' S	6°29.2'	0°59.6' N	12°07.2'	95°10.7' S	21°57.3'	86°18.6' S	20°29.9'	104°41.9' S	23°25.3'	
16	41°53.1'	57°03.1' S	6°28.2'	15°59.5' N	12°08.4'	110°12.7' S	21°57.2'	101°20.8' S	20°29.9'	119°42.5' S	23°25.2'	
17	56°55.6'	72°03.2' S	6°27.3'	30°59.5' N	12°09.6'	125°14.7' S	21°57.1'	116°23.0' S	20°29.9'	134°43.1' S	23°25.1'	
18	71°58.0'	87°03.3' S	6°26.3'	45°59.4' N	12°10.8'	140°16.7' S	21°57.1'	131°25.2' S	20°29.8'	149°43.6' S	23°25.0'	
19	87°00.5'	102°03.5' S	6°25.3'	60°59.3' N	12°11.9'	155°18.7' S	21°57.0'	146°27.4' S	20°29.8'	164°44.2' S	23°24.9'	
20	102°02.9'	117°03.6' S	6°24.4'	75°59.2' N	12°13.1'	170°20.7' S	21°57.0'	161°29.6' S	20°29.7'	179°44.8' S	23°24.8'	
21	117°05.4'	132°03.8' S	6°23.4'	90°59.1' N	12°14.3'	185°22.6' S	21°56.9'	176°31.9' S	20°29.7'	194°45.4' S	23°24.7'	
22	132°07.9'	147°03.9' S	6°22.4'	105°59.0' N	12°15.5'	200°24.6' S	21°56.8'	191°34.1' S	20°29.6'	209°46.0' S	23°24.6'	
23	147°10.3'	162°04.0' S	6°21.5'	120°58.9' N	12°16.6'	215°26.6' S	21°56.8'	206°36.3' S	20°29.6'	224°46.6' S	23°24.5'	
		SD 16.1' d 1.0'		v -0.1' d 1.2'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 11 m 50 s		14 h 56 m		8 h 40 m		9 h 16 m		8 h 1 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Venus	+Achernar	+Sun
0	87°28.8' N	20°46.0'	10.3'	6.0'	56.0'	75°18.8'	43°01.2'	39°31.5'	19°56.8'		47°15.8'	88°02.9'	91°56.9'
1	101°58.1' N	20°52.0'	10.2'	5.9'	56.0'	74°47.2'	42°33.0'	39°00.2'	19°37.1'	6°26.0'	47°44.3'	88°21.2'	92°25.9'
2	116°27.3' N	20°58.0'	10.1'	5.8'	56.1'	74°15.6'	42°04.8'	38°28.9'	19°18.0'	6°53.6'	48°12.9'	88°39.5'	92°54.9'
3	130°56.4' N	21°03.8'	10.0'	5.7'	56.1'	73°44.0'	41°36.6'	37°57.6'	18°59.3'	7°21.8'	48°41.5'	88°57.9'	93°24.0'
4	145°25.4' N	21°09.6'	9.9'	5.6'	56.1'	73°12.4'	41°08.4'	37°26.2'	18°41.2'	7°50.4'	49°10.2'	89°16.2'	93°53.1'
5	159°54.4' N	21°15.2'	9.9'	5.5'	56.2'	72°40.7'	40°40.3'	36°54.8'	18°23.7'	8°19.5'	49°38.9'	89°34.6'	94°22.2'
6	174°23.2' N	21°20.7'	9.8'	5.4'	56.2'	72°09.0'	40°12.2'	36°23.3'	18°06.7'	8°48.9'	50°07.7'	89°53.1'	94°51.4'
7	188°52.0' N	21°26.2'	9.7'	5.3'	56.2'	71°37.2'	39°44.2'	35°51.9'	17°50.4'	9°18.6'	50°36.4'	90°11.5'	95°20.6'
8	203°20.7' N	21°31.5'	9.6'	5.2'	56.3'	71°05.4'	39°16.2'	35°20.4'		9°48.5'	51°05.3'	90°30.0'	95°49.9'
9	217°49.3' N	21°36.7'	9.5'	5.1'	56.3'	70°33.6'	38°48.3'	34°48.8'		10°18.7'	51°34.2'	90°48.5'	96°19.2'
10	232°17.8' N	21°41.8'	9.4'	5.0'	56.3'	70°01.7'	38°20.4'	34°17.3'		10°49.1'	52°03.1'	91°07.0'	96°48.5'
11	246°46.3' N	21°46.8'	9.4'	4.9'	56.4'	69°29.8'	37°52.5'	33°45.7'		11°19.7'	52°32.1'	91°25.5'	97°17.9'
12	261°14.7' N	21°51.7'	9.3'	4.8'	56.4'	68°57.8'	37°24.8'	33°14.1'		11°50.4'	53°01.1'	91°44.1'	97°47.3'
13	275°42.9' N	21°56.5'	9.2'	4.7'	56.4'	68°25.8'	36°57.1'	32°42.4'		12°21.3'	53°30.1'	92°02.7'	98°16.8'
14	290°11.1' N	22°01.2'	9.1'	4.6'	56.5'	67°53.8'	36°29.4'	32°10.8'		12°52.3'	53°59.2'	92°21.2'	98°46.3'
15	304°39.2' N	22°05.7'	9.0'	4.4'	56.5'	67°21.7'	36°01.8'	31°39.1'		13°23.5'	54°28.4'	92°39.8'	99°15.8'
16	319°07.3' N	22°10.2'	9.0'	4.3'	56.5'	66°49.5'	35°34.3'	31°07.4'		13°54.7'	54°57.6'	92°58.5'	99°45.4'
17	333°35.2' N	22°14.5'	8.9'	4.2'	56.6'	66°17.4'	35°06.9'	30°35.6'		14°26.1'	55°26.8'	93°17.1'	100°15.1'
18	348°03.1' N	22°18.7'	8.8'	4.1'	56.6'	65°45.2'	34°39.6'	30°03.8'		14°57.5'	55°56.1'	93°35.7'	100°44.7'
19	2°30.9' N	22°22.8'	8.7'	4.0'	56.6'	65°12.9'	34°12.4'	29°32.0'		15°29.1'	56°25.4'	93°54.4'	101°14.4'
20	16°58.6' N	22°26.8'	8.6'	3.9'	56.7'	64°40.6'	33°45.2'	29°00.2'		16°00.8'	56°54.8'	94°13.1'	101°44.2'
21	31°26.2' N	22°30.6'	8.6'	3.7'	56.7'	64°08.3'	33°18.2'	28°28.3'		16°32.5'	57°24.2'	94°31.7'	102°14.0'
22	45°53.8' N	22°34.4'	8.5'	3.6'	56.8'	63°35.9'	32°51.2'	27°56.5'		17°04.3'	57°53.6'	94°50.4'	102°43.8'
23	60°21.3' N	22°38.0'	8.4'	3.5'	56.8'	63°03.5'	32°24.4'	27°24.6'		17°36.2'	58°23.1'	95°09.1'	103°13.7'
Mer. pass.		18 h 50 m SD 15.3'		phase 52%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°15.9'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.8'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°04.0'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.6'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	315°58.9'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°41.0'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	162°12.8'	S 6°20.5'	177°04.2'	S 6°20.5'	135°58.8'	N 12°17.8'	230°28.6'	S 21°56.7'	221°38.5'	S 20°29.5'	239°47.1'	S 23°24.4'
1	177°15.3'	S 6°19.6'	192°04.3'	S 6°19.6'	150°58.7'	N 12°19.0'	245°30.6'	S 21°56.6'	236°40.7'	S 20°29.5'	254°47.7'	S 23°24.3'
2	192°17.7'	S 6°18.6'	207°04.4'	S 6°18.6'	165°58.6'	N 12°20.1'	260°32.6'	S 21°56.6'	251°42.9'	S 20°29.5'	269°48.3'	S 23°24.2'
3	207°20.2'	S 6°17.6'	222°04.6'	S 6°17.6'	180°58.5'	N 12°21.3'	275°34.5'	S 21°56.5'	266°45.2'	S 20°29.4'	284°48.9'	S 23°24.1'
4	222°22.7'	S 6°16.7'	237°04.7'	S 6°16.7'	195°58.4'	N 12°22.5'	290°36.5'	S 21°56.5'	281°47.4'	S 20°29.4'	299°49.5'	S 23°24.0'
5	237°25.1'	S 6°15.7'	252°04.8'	S 6°15.7'	210°58.3'	N 12°23.7'	305°38.5'	S 21°56.4'	296°49.6'	S 20°29.3'	314°50.1'	S 23°23.8'
6	252°27.6'	S 6°14.7'	267°05.0'	S 6°14.7'	225°58.2'	N 12°24.8'	320°40.5'	S 21°56.3'	311°51.8'	S 20°29.3'	329°50.6'	S 23°23.7'
7	267°30.1'	S 6°13.8'	282°05.1'	S 6°13.8'	240°58.1'	N 12°26.0'	335°42.5'	S 21°56.3'	326°54.0'	S 20°29.2'	344°51.2'	S 23°23.6'
8	282°32.5'	S 6°12.8'	297°05.3'	S 6°12.8'	255°58.0'	N 12°27.2'	350°44.5'	S 21°56.2'	341°56.2'	S 20°29.2'	359°51.8'	S 23°23.5'
9	297°35.0'	S 6°11.8'	312°05.4'	S 6°11.8'	270°57.9'	N 12°28.3'	5°46.5'	S 21°56.2'	356°58.5'	S 20°29.1'	14°52.4'	S 23°23.4'
10	312°37.4'	S 6°10.9'	327°05.5'	S 6°10.9'	285°57.8'	N 12°29.5'	20°48.4'	S 21°56.1'	12°00.7'	S 20°29.1'	29°53.0'	S 23°23.3'
11	327°39.9'	S 6°09.9'	342°05.7'	S 6°09.9'	300°57.7'	N 12°30.7'	35°50.4'	S 21°56.0'	27°02.9'	S 20°29.0'	44°53.6'	S 23°23.2'
12	342°42.4'	S 6°08.9'	357°05.8'	S 6°08.9'	315°57.7'	N 12°31.8'	50°52.4'	S 21°56.0'	42°05.1'	S 20°29.0'	59°54.2'	S 23°23.1'
13	357°44.8'	S 6°08.0'	12°06.0'	S 6°08.0'	330°57.6'	N 12°33.0'	65°54.4'	S 21°55.9'	57°07.3'	S 20°29.0'	74°54.7'	S 23°23.0'
14	12°47.3'	S 6°07.0'	27°06.1'	S 6°07.0'	345°57.5'	N 12°34.2'	80°56.4'	S 21°55.8'	72°09.5'	S 20°28.9'	89°55.3'	S 23°22.9'
15	27°49.8'	S 6°06.1'	42°06.2'	S 6°06.1'	0°57.4'	N 12°35.3'	95°58.4'	S 21°55.8'	87°11.8'	S 20°28.9'	104°55.9'	S 23°22.7'
16	42°52.2'	S 6°05.1'	57°06.4'	S 6°05.1'	15°57.3'	N 12°36.5'	111°00.4'	S 21°55.7'	102°14.0'	S 20°28.8'	119°56.5'	S 23°22.6'
17	57°54.7'	S 6°04.1'	72°06.5'	S 6°04.1'	30°57.2'	N 12°37.7'	126°02.4'	S 21°55.7'	117°16.2'	S 20°28.8'	134°57.1'	S 23°22.5'
18	72°57.2'	S 6°03.2'	87°06.7'	S 6°03.2'	45°57.1'	N 12°38.8'	141°04.3'	S 21°55.6'	132°18.4'	S 20°28.7'	149°57.7'	S 23°22.4'
19	87°59.6'	S 6°02.2'	102°06.8'	S 6°02.2'	60°57.0'	N 12°40.0'	156°06.3'	S 21°55.5'	147°20.6'	S 20°28.7'	164°58.2'	S 23°22.3'
20	103°02.1'	S 6°01.2'	117°06.9'	S 6°01.2'	75°56.9'	N 12°41.2'	171°08.3'	S 21°55.5'	162°22.8'	S 20°28.6'	179°58.8'	S 23°22.2'
21	118°04.6'	S 6°00.3'	132°07.1'	S 6°00.3'	90°56.8'	N 12°42.3'	186°10.3'	S 21°55.4'	177°25.1'	S 20°28.6'	194°59.4'	S 23°22.1'
22	133°07.0'	S 5°59.3'	147°07.2'	S 5°59.3'	105°56.7'	N 12°43.5'	201°12.3'	S 21°55.4'	192°27.3'	S 20°28.6'	209°60.0'	S 23°21.9'
23	148°09.5'	S 5°58.3'	162°07.4'	S 5°58.3'	120°56.6'	N 12°44.7'	216°14.3'	S 21°55.3'	207°29.5'	S 20°28.5'	225°00.6'	S 23°21.8'
		SD 16.1' d 1.0'		v -0.1' d 1.2'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 11 m 37 s		14 h 56 m		8 h 37 m		9 h 12 m		8 h 1 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Aldebaran	+Capella	+Sun
0	74°48.7'	N 22°41.5'	8.3'	3.4'	56.8'	113°17.9'	62°31.0'	31°57.7'	26°52.7'		18°08.2'		103°43.6'
1	89°16.0'	N 22°44.9'	8.2'	3.2'	56.9'	112°49.3'	61°58.5'	31°31.1'	26°20.7'		18°40.3'		104°13.6'
2	103°43.2'	N 22°48.1'	8.2'	3.1'	56.9'	112°20.5'	61°26.0'	31°04.7'	25°48.8'		19°12.4'		104°43.6'
3	118°10.4'	N 22°51.2'	8.1'	3.0'	56.9'	111°51.7'	60°53.4'	30°38.4'	25°16.8'		19°44.6'		105°13.7'
4	132°37.5'	N 22°54.2'	8.0'	2.9'	57.0'	111°22.8'	60°20.8'	30°12.2'	24°44.8'		20°16.9'		105°43.8'
5	147°04.5'	N 22°57.1'	7.9'	2.7'	57.0'	110°53.9'	59°48.1'	29°46.2'	24°12.8'		20°49.2'		106°13.9'
6	161°31.5'	N 22°59.8'	7.9'	2.6'	57.1'	110°24.8'	59°15.4'	29°20.4'	23°40.8'		21°21.6'		106°44.1'
7	175°58.3'	N 23°02.5'	7.8'	2.5'	57.1'	109°55.8'	58°42.6'	28°54.8'	23°08.8'		21°54.1'		107°14.3'
8	190°25.1'	N 23°04.9'	7.7'	2.4'	57.1'	109°26.6'	58°09.8'	28°29.3'	22°36.8'		22°26.6'		107°44.6'
9	204°51.9'	N 23°07.3'	7.7'	2.2'	57.2'	108°57.4'	57°36.9'	28°04.0'	22°04.7'		22°59.2'		108°14.9'
10	219°18.5'	N 23°09.5'	7.6'	2.1'	57.2'	108°28.1'	57°04.0'	27°39.0'	21°32.7'		23°31.9'		108°45.3'
11	233°45.1'	N 23°11.6'	7.5'	2.0'	57.3'	107°58.8'	56°31.0'	27°14.2'	21°00.7'		24°04.6'		109°15.7'
12	248°11.6'	N 23°13.6'	7.4'	1.8'	57.3'	107°29.4'	55°58.0'	26°49.6'	20°28.6'		24°37.4'		109°46.2'
13	262°38.1'	N 23°15.4'	7.4'	1.7'	57.3'	106°59.9'	55°25.0'	26°25.3'	19°56.6'		25°10.2'		110°16.7'
14	277°04.5'	N 23°17.1'	7.3'	1.6'	57.4'	106°30.4'	54°51.9'	26°01.2'	19°24.6'		25°43.1'		110°47.3'
15	291°30.8'	N 23°18.6'	7.2'	1.4'	57.4'	106°00.8'	54°18.8'	25°37.5'	18°52.6'		26°16.1'		111°17.9'
16	305°57.0'	N 23°20.0'	7.2'	1.3'	57.5'	105°31.1'	53°45.6'	25°14.0'	18°20.7'		26°49.1'		111°48.5'
17	320°23.2'	N 23°21.3'	7.1'	1.1'	57.5'	105°01.4'	53°12.4'	24°50.8'	17°48.8'	17°53.9'	27°22.2'		112°19.2'
18	334°49.3'	N 23°22.5'	7.1'	1.0'	57.5'	104°31.6'	52°39.1'	24°28.0'	17°16.9'	18°11.2'	27°55.3'	27°10.2'	112°50.0'
19	349°15.4'	N 23°23.5'	7.0'	0.9'	57.6'	104°01.8'	52°05.8'	24°05.5'	16°45.0'	18°29.2'	28°28.5'	27°25.7'	113°20.7'
20	3°41.4'	N 23°24.3'	6.9'	0.7'	57.6'	103°31.9'	51°32.4'	23°43.4'	16°13.3'	18°47.9'	29°01.8'	27°41.7'	113°51.6'
21	18°07.3'	N 23°25.0'	6.9'	0.6'	57.7'	103°01.9'	50°59.0'	23°21.7'	15°41.5'	19°07.3'	29°35.1'	27°58.2'	114°22.5'
22	32°33.2'	N 23°25.6'	6.8'	0.4'	57.7'	102°31.9'	50°25.5'	23°00.4'	15°09.9'	19°27.3'	30°08.4'	28°15.2'	114°53.4'
23	46°59.0'	N 23°26.1'	6.8'	0.3'	57.7'	102°01.8'	49°52.0'	22°39.6'	14°38.4'	19°48.0'	30°41.8'	28°32.7'	115°24.4'
Mer. pass.		19 h 45 m SD 15.5'		phase 62%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°15.9'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.8'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°04.0'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.0'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.6'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	315°59.2'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°41.0'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	163°11.9'	177°07.5'	S 5°57.4'	135°56.5'	N 12°45.8'	231°16.3'	S 21°55.2'	222°31.7'	S 20°28.5'	240°01.2'	S 23°21.7'
1	178°14.4'	192°07.6'	S 5°56.4'	150°56.4'	N 12°47.0'	246°18.3'	S 21°55.2'	237°33.9'	S 20°28.4'	255°01.8'	S 23°21.6'
2	193°16.9'	207°07.8'	S 5°55.4'	165°56.3'	N 12°48.1'	261°20.3'	S 21°55.1'	252°36.2'	S 20°28.4'	270°02.3'	S 23°21.5'
3	208°19.3'	222°07.9'	S 5°54.5'	180°56.2'	N 12°49.3'	276°22.2'	S 21°55.0'	267°38.4'	S 20°28.3'	285°02.9'	S 23°21.4'
4	223°21.8'	237°08.1'	S 5°53.5'	195°56.2'	N 12°50.5'	291°24.2'	S 21°55.0'	282°40.6'	S 20°28.3'	300°03.5'	S 23°21.3'
5	238°24.3'	252°08.2'	S 5°52.5'	210°56.1'	N 12°51.6'	306°26.2'	S 21°54.9'	297°42.8'	S 20°28.2'	315°04.1'	S 23°21.1'
6	253°26.7'	267°08.4'	S 5°51.6'	225°56.0'	N 12°52.8'	321°28.2'	S 21°54.9'	312°45.0'	S 20°28.2'	330°04.7'	S 23°21.0'
7	268°29.2'	282°08.5'	S 5°50.6'	240°55.9'	N 12°53.9'	336°30.2'	S 21°54.8'	327°47.3'	S 20°28.2'	345°05.3'	S 23°20.9'
8	283°31.7'	297°08.6'	S 5°49.6'	255°55.8'	N 12°55.1'	351°32.2'	S 21°54.7'	342°49.5'	S 20°28.1'	0°05.8'	S 23°20.8'
9	298°34.1'	312°08.8'	S 5°48.7'	270°55.7'	N 12°56.2'	6°34.2'	S 21°54.7'	357°51.7'	S 20°28.1'	15°06.4'	S 23°20.7'
10	313°36.6'	327°08.9'	S 5°47.7'	285°55.6'	N 12°57.4'	21°36.2'	S 21°54.6'	12°53.9'	S 20°28.0'	30°07.0'	S 23°20.5'
11	328°39.0'	342°09.1'	S 5°46.7'	300°55.5'	N 12°58.6'	36°38.2'	S 21°54.5'	27°56.1'	S 20°28.0'	45°07.6'	S 23°20.4'
12	343°41.5'	357°09.2'	S 5°45.7'	315°55.4'	N 12°59.7'	51°40.2'	S 21°54.5'	42°58.4'	S 20°27.9'	60°08.2'	S 23°20.3'
13	358°44.0'	12°09.4'	S 5°44.8'	330°55.3'	N 13°00.9'	66°42.2'	S 21°54.4'	58°00.6'	S 20°27.9'	75°08.8'	S 23°20.2'
14	13°46.4'	27°09.5'	S 5°43.8'	345°55.2'	N 13°02.0'	81°44.1'	S 21°54.4'	73°02.8'	S 20°27.8'	90°09.4'	S 23°20.1'
15	28°48.9'	42°09.7'	S 5°42.8'	0°55.1'	N 13°03.2'	96°46.1'	S 21°54.3'	88°05.0'	S 20°27.8'	105°09.9'	S 23°19.9'
16	43°51.4'	57°09.8'	S 5°41.9'	15°55.0'	N 13°04.3'	111°48.1'	S 21°54.2'	103°07.2'	S 20°27.8'	120°10.5'	S 23°19.8'
17	58°53.8'	72°09.9'	S 5°40.9'	30°55.0'	N 13°05.5'	126°50.1'	S 21°54.2'	118°09.5'	S 20°27.7'	135°11.1'	S 23°19.7'
18	73°56.3'	87°10.1'	S 5°39.9'	45°54.9'	N 13°06.6'	141°52.1'	S 21°54.1'	133°11.7'	S 20°27.7'	150°11.7'	S 23°19.6'
19	88°58.8'	102°10.2'	S 5°39.0'	60°54.8'	N 13°07.8'	156°54.1'	S 21°54.1'	148°13.9'	S 20°27.6'	165°12.3'	S 23°19.5'
20	104°01.2'	117°10.4'	S 5°38.0'	75°54.7'	N 13°08.9'	171°56.1'	S 21°54.0'	163°16.1'	S 20°27.6'	180°12.9'	S 23°19.3'
21	119°03.7'	132°10.5'	S 5°37.0'	90°54.6'	N 13°10.1'	186°58.1'	S 21°53.9'	178°18.3'	S 20°27.5'	195°13.5'	S 23°19.2'
22	134°06.2'	147°10.7'	S 5°36.1'	105°54.5'	N 13°11.2'	202°00.1'	S 21°53.9'	193°20.6'	S 20°27.5'	210°14.0'	S 23°19.1'
23	149°08.6'	162°10.8'	S 5°35.1'	120°54.4'	N 13°12.4'	217°02.1'	S 21°53.8'	208°22.8'	S 20°27.5'	225°14.6'	S 23°19.0'
		SD 16.1' d 1.0'		v -0.1' d 1.2'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'	
Mer. pass.		12 h 11 m 23 s		14 h 56 m		8 h 34 m		9 h 9 m		8 h 0 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	61°24.8'	N 23°26.4'	6.7'	0.2'	57.8'	101°31.7'	49°18.5'	22°19.2'	14°07.0'	20°09.2'	28°50.7'	31°15.3'	115°55.4'
1	75°50.5'	N 23°26.5'	6.7'	0.0'	57.8'	101°01.5'	48°44.8'	21°59.3'	13°35.7'	20°31.0'	29°09.1'	31°48.8'	116°26.5'
2	90°16.1'	N 23°26.5'	6.6'	-0.1'	57.9'	100°31.3'	48°11.2'	21°39.9'	13°04.5'	20°53.4'	29°27.9'	32°22.4'	116°57.6'
3	104°41.7'	N 23°26.4'	6.5'	-0.3'	57.9'	100°01.0'	47°37.5'	21°21.0'	12°33.6'	21°16.3'	29°47.2'	32°56.0'	117°28.8'
4	119°07.3'	N 23°26.1'	6.5'	-0.4'	57.9'	99°30.6'	47°03.8'	21°02.7'	12°02.8'	21°39.6'	30°06.9'	33°29.7'	118°00.0'
5	133°32.8'	N 23°25.7'	6.4'	-0.6'	58.0'	99°00.2'	46°30.0'	20°45.1'	11°32.3'	22°03.4'	30°27.0'	34°03.5'	118°31.3'
6	147°58.2'	N 23°25.1'	6.4'	-0.7'	58.0'	98°29.7'	45°56.1'	20°28.0'	11°02.1'	22°27.7'	30°47.5'	34°37.3'	119°02.6'
7	162°23.6'	N 23°24.4'	6.3'	-0.9'	58.1'	97°59.2'	45°22.2'	20°11.6'	10°32.2'	22°52.4'	31°08.3'	35°11.1'	119°34.0'
8	176°49.0'	N 23°23.5'	6.3'	-1.0'	58.1'	97°28.6'	44°48.3'		10°02.7'	23°17.5'	31°29.6'	35°45.0'	
9	191°14.3'	N 23°22.5'	6.3'	-1.2'	58.1'	96°58.0'	44°14.3'		9°33.7'	23°43.0'	31°51.2'	36°19.0'	
10	205°39.5'	N 23°21.4'	6.2'	-1.3'	58.2'	96°27.3'	43°40.3'		9°05.2'	24°08.9'	32°13.2'	36°53.0'	
11	220°04.8'	N 23°20.0'	6.2'	-1.5'	58.2'	95°56.5'	43°06.2'		8°37.3'	24°35.1'	32°35.5'	37°27.1'	
12	234°29.9'	N 23°18.6'	6.1'	-1.6'	58.3'	95°25.7'	42°32.1'			25°01.7'	32°58.2'	38°01.2'	
13	248°55.1'	N 23°17.0'	6.1'	-1.8'	58.3'	94°54.9'	41°57.9'			25°28.6'	33°21.1'	38°35.4'	
14	263°20.2'	N 23°15.2'	6.1'	-1.9'	58.3'	94°24.0'	41°23.7'			25°55.8'	33°44.4'	39°09.6'	
15	277°45.2'	N 23°13.3'	6.0'	-2.1'	58.4'	93°53.1'	40°49.4'			26°23.3'	34°08.1'	39°43.9'	
16	292°10.2'	N 23°11.3'	6.0'	-2.2'	58.4'	93°22.1'	40°15.1'			26°51.1'	34°32.0'	40°18.3'	
17	306°35.2'	N 23°09.0'	5.9'	-2.4'	58.5'	92°51.0'	39°40.7'			27°19.2'	34°56.2'	40°52.7'	
18	321°00.2'	N 23°06.7'	5.9'	-2.5'	58.5'	92°19.9'	39°06.3'			27°47.5'	35°20.7'	41°27.1'	
19	335°25.1'	N 23°04.2'	5.9'	-2.7'	58.6'	91°48.8'	38°31.9'			28°16.1'	35°45.5'	42°01.6'	
20	349°50.0'	N 23°01.5'	5.9'	-2.8'	58.6'	91°17.6'	37°57.4'			28°45.0'	36°10.5'	42°36.2'	
21	4°14.8'	N 22°58.7'	5.8'	-3.0'	58.6'	90°46.4'	37°22.8'			29°14.0'	36°35.8'	43°10.8'	
22	18°39.6'	N 22°55.7'	5.8'	-3.1'	58.7'	90°15.1'	36°48.3'			29°43.3'	37°01.4'	43°45.5'	
23	33°04.4'	N 22°52.6'	5.8'	-3.3'	58.7'	89°43.8'	36°13.6'			30°12.9'	37°27.2'	44°20.2'	
Mer. pass.		20 h 42 m SD 15.8'		phase 72%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°15.9'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°04.0'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.0'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.6'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	315°59.6'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	164°11.1'	177°11.0'	S 5°34.1'	135°54.3'	N 13°13.5'	232°04.1'	S 21°53.7'	223°25.0'	S 20°27.4'	240°15.2'	S 23°18.8'	
1	179°13.5'	192°11.1'	S 5°33.1'	150°54.2'	N 13°14.7'	247°06.1'	S 21°53.7'	238°27.2'	S 20°27.4'	255°15.8'	S 23°18.7'	
2	194°16.0'	207°11.3'	S 5°32.2'	165°54.1'	N 13°15.8'	262°08.1'	S 21°53.6'	253°29.4'	S 20°27.3'	270°16.4'	S 23°18.6'	
3	209°18.5'	222°11.4'	S 5°31.2'	180°54.0'	N 13°17.0'	277°10.1'	S 21°53.6'	268°31.7'	S 20°27.3'	285°17.0'	S 23°18.5'	
4	224°20.9'	237°11.5'	S 5°30.2'	195°53.9'	N 13°18.1'	292°12.0'	S 21°53.5'	283°33.9'	S 20°27.2'	300°17.5'	S 23°18.3'	
5	239°23.4'	252°11.7'	S 5°29.3'	210°53.9'	N 13°19.3'	307°14.0'	S 21°53.4'	298°36.1'	S 20°27.2'	315°18.1'	S 23°18.2'	
6	254°25.9'	267°11.8'	S 5°28.3'	225°53.8'	N 13°20.4'	322°16.0'	S 21°53.4'	313°38.3'	S 20°27.1'	330°18.7'	S 23°18.1'	
7	269°28.3'	282°12.0'	S 5°27.3'	240°53.7'	N 13°21.6'	337°18.0'	S 21°53.3'	328°40.6'	S 20°27.1'	345°19.3'	S 23°18.0'	
8	284°30.8'	297°12.1'	S 5°26.4'	255°53.6'	N 13°22.7'	352°20.0'	S 21°53.3'	343°42.8'	S 20°27.1'	0°19.9'	S 23°17.8'	
9	299°33.3'	312°12.3'	S 5°25.4'	270°53.5'	N 13°23.9'	7°22.0'	S 21°53.2'	358°45.0'	S 20°27.0'	15°20.5'	S 23°17.7'	
10	314°35.7'	327°12.4'	S 5°24.4'	285°53.4'	N 13°25.0'	22°24.0'	S 21°53.1'	13°47.2'	S 20°27.0'	30°21.1'	S 23°17.6'	
11	329°38.2'	342°12.6'	S 5°23.4'	300°53.3'	N 13°26.2'	37°26.0'	S 21°53.1'	28°49.4'	S 20°26.9'	45°21.6'	S 23°17.5'	
12	344°40.7'	357°12.7'	S 5°22.5'	315°53.2'	N 13°27.3'	52°28.0'	S 21°53.0'	43°51.7'	S 20°26.9'	60°22.2'	S 23°17.3'	
13	359°43.1'	12°12.9'	S 5°21.5'	330°53.1'	N 13°28.4'	67°30.0'	S 21°52.9'	58°53.9'	S 20°26.8'	75°22.8'	S 23°17.2'	
14	14°45.6'	27°13.0'	S 5°20.5'	345°53.0'	N 13°29.6'	82°32.0'	S 21°52.9'	73°56.1'	S 20°26.8'	90°23.4'	S 23°17.1'	
15	29°48.0'	42°13.2'	S 5°19.6'	0°52.9'	N 13°30.7'	97°34.0'	S 21°52.8'	88°58.3'	S 20°26.8'	105°24.0'	S 23°16.9'	
16	44°50.5'	57°13.3'	S 5°18.6'	15°52.9'	N 13°31.9'	112°36.0'	S 21°52.8'	104°00.6'	S 20°26.7'	120°24.6'	S 23°16.8'	
17	59°53.0'	72°13.5'	S 5°17.6'	30°52.8'	N 13°33.0'	127°38.0'	S 21°52.7'	119°02.8'	S 20°26.7'	135°25.2'	S 23°16.7'	
18	74°55.4'	87°13.6'	S 5°16.6'	45°52.7'	N 13°34.1'	142°40.0'	S 21°52.6'	134°05.0'	S 20°26.6'	150°25.7'	S 23°16.6'	
19	89°57.9'	102°13.8'	S 5°15.7'	60°52.6'	N 13°35.3'	157°42.0'	S 21°52.6'	149°07.2'	S 20°26.6'	165°26.3'	S 23°16.4'	
20	105°00.4'	117°13.9'	S 5°14.7'	75°52.5'	N 13°36.4'	172°44.0'	S 21°52.5'	164°09.5'	S 20°26.5'	180°26.9'	S 23°16.3'	
21	120°02.8'	132°14.1'	S 5°13.7'	90°52.4'	N 13°37.6'	187°46.0'	S 21°52.5'	179°11.7'	S 20°26.5'	195°27.5'	S 23°16.2'	
22	135°05.3'	147°14.2'	S 5°12.7'	105°52.3'	N 13°38.7'	202°48.0'	S 21°52.4'	194°13.9'	S 20°26.4'	210°28.1'	S 23°16.0'	
23	150°07.8'	162°14.4'	S 5°11.8'	120°52.2'	N 13°39.8'	217°50.0'	S 21°52.3'	209°16.1'	S 20°26.4'	225°28.7'	S 23°15.9'	
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 11 m 9 s		14 h 56 m		8 h 31 m		9 h 5 m		7 h 59 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	47°29.2'	N 22°49.3'	5.8'	-3.4'	58.8'	101°52.5'	89°42.5'	89°12.4'	35°38.9'			30°42.6'	37°53.3'
1	61°54.0'	N 22°45.9'	5.7'	-3.6'	58.8'	101°34.4'	89°07.8'	88°41.0'	35°04.2'			31°12.5'	38°19.6'
2	76°18.7'	N 22°42.3'	5.7'	-3.7'	58.8'	101°16.2'	88°33.0'	88°09.5'	34°29.4'			31°42.7'	38°46.1'
3	90°43.4'	N 22°38.6'	5.7'	-3.9'	58.9'	100°57.9'	87°58.3'	87°38.0'	33°54.6'			32°13.0'	39°12.9'
4	105°08.1'	N 22°34.7'	5.7'	-4.0'	58.9'	100°39.6'	87°23.4'	87°06.4'	33°19.8'			32°43.5'	39°39.8'
5	119°32.8'	N 22°30.6'	5.7'	-4.2'	59.0'	100°21.1'	86°48.5'	86°34.9'	32°44.9'			33°14.2'	40°07.0'
6	133°57.4'	N 22°26.4'	5.6'	-4.3'	59.0'	100°02.6'	86°13.6'	86°03.2'	32°09.9'			33°45.1'	40°34.4'
7	148°22.1'	N 22°22.1'	5.6'	-4.5'	59.0'	99°44.0'	85°38.6'	85°31.5'	31°35.0'			34°16.1'	41°02.0'
8	162°46.7'	N 22°17.6'	5.6'	-4.7'	59.1'	99°25.4'	85°03.6'	84°59.8'	30°59.9'			34°47.3'	41°29.8'
9	177°11.3'	N 22°12.9'	5.6'	-4.8'	59.1'	99°06.6'	84°28.5'	84°28.1'	30°24.9'			35°18.6'	41°57.8'
10	191°35.9'	N 22°08.1'	5.6'	-5.0'	59.2'	98°47.8'	83°53.4'	83°56.3'	29°49.8'			35°50.1'	42°26.0'
11	206°00.5'	N 22°03.2'	5.6'	-5.1'	59.2'	98°29.0'	83°18.2'	83°24.5'	29°14.6'			36°21.8'	42°54.4'
12	220°25.1'	N 21°58.0'	5.6'	-5.3'	59.2'	98°10.1'	82°42.9'	82°52.6'	28°39.4'	9°09.2'		36°53.6'	43°22.9'
13	234°49.7'	N 21°52.8'	5.6'	-5.4'	59.3'	97°51.1'	82°07.7'	82°20.7'	28°04.2'	9°38.9'		37°25.5'	43°51.7'
14	249°14.2'	N 21°47.4'	5.6'	-5.6'	59.3'	97°32.0'	81°32.3'	81°48.8'	27°29.0'	10°09.3'		37°57.6'	44°20.6'
15	263°38.8'	N 21°41.8'	5.6'	-5.7'	59.4'	97°12.9'	80°57.0'	81°16.8'	26°53.7'	10°40.3'		38°29.8'	44°49.6'
16	278°03.4'	N 21°36.1'	5.6'	-5.9'	59.4'	96°53.7'	80°21.5'	80°44.8'	26°18.3'	11°11.8'		39°02.1'	45°18.9'
17	292°27.9'	N 21°30.2'	5.6'	-6.0'	59.4'	96°34.5'	79°46.1'	80°12.8'	25°43.0'	11°43.7'		39°34.6'	45°48.3'
18	306°52.5'	N 21°24.2'	5.6'	-6.2'	59.5'	96°15.2'	79°10.5'	79°40.7'	25°07.6'	12°16.0'	20°31.5'	40°07.1'	46°17.8'
19	321°17.1'	N 21°18.0'	5.6'	-6.3'	59.5'	95°55.9'	78°35.0'	79°08.6'	24°32.2'	12°48.7'	20°49.7'	40°39.8'	46°47.5'
20	335°41.6'	N 21°11.7'	5.6'	-6.5'	59.5'	95°36.5'	77°59.4'	78°36.5'	23°56.7'	13°21.7'	21°08.6'	41°12.6'	47°17.3'
21	350°06.2'	N 21°05.2'	5.6'	-6.6'	59.6'	95°17.0'	77°23.7'	78°04.4'	23°21.2'	13°54.9'	21°28.2'	41°45.6'	47°47.3'
22	4°30.8'	N 20°58.6'	5.6'	-6.8'	59.6'	94°57.5'	76°48.0'	77°32.2'	22°45.7'	14°28.4'	21°48.5'	42°18.6'	48°17.5'
23	18°55.4'	N 20°51.8'	5.6'	-6.9'	59.7'	94°37.9'	76°12.2'	76°60.0'	22°10.2'	15°02.1'	22°09.5'	42°51.7'	48°47.8'
Mer. pass.		21 h 41 m SD 16.0'		phase 81%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.0'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°00.0'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	165°10.2'	177°14.5'	S 5°10.8'	135°52.1'	N 13°41.0'	232°52.0'	S 21°52.3'	224°18.3'	S 20°26.4'	240°29.3'	S 23°15.8'	
1	180°12.7'	192°14.7'	S 5°09.8'	150°52.0'	N 13°42.1'	247°54.0'	S 21°52.2'	239°20.6'	S 20°26.3'	255°29.9'	S 23°15.6'	
2	195°15.2'	207°14.8'	S 5°08.9'	165°52.0'	N 13°43.3'	262°56.0'	S 21°52.1'	254°22.8'	S 20°26.3'	270°30.4'	S 23°15.5'	
3	210°17.6'	222°15.0'	S 5°07.9'	180°51.9'	N 13°44.4'	277°58.0'	S 21°52.1'	269°25.0'	S 20°26.2'	285°31.0'	S 23°15.4'	
4	225°20.1'	237°15.1'	S 5°06.9'	195°51.8'	N 13°45.5'	292°60.0'	S 21°52.0'	284°27.2'	S 20°26.2'	300°31.6'	S 23°15.2'	
5	240°22.5'	252°15.3'	S 5°05.9'	210°51.7'	N 13°46.7'	308°02.0'	S 21°52.0'	299°29.5'	S 20°26.1'	315°32.2'	S 23°15.1'	
6	255°25.0'	267°15.4'	S 5°05.0'	225°51.6'	N 13°47.8'	323°04.0'	S 21°51.9'	314°31.7'	S 20°26.1'	330°32.8'	S 23°15.0'	
7	270°27.5'	282°15.6'	S 5°04.0'	240°51.5'	N 13°48.9'	338°06.0'	S 21°51.8'	329°33.9'	S 20°26.1'	345°33.4'	S 23°14.8'	
8	285°29.9'	297°15.7'	S 5°03.0'	255°51.4'	N 13°50.1'	353°08.0'	S 21°51.8'	344°36.1'	S 20°26.0'	0°34.0'	S 23°14.7'	
9	300°32.4'	312°15.9'	S 5°02.0'	270°51.3'	N 13°51.2'	8°10.0'	S 21°51.7'	359°38.4'	S 20°26.0'	15°34.5'	S 23°14.6'	
10	315°34.9'	327°16.0'	S 5°01.1'	285°51.2'	N 13°52.3'	23°12.0'	S 21°51.7'	14°40.6'	S 20°25.9'	30°35.1'	S 23°14.4'	
11	330°37.3'	342°16.2'	S 5°00.1'	300°51.1'	N 13°53.5'	38°14.0'	S 21°51.6'	29°42.8'	S 20°25.9'	45°35.7'	S 23°14.3'	
12	345°39.8'	357°16.3'	S 4°59.1'	315°51.1'	N 13°54.6'	53°16.0'	S 21°51.5'	44°45.0'	S 20°25.8'	60°36.3'	S 23°14.2'	
13	0°42.3'	12°16.5'	S 4°58.1'	330°51.0'	N 13°55.7'	68°18.0'	S 21°51.5'	59°47.3'	S 20°25.8'	75°36.9'	S 23°14.0'	
14	15°44.7'	27°16.6'	S 4°57.2'	345°50.9'	N 13°56.8'	83°20.0'	S 21°51.4'	74°49.5'	S 20°25.7'	90°37.5'	S 23°13.9'	
15	30°47.2'	42°16.8'	S 4°56.2'	0°50.8'	N 13°58.0'	98°22.0'	S 21°51.3'	89°51.7'	S 20°25.7'	105°38.1'	S 23°13.7'	
16	45°49.6'	57°16.9'	S 4°55.2'	15°50.7'	N 13°59.1'	113°24.0'	S 21°51.3'	104°53.9'	S 20°25.7'	120°38.6'	S 23°13.6'	
17	60°52.1'	72°17.1'	S 4°54.2'	30°50.6'	N 14°00.2'	128°26.0'	S 21°51.2'	119°56.2'	S 20°25.6'	135°39.2'	S 23°13.5'	
18	75°54.6'	87°17.3'	S 4°53.3'	45°50.5'	N 14°01.4'	143°28.0'	S 21°51.2'	134°58.4'	S 20°25.6'	150°39.8'	S 23°13.3'	
19	90°57.0'	102°17.4'	S 4°52.3'	60°50.4'	N 14°02.5'	158°30.0'	S 21°51.1'	150°00.6'	S 20°25.5'	165°40.4'	S 23°13.2'	
20	105°59.5'	117°17.6'	S 4°51.3'	75°50.3'	N 14°03.6'	173°32.0'	S 21°51.0'	165°02.8'	S 20°25.5'	180°41.0'	S 23°13.1'	
21	121°02.0'	132°17.7'	S 4°50.3'	90°50.3'	N 14°04.7'	188°34.0'	S 21°51.0'	180°05.1'	S 20°25.4'	195°41.6'	S 23°12.9'	
22	136°04.4'	147°17.9'	S 4°49.4'	105°50.2'	N 14°05.9'	203°36.0'	S 21°50.9'	195°07.3'	S 20°25.4'	210°42.2'	S 23°12.8'	
23	151°06.9'	162°18.0'	S 4°48.4'	120°50.1'	N 14°07.0'	218°38.0'	S 21°50.9'	210°09.5'	S 20°25.4'	225°42.8'	S 23°12.6'	
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 10 m 55 s		14 h 57 m		8 h 27 m		9 h 1 m		7 h 58 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	33°20.0'	N 20°44.9'	5.6'	-7.1'	59.7'	94°18.3'	76°27.8'	75°36.4'	21°34.7'	15°36.1'	22°31.1'	43°25.0'	47°52.1'
1	47°44.6'	N 20°37.8'	5.6'	-7.2'	59.7'	93°58.7'	75°55.5'	75°00.6'	20°59.1'	16°10.2'	22°53.3'	43°58.3'	48°10.0'
2	62°09.2'	N 20°30.6'	5.6'	-7.4'	59.8'	93°39.0'	75°23.3'	74°24.7'	20°23.5'	16°44.6'	23°16.1'	44°31.8'	48°28.2'
3	76°33.8'	N 20°23.2'	5.6'	-7.5'	59.8'	93°19.3'	74°51.0'	73°48.8'	19°47.9'	17°19.0'	23°39.4'	45°05.3'	48°46.7'
4	90°58.5'	N 20°15.7'	5.7'	-7.7'	59.8'	92°59.5'	74°18.7'	73°12.8'	19°12.3'	17°53.7'	24°03.3'	45°39.0'	49°05.5'
5	105°23.1'	N 20°08.1'	5.7'	-7.8'	59.9'	92°39.7'	73°46.3'	72°36.8'	18°36.7'	18°28.5'	24°27.7'	46°12.7'	49°24.5'
6	119°47.8'	N 20°00.3'	5.7'	-7.9'	59.9'	92°19.8'	73°14.0'	72°00.7'	18°01.1'	19°03.4'	24°52.5'	46°46.6'	49°43.8'
7	134°12.5'	N 19°52.3'	5.7'	-8.1'	59.9'	91°59.9'	72°41.6'	71°24.6'	17°25.5'	19°38.4'	25°17.9'	47°20.5'	50°03.3'
8	148°37.2'	N 19°44.3'	5.7'	-8.2'	60.0'	91°40.0'	72°09.2'	70°48.5'	16°50.0'	20°13.6'	25°43.7'	47°54.5'	50°23.1'
9	163°01.9'	N 19°36.0'	5.7'	-8.4'	60.0'	91°20.1'	71°36.9'	70°12.3'	16°14.4'	20°48.9'	26°09.9'	48°28.6'	50°43.1'
10	177°26.6'	N 19°27.7'	5.8'	-8.5'	60.0'	91°00.1'	71°04.5'	69°36.0'	15°38.8'	21°24.3'	26°36.5'	49°02.8'	51°03.4'
11	191°51.4'	N 19°19.2'	5.8'	-8.6'	60.1'	90°40.1'	70°32.0'	68°59.8'	15°03.3'	21°59.8'	27°03.5'	49°37.0'	51°23.9'
12	206°16.1'	N 19°10.5'	5.8'	-8.8'	60.1'	90°20.0'	69°59.6'	68°23.4'	14°27.9'	22°35.3'	27°30.9'	50°11.4'	51°44.7'
13	220°40.9'	N 19°01.7'	5.8'	-8.9'	60.1'	89°60.0'	69°27.2'	67°47.1'	13°52.5'	23°11.0'	27°58.6'	50°45.8'	52°05.6'
14	235°05.8'	N 18°52.8'	5.8'	-9.1'	60.2'	89°39.9'	68°54.8'	67°10.7'	13°17.1'	23°46.8'	28°26.7'	51°20.3'	52°26.9'
15	249°30.6'	N 18°43.8'	5.9'	-9.2'	60.2'	89°19.8'	68°22.3'	66°34.3'	12°41.9'	24°22.6'	28°55.1'	51°54.9'	52°48.3'
16	263°55.5'	N 18°34.6'	5.9'	-9.3'	60.2'	88°59.6'	67°49.9'	65°57.8'	12°06.7'	24°58.6'	29°23.8'	52°29.5'	53°10.0'
17	278°20.4'	N 18°25.2'	5.9'	-9.5'	60.3'	88°39.5'	67°17.4'	65°21.3'	11°31.7'	25°34.6'	29°52.8'	53°04.2'	53°31.8'
18	292°45.3'	N 18°15.8'	6.0'	-9.6'	60.3'	88°19.3'	66°45.0'	64°44.7'	10°56.8'	26°10.7'	30°22.1'	53°39.0'	53°53.9'
19	307°10.3'	N 18°06.2'	6.0'	-9.7'	60.3'	87°59.1'	66°12.6'	64°08.1'	10°22.2'	26°46.8'	30°51.7'	54°13.9'	54°16.2'
20	321°35.2'	N 17°56.4'	6.0'	-9.9'	60.4'	87°38.9'	65°40.1'	63°31.5'	9°47.7'	27°23.1'	31°21.6'	54°48.8'	54°38.7'
21	336°00.3'	N 17°46.6'	6.0'	-10.0'	60.4'	87°18.7'	65°07.7'	62°54.9'	9°13.6'	27°59.4'	31°51.7'	55°23.8'	55°01.4'
22	350°25.3'	N 17°36.6'	6.1'	-10.1'	60.4'	86°58.5'	64°35.3'	62°18.2'	8°39.7'	28°35.7'	32°22.0'	55°58.9'	55°24.3'
23	4°50.4'	N 17°26.5'	6.1'	-10.2'	60.5'	86°38.3'	64°02.9'	61°41.5'	8°06.4'	29°12.2'	32°52.6'	56°34.0'	55°47.4'
Mer. pass.		22 h 40 m SD 16.3'		phase 89%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.0'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°00.4'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	166°09.4'	177°18.2' S	4°47.4'	135°50.0' N	14°08.1'	233°40.0' S	21°50.8'	225°11.8' S	20°25.3'	240°43.3' S	23°12.5'	
1	181°11.8'	192°18.3' S	4°46.4'	150°49.9' N	14°09.2'	248°42.0' S	21°50.7'	240°14.0' S	20°25.3'	255°43.9' S	23°12.4'	
2	196°14.3'	207°18.5' S	4°45.5'	165°49.8' N	14°10.4'	263°44.0' S	21°50.7'	255°16.2' S	20°25.2'	270°44.5' S	23°12.2'	
3	211°16.8'	222°18.6' S	4°44.5'	180°49.7' N	14°11.5'	278°46.0' S	21°50.6'	270°18.4' S	20°25.2'	285°45.1' S	23°12.1'	
4	226°19.2'	237°18.8' S	4°43.5'	195°49.6' N	14°12.6'	293°48.0' S	21°50.5'	285°20.7' S	20°25.1'	300°45.7' S	23°11.9'	
5	241°21.7'	252°19.0' S	4°42.5'	210°49.6' N	14°13.7'	308°50.0' S	21°50.5'	300°22.9' S	20°25.1'	315°46.3' S	23°11.8'	
6	256°24.1'	267°19.1' S	4°41.6'	225°49.5' N	14°14.9'	323°52.0' S	21°50.4'	315°25.1' S	20°25.1'	330°46.9' S	23°11.6'	
7	271°26.6'	282°19.3' S	4°40.6'	240°49.4' N	14°16.0'	338°54.0' S	21°50.4'	330°27.3' S	20°25.0'	345°47.5' S	23°11.5'	
8	286°29.1'	297°19.4' S	4°39.6'	255°49.3' N	14°17.1'	353°56.0' S	21°50.3'	345°29.6' S	20°25.0'	0°48.0' S	23°11.4'	
9	301°31.5'	312°19.6' S	4°38.6'	270°49.2' N	14°18.2'	8°58.0' S	21°50.2'	0°31.8' S	20°24.9'	15°48.6' S	23°11.2'	
10	316°34.0'	327°19.7' S	4°37.7'	285°49.1' N	14°19.3'	24°00.0' S	21°50.2'	15°34.0' S	20°24.9'	30°49.2' S	23°11.1'	
11	331°36.5'	342°19.9' S	4°36.7'	300°49.0' N	14°20.4'	39°02.0' S	21°50.1'	30°36.3' S	20°24.8'	45°49.8' S	23°10.9'	
12	346°38.9'	357°20.0' S	4°35.7'	315°48.9' N	14°21.6'	54°04.0' S	21°50.1'	45°38.5' S	20°24.8'	60°50.4' S	23°10.8'	
13	1°41.4'	12°20.2' S	4°34.7'	330°48.9' N	14°22.7'	69°06.0' S	21°50.0'	60°40.7' S	20°24.8'	75°51.0' S	23°10.6'	
14	16°43.9'	27°20.4' S	4°33.8'	345°48.8' N	14°23.8'	84°08.0' S	21°49.9'	75°42.9' S	20°24.7'	90°51.6' S	23°10.5'	
15	31°46.3'	42°20.5' S	4°32.8'	0°48.7' N	14°24.9'	99°10.1' S	21°49.9'	90°45.2' S	20°24.7'	105°52.2' S	23°10.3'	
16	46°48.8'	57°20.7' S	4°31.8'	15°48.6' N	14°26.0'	114°12.1' S	21°49.8'	105°47.4' S	20°24.6'	120°52.7' S	23°10.2'	
17	61°51.3'	72°20.8' S	4°30.8'	30°48.5' N	14°27.1'	129°14.1' S	21°49.8'	120°49.6' S	20°24.6'	135°53.3' S	23°10.1'	
18	76°53.7'	87°21.0' S	4°29.8'	45°48.4' N	14°28.3'	144°16.1' S	21°49.7'	135°51.9' S	20°24.5'	150°53.9' S	23°09.9'	
19	91°56.2'	102°21.1' S	4°28.9'	60°48.3' N	14°29.4'	159°18.1' S	21°49.6'	150°54.1' S	20°24.5'	165°54.5' S	23°09.8'	
20	106°58.6'	117°21.3' S	4°27.9'	75°48.3' N	14°30.5'	174°20.1' S	21°49.6'	165°56.3' S	20°24.5'	180°55.1' S	23°09.6'	
21	122°01.1'	132°21.5' S	4°26.9'	90°48.2' N	14°31.6'	189°22.1' S	21°49.5'	180°58.5' S	20°24.4'	195°55.7' S	23°09.5'	
22	137°03.6'	147°21.6' S	4°25.9'	105°48.1' N	14°32.7'	204°24.1' S	21°49.4'	196°00.8' S	20°24.4'	210°56.3' S	23°09.3'	
23	152°06.0'	162°21.8' S	4°25.0'	120°48.0' N	14°33.8'	219°26.1' S	21°49.4'	211°03.0' S	20°24.3'	225°56.9' S	23°09.2'	
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.1'		
Mer. pass.		12 h 10 m 40 s		14 h 57 m		8 h 24 m		8 h 58 m		7 h 57 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acru	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse
0	19°15.5' N	17°16.2' S	6.1'	-10.4'	60.5'	86°18.1'	63°30.5'	61°04.7'	7°33.5'	29°48.6'	33°23.4'	56°10.7'	57°09.2'
1	33°40.6' N	17°05.9' S	6.2'	-10.5'	60.5'	85°57.9'	62°58.1'	60°27.9'		30°25.2'	33°54.4'	56°34.1'	57°44.5'
2	48°05.8' N	16°55.4' S	6.2'	-10.6'	60.5'	85°37.6'	62°25.8'	59°51.1'		31°01.8'	34°25.7'	56°57.8'	58°19.8'
3	62°31.0' N	16°44.7' S	6.2'	-10.7'	60.6'	85°17.4'	61°53.4'	59°14.2'		31°38.5'	34°57.1'	57°21.6'	58°55.1'
4	76°56.2' N	16°34.0' S	6.3'	-10.9'	60.6'	84°57.2'	61°21.1'	58°37.3'		32°15.2'	35°28.8'	57°45.6'	59°30.6'
5	91°21.5' N	16°23.1' S	6.3'	-11.0'	60.6'	84°37.0'	60°48.8'	58°00.4'		32°52.0'	36°00.6'	58°09.8'	60°06.1'
6	105°46.8' N	16°12.2' S	6.3'	-11.1'	60.7'	84°16.8'	60°16.6'	57°23.5'		33°28.8'	36°32.6'	58°34.1'	60°41.6'
7	120°12.1' N	16°01.1' S	6.4'	-11.2'	60.7'	83°56.6'	59°44.3'	56°46.5'		34°05.6'	37°04.7'	58°58.6'	61°17.2'
8	134°37.5' N	15°49.9' S	6.4'	-11.3'	60.7'	83°36.4'	59°12.1'	56°09.5'		34°42.6'	37°37.1'	59°23.3'	61°52.8'
9	149°02.9' N	15°38.5' S	6.4'	-11.4'	60.7'	83°16.2'	58°40.0'	55°32.4'		35°19.5'	38°09.6'	59°48.1'	62°28.5'
10	163°28.4' N	15°27.1' S	6.5'	-11.6'	60.8'	82°56.0'	58°07.8'	54°55.4'		35°56.5'	38°42.2'	60°13.1'	63°04.3'
11	177°53.8' N	15°15.5' S	6.5'	-11.7'	60.8'	82°35.9'	57°35.7'	54°18.3'		36°33.6'	39°15.0'	60°38.2'	63°40.1'
12	192°19.4' N	15°03.9' S	6.6'	-11.8'	60.8'	82°15.8'	57°03.7'	53°41.2'		37°10.7'	39°48.0'	61°03.5'	64°15.9'
13	206°44.9' N	14°52.1' S	6.6'	-11.9'	60.8'	81°55.7'	56°31.7'	53°04.0'		37°47.8'	40°21.1'	61°28.9'	64°51.8'
14	221°10.5' N	14°40.2' S	6.6'	-12.0'	60.9'	81°35.6'	55°59.7'	52°26.9'		38°25.0'	40°54.3'	61°54.4'	65°27.7'
15	235°36.2' N	14°28.2' S	6.7'	-12.1'	60.9'	81°15.6'	55°27.9'	51°49.7'		39°02.2'	41°27.6'	62°20.1'	66°03.7'
16	250°01.8' N	14°16.1' S	6.7'	-12.2'	60.9'	80°55.6'	54°56.0'	51°12.5'		39°39.5'	42°01.1'	62°46.0'	66°39.7'
17	264°27.5' N	14°03.9' S	6.8'	-12.3'	60.9'	80°35.6'	54°24.2'	50°35.3'		40°16.8'	42°34.7'	63°11.9'	67°15.8'
18	278°53.3' N	13°51.6' S	6.8'	-12.4'	60.9'	80°15.6'	53°52.5'	49°58.1'		40°54.1'	43°08.4'	63°38.0'	67°51.9'
19	293°19.1' N	13°39.2' S	6.8'	-12.5'	61.0'	79°55.7'	53°20.8'	49°20.8'		41°31.5'	43°42.2'	64°04.2'	68°28.0'
20	307°44.9' N	13°26.7' S	6.9'	-12.6'	61.0'	79°35.9'	52°49.3'	48°43.5'		42°08.9'	44°16.1'	64°30.5'	69°04.2'
21	322°10.8' N	13°14.1' S	6.9'	-12.7'	61.0'	79°16.0'	52°17.8'	48°06.2'	7°25.5'	42°46.4'	44°50.1'	64°57.0'	69°40.4'
22	336°36.7' N	13°01.4' S	6.9'	-12.8'	61.0'	78°56.3'	51°46.3'	47°28.9'	7°58.8'	43°23.8'	45°24.2'	65°23.5'	70°16.7'
23	351°02.6' N	12°48.6' S	7.0'	-12.9'	61.0'	78°36.5'	51°15.0'	46°51.6'	8°32.7'	44°01.3'	45°58.5'	65°50.2'	70°53.0'
Mer. pass.		23 h 37 m SD 16.5'		phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acru	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.0'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°00.9'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.7'				



Monday 09 March 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	167°08.5'	177°21.9'	S 4°24.0'	135°47.9'	N 14°34.9'	234°28.1'	S 21°49.3'	226°05.2'	S 20°24.3'	240°57.4'	S 23°09.0'
1	182°11.0'	192°22.1'	S 4°23.0'	150°47.8'	N 14°36.0'	249°30.1'	S 21°49.3'	241°07.5'	S 20°24.2'	255°58.0'	S 23°08.9'
2	197°13.4'	207°22.3'	S 4°22.0'	165°47.7'	N 14°37.2'	264°32.1'	S 21°49.2'	256°09.7'	S 20°24.2'	270°58.6'	S 23°08.7'
3	212°15.9'	222°22.4'	S 4°21.0'	180°47.6'	N 14°38.3'	279°34.1'	S 21°49.1'	271°11.9'	S 20°24.2'	285°59.2'	S 23°08.6'
4	227°18.4'	237°22.6'	S 4°20.1'	195°47.6'	N 14°39.4'	294°36.1'	S 21°49.1'	286°14.1'	S 20°24.1'	300°59.8'	S 23°08.4'
5	242°20.8'	252°22.7'	S 4°19.1'	210°47.5'	N 14°40.5'	309°38.2'	S 21°49.0'	301°16.4'	S 20°24.1'	316°00.4'	S 23°08.3'
6	257°23.3'	267°22.9'	S 4°18.1'	225°47.4'	N 14°41.6'	324°40.2'	S 21°49.0'	316°18.6'	S 20°24.0'	331°01.0'	S 23°08.1'
7	272°25.7'	282°23.0'	S 4°17.1'	240°47.3'	N 14°42.7'	339°42.2'	S 21°48.9'	331°20.8'	S 20°24.0'	346°01.6'	S 23°08.0'
8	287°28.2'	297°23.2'	S 4°16.2'	255°47.2'	N 14°43.8'	354°44.2'	S 21°48.8'	346°23.1'	S 20°23.9'	1°02.1'	S 23°07.8'
9	302°30.7'	312°23.4'	S 4°15.2'	270°47.1'	N 14°44.9'	9°46.2'	S 21°48.8'	1°25.3'	S 20°23.9'	16°02.7'	S 23°07.7'
10	317°33.1'	327°23.5'	S 4°14.2'	285°47.1'	N 14°46.0'	24°48.2'	S 21°48.7'	16°27.5'	S 20°23.9'	31°03.3'	S 23°07.5'
11	332°35.6'	342°23.7'	S 4°13.2'	300°47.0'	N 14°47.1'	39°50.2'	S 21°48.6'	31°29.8'	S 20°23.8'	46°03.9'	S 23°07.4'
12	347°38.1'	357°23.8'	S 4°12.2'	315°46.9'	N 14°48.2'	54°52.2'	S 21°48.6'	46°32.0'	S 20°23.8'	61°04.5'	S 23°07.2'
13	2°40.5'	12°24.0'	S 4°11.3'	330°46.8'	N 14°49.3'	69°54.2'	S 21°48.5'	61°34.2'	S 20°23.7'	76°05.1'	S 23°07.0'
14	17°43.0'	27°24.2'	S 4°10.3'	345°46.7'	N 14°50.4'	84°56.2'	S 21°48.5'	76°36.4'	S 20°23.7'	91°05.7'	S 23°06.9'
15	32°45.5'	42°24.3'	S 4°09.3'	0°46.6'	N 14°51.5'	99°58.2'	S 21°48.4'	91°38.7'	S 20°23.6'	106°06.3'	S 23°06.7'
16	47°47.9'	57°24.5'	S 4°08.3'	15°46.5'	N 14°52.6'	115°00.3'	S 21°48.3'	106°40.9'	S 20°23.6'	121°06.9'	S 23°06.6'
17	62°50.4'	72°24.6'	S 4°07.3'	30°46.5'	N 14°53.7'	130°02.3'	S 21°48.3'	121°43.1'	S 20°23.6'	136°07.4'	S 23°06.4'
18	77°52.9'	87°24.8'	S 4°06.4'	45°46.4'	N 14°54.8'	145°04.3'	S 21°48.2'	136°45.4'	S 20°23.5'	151°08.0'	S 23°06.3'
19	92°55.3'	102°25.0'	S 4°05.4'	60°46.3'	N 14°55.9'	160°06.3'	S 21°48.2'	151°47.6'	S 20°23.5'	166°08.6'	S 23°06.1'
20	107°57.8'	117°25.1'	S 4°04.4'	75°46.2'	N 14°57.0'	175°08.3'	S 21°48.1'	166°49.8'	S 20°23.4'	181°09.2'	S 23°06.0'
21	123°00.2'	132°25.3'	S 4°03.4'	90°46.1'	N 14°58.1'	190°10.3'	S 21°48.0'	181°52.1'	S 20°23.4'	196°09.8'	S 23°05.8'
22	138°02.7'	147°25.5'	S 4°02.4'	105°46.0'	N 14°59.2'	205°12.3'	S 21°48.0'	196°54.3'	S 20°23.3'	211°10.4'	S 23°05.6'
23	153°05.2'	162°25.6'	S 4°01.5'	120°46.0'	N 15°00.3'	220°14.3'	S 21°47.9'	211°56.5'	S 20°23.3'	226°11.0'	S 23°05.5'
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'	
Mer. pass.		12 h 10 m 25 s		14 h 57 m		8 h 21 m		8 h 54 m		7 h 56 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	5°28.6'	N 12°35.8'	7.0'	-13.0'	61.1'	83°00.5'	78°16.8'	50°43.7'	46°14.3'	9°07.2'	44°38.9'	46°32.8'	66°17.0'
1	19°54.7'	N 12°22.8'	7.1'	-13.1'	61.1'	82°35.1'	77°57.2'	50°12.5'	45°36.9'	9°42.1'	45°16.4'	47°07.2'	66°43.9'
2	34°20.7'	N 12°09.7'	7.1'	-13.1'	61.1'	82°09.7'	77°37.6'	49°41.5'	44°59.6'	10°17.4'	45°54.0'	47°41.7'	67°10.9'
3	48°46.8'	N 11°56.6'	7.1'	-13.2'	61.1'	81°44.3'	77°18.1'	49°10.5'	44°22.2'	10°53.0'	46°31.6'	48°16.2'	67°38.0'
4	63°13.0'	N 11°43.3'	7.2'	-13.3'	61.1'	81°18.9'	76°58.6'	48°39.6'	43°44.8'	11°28.8'	47°09.3'	48°50.9'	68°05.2'
5	77°39.2'	N 11°30.0'	7.2'	-13.4'	61.1'	80°53.6'	76°39.2'	48°08.8'	43°07.5'	12°04.9'	47°47.0'	49°25.6'	68°32.5'
6	92°05.4'	N 11°16.6'	7.3'	-13.5'	61.2'	80°28.3'	76°19.8'	47°38.2'	42°30.1'	12°41.1'	48°24.7'	50°00.4'	68°59.9'
7	106°31.7'	N 11°03.2'	7.3'	-13.6'	61.2'	80°03.0'	76°00.6'	47°07.6'	41°52.7'	13°17.6'	49°02.4'	50°35.3'	69°27.3'
8	120°58.0'	N 10°49.6'	7.3'	-13.6'	61.2'	79°37.7'	75°41.3'	46°37.2'	41°15.3'	13°54.2'	49°40.1'	51°10.3'	69°54.9'
9	135°24.3'	N 10°36.0'	7.4'	-13.7'	61.2'	79°12.5'	75°22.2'	46°07.0'	40°37.9'	14°30.9'	50°17.9'	51°45.3'	70°22.6'
10	149°50.7'	N 10°22.3'	7.4'	-13.8'	61.2'	78°47.2'	75°03.1'	45°36.8'	40°00.5'	15°07.8'	50°55.7'	52°20.4'	70°50.3'
11	164°17.1'	N 10°08.5'	7.5'	-13.8'	61.2'	78°22.1'	74°44.1'	45°06.8'	39°23.1'	15°44.7'	51°33.5'	52°55.5'	71°18.1'
12	178°43.6'	N 9°54.6'	7.5'	-13.9'	61.2'	77°56.9'	74°25.2'	44°37.0'	38°45.7'	16°21.8'	52°11.3'	53°30.7'	71°46.0'
13	193°10.0'	N 9°40.7'	7.5'	-14.0'	61.2'	77°31.9'	74°06.4'	44°07.3'	38°08.3'	16°58.9'	52°49.1'	54°06.0'	72°13.9'
14	207°36.6'	N 9°26.7'	7.6'	-14.1'	61.2'	77°06.8'	73°47.7'	43°37.8'	37°31.0'	17°36.1'	53°27.0'	54°41.3'	72°42.0'
15	222°03.2'	N 9°12.7'	7.6'	-14.1'	61.3'	76°41.8'	73°29.0'	43°08.4'	36°53.6'	18°13.4'	54°04.9'	55°16.7'	73°10.1'
16	236°29.8'	N 8°58.6'	7.6'	-14.2'	61.3'	76°16.9'	73°10.4'	42°39.2'	36°16.3'	18°50.8'	54°42.7'	55°52.1'	73°38.2'
17	250°56.4'	N 8°44.4'	7.7'	-14.2'	61.3'	75°52.0'	72°51.9'	42°10.2'	35°38.9'	19°28.2'	55°20.6'	56°27.6'	74°06.5'
18	265°23.1'	N 8°30.2'	7.7'	-14.3'	61.3'	75°27.1'	72°33.6'	41°41.4'	35°01.6'	20°05.7'	55°58.6'	57°03.1'	74°34.7'
19	279°49.8'	N 8°15.9'	7.8'	-14.4'	61.3'	75°02.3'	72°15.3'	41°12.8'	34°24.3'	20°43.2'	56°36.5'	57°38.6'	75°03.1'
20	294°16.6'	N 8°01.5'	7.8'	-14.4'	61.3'	74°37.6'	71°57.1'	40°44.4'	33°47.0'	21°20.7'	57°14.4'	58°14.2'	75°31.5'
21	308°43.3'	N 7°47.1'	7.8'	-14.5'	61.3'	74°13.0'	71°39.0'	40°16.2'	33°09.7'	21°58.3'	57°52.4'	58°49.9'	75°60.0'
22	323°10.2'	N 7°32.6'	7.9'	-14.5'	61.3'	73°48.4'	71°21.0'	39°48.3'	32°32.5'	22°35.9'	58°30.3'	59°25.6'	76°28.5'
23	337°37.0'	N 7°18.1'	7.9'	-14.6'	61.3'	73°23.8'	71°03.1'	39°20.5'	31°55.2'	23°13.6'	59°08.3'	60°01.3'	76°57.0'
Mer. pass.		0 h 33 m SD 16.7' phase 99%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.8'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°01.4'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	168°07.6'	177°25.8' S	4°00.5'	135°45.9' N	15°01.4'	235°16.4' S	21°47.9'	226°58.8' S	20°23.3'	241°11.6' S	23°05.3'	
1	183°10.1'	192°25.9' S	3°59.5'	150°45.8' N	15°02.5'	250°18.4' S	21°47.8'	242°01.0' S	20°23.2'	256°12.2' S	23°05.2'	
2	198°12.6'	207°26.1' S	3°58.5'	165°45.7' N	15°03.6'	265°20.4' S	21°47.7'	257°03.2' S	20°23.2'	271°12.7' S	23°05.0'	
3	213°15.0'	222°26.3' S	3°57.5'	180°45.6' N	15°04.7'	280°22.4' S	21°47.7'	272°05.5' S	20°23.1'	286°13.3' S	23°04.9'	
4	228°17.5'	237°26.4' S	3°56.6'	195°45.5' N	15°05.8'	295°24.4' S	21°47.6'	287°07.7' S	20°23.1'	301°13.9' S	23°04.7'	
5	243°20.0'	252°26.6' S	3°55.6'	210°45.4' N	15°06.9'	310°26.4' S	21°47.6'	302°09.9' S	20°23.0'	316°14.5' S	23°04.5'	
6	258°22.4'	267°26.8' S	3°54.6'	225°45.4' N	15°08.0'	325°28.4' S	21°47.5'	317°12.2' S	20°23.0'	331°15.1' S	23°04.4'	
7	273°24.9'	282°26.9' S	3°53.6'	240°45.3' N	15°09.1'	340°30.4' S	21°47.4'	332°14.4' S	20°23.0'	346°15.7' S	23°04.2'	
8	288°27.3'	297°27.1' S	3°52.6'	255°45.2' N	15°10.2'	355°32.5' S	21°47.4'	347°16.6' S	20°22.9'	1°16.3' S	23°04.1'	
9	303°29.8'	312°27.2' S	3°51.7'	270°45.1' N	15°11.3'	10°34.5' S	21°47.3'	2°18.9' S	20°22.9'	16°16.9' S	23°03.9'	
10	318°32.3'	327°27.4' S	3°50.7'	285°45.0' N	15°12.4'	25°36.5' S	21°47.2'	17°21.1' S	20°22.8'	31°17.5' S	23°03.7'	
11	333°34.7'	342°27.6' S	3°49.7'	300°44.9' N	15°13.5'	40°38.5' S	21°47.2'	32°23.3' S	20°22.8'	46°18.1' S	23°03.6'	
12	348°37.2'	357°27.7' S	3°48.7'	315°44.9' N	15°14.6'	55°40.5' S	21°47.1'	47°25.6' S	20°22.8'	61°18.6' S	23°03.4'	
13	3°39.7'	12°27.9' S	3°47.7'	330°44.8' N	15°15.7'	70°42.5' S	21°47.1'	62°27.8' S	20°22.7'	76°19.2' S	23°03.3'	
14	18°42.1'	27°28.1' S	3°46.8'	345°44.7' N	15°16.7'	85°44.5' S	21°47.0'	77°30.0' S	20°22.7'	91°19.8' S	23°03.1'	
15	33°44.6'	42°28.2' S	3°45.8'	0°44.6' N	15°17.8'	100°46.6' S	21°46.9'	92°32.3' S	20°22.6'	106°20.4' S	23°02.9'	
16	48°47.1'	57°28.4' S	3°44.8'	15°44.5' N	15°18.9'	115°48.6' S	21°46.9'	107°34.5' S	20°22.6'	121°21.0' S	23°02.8'	
17	63°49.5'	72°28.6' S	3°43.8'	30°44.5' N	15°20.0'	130°50.6' S	21°46.8'	122°36.7' S	20°22.5'	136°21.6' S	23°02.6'	
18	78°52.0'	87°28.7' S	3°42.8'	45°44.4' N	15°21.1'	145°52.6' S	21°46.8'	137°39.0' S	20°22.5'	151°22.2' S	23°02.4'	
19	93°54.5'	102°28.9' S	3°41.8'	60°44.3' N	15°22.2'	160°54.6' S	21°46.7'	152°41.2' S	20°22.5'	166°22.8' S	23°02.3'	
20	108°56.9'	117°29.0' S	3°40.9'	75°44.2' N	15°23.3'	175°56.6' S	21°46.6'	167°43.4' S	20°22.4'	181°23.4' S	23°02.1'	
21	123°59.4'	132°29.2' S	3°39.9'	90°44.1' N	15°24.4'	190°58.7' S	21°46.6'	182°45.7' S	20°22.4'	196°23.9' S	23°01.9'	
22	139°01.8'	147°29.4' S	3°38.9'	105°44.0' N	15°25.4'	206°00.7' S	21°46.5'	197°47.9' S	20°22.3'	211°24.5' S	23°01.8'	
23	154°04.3'	162°29.5' S	3°37.9'	120°44.0' N	15°26.5'	221°02.7' S	21°46.5'	212°50.1' S	20°22.3'	226°25.1' S	23°01.6'	
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 10 m 9 s		14 h 57 m		8 h 18 m		8 h 51 m		7 h 55 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	352°03.9' N	7°03.6'	7.9'	-14.6'	61.3'	72°59.4'	70°45.4'	38°53.1'	31°18.0'	23°51.3'	59°46.3'	60°37.0'	77°17.4'
1	6°30.8' N	6°49.0'	8.0'	-14.7'	61.3'	72°35.0'	70°27.7'	38°25.8'	30°40.9'	24°29.0'	60°24.3'	61°12.8'	77°39.7'
2	20°57.8' N	6°34.3'	8.0'	-14.7'	61.3'	72°10.7'	70°10.2'	37°58.9'	30°03.8'	25°06.8'	61°02.3'	61°48.6'	78°02.0'
3	35°24.8' N	6°19.6'	8.0'	-14.7'	61.3'	71°46.5'	69°52.8'	37°32.2'	29°26.7'	25°44.6'	61°40.3'	62°24.5'	78°24.4'
4	49°51.8' N	6°04.9'	8.1'	-14.8'	61.3'	71°22.3'	69°35.5'	37°05.8'	28°49.6'	26°22.3'	62°18.3'	63°00.4'	78°46.9'
5	64°18.8' N	5°50.1'	8.1'	-14.8'	61.3'	70°58.2'	69°18.4'	36°39.6'	28°12.6'	27°00.2'	62°56.3'	63°36.3'	79°09.4'
6	78°45.9' N	5°35.3'	8.1'	-14.8'	61.3'	70°34.3'	69°01.3'	36°13.8'	27°35.7'	27°38.0'	63°34.3'	64°12.2'	79°32.0'
7	93°13.0' N	5°20.4'	8.1'	-14.9'	61.3'	70°10.4'	68°44.4'	35°48.4'	26°58.8'	28°15.8'	64°12.3'	64°48.1'	79°54.6'
8	107°40.2' N	5°05.6'	8.2'	-14.9'	61.3'	69°46.6'	68°27.6'	35°23.2'	26°21.9'	28°53.7'	64°50.3'	65°24.1'	80°17.2'
9	122°07.4' N	4°50.6'	8.2'	-14.9'	61.3'	69°22.9'	68°11.0'	34°58.4'	25°45.2'	29°31.6'	65°28.3'	66°00.1'	80°39.9'
10	136°34.6' N	4°35.7'	8.2'	-15.0'	61.3'	68°59.3'	67°54.5'	34°33.9'	25°08.4'	30°09.4'	66°06.3'	66°36.1'	81°02.7'
11	151°01.8' N	4°20.7'	8.3'	-15.0'	61.3'	68°35.8'	67°38.1'	34°09.8'	24°31.8'	30°47.3'	66°44.3'	67°12.1'	81°25.5'
12	165°29.0' N	4°05.7'	8.3'	-15.0'	61.3'	68°12.4'	67°21.9'	33°46.1'	23°55.3'	31°25.2'	67°22.3'	67°48.2'	81°48.3'
13	179°56.3' N	3°50.7'	8.3'	-15.0'	61.3'	67°49.1'	67°05.9'	33°22.8'	23°18.8'	32°03.1'	68°00.3'	68°24.2'	82°11.2'
14	194°23.6' N	3°35.7'	8.3'	-15.1'	61.3'	67°26.0'	66°50.0'	32°59.9'	22°42.4'	32°41.0'	68°38.3'	69°00.3'	82°34.1'
15	208°51.0' N	3°20.6'	8.4'	-15.1'	61.3'	67°02.9'	66°34.2'	32°37.5'	22°06.1'	33°18.9'	69°16.3'	69°36.4'	82°57.0'
16	223°18.3' N	3°05.5'	8.4'	-15.1'	61.3'	66°40.0'	66°18.6'	32°15.4'	21°30.0'	33°56.8'	69°54.3'	70°12.5'	83°19.9'
17	237°45.7' N	2°50.4'	8.4'	-15.1'	61.3'	66°17.2'	66°03.1'	31°53.9'	20°53.9'	34°34.7'	70°32.3'	70°48.6'	83°42.9'
18	252°13.1' N	2°35.3'	8.4'	-15.1'	61.3'	65°54.5'	65°47.8'	31°32.8'	20°18.0'	35°12.6'	71°10.2'	71°24.7'	84°05.9'
19	266°40.5' N	2°20.2'	8.5'	-15.1'	61.3'	65°31.9'		31°12.1'	19°42.2'	35°50.5'	71°48.2'	72°00.8'	84°29.0'
20	281°08.0' N	2°05.0'	8.5'	-15.1'	61.3'	65°09.5'		30°52.0'	19°06.6'	36°28.4'	72°26.1'	72°36.9'	84°52.0'
21	295°35.5' N	1°49.9'	8.5'	-15.2'	61.3'	64°47.2'		30°32.5'	18°31.2'	37°06.3'	73°04.1'	73°13.0'	85°15.1'
22	310°03.0' N	1°34.8'	8.5'	-15.2'	61.3'	64°25.1'		30°13.4'	17°55.9'	37°44.2'	73°42.0'	73°49.1'	85°38.2'
23	324°30.5' N	1°19.6'	8.5'	-15.2'	61.3'	64°03.1'		29°54.9'	17°20.8'	38°22.1'	74°19.9'	74°25.2'	86°01.2'
Mer. pass.		0 h 33 m SD 16.7'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°01.8'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°27.9'	Canopus	-0.6	263°53.9'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	169°06.8'	S 3°36.9'	177°29.7'	S 3°36.9'	135°43.9'	N 15°27.6'	236°04.7'	S 21°46.4'	227°52.4'	S 20°22.2'	241°25.7'	S 23°01.4'
1	184°09.2'	S 3°36.0'	192°29.9'	S 3°36.0'	150°43.8'	N 15°28.7'	251°06.7'	S 21°46.3'	242°54.6'	S 20°22.2'	256°26.3'	S 23°01.3'
2	199°11.7'	S 3°35.0'	207°30.0'	S 3°35.0'	165°43.7'	N 15°29.8'	266°08.7'	S 21°46.3'	257°56.8'	S 20°22.2'	271°26.9'	S 23°01.1'
3	214°14.2'	S 3°34.0'	222°30.2'	S 3°34.0'	180°43.6'	N 15°30.9'	281°10.8'	S 21°46.2'	272°59.1'	S 20°22.1'	286°27.5'	S 23°00.9'
4	229°16.6'	S 3°33.0'	237°30.4'	S 3°33.0'	195°43.5'	N 15°31.9'	296°12.8'	S 21°46.2'	288°01.3'	S 20°22.1'	301°28.1'	S 23°00.8'
5	244°19.1'	S 3°32.0'	252°30.5'	S 3°32.0'	210°43.5'	N 15°33.0'	311°14.8'	S 21°46.1'	303°03.5'	S 20°22.0'	316°28.7'	S 23°00.6'
6	259°21.6'	S 3°31.0'	267°30.7'	S 3°31.0'	225°43.4'	N 15°34.1'	326°16.8'	S 21°46.0'	318°05.8'	S 20°22.0'	331°29.3'	S 23°00.4'
7	274°24.0'	S 3°30.1'	282°30.9'	S 3°30.1'	240°43.3'	N 15°35.2'	341°18.8'	S 21°46.0'	333°08.0'	S 20°22.0'	346°29.9'	S 23°00.3'
8	289°26.5'	S 3°29.1'	297°31.0'	S 3°29.1'	255°43.2'	N 15°36.3'	356°20.8'	S 21°45.9'	348°10.2'	S 20°21.9'	1°30.4'	S 23°00.1'
9	304°28.9'	S 3°28.1'	312°31.2'	S 3°28.1'	270°43.1'	N 15°37.3'	11°22.9'	S 21°45.8'	3°12.5'	S 20°21.9'	16°31.0'	S 22°59.9'
10	319°31.4'	S 3°27.1'	327°31.4'	S 3°27.1'	285°43.1'	N 15°38.4'	26°24.9'	S 21°45.8'	18°14.7'	S 20°21.8'	31°31.6'	S 22°59.8'
11	334°33.9'	S 3°26.1'	342°31.5'	S 3°26.1'	300°43.0'	N 15°39.5'	41°26.9'	S 21°45.7'	33°17.0'	S 20°21.8'	46°32.2'	S 22°59.6'
12	349°36.3'	S 3°25.2'	357°31.7'	S 3°25.2'	315°42.9'	N 15°40.6'	56°28.9'	S 21°45.7'	48°19.2'	S 20°21.7'	61°32.8'	S 22°59.4'
13	4°38.8'	S 3°24.2'	12°31.9'	S 3°24.2'	330°42.8'	N 15°41.6'	71°30.9'	S 21°45.6'	63°21.4'	S 20°21.7'	76°33.4'	S 22°59.3'
14	19°41.3'	S 3°23.2'	27°32.0'	S 3°23.2'	345°42.7'	N 15°42.7'	86°33.0'	S 21°45.5'	78°23.7'	S 20°21.7'	91°34.0'	S 22°59.1'
15	34°43.7'	S 3°22.2'	42°32.2'	S 3°22.2'	0°42.7'	N 15°43.8'	101°35.0'	S 21°45.5'	93°25.9'	S 20°21.6'	106°34.6'	S 22°58.9'
16	49°46.2'	S 3°21.2'	57°32.4'	S 3°21.2'	15°42.6'	N 15°44.9'	116°37.0'	S 21°45.4'	108°28.1'	S 20°21.6'	121°35.2'	S 22°58.7'
17	64°48.7'	S 3°20.2'	72°32.5'	S 3°20.2'	30°42.5'	N 15°45.9'	131°39.0'	S 21°45.4'	123°30.4'	S 20°21.5'	136°35.8'	S 22°58.6'
18	79°51.1'	S 3°19.3'	87°32.7'	S 3°19.3'	45°42.4'	N 15°47.0'	146°41.0'	S 21°45.3'	138°32.6'	S 20°21.5'	151°36.3'	S 22°58.4'
19	94°53.6'	S 3°18.3'	102°32.9'	S 3°18.3'	60°42.3'	N 15°48.1'	161°43.1'	S 21°45.2'	153°34.8'	S 20°21.4'	166°36.9'	S 22°58.2'
20	109°56.1'	S 3°17.3'	117°33.0'	S 3°17.3'	75°42.3'	N 15°49.2'	176°45.1'	S 21°45.2'	168°37.1'	S 20°21.4'	181°37.5'	S 22°58.1'
21	124°58.5'	S 3°16.3'	132°33.2'	S 3°16.3'	90°42.2'	N 15°50.2'	191°47.1'	S 21°45.1'	183°39.3'	S 20°21.4'	196°38.1'	S 22°57.9'
22	140°01.0'	S 3°15.3'	147°33.4'	S 3°15.3'	105°42.1'	N 15°51.3'	206°49.1'	S 21°45.1'	198°41.6'	S 20°21.3'	211°38.7'	S 22°57.7'
23	155°03.4'	S 3°14.3'	162°33.5'	S 3°14.3'	120°42.0'	N 15°52.4'	221°51.2'	S 21°45.0'	213°43.8'	S 20°21.3'	226°39.3'	S 22°57.5'
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 9 m 53 s		14 h 57 m		8 h 15 m		8 h 47 m		7 h 54 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Antares	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	338°58.0'	N 1°04.4'	8.6'	-15.2'	61.2'	63°41.2'	61°48.8'	29°37.0'	16°46.0'	38°60.0'	74°57.9'	75°01.4'	86°24.3'
1	353°25.6'	N 0°49.3'	8.6'	-15.2'	61.2'	63°19.5'	61°11.1'	29°19.7'	16°11.4'	39°37.8'	75°35.7'	75°37.5'	86°47.5'
2	7°53.1'	N 0°34.1'	8.6'	-15.2'	61.2'	62°57.9'	60°33.3'	29°02.9'	15°37.1'	40°15.7'	76°13.6'	76°13.6'	87°10.6'
3	22°20.7'	N 0°18.9'	8.6'	-15.2'	61.2'	62°36.5'	59°55.7'	28°46.8'	15°03.1'	40°53.5'	76°51.5'	76°49.7'	87°33.7'
4	36°48.3'	N 0°03.8'	8.6'	-15.1'	61.2'	62°15.2'	59°18.0'		14°29.4'	41°31.4'	77°29.4'	77°25.8'	87°56.8'
5	51°16.0'	S 0°11.4'	8.6'	-15.1'	61.2'	61°54.1'	58°40.4'		13°56.2'	42°09.2'	78°07.2'	78°01.9'	88°19.9'
6	65°43.6'	S 0°26.5'	8.7'	-15.1'	61.2'	61°33.2'	58°02.7'		13°23.3'	42°47.0'	78°45.0'	78°38.0'	88°43.0'
7	80°11.3'	S 0°41.6'	8.7'	-15.1'	61.2'	61°12.5'	57°25.1'		12°50.9'	43°24.8'	79°22.8'	79°14.0'	89°06.1'
8	94°38.9'	S 0°56.8'	8.7'	-15.1'	61.1'	60°51.9'	56°47.6'		12°19.1'	44°02.5'	80°00.6'	79°50.1'	89°29.2'
9	109°06.6'	S 1°11.9'	8.7'	-15.1'	61.1'	60°31.5'	56°10.0'		11°47.8'	44°40.3'	80°38.4'	80°26.2'	89°52.3'
10	123°34.3'	S 1°27.0'	8.7'	-15.1'	61.1'	60°11.2'	55°32.5'		11°17.3'	45°18.0'	81°16.1'	81°02.2'	90°15.4'
11	138°02.0'	S 1°42.0'	8.7'	-15.1'	61.1'	59°51.2'	54°55.0'			45°55.8'	81°53.8'	81°38.2'	90°38.5'
12	152°29.7'	S 1°57.1'	8.7'	-15.0'	61.1'	59°31.3'	54°17.6'			46°33.5'	82°31.5'	82°14.2'	91°01.5'
13	166°57.4'	S 2°12.1'	8.7'	-15.0'	61.1'	59°11.6'	53°40.1'			47°11.2'	83°09.2'	82°50.2'	91°24.6'
14	181°25.2'	S 2°27.1'	8.7'	-15.0'	61.0'	58°52.1'	53°02.7'			47°48.8'	83°46.9'	83°26.2'	91°47.6'
15	195°52.9'	S 2°42.1'	8.8'	-15.0'	61.0'	58°32.9'	52°25.3'			48°26.5'	84°24.5'	84°02.2'	92°10.6'
16	210°20.7'	S 2°57.1'	8.8'	-14.9'	61.0'	58°13.8'	51°48.0'			49°04.1'	85°02.1'	84°38.1'	92°33.5'
17	224°48.4'	S 3°12.0'	8.8'	-14.9'	61.0'	57°54.9'	51°10.7'			49°41.7'	85°39.7'	85°14.0'	92°56.4'
18	239°16.2'	S 3°26.9'	8.8'	-14.9'	61.0'	57°36.2'	50°33.4'			50°19.3'	86°17.3'	85°49.9'	93°19.3'
19	253°44.0'	S 3°41.8'	8.8'	-14.8'	61.0'	57°17.7'	49°56.1'			50°56.8'	86°54.8'	86°25.8'	93°42.2'
20	268°11.8'	S 3°56.6'	8.8'	-14.8'	60.9'	56°59.5'	49°18.9'			51°34.4'	87°32.3'	87°01.6'	94°05.1'
21	282°39.6'	S 4°11.5'	8.8'	-14.8'	60.9'	56°41.5'	48°41.7'			52°11.9'	88°09.8'	87°37.5'	94°27.9'
22	297°07.3'	S 4°26.2'	8.8'	-14.7'	60.9'	56°23.7'	48°04.6'			52°49.3'	88°47.2'	88°13.3'	94°50.6'
23	311°35.1'	S 4°41.0'	8.8'	-14.7'	60.9'	56°06.1'	47°27.5'			53°26.8'	89°24.7'	88°49.0'	95°13.3'
Mer. pass.		1 h 27 m SD 16.7' phase 97%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°02.3'	N 89°21.1'
Rigil Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	170°05.9'	177°33.7'	S 3°13.4'	135°41.9'	N 15°53.4'	236°53.2'	S 21°44.9'	228°46.0'	S 20°21.2'	241°39.9'	S 22°57.4'
1	185°08.4'	192°33.9'	S 3°12.4'	150°41.9'	N 15°54.5'	251°55.2'	S 21°44.9'	243°48.3'	S 20°21.2'	256°40.5'	S 22°57.2'
2	200°10.8'	207°34.0'	S 3°11.4'	165°41.8'	N 15°55.6'	266°57.2'	S 21°44.8'	258°50.5'	S 20°21.2'	271°41.1'	S 22°57.0'
3	215°13.3'	222°34.2'	S 3°10.4'	180°41.7'	N 15°56.6'	281°59.2'	S 21°44.8'	273°52.7'	S 20°21.1'	286°41.7'	S 22°56.8'
4	230°15.8'	237°34.4'	S 3°09.4'	195°41.6'	N 15°57.7'	297°01.3'	S 21°44.7'	288°55.0'	S 20°21.1'	301°42.3'	S 22°56.7'
5	245°18.2'	252°34.5'	S 3°08.4'	210°41.5'	N 15°58.8'	312°03.3'	S 21°44.6'	303°57.2'	S 20°21.0'	316°42.9'	S 22°56.5'
6	260°20.7'	267°34.7'	S 3°07.4'	225°41.5'	N 15°59.8'	327°05.3'	S 21°44.6'	318°59.5'	S 20°21.0'	331°43.4'	S 22°56.3'
7	275°23.2'	282°34.9'	S 3°06.5'	240°41.4'	N 16°00.9'	342°07.3'	S 21°44.5'	334°01.7'	S 20°21.0'	346°44.0'	S 22°56.1'
8	290°25.6'	297°35.1'	S 3°05.5'	255°41.3'	N 16°02.0'	357°09.4'	S 21°44.5'	349°03.9'	S 20°20.9'	1°44.6'	S 22°56.0'
9	305°28.1'	312°35.2'	S 3°04.5'	270°41.2'	N 16°03.0'	12°11.4'	S 21°44.4'	4°06.2'	S 20°20.9'	16°45.2'	S 22°55.8'
10	320°30.5'	327°35.4'	S 3°03.5'	285°41.1'	N 16°04.1'	27°13.4'	S 21°44.3'	19°08.4'	S 20°20.8'	31°45.8'	S 22°55.6'
11	335°33.0'	342°35.6'	S 3°02.5'	300°41.1'	N 16°05.2'	42°15.4'	S 21°44.3'	34°10.6'	S 20°20.8'	46°46.4'	S 22°55.4'
12	350°35.5'	357°35.7'	S 3°01.5'	315°41.0'	N 16°06.2'	57°17.5'	S 21°44.2'	49°12.9'	S 20°20.7'	61°47.0'	S 22°55.2'
13	5°37.9'	12°35.9'	S 3°00.6'	330°40.9'	N 16°07.3'	72°19.5'	S 21°44.1'	64°15.1'	S 20°20.7'	76°47.6'	S 22°55.1'
14	20°40.4'	27°36.1'	S 2°59.6'	345°40.8'	N 16°08.3'	87°21.5'	S 21°44.1'	79°17.4'	S 20°20.7'	91°48.2'	S 22°54.9'
15	35°42.9'	42°36.2'	S 2°58.6'	0°40.8'	N 16°09.4'	102°23.5'	S 21°44.0'	94°19.6'	S 20°20.6'	106°48.8'	S 22°54.7'
16	50°45.3'	57°36.4'	S 2°57.6'	15°40.7'	N 16°10.5'	117°25.5'	S 21°44.0'	109°21.8'	S 20°20.6'	121°49.4'	S 22°54.5'
17	65°47.8'	72°36.6'	S 2°56.6'	30°40.6'	N 16°11.5'	132°27.6'	S 21°43.9'	124°24.1'	S 20°20.5'	136°50.0'	S 22°54.3'
18	80°50.3'	87°36.8'	S 2°55.6'	45°40.5'	N 16°12.6'	147°29.6'	S 21°43.8'	139°26.3'	S 20°20.5'	151°50.5'	S 22°54.2'
19	95°52.7'	102°36.9'	S 2°54.6'	60°40.4'	N 16°13.6'	162°31.6'	S 21°43.8'	154°28.6'	S 20°20.5'	166°51.1'	S 22°54.0'
20	110°55.2'	117°37.1'	S 2°53.7'	75°40.4'	N 16°14.7'	177°33.7'	S 21°43.7'	169°30.8'	S 20°20.4'	181°51.7'	S 22°53.8'
21	125°57.7'	132°37.3'	S 2°52.7'	90°40.3'	N 16°15.8'	192°35.7'	S 21°43.7'	184°33.0'	S 20°20.4'	196°52.3'	S 22°53.6'
22	141°00.1'	147°37.4'	S 2°51.7'	105°40.2'	N 16°16.8'	207°37.7'	S 21°43.6'	199°35.3'	S 20°20.3'	211°52.9'	S 22°53.4'
23	156°02.6'	162°37.6'	S 2°50.7'	120°40.1'	N 16°17.9'	222°39.7'	S 21°43.5'	214°37.5'	S 20°20.3'	226°53.5'	S 22°53.3'
		SD 16.1' d 1.0'		v -0.1' d 1.1'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'	
Mer. pass.		12 h 9 m 37 s		14 h 57 m		8 h 11 m		8 h 44 m		7 h 53 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Vega	-Rigel Kent	-Hadar	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	326°02.9'	S 4°55.7'	8.8'	-14.7'	60.8'	81°48.3'	57°18.3'	55°48.7'	46°50.4'			54°04.2'	89°24.8'
1	340°30.7'	S 5°10.3'	8.8'	-14.6'	60.8'	81°31.5'	56°58.4'	55°31.6'	46°13.4'			54°41.6'	90°00.5'
2	354°58.5'	S 5°24.9'	8.8'	-14.6'	60.8'	81°14.8'	56°38.6'	55°14.7'	45°36.4'			55°19.0'	90°36.2'
3	9°26.3'	S 5°39.5'	8.8'	-14.5'	60.8'	80°58.2'	56°19.1'	54°58.1'	44°59.5'			55°56.3'	91°11.9'
4	23°54.1'	S 5°54.0'	8.8'	-14.5'	60.8'	80°41.6'	55°59.8'	54°41.7'	44°22.6'			56°33.6'	91°47.5'
5	38°21.9'	S 6°08.5'	8.8'	-14.4'	60.7'	80°25.1'	55°40.7'	54°25.5'	43°45.7'			57°10.9'	92°23.1'
6	52°49.7'	S 6°22.9'	8.8'	-14.4'	60.7'	80°08.6'	55°21.8'	54°09.6'	43°08.9'			57°48.2'	92°58.7'
7	67°17.5'	S 6°37.3'	8.8'	-14.3'	60.7'	79°52.3'	55°03.2'	53°54.0'	42°32.1'			58°25.4'	93°34.2'
8	81°45.3'	S 6°51.6'	8.8'	-14.3'	60.7'	79°36.0'	54°44.7'	53°38.6'	41°55.4'			59°02.6'	94°09.7'
9	96°13.1'	S 7°05.9'	8.8'	-14.2'	60.6'	79°19.7'	54°26.6'		41°18.7'			59°39.7'	94°45.1'
10	110°40.9'	S 7°20.1'	8.8'	-14.2'	60.6'	79°03.6'	54°08.6'		40°42.1'			60°16.8'	95°20.6'
11	125°08.7'	S 7°34.2'	8.8'	-14.1'	60.6'	78°47.5'	53°50.9'		40°05.5'			60°53.9'	95°56.0'
12	139°36.5'	S 7°48.3'	8.8'	-14.0'	60.6'	78°31.5'	53°33.4'		39°29.0'			61°30.9'	96°31.3'
13	154°04.3'	S 8°02.3'	8.8'	-14.0'	60.5'	78°15.6'	53°16.2'		38°52.5'			62°08.0'	97°06.6'
14	168°32.0'	S 8°16.3'	8.8'	-13.9'	60.5'	77°59.8'	52°59.3'		38°16.1'	10°50.5'		62°44.9'	97°41.9'
15	182°59.8'	S 8°30.2'	8.8'	-13.8'	60.5'	77°44.1'	52°42.6'		37°39.7'	11°19.6'		63°21.9'	98°17.1'
16	197°27.6'	S 8°44.1'	8.8'	-13.8'	60.4'	77°28.4'	52°26.1'		37°03.4'	11°49.5'		63°58.8'	98°52.3'
17	211°55.3'	S 8°57.8'	8.7'	-13.7'	60.4'	77°12.9'	52°09.9'		36°27.1'	12°20.0'		64°35.7'	99°27.5'
18	226°23.1'	S 9°11.5'	8.7'	-13.6'	60.4'	76°57.4'	51°54.0'		35°50.9'	12°51.0'		65°12.5'	100°02.6'
19	240°50.8'	S 9°25.2'	8.7'	-13.6'	60.4'	76°42.0'	51°38.4'		35°14.8'	13°22.5'		65°49.3'	100°37.6'
20	255°18.5'	S 9°38.8'	8.7'	-13.5'	60.3'	76°26.8'	51°23.0'		34°38.7'	13°54.4'	28°45.5'	66°26.0'	101°12.6'
21	269°46.2'	S 9°52.2'	8.7'	-13.4'	60.3'	76°11.6'			34°02.7'	14°26.6'	29°01.0'	67°02.8'	101°47.6'
22	284°13.9'	S 10°05.7'	8.7'	-13.3'	60.3'				33°26.7'	14°59.1'	29°17.1'	67°39.4'	102°22.5'
23	298°41.6'	S 10°19.0'	8.7'	-13.3'	60.2'				32°50.8'	15°31.9'	29°33.7'	68°16.1'	102°57.4'
Mer. pass.		2 h 21 m SD 16.6'		phase 92%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°36.0'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°02.7'	N 89°21.1'
Rigel Kent	-0.0	139°45.1'	S 60°54.8'	Adhara	+1.5	255°08.7'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.3'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	171°05.0'	S 2°49.7'	177°37.8'	S 2°49.7'	135°40.1'	N 16°18.9'	237°41.8'	S 21°43.5'	229°39.8'	S 20°20.2'	241°54.1'	S 22°53.1'
1	186°07.5'	S 2°48.7'	192°37.9'	S 2°48.7'	150°40.0'	N 16°20.0'	252°43.8'	S 21°43.4'	244°42.0'	S 20°20.2'	256°54.7'	S 22°52.9'
2	201°10.0'	S 2°47.8'	207°38.1'	S 2°47.8'	165°39.9'	N 16°21.0'	267°45.8'	S 21°43.4'	259°44.2'	S 20°20.2'	271°55.3'	S 22°52.7'
3	216°12.4'	S 2°46.8'	222°38.3'	S 2°46.8'	180°39.8'	N 16°22.1'	282°47.8'	S 21°43.3'	274°46.5'	S 20°20.1'	286°55.9'	S 22°52.5'
4	231°14.9'	S 2°45.8'	237°38.5'	S 2°45.8'	195°39.8'	N 16°23.1'	297°49.9'	S 21°43.2'	289°48.7'	S 20°20.1'	301°56.5'	S 22°52.3'
5	246°17.4'	S 2°44.8'	252°38.6'	S 2°44.8'	210°39.7'	N 16°24.2'	312°51.9'	S 21°43.2'	304°51.0'	S 20°20.0'	316°57.1'	S 22°52.2'
6	261°19.8'	S 2°43.8'	267°38.8'	S 2°43.8'	225°39.6'	N 16°25.2'	327°53.9'	S 21°43.1'	319°53.2'	S 20°20.0'	331°57.7'	S 22°52.0'
7	276°22.3'	S 2°42.8'	282°39.0'	S 2°42.8'	240°39.5'	N 16°26.3'	342°56.0'	S 21°43.1'	334°55.5'	S 20°20.0'	346°58.3'	S 22°51.8'
8	291°24.8'	S 2°41.8'	297°39.1'	S 2°41.8'	255°39.4'	N 16°27.3'	357°58.0'	S 21°43.0'	349°57.7'	S 20°19.9'	1°58.8'	S 22°51.6'
9	306°27.2'	S 2°40.9'	312°39.3'	S 2°40.9'	270°39.4'	N 16°28.4'	13°00.0'	S 21°42.9'	4°59.9'	S 20°19.9'	16°59.4'	S 22°51.4'
10	321°29.7'	S 2°39.9'	327°39.5'	S 2°39.9'	285°39.3'	N 16°29.4'	28°02.0'	S 21°42.9'	20°02.2'	S 20°19.8'	32°00.0'	S 22°51.2'
11	336°32.2'	S 2°38.9'	342°39.7'	S 2°38.9'	300°39.2'	N 16°30.5'	43°04.1'	S 21°42.8'	35°04.4'	S 20°19.8'	47°00.6'	S 22°51.0'
12	351°34.6'	S 2°37.9'	357°39.8'	S 2°37.9'	315°39.1'	N 16°31.5'	58°06.1'	S 21°42.8'	50°06.7'	S 20°19.8'	62°01.2'	S 22°50.9'
13	6°37.1'	S 2°36.9'	12°40.0'	S 2°36.9'	330°39.1'	N 16°32.6'	73°08.1'	S 21°42.7'	65°08.9'	S 20°19.7'	77°01.8'	S 22°50.7'
14	21°39.5'	S 2°35.9'	27°40.2'	S 2°35.9'	345°39.0'	N 16°33.6'	88°10.2'	S 21°42.6'	80°11.1'	S 20°19.7'	92°02.4'	S 22°50.5'
15	36°42.0'	S 2°34.9'	42°40.4'	S 2°34.9'	0°38.9'	N 16°34.7'	103°12.2'	S 21°42.6'	95°13.4'	S 20°19.6'	107°03.0'	S 22°50.3'
16	51°44.5'	S 2°34.0'	57°40.5'	S 2°34.0'	15°38.8'	N 16°35.7'	118°14.2'	S 21°42.5'	110°15.6'	S 20°19.6'	122°03.6'	S 22°50.1'
17	66°46.9'	S 2°33.0'	72°40.7'	S 2°33.0'	30°38.8'	N 16°36.8'	133°16.2'	S 21°42.5'	125°17.9'	S 20°19.6'	137°04.2'	S 22°49.9'
18	81°49.4'	S 2°32.0'	87°40.9'	S 2°32.0'	45°38.7'	N 16°37.8'	148°18.3'	S 21°42.4'	140°20.1'	S 20°19.5'	152°04.8'	S 22°49.7'
19	96°51.9'	S 2°31.0'	102°41.0'	S 2°31.0'	60°38.6'	N 16°38.8'	163°20.3'	S 21°42.3'	155°22.4'	S 20°19.5'	167°05.4'	S 22°49.5'
20	111°54.3'	S 2°30.0'	117°41.2'	S 2°30.0'	75°38.5'	N 16°39.9'	178°22.3'	S 21°42.3'	170°24.6'	S 20°19.4'	182°06.0'	S 22°49.3'
21	126°56.8'	S 2°29.0'	132°41.4'	S 2°29.0'	90°38.5'	N 16°40.9'	193°24.4'	S 21°42.2'	185°26.8'	S 20°19.4'	197°06.6'	S 22°49.2'
22	141°59.3'	S 2°28.0'	147°41.6'	S 2°28.0'	105°38.4'	N 16°42.0'	208°26.4'	S 21°42.2'	200°29.1'	S 20°19.3'	212°07.2'	S 22°49.0'
23	157°01.7'	S 2°27.1'	162°41.7'	S 2°27.1'	120°38.3'	N 16°43.0'	223°28.4'	S 21°42.1'	215°31.3'	S 20°19.3'	227°07.7'	S 22°48.8'
		SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 9 m 21 s		14 h 57 m		8 h 8 m		8 h 40 m		7 h 52 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Saturn	-Jupiter	-Mars	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	313°09.3'	S 10°32.3'	8.7'	-13.2'	60.2'	80°19.6'	72°43.4'	68°45.9'	32°15.0'	16°05.0'	29°50.9'	68°52.7'	103°32.3'
1	327°37.0'	S 10°45.5'	8.7'	-13.1'	60.2'	79°43.2'	72°07.2'	68°10.9'	31°39.2'	16°38.2'	30°08.6'	69°29.2'	104°07.0'
2	342°04.7'	S 10°58.6'	8.7'	-13.0'	60.1'	79°06.8'	71°31.0'	67°36.1'	31°03.5'	17°11.6'	30°26.7'	70°05.8'	104°41.8'
3	356°32.3'	S 11°11.6'	8.6'	-13.0'	60.1'	78°30.5'	70°54.8'	67°01.2'	30°27.9'	17°45.2'	30°45.3'	70°42.2'	105°16.5'
4	10°60.0'	S 11°24.6'	8.6'	-12.9'	60.1'	77°54.2'	70°18.7'	66°26.4'	29°52.4'	18°19.0'	31°04.4'	71°18.7'	105°51.1'
5	25°27.6'	S 11°37.4'	8.6'	-12.8'	60.0'	77°18.0'	69°42.7'	65°51.7'	29°16.9'	18°52.9'	31°24.0'	71°55.1'	106°25.7'
6	39°55.2'	S 11°50.2'	8.6'	-12.7'	60.0'	76°41.8'	69°06.7'	65°17.0'	28°41.6'	19°26.9'	31°43.9'	72°31.4'	107°00.2'
7	54°22.8'	S 12°02.9'	8.6'	-12.6'	60.0'	76°05.6'	68°30.7'	64°42.3'	28°06.3'	20°00.9'	32°04.3'	73°07.7'	107°34.7'
8	68°50.4'	S 12°15.5'	8.6'	-12.5'	59.9'	75°29.5'	67°54.7'	64°07.7'	27°31.0'	20°35.1'	32°25.0'	73°44.0'	108°09.1'
9	83°18.0'	S 12°28.1'	8.6'	-12.4'	59.9'	74°53.4'	67°18.9'	63°33.1'	26°55.9'	21°09.4'	32°46.2'	74°20.2'	108°43.5'
10	97°45.5'	S 12°40.5'	8.5'	-12.3'	59.9'	74°17.4'	66°43.0'	62°58.6'	26°20.9'	21°43.7'	33°07.7'	74°56.4'	109°17.8'
11	112°13.1'	S 12°52.8'	8.5'	-12.3'	59.8'	73°41.4'	66°07.2'	62°24.1'	25°45.9'	22°18.0'	33°29.5'	75°32.6'	109°52.1'
12	126°40.6'	S 13°05.1'	8.5'	-12.2'	59.8'	73°05.5'	65°31.5'	61°49.7'	25°11.1'	22°52.5'	33°51.7'	76°08.7'	110°26.3'
13	141°08.1'	S 13°17.3'	8.5'	-12.1'	59.8'	72°29.6'	64°55.7'	61°15.3'	24°36.4'	23°26.9'	34°14.2'	76°44.7'	111°00.5'
14	155°35.6'	S 13°29.3'	8.5'	-12.0'	59.7'	71°53.7'	64°20.1'	60°40.9'	24°01.7'	24°01.4'	34°37.0'	77°20.7'	111°34.5'
15	170°03.1'	S 13°41.3'	8.5'	-11.9'	59.7'	71°17.9'	63°44.4'	60°06.6'	23°27.2'	24°35.9'	35°00.1'	77°56.7'	112°08.6'
16	184°30.6'	S 13°53.2'	8.5'	-11.8'	59.7'	70°42.1'	63°08.9'	59°32.3'	22°52.8'	25°10.5'	35°23.5'	78°32.6'	112°42.6'
17	198°58.0'	S 14°04.9'	8.4'	-11.7'	59.6'	70°06.4'	62°33.3'	58°58.1'	22°18.5'	25°45.0'	35°47.2'	79°08.5'	113°16.5'
18	213°25.5'	S 14°16.6'	8.4'	-11.6'	59.6'	69°30.7'	61°57.8'	58°23.9'	21°44.4'	26°19.6'	36°11.2'	79°44.4'	113°50.3'
19	227°52.9'	S 14°28.2'	8.4'	-11.5'	59.6'	68°55.1'	61°22.4'	57°49.8'	21°10.4'	26°54.2'	36°35.4'	80°20.1'	114°24.1'
20	242°20.3'	S 14°39.7'	8.4'	-11.4'	59.5'	68°19.5'	60°47.0'	57°15.7'	20°36.5'	27°28.8'	36°59.8'	80°55.9'	114°57.9'
21	256°47.7'	S 14°51.1'	8.4'	-11.3'	59.5'	67°44.0'	60°11.6'	56°41.7'	20°02.8'	28°03.4'	37°24.5'	81°31.6'	115°31.5'
22	271°15.1'	S 15°02.3'	8.4'	-11.2'	59.5'	67°08.5'	59°36.3'	56°07.7'	19°29.2'	28°38.0'	37°49.3'	82°07.2'	116°05.1'
23	285°42.4'	S 15°13.5'	8.3'	-11.1'	59.4'	66°33.1'	59°01.1'	55°33.7'	18°55.8'	29°12.6'	38°14.4'	82°42.8'	116°38.7'
Mer. pass.		3 h 14 m SD 16.4' phase 85%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.4'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°03.0'	N 89°21.1'
Rigil Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	172°04.2'	S 2°26.1'	177°41.9'	S 2°26.1'	135°38.2'	N 16°44.0'	238°30.5'	S 21°42.0'	230°33.6'	S 20°19.3'	242°08.3'	S 22°48.6'
1	187°06.6'	S 2°25.1'	192°42.1'	S 2°25.1'	150°38.2'	N 16°45.1'	253°32.5'	S 21°42.0'	245°35.8'	S 20°19.2'	257°08.9'	S 22°48.4'
2	202°09.1'	S 2°24.1'	207°42.3'	S 2°24.1'	165°38.1'	N 16°46.1'	268°34.5'	S 21°41.9'	260°38.1'	S 20°19.2'	272°09.5'	S 22°48.2'
3	217°11.6'	S 2°23.1'	222°42.4'	S 2°23.1'	180°38.0'	N 16°47.2'	283°36.6'	S 21°41.9'	275°40.3'	S 20°19.1'	287°10.1'	S 22°48.0'
4	232°14.0'	S 2°22.1'	237°42.6'	S 2°22.1'	195°37.9'	N 16°48.2'	298°38.6'	S 21°41.8'	290°42.5'	S 20°19.1'	302°10.7'	S 22°47.8'
5	247°16.5'	S 2°21.1'	252°42.8'	S 2°21.1'	210°37.9'	N 16°49.2'	313°40.6'	S 21°41.7'	305°44.8'	S 20°19.1'	317°11.3'	S 22°47.6'
6	262°19.0'	S 2°20.1'	267°43.0'	S 2°20.1'	225°37.8'	N 16°50.3'	328°42.7'	S 21°41.7'	320°47.0'	S 20°19.0'	332°11.9'	S 22°47.4'
7	277°21.4'	S 2°19.2'	282°43.1'	S 2°19.2'	240°37.7'	N 16°51.3'	343°44.7'	S 21°41.6'	335°49.3'	S 20°19.0'	347°12.5'	S 22°47.2'
8	292°23.9'	S 2°18.2'	297°43.3'	S 2°18.2'	255°37.7'	N 16°52.3'	358°46.7'	S 21°41.6'	350°51.5'	S 20°18.9'	2°13.1'	S 22°47.0'
9	307°26.4'	S 2°17.2'	312°43.5'	S 2°17.2'	270°37.6'	N 16°53.4'	13°48.8'	S 21°41.5'	5°53.8'	S 20°18.9'	17°13.7'	S 22°46.9'
10	322°28.8'	S 2°16.2'	327°43.6'	S 2°16.2'	285°37.5'	N 16°54.4'	28°50.8'	S 21°41.4'	20°56.0'	S 20°18.9'	32°14.3'	S 22°46.7'
11	337°31.3'	S 2°15.2'	342°43.8'	S 2°15.2'	300°37.4'	N 16°55.4'	43°52.8'	S 21°41.4'	35°58.3'	S 20°18.8'	47°14.9'	S 22°46.5'
12	352°33.8'	S 2°14.2'	357°44.0'	S 2°14.2'	315°37.4'	N 16°56.5'	58°54.9'	S 21°41.3'	51°00.5'	S 20°18.8'	62°15.5'	S 22°46.3'
13	7°36.2'	S 2°13.2'	12°44.2'	S 2°13.2'	330°37.3'	N 16°57.5'	73°56.9'	S 21°41.3'	66°02.7'	S 20°18.7'	77°16.1'	S 22°46.1'
14	22°38.7'	S 2°12.3'	27°44.3'	S 2°12.3'	345°37.2'	N 16°58.5'	88°58.9'	S 21°41.2'	81°05.0'	S 20°18.7'	92°16.7'	S 22°45.9'
15	37°41.1'	S 2°11.3'	42°44.5'	S 2°11.3'	0°37.1'	N 16°59.6'	104°01.0'	S 21°41.1'	96°07.2'	S 20°18.7'	107°17.3'	S 22°45.7'
16	52°43.6'	S 2°10.3'	57°44.7'	S 2°10.3'	15°37.1'	N 17°00.6'	119°03.0'	S 21°41.1'	111°09.5'	S 20°18.6'	122°17.9'	S 22°45.5'
17	67°46.1'	S 2°09.3'	72°44.9'	S 2°09.3'	30°37.0'	N 17°01.6'	134°05.0'	S 21°41.0'	126°11.7'	S 20°18.6'	137°18.4'	S 22°45.3'
18	82°48.5'	S 2°08.3'	87°45.0'	S 2°08.3'	45°36.9'	N 17°02.6'	149°07.1'	S 21°41.0'	141°14.0'	S 20°18.5'	152°19.0'	S 22°45.1'
19	97°51.0'	S 2°07.3'	102°45.2'	S 2°07.3'	60°36.9'	N 17°03.7'	164°09.1'	S 21°40.9'	156°16.2'	S 20°18.5'	167°19.6'	S 22°44.9'
20	112°53.5'	S 2°06.3'	117°45.4'	S 2°06.3'	75°36.8'	N 17°04.7'	179°11.1'	S 21°40.8'	171°18.5'	S 20°18.5'	182°20.2'	S 22°44.7'
21	127°55.9'	S 2°05.3'	132°45.6'	S 2°05.3'	90°36.7'	N 17°05.7'	194°13.2'	S 21°40.8'	186°20.7'	S 20°18.4'	197°20.8'	S 22°44.5'
22	142°58.4'	S 2°04.4'	147°45.7'	S 2°04.4'	105°36.6'	N 17°06.8'	209°15.2'	S 21°40.7'	201°22.9'	S 20°18.4'	212°21.4'	S 22°44.3'
23	158°00.9'	S 2°03.4'	162°45.9'	S 2°03.4'	120°36.6'	N 17°07.8'	224°17.3'	S 21°40.7'	216°25.2'	S 20°18.3'	227°22.0'	S 22°44.1'
		SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 9 m 4 s		14 h 58 m		8 h 5 m		8 h 36 m		7 h 51 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Mars	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	300°09.7'	S 15°24.6'	8.3'	-11.0'	59.4'		58°25.9'	54°59.8'	18°22.6'	29°47.2'	38°39.7'	83°18.4'	112°17.1'
1	314°37.1'	S 15°35.5'	8.3'	-10.9'	59.3'	119°49.8'	57°50.7'	54°26.0'	17°49.6'	30°21.8'	39°05.2'	83°53.9'	112°35.3'
2	329°04.4'	S 15°46.4'	8.3'	-10.7'	59.3'	119°16.9'	57°15.6'	53°52.2'	17°16.8'	30°56.4'	39°30.9'	84°29.4'	112°53.4'
3	343°31.7'	S 15°57.1'	8.3'	-10.6'	59.3'	118°44.1'	56°40.5'	53°18.4'	16°44.2'	31°30.9'	39°56.8'	85°04.8'	113°11.4'
4	357°58.9'	S 16°07.7'	8.3'	-10.5'	59.2'	118°11.3'	56°05.4'	52°44.7'	16°11.8'	32°05.5'	40°22.8'	85°40.2'	113°29.2'
5	12°26.2'	S 16°18.3'	8.2'	-10.4'	59.2'	117°38.6'	55°30.5'	52°11.0'	15°39.7'	32°40.0'	40°49.0'	86°15.5'	113°46.9'
6	26°53.4'	S 16°28.7'	8.2'	-10.3'	59.2'	117°05.8'	54°55.5'	51°37.4'	15°07.9'	33°14.5'	41°15.3'	86°50.8'	114°04.5'
7	41°20.7'	S 16°39.0'	8.2'	-10.2'	59.1'	116°33.2'	54°20.6'	51°03.8'	14°36.4'	33°49.0'	41°41.8'	87°26.1'	114°21.9'
8	55°47.9'	S 16°49.2'	8.2'	-10.1'	59.1'	116°00.6'	53°45.8'	50°30.3'	14°05.2'	34°23.5'	42°08.5'	88°01.3'	114°39.1'
9	70°15.1'	S 16°59.2'	8.2'	-10.0'	59.0'	115°28.0'	53°11.0'	49°56.8'	13°34.4'	34°57.9'	42°35.2'	88°36.4'	114°56.3'
10	84°42.2'	S 17°09.2'	8.2'	-9.8'	59.0'	114°55.5'	52°36.2'	49°23.3'	13°04.0'	35°32.4'	43°02.1'	89°11.5'	115°13.2'
11	99°09.4'	S 17°19.1'	8.1'	-9.7'	59.0'	114°23.0'	52°01.5'	48°49.9'	12°34.1'	36°06.8'	43°29.1'	89°46.6'	115°30.0'
12	113°36.5'	S 17°28.8'	8.1'	-9.6'	58.9'	113°50.6'	51°26.9'	48°16.6'	12°04.6'	36°41.1'	43°56.3'	90°21.6'	115°46.7'
13	128°03.7'	S 17°38.4'	8.1'	-9.5'	58.9'	113°18.2'	50°52.3'	47°43.3'	11°35.7'	37°15.5'	44°23.5'	90°56.5'	116°03.2'
14	142°30.8'	S 17°47.9'	8.1'	-9.4'	58.9'	112°45.8'	50°17.7'	47°10.0'	11°07.4'	37°49.8'	44°50.9'	91°31.5'	116°19.5'
15	156°57.9'	S 17°57.3'	8.1'	-9.3'	58.8'	112°13.5'	49°43.2'	46°36.8'	10°39.8'	38°24.1'	45°18.3'	92°06.3'	116°35.7'
16	171°25.0'	S 18°06.5'	8.1'	-9.1'	58.8'	111°41.3'	49°08.7'	46°03.7'		38°58.4'	45°45.9'	92°41.2'	116°51.7'
17	185°52.0'	S 18°15.7'	8.1'	-9.0'	58.7'	111°09.1'	48°34.3'	45°30.6'		39°32.6'	46°13.5'	93°15.9'	117°07.5'
18	200°19.1'	S 18°24.7'	8.0'	-8.9'	58.7'	110°36.9'	47°59.9'	44°57.5'		40°06.8'	46°41.3'	93°50.7'	117°23.2'
19	214°46.1'	S 18°33.6'	8.0'	-8.8'	58.7'	110°04.8'	47°25.6'	44°24.5'		40°41.0'	47°09.1'	94°25.3'	117°38.7'
20	229°13.1'	S 18°42.4'	8.0'	-8.7'	58.6'	109°32.7'	46°51.3'	43°51.5'		41°15.1'	47°37.0'	94°60.0'	117°54.1'
21	243°40.2'	S 18°51.0'	8.0'	-8.5'	58.6'	109°00.7'	46°17.0'	43°18.6'		41°49.2'	48°05.0'	95°34.6'	118°09.3'
22	258°07.2'	S 18°59.5'	8.0'	-8.4'	58.6'	108°28.7'	45°42.8'	42°45.7'		42°23.3'	48°33.0'	96°09.1'	
23	272°34.1'	S 19°07.9'	8.0'	-8.3'	58.5'	107°56.8'	45°08.7'	42°12.9'		42°57.3'	49°01.1'	96°43.6'	
Mer. pass.		4 h 8 m SD 16.2'		phase 75%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.6'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°03.4'	N 89°21.1'
Rigil Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.5'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	173°03.3'	177°46.1' S	2°02.4'	135°36.5' N	17°08.8'	239°19.3' S	21°40.6'	231°27.4' S	20°18.3'	242°22.6' S	22°43.9'	
1	188°05.8'	192°46.3' S	2°01.4'	150°36.4' N	17°09.8'	254°21.3' S	21°40.5'	246°29.7' S	20°18.3'	257°23.2' S	22°43.7'	
2	203°08.3'	207°46.5' S	2°00.4'	165°36.4' N	17°10.8'	269°23.4' S	21°40.5'	261°31.9' S	20°18.2'	272°23.8' S	22°43.5'	
3	218°10.7'	222°46.6' S	1°59.4'	180°36.3' N	17°11.9'	284°25.4' S	21°40.4'	276°34.2' S	20°18.2'	287°24.4' S	22°43.3'	
4	233°13.2'	237°46.8' S	1°58.4'	195°36.2' N	17°12.9'	299°27.4' S	21°40.4'	291°36.4' S	20°18.1'	302°25.0' S	22°43.1'	
5	248°15.6'	252°47.0' S	1°57.4'	210°36.1' N	17°13.9'	314°29.5' S	21°40.3'	306°38.7' S	20°18.1'	317°25.6' S	22°42.9'	
6	263°18.1'	267°47.2' S	1°56.5'	225°36.1' N	17°14.9'	329°31.5' S	21°40.2'	321°40.9' S	20°18.1'	332°26.2' S	22°42.7'	
7	278°20.6'	282°47.3' S	1°55.5'	240°36.0' N	17°16.0'	344°33.6' S	21°40.2'	336°43.2' S	20°18.0'	347°26.8' S	22°42.5'	
8	293°23.0'	297°47.5' S	1°54.5'	255°35.9' N	17°17.0'	359°35.6' S	21°40.1'	351°45.4' S	20°18.0'	2°27.4' S	22°42.3'	
9	308°25.5'	312°47.7' S	1°53.5'	270°35.9' N	17°18.0'	14°37.6' S	21°40.1'	6°47.7' S	20°17.9'	17°28.0' S	22°42.1'	
10	323°28.0'	327°47.9' S	1°52.5'	285°35.8' N	17°19.0'	29°39.7' S	21°40.0'	21°49.9' S	20°17.9'	32°28.6' S	22°41.9'	
11	338°30.4'	342°48.0' S	1°51.5'	300°35.7' N	17°20.0'	44°41.7' S	21°39.9'	36°52.2' S	20°17.9'	47°29.2' S	22°41.7'	
12	353°32.9'	357°48.2' S	1°50.5'	315°35.6' N	17°21.0'	59°43.8' S	21°39.9'	51°54.4' S	20°17.8'	62°29.8' S	22°41.5'	
13	8°35.4'	12°48.4' S	1°49.5'	330°35.6' N	17°22.1'	74°45.8' S	21°39.8'	66°56.7' S	20°17.8'	77°30.4' S	22°41.3'	
14	23°37.8'	27°48.6' S	1°48.6'	345°35.5' N	17°23.1'	89°47.8' S	21°39.8'	81°58.9' S	20°17.7'	92°31.0' S	22°41.1'	
15	38°40.3'	42°48.7' S	1°47.6'	0°35.4' N	17°24.1'	104°49.9' S	21°39.7'	97°01.1' S	20°17.7'	107°31.6' S	22°40.9'	
16	53°42.8'	57°48.9' S	1°46.6'	15°35.4' N	17°25.1'	119°51.9' S	21°39.6'	112°03.4' S	20°17.7'	122°32.1' S	22°40.7'	
17	68°45.2'	72°49.1' S	1°45.6'	30°35.3' N	17°26.1'	134°54.0' S	21°39.6'	127°05.6' S	20°17.6'	137°32.7' S	22°40.5'	
18	83°47.7'	87°49.3' S	1°44.6'	45°35.2' N	17°27.1'	149°56.0' S	21°39.5'	142°07.9' S	20°17.6'	152°33.3' S	22°40.3'	
19	98°50.1'	102°49.5' S	1°43.6'	60°35.2' N	17°28.1'	164°58.0' S	21°39.5'	157°10.1' S	20°17.5'	167°33.9' S	22°40.1'	
20	113°52.6'	117°49.6' S	1°42.6'	75°35.1' N	17°29.1'	180°00.1' S	21°39.4'	172°12.4' S	20°17.5'	182°34.5' S	22°39.8'	
21	128°55.1'	132°49.8' S	1°41.6'	90°35.0' N	17°30.2'	195°02.1' S	21°39.4'	187°14.6' S	20°17.5'	197°35.1' S	22°39.6'	
22	143°57.5'	147°50.0' S	1°40.7'	105°35.0' N	17°31.2'	210°04.2' S	21°39.3'	202°16.9' S	20°17.4'	212°35.7' S	22°39.4'	
23	158°60.0'	162°50.2' S	1°39.7'	120°34.9' N	17°32.2'	225°06.2' S	21°39.2'	217°19.1' S	20°17.4'	227°36.3' S	22°39.2'	
		SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.0' d 0.1'		v 2.2' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 8 m 47 s		14 h 58 m		8 h 2 m		8 h 33 m		7 h 50 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Mars	-Antares	+Spica	+Arcturus	+Regulus
0	287°01.1'	S 19°16.2'	8.0'	-8.2'	58.5'	107°24.9'	87°45.4'	44°34.6'	41°40.1'		43°31.3'	49°29.3'	97°18.1'
1	301°28.1'	S 19°24.4'	8.0'	-8.0'	58.4'	106°53.0'	87°12.4'	44°00.5'	41°07.4'		44°05.3'	49°57.5'	97°52.5'
2	315°55.0'	S 19°32.4'	7.9'	-7.9'	58.4'	106°21.2'	86°39.4'	43°26.5'	40°34.7'		44°39.2'	50°25.8'	98°26.8'
3	330°22.0'	S 19°40.3'	7.9'	-7.8'	58.4'	105°49.5'	86°06.5'	42°52.6'	40°02.0'		45°13.1'	50°54.1'	99°01.1'
4	344°48.9'	S 19°48.1'	7.9'	-7.7'	58.3'	105°17.8'	85°33.6'	42°18.7'	39°29.4'		45°47.0'	51°22.5'	99°35.4'
5	359°15.8'	S 19°55.7'	7.9'	-7.5'	58.3'	104°46.1'	85°00.8'	41°44.8'	38°56.9'		46°20.8'	51°51.0'	100°09.6'
6	13°42.7'	S 20°03.3'	7.9'	-7.4'	58.3'	104°14.5'	84°28.0'	41°11.0'	38°24.4'		46°54.6'	52°19.5'	100°43.8'
7	28°09.6'	S 20°10.7'	7.9'	-7.3'	58.2'	103°42.9'	83°55.3'	40°37.2'	37°51.9'		47°28.3'	52°48.0'	101°17.9'
8	42°36.5'	S 20°17.9'	7.9'	-7.1'	58.2'	103°11.4'	83°22.6'	40°03.5'	37°19.5'		48°02.0'	53°16.6'	101°52.0'
9	57°03.4'	S 20°25.1'	7.9'	-7.0'	58.1'	102°39.9'	82°50.0'	39°29.8'	36°47.1'		48°35.7'	53°45.2'	102°26.0'
10	71°30.3'	S 20°32.1'	7.9'	-6.9'	58.1'	102°08.4'	82°17.4'	38°56.2'	36°14.8'		49°09.4'	54°13.8'	103°00.0'
11	85°57.2'	S 20°39.0'	7.9'	-6.7'	58.1'	101°37.0'	81°44.8'	38°22.6'	35°42.5'		49°43.0'	54°42.5'	103°34.0'
12	100°24.0'	S 20°45.7'	7.9'	-6.6'	58.0'	101°05.7'	81°12.3'	37°49.0'	35°10.3'		50°16.5'	55°11.2'	104°07.9'
13	114°50.9'	S 20°52.3'	7.9'	-6.5'	58.0'	100°34.4'	80°39.9'	37°15.5'	34°38.1'		50°50.0'	55°39.9'	104°41.7'
14	129°17.8'	S 20°58.8'	7.9'	-6.4'	58.0'	100°03.1'	80°07.5'	36°42.1'	34°05.9'		51°23.5'	56°08.7'	105°15.5'
15	143°44.6'	S 21°05.1'	7.9'	-6.2'	57.9'	99°31.9'	79°35.1'	36°08.7'	33°33.8'		51°57.0'	56°37.5'	105°49.3'
16	158°11.5'	S 21°11.4'	7.8'	-6.1'	57.9'	99°00.7'	79°02.8'	35°35.3'	33°01.8'		52°30.4'	57°06.3'	106°23.0'
17	172°38.3'	S 21°17.5'	7.8'	-6.0'	57.8'	98°29.6'	78°30.6'	35°02.0'	32°29.8'		53°03.8'	57°35.1'	106°56.7'
18	187°05.2'	S 21°23.4'	7.8'	-5.8'	57.8'	97°58.5'	77°58.4'	34°28.7'	31°57.8'		53°37.1'	58°03.9'	107°30.3'
19	201°32.0'	S 21°29.2'	7.8'	-5.7'	57.8'	97°27.5'	77°26.2'	33°55.5'	31°25.9'	10°07.1'	54°10.4'	58°32.8'	108°03.9'
20	215°58.9'	S 21°34.9'	7.8'	-5.6'	57.7'	96°56.5'	76°54.1'	33°22.3'	30°54.0'	10°32.8'	54°43.7'	59°01.7'	108°37.4'
21	230°25.7'	S 21°40.5'	7.8'	-5.4'	57.7'	96°25.5'	76°22.0'	32°49.1'	30°22.2'	10°59.1'	55°16.9'	59°30.6'	109°10.9'
22	244°52.5'	S 21°45.9'	7.8'	-5.3'	57.7'	95°54.6'	75°50.0'	32°16.1'	29°50.4'	11°26.0'	55°50.1'	59°59.5'	109°44.4'
23	259°19.4'	S 21°51.2'	7.8'	-5.2'	57.6'	95°23.7'	75°18.1'	31°43.0'	29°18.6'	11°53.5'	56°23.2'	60°28.4'	110°17.8'
Mer. pass.		5 h 3 m SD 15.9'		phase 65%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°03.7'	N 89°21.1'
Rigil Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.9'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	174°02.5'		177°50.3'	S 1°38.7'	135°34.8'	N 17°33.2'	240°08.2'	S 21°39.2'	232°21.4'	S 20°17.3'	242°36.9'	S 22°39.0'
1	189°04.9'		192°50.5'	S 1°37.7'	150°34.7'	N 17°34.2'	255°10.3'	S 21°39.1'	247°23.6'	S 20°17.3'	257°37.5'	S 22°38.8'
2	204°07.4'		207°50.7'	S 1°36.7'	165°34.7'	N 17°35.2'	270°12.3'	S 21°39.1'	262°25.9'	S 20°17.3'	272°38.1'	S 22°38.6'
3	219°09.9'		222°50.9'	S 1°35.7'	180°34.6'	N 17°36.2'	285°14.4'	S 21°39.0'	277°28.1'	S 20°17.2'	287°38.7'	S 22°38.4'
4	234°12.3'		237°51.1'	S 1°34.7'	195°34.5'	N 17°37.2'	300°16.4'	S 21°38.9'	292°30.4'	S 20°17.2'	302°39.3'	S 22°38.2'
5	249°14.8'		252°51.2'	S 1°33.7'	210°34.5'	N 17°38.2'	315°18.5'	S 21°38.9'	307°32.6'	S 20°17.1'	317°39.9'	S 22°38.0'
6	264°17.2'		267°51.4'	S 1°32.7'	225°34.4'	N 17°39.2'	330°20.5'	S 21°38.8'	322°34.9'	S 20°17.1'	332°40.5'	S 22°37.8'
7	279°19.7'		282°51.6'	S 1°31.8'	240°34.3'	N 17°40.2'	345°22.5'	S 21°38.8'	337°37.1'	S 20°17.1'	347°41.1'	S 22°37.6'
8	294°22.2'		297°51.8'	S 1°30.8'	255°34.3'	N 17°41.2'	0°24.6'	S 21°38.7'	352°39.4'	S 20°17.0'	2°41.7'	S 22°37.4'
9	309°24.6'		312°51.9'	S 1°29.8'	270°34.2'	N 17°42.2'	15°26.6'	S 21°38.6'	7°41.6'	S 20°17.0'	17°42.3'	S 22°37.1'
10	324°27.1'		327°52.1'	S 1°28.8'	285°34.1'	N 17°43.2'	30°28.7'	S 21°38.6'	22°43.9'	S 20°16.9'	32°42.9'	S 22°36.9'
11	339°29.6'		342°52.3'	S 1°27.8'	300°34.1'	N 17°44.2'	45°30.7'	S 21°38.5'	37°46.1'	S 20°16.9'	47°43.5'	S 22°36.7'
12	354°32.0'		357°52.5'	S 1°26.8'	315°34.0'	N 17°45.2'	60°32.8'	S 21°38.5'	52°48.4'	S 20°16.9'	62°44.1'	S 22°36.5'
13	9°34.5'		12°52.7'	S 1°25.8'	330°33.9'	N 17°46.2'	75°34.8'	S 21°38.4'	67°50.6'	S 20°16.8'	77°44.7'	S 22°36.3'
14	24°37.0'		27°52.8'	S 1°24.8'	345°33.9'	N 17°47.2'	90°36.9'	S 21°38.3'	82°52.9'	S 20°16.8'	92°45.3'	S 22°36.1'
15	39°39.4'		42°53.0'	S 1°23.9'	0°33.8'	N 17°48.2'	105°38.9'	S 21°38.3'	97°55.1'	S 20°16.7'	107°45.9'	S 22°35.9'
16	54°41.9'		57°53.2'	S 1°22.9'	15°33.7'	N 17°49.2'	120°40.9'	S 21°38.2'	112°57.4'	S 20°16.7'	122°46.5'	S 22°35.7'
17	69°44.4'		72°53.4'	S 1°21.9'	30°33.7'	N 17°50.2'	135°43.0'	S 21°38.2'	127°59.6'	S 20°16.7'	137°47.1'	S 22°35.4'
18	84°46.8'		87°53.6'	S 1°20.9'	45°33.6'	N 17°51.2'	150°45.0'	S 21°38.1'	143°01.9'	S 20°16.6'	152°47.7'	S 22°35.2'
19	99°49.3'		102°53.7'	S 1°19.9'	60°33.5'	N 17°52.2'	165°47.1'	S 21°38.0'	158°04.1'	S 20°16.6'	167°48.3'	S 22°35.0'
20	114°51.7'		117°53.9'	S 1°18.9'	75°33.5'	N 17°53.2'	180°49.1'	S 21°38.0'	173°06.4'	S 20°16.5'	182°48.9'	S 22°34.8'
21	129°54.2'		132°54.1'	S 1°17.9'	90°33.4'	N 17°54.2'	195°51.2'	S 21°37.9'	188°08.6'	S 20°16.5'	197°49.5'	S 22°34.6'
22	144°56.7'		147°54.3'	S 1°16.9'	105°33.4'	N 17°55.2'	210°53.2'	S 21°37.9'	203°10.9'	S 20°16.5'	212°50.1'	S 22°34.4'
23	159°59.1'		162°54.5'	S 1°15.9'	120°33.3'	N 17°56.2'	225°55.3'	S 21°37.8'	218°13.1'	S 20°16.4'	227°50.7'	S 22°34.2'
			SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.2'	
Mer. pass.			12 h 8 m 30 s		14 h 58 m		7 h 58 m		8 h 29 m		7 h 49 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Saturn	-Jupiter	-Mars	+Antares	+Hadar	+Spica	+Arcturus
0	273°46.2'	S 21°56.3'	7.9'	-5.0'	57.6'	94°52.9'	38°33.2'	31°10.0'	28°46.9'	12°21.4'		56°56.3'	60°57.3'
1	288°13.1'	S 22°01.4'	7.9'	-4.9'	57.5'	94°22.1'	38°00.0'	30°37.0'	28°15.3'	12°49.7'		57°29.4'	61°26.3'
2	302°40.0'	S 22°06.2'	7.9'	-4.7'	57.5'	93°51.4'	37°27.0'	30°04.1'	27°43.7'	13°18.3'		58°02.4'	61°55.2'
3	317°06.8'	S 22°11.0'	7.9'	-4.6'	57.5'	93°20.7'	36°53.9'	29°31.2'	27°12.1'	13°47.3'		58°35.4'	62°24.1'
4	331°33.7'	S 22°15.6'	7.9'	-4.5'	57.4'	92°50.0'	36°20.9'	28°58.4'	26°40.6'	14°16.5'		59°08.4'	62°53.1'
5	346°00.6'	S 22°20.1'	7.9'	-4.3'	57.4'	92°19.4'	35°47.9'	28°25.6'	26°09.1'	14°46.0'		59°41.3'	63°22.0'
6	0°27.4'	S 22°24.4'	7.9'	-4.2'	57.4'	91°48.8'	35°15.0'	27°52.9'	25°37.6'	15°15.6'		60°14.2'	63°51.0'
7	14°54.3'	S 22°28.6'	7.9'	-4.1'	57.3'	91°18.3'	34°42.1'	27°20.2'	25°06.2'	15°45.5'		60°47.0'	64°20.0'
8	29°21.2'	S 22°32.7'	7.9'	-3.9'	57.3'	90°47.8'	34°09.3'	26°47.5'	24°34.9'	16°15.6'		61°19.8'	64°48.9'
9	43°48.1'	S 22°36.7'	7.9'	-3.8'	57.3'	90°17.3'	33°36.5'	26°14.9'	24°03.6'	16°45.7'		61°52.6'	65°17.9'
10	58°15.0'	S 22°40.5'	7.9'	-3.7'	57.2'	89°46.9'	33°03.8'	25°42.3'	23°32.3'	17°16.1'		62°25.3'	65°46.8'
11	72°42.0'	S 22°44.1'	7.9'	-3.5'	57.2'	89°16.5'	32°31.0'	25°09.8'	23°01.0'	17°46.5'		62°58.0'	66°15.8'
12	87°08.9'	S 22°47.7'	8.0'	-3.4'	57.2'	88°46.2'	31°58.4'	24°37.3'	22°29.8'	18°17.1'		63°30.6'	66°44.7'
13	101°35.9'	S 22°51.1'	8.0'	-3.3'	57.1'	88°15.9'	31°25.8'	24°04.9'	21°58.7'	18°47.7'		64°03.3'	67°13.7'
14	116°02.8'	S 22°54.3'	8.0'	-3.1'	57.1'	87°45.7'	30°53.2'	23°32.5'	21°27.6'	19°18.4'		64°35.8'	67°42.6'
15	130°29.8'	S 22°57.5'	8.0'	-3.0'	57.0'	87°15.5'	30°20.7'	23°00.1'	20°56.5'	19°49.2'		65°08.4'	68°11.5'
16	144°56.8'	S 23°00.4'	8.0'	-2.9'	57.0'	86°45.3'	29°48.2'	22°27.8'	20°25.5'	20°20.1'		65°40.9'	68°40.5'
17	159°23.9'	S 23°03.3'	8.0'	-2.7'	57.0'	86°15.2'	29°15.7'	21°55.5'	19°54.5'	20°51.0'		66°13.3'	69°09.4'
18	173°50.9'	S 23°06.0'	8.1'	-2.6'	56.9'	85°45.1'	28°43.3'	21°23.3'	19°23.5'	21°22.0'		66°45.8'	69°38.3'
19	188°17.9'	S 23°08.6'	8.1'	-2.5'	56.9'	85°15.0'	28°10.9'	20°51.1'	18°52.6'	21°53.0'		67°18.2'	70°07.2'
20	202°45.0'	S 23°11.1'	8.1'	-2.3'	56.9'	84°45.0'	27°38.6'	20°18.9'	18°21.8'	22°24.0'		67°50.5'	70°36.1'
21	217°12.1'	S 23°13.4'	8.1'	-2.2'	56.8'	84°15.0'	27°06.3'	19°46.8'	17°50.9'	22°55.1'	55°56.4'	68°22.9'	71°04.9'
22	231°39.2'	S 23°15.6'	8.1'	-2.0'	56.8'	83°45.1'	26°34.1'	19°14.8'	17°20.1'	23°26.2'	56°11.6'	68°55.1'	71°33.8'
23	246°06.4'	S 23°17.6'	8.2'	-1.9'	56.8'	83°15.2'	26°01.9'	18°42.8'	16°49.4'	23°57.3'	56°26.8'	69°27.4'	72°02.7'
Mer. pass.			5 h 58 m SD 15.7'		phase 54%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec	
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'	
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'	
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'	
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'	
Antares	+1.1	112°20.5'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°04.0'	N 89°21.1'	
Rigil Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'	
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'					
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'					



h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	175°01.6'	S 1°15.0'	177°54.6'	S 1°15.0'	135°33.2'	N 17°57.2'	240°57.3'	S 21°37.8'	233°15.4'	S 20°16.4'	242°51.3'	S 22°33.9'
1	190°04.1'	S 1°14.0'	192°54.8'	S 1°14.0'	150°33.2'	N 17°58.2'	255°59.4'	S 21°37.7'	248°17.7'	S 20°16.3'	257°51.9'	S 22°33.7'
2	205°06.5'	S 1°13.0'	207°55.0'	S 1°13.0'	165°33.1'	N 17°59.2'	271°01.4'	S 21°37.6'	263°19.9'	S 20°16.3'	272°52.5'	S 22°33.5'
3	220°09.0'	S 1°12.0'	222°55.2'	S 1°12.0'	180°33.0'	N 18°00.2'	286°03.5'	S 21°37.6'	278°22.2'	S 20°16.3'	287°53.1'	S 22°33.3'
4	235°11.5'	S 1°11.0'	237°55.4'	S 1°11.0'	195°33.0'	N 18°01.1'	301°05.5'	S 21°37.5'	293°24.4'	S 20°16.2'	302°53.7'	S 22°33.1'
5	250°13.9'	S 1°10.0'	252°55.5'	S 1°10.0'	210°32.9'	N 18°02.1'	316°07.6'	S 21°37.5'	308°26.7'	S 20°16.2'	317°54.3'	S 22°32.9'
6	265°16.4'	S 1°09.0'	267°55.7'	S 1°09.0'	225°32.8'	N 18°03.1'	331°09.6'	S 21°37.4'	323°28.9'	S 20°16.1'	332°54.9'	S 22°32.6'
7	280°18.9'	S 1°08.0'	282°55.9'	S 1°08.0'	240°32.8'	N 18°04.1'	346°11.7'	S 21°37.3'	338°31.2'	S 20°16.1'	347°55.5'	S 22°32.4'
8	295°21.3'	S 1°07.1'	297°56.1'	S 1°07.1'	255°32.7'	N 18°05.1'	1°13.7'	S 21°37.3'	353°33.4'	S 20°16.1'	2°56.1'	S 22°32.2'
9	310°23.8'	S 1°06.1'	312°56.3'	S 1°06.1'	270°32.6'	N 18°06.1'	16°15.8'	S 21°37.2'	8°35.7'	S 20°16.0'	17°56.7'	S 22°32.0'
10	325°26.2'	S 1°05.1'	327°56.4'	S 1°05.1'	285°32.6'	N 18°07.1'	31°17.8'	S 21°37.2'	23°37.9'	S 20°16.0'	32°57.3'	S 22°31.8'
11	340°28.7'	S 1°04.1'	342°56.6'	S 1°04.1'	300°32.5'	N 18°08.0'	46°19.9'	S 21°37.1'	38°40.2'	S 20°16.0'	47°57.9'	S 22°31.6'
12	355°31.2'	S 1°03.1'	357°56.8'	S 1°03.1'	315°32.5'	N 18°09.0'	61°21.9'	S 21°37.0'	53°42.4'	S 20°15.9'	62°58.5'	S 22°31.3'
13	10°33.6'	S 1°02.1'	12°57.0'	S 1°02.1'	330°32.4'	N 18°10.0'	76°24.0'	S 21°37.0'	68°44.7'	S 20°15.9'	77°59.1'	S 22°31.1'
14	25°36.1'	S 1°01.1'	27°57.2'	S 1°01.1'	345°32.3'	N 18°11.0'	91°26.0'	S 21°36.9'	83°46.9'	S 20°15.8'	92°59.7'	S 22°30.9'
15	40°38.6'	S 1°00.1'	42°57.3'	S 1°00.1'	0°32.3'	N 18°12.0'	106°28.1'	S 21°36.9'	98°49.2'	S 20°15.8'	108°00.3'	S 22°30.7'
16	55°41.0'	S 0°59.1'	57°57.5'	S 0°59.1'	15°32.2'	N 18°13.0'	121°30.1'	S 21°36.8'	113°51.4'	S 20°15.8'	123°00.9'	S 22°30.5'
17	70°43.5'	S 0°58.2'	72°57.7'	S 0°58.2'	30°32.1'	N 18°13.9'	136°32.2'	S 21°36.8'	128°53.7'	S 20°15.7'	138°01.5'	S 22°30.2'
18	85°46.0'	S 0°57.2'	87°57.9'	S 0°57.2'	45°32.1'	N 18°14.9'	151°34.2'	S 21°36.7'	143°56.0'	S 20°15.7'	153°02.1'	S 22°30.0'
19	100°48.4'	S 0°56.2'	102°58.1'	S 0°56.2'	60°32.0'	N 18°15.9'	166°36.3'	S 21°36.6'	158°58.2'	S 20°15.6'	168°02.7'	S 22°29.8'
20	115°50.9'	S 0°55.2'	117°58.2'	S 0°55.2'	75°32.0'	N 18°16.9'	181°38.3'	S 21°36.6'	174°00.5'	S 20°15.6'	183°03.3'	S 22°29.6'
21	130°53.4'	S 0°54.2'	132°58.4'	S 0°54.2'	90°31.9'	N 18°17.9'	196°40.4'	S 21°36.5'	189°02.7'	S 20°15.6'	198°03.9'	S 22°29.3'
22	145°55.8'	S 0°53.2'	147°58.6'	S 0°53.2'	105°31.8'	N 18°18.8'	211°42.4'	S 21°36.5'	204°05.0'	S 20°15.5'	213°04.5'	S 22°29.1'
23	160°58.3'	S 0°52.2'	162°58.8'	S 0°52.2'	120°31.8'	N 18°19.8'	226°44.5'	S 21°36.4'	219°07.2'	S 20°15.5'	228°05.1'	S 22°28.9'
		SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 8 m 13 s		14 h 58 m		7 h 55 m		8 h 26 m		7 h 48 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Saturn	-Jupiter	-Mars	+Antares	+Rigil Kent	+Hadar	+Acrux
0	260°33.5'	S 23°19.5'	8.2'	-1.8'	56.7'	82°45.3'	25°29.7'	18°10.8'	16°18.7'	24°28.5'		56°42.2'	
1	275°00.7'	S 23°21.3'	8.2'	-1.6'	56.7'	82°15.5'	24°57.6'	17°38.9'	15°48.0'	24°59.7'		56°57.8'	
2	289°27.9'	S 23°23.0'	8.2'	-1.5'	56.7'	81°45.7'	24°25.5'	17°07.0'	15°17.4'	25°30.8'		57°13.5'	
3	303°55.2'	S 23°24.5'	8.3'	-1.4'	56.6'	81°16.0'	23°53.5'	16°35.1'	14°46.8'	26°02.0'	53°21.7'	57°29.3'	
4	318°22.4'	S 23°25.9'	8.3'	-1.2'	56.6'	80°46.2'	23°21.5'	16°03.3'	14°16.2'	26°33.2'	53°36.7'	57°45.2'	
5	332°49.7'	S 23°27.1'	8.3'	-1.1'	56.6'	80°16.6'	22°49.5'	15°31.6'	13°45.7'	27°04.5'	53°51.9'	58°01.3'	
6	347°17.1'	S 23°28.2'	8.4'	-1.0'	56.5'	79°46.9'	22°17.6'	14°59.9'	13°15.2'	27°35.7'	54°07.3'	58°17.5'	
7	1°44.4'	S 23°29.2'	8.4'	-0.9'	56.5'	79°17.3'	21°45.8'	14°28.2'	12°44.8'	28°06.9'	54°22.8'	58°33.8'	
8	16°11.8'	S 23°30.1'	8.4'	-0.7'	56.5'	78°47.8'	21°13.9'	13°56.6'	12°14.4'	28°38.1'	54°38.5'	58°50.2'	
9	30°39.2'	S 23°30.8'	8.4'	-0.6'	56.5'	78°18.2'	20°42.2'	13°25.0'	11°44.0'	29°09.3'	54°54.3'	59°06.8'	
10	45°06.7'	S 23°31.4'	8.5'	-0.5'	56.4'	77°48.7'	20°10.4'	12°53.5'	11°13.7'	29°40.5'	55°10.3'	59°23.5'	
11	59°34.1'	S 23°31.8'	8.5'	-0.3'	56.4'	77°19.3'	19°38.7'	12°22.1'	10°43.4'	30°11.7'	55°26.3'	59°40.2'	
12	74°01.6'	S 23°32.2'	8.5'	-0.2'	56.4'	76°49.8'	19°07.1'	11°50.6'	10°13.2'	30°42.9'	55°42.6'	59°57.1'	71°06.9'
13	88°29.2'	S 23°32.4'	8.6'	-0.1'	56.3'	76°20.4'	18°35.5'	11°19.3'	9°43.0'	31°14.1'	55°58.9'	60°14.1'	71°21.9'
14	102°56.8'	S 23°32.4'	8.6'	0.1'	56.3'	75°51.1'	18°03.9'	10°48.0'	9°12.8'	31°45.3'	56°15.4'	60°31.2'	71°37.0'
15	117°24.4'	S 23°32.4'	8.7'	0.2'	56.3'	75°21.7'	17°32.4'	10°16.8'	8°42.7'	32°16.5'	56°32.1'	60°48.4'	71°52.1'
16	131°52.1'	S 23°32.2'	8.7'	0.3'	56.2'	74°52.5'	17°00.9'	9°45.6'	8°12.7'	32°47.6'	56°48.8'	61°05.7'	72°07.3'
17	146°19.8'	S 23°31.8'	8.7'	0.4'	56.2'	74°23.2'	16°29.5'	9°14.5'	7°42.7'	33°18.8'	57°05.7'	61°23.1'	72°22.6'
18	160°47.5'	S 23°31.4'	8.8'	0.6'	56.2'	73°54.0'	15°58.1'	8°43.5'	7°12.7'	33°49.9'	57°22.7'	61°40.6'	72°37.9'
19	175°15.3'	S 23°30.8'	8.8'	0.7'	56.1'	73°24.8'	15°26.8'	8°12.6'	6°42.8'	34°21.0'	57°39.8'	61°58.1'	72°53.2'
20	189°43.1'	S 23°30.1'	8.9'	0.8'	56.1'	72°55.6'	14°55.5'	7°41.8'	6°12.9'	34°52.1'	57°57.0'	62°15.8'	73°08.6'
21	204°10.9'	S 23°29.3'	8.9'	1.0'	56.1'	72°26.5'	14°24.3'	7°11.1'	5°43.2'	35°23.2'	58°14.3'	62°33.6'	73°24.1'
22	218°38.8'	S 23°28.3'	8.9'	1.1'	56.1'	71°57.4'	13°53.1'	6°40.5'	5°13.5'	35°54.3'	58°31.8'	62°51.4'	73°39.6'
23	233°06.8'	S 23°27.2'	9.0'	1.2'	56.0'	71°28.3'	13°22.0'	6°10.1'	4°43.8'	36°25.4'	58°49.3'	63°09.3'	73°55.2'
Mer. pass.		6 h 53 m SD 15.5' phase 44%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.5'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.5'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°04.3'	N 89°21.1'
Rigil Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

Wednesday 18 March 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	176°00.7'	S 0°51.2'	177°59.0'	S 0°51.2'	135°31.7'	N 18°20.8'	241°46.5'	S 21°36.3'	234°09.5'	S 20°15.4'	243°05.7'	S 22°28.7'
1	191°03.2'	S 0°50.2'	192°59.1'	S 0°50.2'	150°31.7'	N 18°21.8'	256°48.6'	S 21°36.3'	249°11.7'	S 20°15.4'	258°06.3'	S 22°28.5'
2	206°05.7'	S 0°49.3'	207°59.3'	S 0°49.3'	165°31.6'	N 18°22.7'	271°50.6'	S 21°36.2'	264°14.0'	S 20°15.4'	273°06.9'	S 22°28.2'
3	221°08.1'	S 0°48.3'	222°59.5'	S 0°48.3'	180°31.5'	N 18°23.7'	286°52.7'	S 21°36.2'	279°16.3'	S 20°15.3'	288°07.5'	S 22°28.0'
4	236°10.6'	S 0°47.3'	237°59.7'	S 0°47.3'	195°31.5'	N 18°24.7'	301°54.7'	S 21°36.1'	294°18.5'	S 20°15.3'	303°08.1'	S 22°27.8'
5	251°13.1'	S 0°46.3'	252°59.9'	S 0°46.3'	210°31.4'	N 18°25.7'	316°56.8'	S 21°36.1'	309°20.8'	S 20°15.3'	318°08.7'	S 22°27.6'
6	266°15.5'	S 0°45.3'	268°00.1'	S 0°45.3'	225°31.4'	N 18°26.6'	331°58.8'	S 21°36.0'	324°23.0'	S 20°15.2'	333°09.3'	S 22°27.3'
7	281°18.0'	S 0°44.3'	283°00.2'	S 0°44.3'	240°31.3'	N 18°27.6'	347°00.9'	S 21°35.9'	339°25.3'	S 20°15.2'	348°09.9'	S 22°27.1'
8	296°20.5'	S 0°43.3'	298°00.4'	S 0°43.3'	255°31.2'	N 18°28.6'	2°02.9'	S 21°35.9'	354°27.5'	S 20°15.1'	3°10.5'	S 22°26.9'
9	311°22.9'	S 0°42.3'	313°00.6'	S 0°42.3'	270°31.2'	N 18°29.5'	17°05.0'	S 21°35.8'	9°29.8'	S 20°15.1'	18°11.1'	S 22°26.6'
10	326°25.4'	S 0°41.3'	328°00.8'	S 0°41.3'	285°31.1'	N 18°30.5'	32°07.1'	S 21°35.8'	24°32.0'	S 20°15.1'	33°11.7'	S 22°26.4'
11	341°27.8'	S 0°40.4'	343°01.0'	S 0°40.4'	300°31.1'	N 18°31.5'	47°09.1'	S 21°35.7'	39°34.3'	S 20°15.0'	48°12.3'	S 22°26.2'
12	356°30.3'	S 0°39.4'	358°01.1'	S 0°39.4'	315°31.0'	N 18°32.4'	62°11.2'	S 21°35.6'	54°36.6'	S 20°15.0'	63°12.9'	S 22°26.0'
13	11°32.8'	S 0°38.4'	13°01.3'	S 0°38.4'	330°30.9'	N 18°33.4'	77°13.2'	S 21°35.6'	69°38.8'	S 20°14.9'	78°13.5'	S 22°25.7'
14	26°35.2'	S 0°37.4'	28°01.5'	S 0°37.4'	345°30.9'	N 18°34.4'	92°15.3'	S 21°35.5'	84°41.1'	S 20°14.9'	93°14.1'	S 22°25.5'
15	41°37.7'	S 0°36.4'	43°01.7'	S 0°36.4'	0°30.8'	N 18°35.3'	107°17.3'	S 21°35.5'	99°43.3'	S 20°14.9'	108°14.7'	S 22°25.3'
16	56°40.2'	S 0°35.4'	58°01.9'	S 0°35.4'	15°30.8'	N 18°36.3'	122°19.4'	S 21°35.4'	114°45.6'	S 20°14.8'	123°15.3'	S 22°25.1'
17	71°42.6'	S 0°34.4'	73°02.1'	S 0°34.4'	30°30.7'	N 18°37.3'	137°21.4'	S 21°35.4'	129°47.8'	S 20°14.8'	138°15.9'	S 22°24.8'
18	86°45.1'	S 0°33.4'	88°02.2'	S 0°33.4'	45°30.6'	N 18°38.2'	152°23.5'	S 21°35.3'	144°50.1'	S 20°14.8'	153°16.5'	S 22°24.6'
19	101°47.6'	S 0°32.4'	103°02.4'	S 0°32.4'	60°30.6'	N 18°39.2'	167°25.6'	S 21°35.2'	159°52.4'	S 20°14.7'	168°17.1'	S 22°24.4'
20	116°50.0'	S 0°31.5'	118°02.6'	S 0°31.5'	75°30.5'	N 18°40.2'	182°27.6'	S 21°35.2'	174°54.6'	S 20°14.7'	183°17.7'	S 22°24.1'
21	131°52.5'	S 0°30.5'	133°02.8'	S 0°30.5'	90°30.5'	N 18°41.1'	197°29.7'	S 21°35.1'	189°56.9'	S 20°14.6'	198°18.3'	S 22°23.9'
22	146°55.0'	S 0°29.5'	148°03.0'	S 0°29.5'	105°30.4'	N 18°42.1'	212°31.7'	S 21°35.1'	204°59.1'	S 20°14.6'	213°18.9'	S 22°23.7'
23	161°57.4'	S 0°28.5'	163°03.2'	S 0°28.5'	120°30.4'	N 18°43.0'	227°33.8'	S 21°35.0'	220°01.4'	S 20°14.6'	228°19.5'	S 22°23.4'
		SD 16.1' d 1.0'		v -0.1' d 1.0'		v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.2'		
Mer. pass.		12 h 7 m 56 s		14 h 58 m		7 h 52 m		8 h 22 m		7 h 47 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Saturn	-Jupiter	-Mars	+Antares	+Rigel Kent	+Hadar	+Acrux
0	247°34.8'	S 23°26.0'	9.0'	1.3'	56.0'	70°59.3'	12°51.0'	5°39.8'	4°14.3'	36°56.4'	59°07.0'	63°27.4'	74°10.8'
1	262°02.8'	S 23°24.7'	9.1'	1.5'	56.0'	70°30.3'	12°20.0'	5°09.8'	3°44.9'	37°27.5'	59°24.7'	63°45.5'	74°26.5'
2	276°30.9'	S 23°23.2'	9.1'	1.6'	55.9'	70°01.3'	11°49.1'	4°40.1'	3°15.8'	37°58.5'	59°42.6'	64°03.6'	74°42.2'
3	290°59.0'	S 23°21.6'	9.2'	1.7'	55.9'	69°32.4'	11°18.3'	4°10.8'	2°46.8'	38°29.5'	60°00.5'	64°21.9'	74°58.0'
4	305°27.2'	S 23°19.9'	9.2'	1.8'	55.9'	69°03.5'	10°47.5'	3°42.1'	2°18.3'	39°00.5'	60°18.6'	64°40.2'	75°13.8'
5	319°55.4'	S 23°18.1'	9.3'	2.0'	55.9'	68°34.6'	10°16.8'			39°31.5'	60°36.7'	64°58.6'	75°29.6'
6	334°23.7'	S 23°16.2'	9.3'	2.1'	55.8'	68°05.7'	9°46.3'			40°02.4'	60°55.0'	65°17.1'	75°45.5'
7	348°52.0'	S 23°14.1'	9.4'	2.2'	55.8'	67°36.9'	9°15.8'			40°33.4'	61°13.3'	65°35.6'	76°01.4'
8	3°20.3'	S 23°11.9'	9.4'	2.3'	55.8'	67°08.1'	8°45.4'			41°04.3'	61°31.7'	65°54.2'	76°17.4'
9	17°48.7'	S 23°09.6'	9.5'	2.4'	55.7'	66°39.4'	8°15.2'			41°35.2'	61°50.2'	66°12.9'	76°33.4'
10	32°17.2'	S 23°07.1'	9.5'	2.6'	55.7'	66°10.7'	7°45.1'			42°06.0'	62°08.8'	66°31.6'	76°49.4'
11	46°45.7'	S 23°04.6'	9.6'	2.7'	55.7'	65°41.9'	7°15.3'			42°36.9'	62°27.4'	66°50.4'	77°05.5'
12	61°14.3'	S 23°01.9'	9.6'	2.8'	55.7'	65°13.3'	6°45.6'			43°07.8'	62°46.2'	67°09.3'	77°21.6'
13	75°42.9'	S 22°59.1'	9.7'	2.9'	55.6'	64°44.6'	6°16.2'			43°38.6'	63°05.0'	67°28.2'	77°37.7'
14	90°11.6'	S 22°56.2'	9.7'	3.0'	55.6'	64°16.0'	5°47.0'			44°09.4'	63°23.9'	67°47.2'	77°53.9'
15	104°40.3'	S 22°53.2'	9.8'	3.1'	55.6'	63°47.4'	5°18.3'			44°40.2'	63°42.9'	68°06.2'	78°10.1'
16	119°09.1'	S 22°50.1'	9.8'	3.3'	55.6'	63°18.9'	4°50.1'			45°11.0'	64°01.9'	68°25.3'	78°26.3'
17	133°37.9'	S 22°46.8'	9.9'	3.4'	55.5'	62°50.3'		3°38.9'	4°17.5'	45°41.7'	64°21.0'	68°44.4'	78°42.6'
18	148°06.8'	S 22°43.4'	9.9'	3.5'	55.5'	62°21.8'		4°07.3'	4°46.6'	46°12.4'	64°40.2'	69°03.6'	78°58.9'
19	162°35.8'	S 22°40.0'	10.0'	3.6'	55.5'	61°53.4'		4°36.1'	5°15.6'	46°43.2'	64°59.4'	69°22.9'	79°15.2'
20	177°04.8'	S 22°36.4'	10.1'	3.7'	55.5'	61°24.9'		5°05.3'	5°44.7'	47°13.9'	65°18.7'	69°42.2'	79°31.5'
21	191°33.9'	S 22°32.7'	10.1'	3.8'	55.4'	60°56.5'		5°34.7'	6°13.8'	47°44.5'	65°38.1'	70°01.5'	79°47.9'
22	206°03.0'	S 22°28.8'	10.2'	3.9'	55.4'	60°28.1'		6°04.3'	6°42.9'	48°15.2'	65°57.5'	70°20.9'	80°04.3'
23	220°32.2'	S 22°24.9'	10.2'	4.0'	55.4'	59°59.7'		6°34.1'	7°12.0'	48°45.8'	66°17.0'	70°40.4'	80°20.7'
Mer. pass.		7 h 46 m SD 15.3' phase 34%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°04.6'	N 89°21.1'
Rigel Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	176°59.9'	178°03.3'	S 0°27.5'	135°30.3'	N 18°44.0'	242°35.8'	S 21°34.9'	235°03.6'	S 20°14.5'	243°20.1'	S 22°23.2'
1	192°02.3'	193°03.5'	S 0°26.5'	150°30.2'	N 18°45.0'	257°37.9'	S 21°34.9'	250°05.9'	S 20°14.5'	258°20.7'	S 22°23.0'
2	207°04.8'	208°03.7'	S 0°25.5'	165°30.2'	N 18°45.9'	272°40.0'	S 21°34.8'	265°08.2'	S 20°14.4'	273°21.3'	S 22°22.7'
3	222°07.3'	223°03.9'	S 0°24.5'	180°30.1'	N 18°46.9'	287°42.0'	S 21°34.8'	280°10.4'	S 20°14.4'	288°21.9'	S 22°22.5'
4	237°09.7'	238°04.1'	S 0°23.6'	195°30.1'	N 18°47.8'	302°44.1'	S 21°34.7'	295°12.7'	S 20°14.4'	303°22.5'	S 22°22.3'
5	252°12.2'	253°04.3'	S 0°22.6'	210°30.0'	N 18°48.8'	317°46.1'	S 21°34.7'	310°14.9'	S 20°14.3'	318°23.1'	S 22°22.0'
6	267°14.7'	268°04.4'	S 0°21.6'	225°30.0'	N 18°49.7'	332°48.2'	S 21°34.6'	325°17.2'	S 20°14.3'	333°23.7'	S 22°21.8'
7	282°17.1'	283°04.6'	S 0°20.6'	240°29.9'	N 18°50.7'	347°50.3'	S 21°34.5'	340°19.5'	S 20°14.3'	348°24.3'	S 22°21.6'
8	297°19.6'	298°04.8'	S 0°19.6'	255°29.9'	N 18°51.6'	2°52.3'	S 21°34.5'	355°21.7'	S 20°14.2'	3°24.9'	S 22°21.3'
9	312°22.1'	313°05.0'	S 0°18.6'	270°29.8'	N 18°52.6'	17°54.4'	S 21°34.4'	10°24.0'	S 20°14.2'	18°25.5'	S 22°21.1'
10	327°24.5'	328°05.2'	S 0°17.6'	285°29.7'	N 18°53.5'	32°56.4'	S 21°34.4'	25°26.2'	S 20°14.1'	33°26.1'	S 22°20.9'
11	342°27.0'	343°05.4'	S 0°16.6'	300°29.7'	N 18°54.5'	47°58.5'	S 21°34.3'	40°28.5'	S 20°14.1'	48°26.7'	S 22°20.6'
12	357°29.5'	358°05.5'	S 0°15.6'	315°29.6'	N 18°55.4'	63°00.6'	S 21°34.2'	55°30.8'	S 20°14.1'	63°27.4'	S 22°20.4'
13	12°31.9'	13°05.7'	S 0°14.7'	330°29.6'	N 18°56.4'	78°02.6'	S 21°34.2'	70°33.0'	S 20°14.0'	78°28.0'	S 22°20.2'
14	27°34.4'	28°05.9'	S 0°13.7'	345°29.5'	N 18°57.3'	93°04.7'	S 21°34.1'	85°35.3'	S 20°14.0'	93°28.6'	S 22°19.9'
15	42°36.8'	43°06.1'	S 0°12.7'	0°29.5'	N 18°58.3'	108°06.7'	S 21°34.1'	100°37.5'	S 20°14.0'	108°29.2'	S 22°19.7'
16	57°39.3'	58°06.3'	S 0°11.7'	15°29.4'	N 18°59.2'	123°08.8'	S 21°34.0'	115°39.8'	S 20°13.9'	123°29.8'	S 22°19.5'
17	72°41.8'	73°06.3'	S 0°10.7'	30°29.4'	N 19°00.2'	138°10.9'	S 21°34.0'	130°42.1'	S 20°13.9'	138°30.4'	S 22°19.2'
18	87°44.2'	88°06.6'	S 0°09.7'	45°29.3'	N 19°01.1'	153°12.9'	S 21°33.9'	145°44.3'	S 20°13.8'	153°31.0'	S 22°19.0'
19	102°46.7'	103°06.8'	S 0°08.7'	60°29.3'	N 19°02.1'	168°15.0'	S 21°33.8'	160°46.6'	S 20°13.8'	168°31.6'	S 22°18.7'
20	117°49.2'	118°07.0'	S 0°07.7'	75°29.2'	N 19°03.0'	183°17.1'	S 21°33.8'	175°48.8'	S 20°13.8'	183°32.2'	S 22°18.5'
21	132°51.6'	133°07.2'	S 0°06.7'	90°29.2'	N 19°04.0'	198°19.1'	S 21°33.7'	190°51.1'	S 20°13.7'	198°32.8'	S 22°18.3'
22	147°54.1'	148°07.4'	S 0°05.8'	105°29.1'	N 19°04.9'	213°21.2'	S 21°33.7'	205°53.4'	S 20°13.7'	213°33.4'	S 22°18.0'
23	162°56.6'	163°07.6'	S 0°04.8'	120°29.1'	N 19°05.9'	228°23.2'	S 21°33.6'	220°55.6'	S 20°13.7'	228°34.0'	S 22°17.8'
		SD 16.1'	d 1.0'	v -0.1'	d 0.9'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.6'	d 0.2'
Mer. pass.		12 h 7 m 38 s		14 h 58 m		7 h 49 m		8 h 19 m		7 h 46 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	+Saturn	+Jupiter	+Mars	+Antares	+Rigel Kent	+Hadar
0	235°01.4'	S 22°20.9'	10.3'	4.2'	55.4'	59°31.4'	38°51.1'		7°03.9'	7°41.1'	49°16.5'	66°36.6'	70°59.8'
1	249°30.7'	S 22°16.7'	10.4'	4.3'	55.3'	59°03.0'	38°23.6'		7°33.8'	8°10.2'	49°47.1'	66°56.2'	71°19.4'
2	264°00.0'	S 22°12.4'	10.4'	4.4'	55.3'	58°34.7'	37°56.3'		8°03.8'	8°39.3'	50°17.6'	67°15.9'	71°38.9'
3	278°29.5'	S 22°08.1'	10.5'	4.5'	55.3'	58°06.5'	37°29.0'		8°33.8'	9°08.4'	50°48.2'	67°35.6'	71°58.5'
4	292°58.9'	S 22°03.6'	10.5'	4.6'	55.3'	57°38.2'	37°01.9'		9°03.9'	9°37.5'	51°18.8'	67°55.4'	72°18.2'
5	307°28.5'	S 21°59.0'	10.6'	4.7'	55.3'	57°10.0'	36°34.8'		9°34.0'	10°06.5'	51°49.3'	68°15.2'	72°37.9'
6	321°58.1'	S 21°54.3'	10.7'	4.8'	55.2'	56°41.8'	36°07.9'		10°04.1'	10°35.6'	52°19.8'	68°35.1'	72°57.6'
7	336°27.7'	S 21°49.5'	10.7'	4.9'	55.2'	56°13.6'	35°41.1'		10°34.2'	11°04.6'	52°50.3'	68°55.0'	73°17.3'
8	350°57.4'	S 21°44.6'	10.8'	5.0'	55.2'	55°45.5'	35°14.4'		11°04.3'	11°33.6'	53°20.8'	69°15.0'	73°37.1'
9	5°27.2'	S 21°39.6'	10.8'	5.1'	55.2'	55°17.4'	34°47.8'	4°50.0'	11°34.5'	12°02.6'	53°51.2'	69°35.0'	73°57.0'
10	19°57.0'	S 21°34.5'	10.9'	5.2'	55.1'	54°49.3'	34°21.3'	5°17.8'	12°04.6'	12°31.6'	54°21.7'	69°55.0'	74°16.8'
11	34°26.9'	S 21°29.3'	11.0'	5.3'	55.1'	54°21.2'	33°54.9'	5°46.1'	12°34.7'	13°00.5'	54°52.1'	70°15.2'	74°36.7'
12	48°56.9'	S 21°24.0'	11.0'	5.4'	55.1'	53°53.1'	33°28.7'	6°14.7'	13°04.8'	13°29.5'	55°22.5'	70°35.3'	74°56.6'
13	63°26.9'	S 21°18.6'	11.1'	5.5'	55.1'	53°25.1'	33°02.6'	6°43.5'	13°34.9'	13°58.4'	55°52.9'	70°55.5'	75°16.6'
14	77°57.0'	S 21°13.1'	11.1'	5.6'	55.1'	52°57.1'	32°36.7'	7°12.6'	14°05.1'	14°27.3'	56°23.3'	71°15.7'	75°36.5'
15	92°27.2'	S 21°07.5'	11.2'	5.7'	55.0'	52°29.1'	32°10.8'	7°41.8'	14°35.2'	14°56.1'	56°53.6'	71°36.0'	75°56.6'
16	106°57.4'	S 21°01.8'	11.3'	5.8'	55.0'	52°01.1'	31°45.2'	8°11.2'	15°05.2'	15°25.0'	57°24.0'	71°56.3'	76°16.6'
17	121°27.7'	S 20°55.9'	11.3'	5.9'	55.0'	51°33.2'	31°19.6'	8°40.6'	15°35.3'	15°53.8'	57°54.3'	72°16.6'	76°36.6'
18	135°58.0'	S 20°50.0'	11.4'	6.0'	55.0'	51°05.3'	30°54.3'	9°10.2'	16°05.4'	16°22.7'	58°24.6'	72°37.0'	76°56.7'
19	150°28.4'	S 20°44.0'	11.5'	6.1'	55.0'	50°37.4'	30°29.1'	9°39.8'	16°35.5'	16°51.5'	58°54.9'	72°57.4'	77°16.8'
20	164°58.9'	S 20°37.9'	11.5'	6.2'	54.9'	50°09.5'	30°04.0'	10°09.5'	17°05.5'	17°20.3'	59°25.2'	73°17.9'	77°36.9'
21	179°29.4'	S 20°31.8'	11.6'	6.3'	54.9'	49°41.7'	29°39.2'	10°39.2'	17°35.6'	17°49.0'	59°55.4'	73°38.4'	77°57.1'
22	193°60.0'	S 20°25.5'	11.7'	6.4'	54.9'	49°13.8'	29°14.5'	11°08.9'	18°05.6'	18°17.8'	60°25.7'	73°58.9'	78°17.2'
23	208°30.6'	S 20°19.1'	11.7'	6.5'	54.9'	48°46.0'	28°50.0'	11°38.7'	18°35.6'	18°46.5'	60°55.9'	74°19.4'	78°37.4'
Mer. pass.		8 h 37 m SD 15.1'		phase 25%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.7'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.6'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°04.9'	N 89°21.1'
Rigel Kent	-0.0	139°45.0'	S 60°54.8'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	177°59.0'	178°07.7'	S 0°03.8'	135°29.0'	N 19°06.8'	243°25.3'	S 21°33.6'	235°57.9'	S 20°13.6'	243°34.6'	S 22°17.6'
1	193°01.5'	193°07.9'	S 0°02.8'	150°29.0'	N 19°07.7'	258°27.4'	S 21°33.5'	251°00.1'	S 20°13.6'	258°35.2'	S 22°17.3'
2	208°03.9'	208°08.1'	S 0°01.8'	165°28.9'	N 19°08.7'	273°29.4'	S 21°33.4'	266°02.4'	S 20°13.5'	273°35.8'	S 22°17.1'
3	223°06.4'	223°08.3'	S 0°00.8'	180°28.8'	N 19°09.6'	288°31.5'	S 21°33.4'	281°04.7'	S 20°13.5'	288°36.4'	S 22°16.8'
4	238°08.9'	238°08.5'	N 0°00.2'	195°28.8'	N 19°10.6'	303°33.6'	S 21°33.3'	296°06.9'	S 20°13.5'	303°37.0'	S 22°16.6'
5	253°11.3'	253°08.7'	N 0°01.2'	210°28.7'	N 19°11.5'	318°35.6'	S 21°33.3'	311°09.2'	S 20°13.4'	318°37.6'	S 22°16.4'
6	268°13.8'	268°08.9'	N 0°02.1'	225°28.7'	N 19°12.4'	333°37.7'	S 21°33.2'	326°11.5'	S 20°13.4'	333°38.2'	S 22°16.1'
7	283°16.3'	283°09.0'	N 0°03.1'	240°28.6'	N 19°13.4'	348°39.8'	S 21°33.2'	341°13.7'	S 20°13.4'	348°38.8'	S 22°15.9'
8	298°18.7'	298°09.2'	N 0°04.1'	255°28.6'	N 19°14.3'	3°41.8'	S 21°33.1'	356°16.0'	S 20°13.3'	3°39.4'	S 22°15.6'
9	313°21.2'	313°09.4'	N 0°05.1'	270°28.5'	N 19°15.2'	18°43.9'	S 21°33.0'	11°18.2'	S 20°13.3'	18°40.1'	S 22°15.4'
10	328°23.7'	328°09.6'	N 0°06.1'	285°28.5'	N 19°16.2'	33°46.0'	S 21°33.0'	26°20.5'	S 20°13.2'	33°40.7'	S 22°15.1'
11	343°26.1'	343°09.8'	N 0°07.1'	300°28.4'	N 19°17.1'	48°48.0'	S 21°32.9'	41°22.8'	S 20°13.2'	48°41.3'	S 22°14.9'
12	358°28.6'	358°10.0'	N 0°08.1'	315°28.4'	N 19°18.0'	63°50.1'	S 21°32.9'	56°25.0'	S 20°13.2'	63°41.9'	S 22°14.7'
13	13°31.1'	13°10.1'	N 0°09.1'	330°28.3'	N 19°19.0'	78°52.2'	S 21°32.8'	71°27.3'	S 20°13.1'	78°42.5'	S 22°14.4'
14	28°33.5'	28°10.3'	N 0°10.1'	345°28.3'	N 19°19.9'	93°54.2'	S 21°32.8'	86°29.6'	S 20°13.1'	93°43.1'	S 22°14.2'
15	43°36.0'	43°10.5'	N 0°11.0'	0°28.3'	N 19°20.8'	108°56.3'	S 21°32.7'	101°31.8'	S 20°13.1'	108°43.7'	S 22°13.9'
16	58°38.4'	58°10.7'	N 0°12.0'	15°28.2'	N 19°21.8'	123°58.4'	S 21°32.6'	116°34.1'	S 20°13.0'	123°44.3'	S 22°13.7'
17	73°40.9'	73°10.9'	N 0°13.0'	30°28.2'	N 19°22.7'	139°00.4'	S 21°32.6'	131°36.3'	S 20°13.0'	138°44.9'	S 22°13.4'
18	88°43.4'	88°11.1'	N 0°14.0'	45°28.1'	N 19°23.6'	154°02.5'	S 21°32.5'	146°38.6'	S 20°12.9'	153°45.5'	S 22°13.2'
19	103°45.8'	103°11.3'	N 0°15.0'	60°28.1'	N 19°24.5'	169°04.6'	S 21°32.5'	161°40.9'	S 20°12.9'	168°46.1'	S 22°12.9'
20	118°48.3'	118°11.4'	N 0°16.0'	75°28.0'	N 19°25.5'	184°06.6'	S 21°32.4'	176°43.1'	S 20°12.9'	183°46.7'	S 22°12.7'
21	133°50.8'	133°11.6'	N 0°17.0'	90°28.0'	N 19°26.4'	199°08.7'	S 21°32.4'	191°45.4'	S 20°12.8'	198°47.3'	S 22°12.4'
22	148°53.2'	148°11.8'	N 0°18.0'	105°27.9'	N 19°27.3'	214°10.8'	S 21°32.3'	206°47.7'	S 20°12.8'	213°47.9'	S 22°12.2'
23	163°55.7'	163°12.0'	N 0°18.9'	120°27.9'	N 19°28.3'	229°12.8'	S 21°32.2'	221°49.9'	S 20°12.8'	228°48.5'	S 22°12.0'
		SD 16.1' d 1.0'		v -0.0' d 0.9'		v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.2'	
Mer. pass.		12 h 7 m 20 s		14 h 58 m		7 h 45 m		8 h 15 m		7 h 45 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	+Saturn	+Jupiter	+Mars	+Altair	+Antares	+Rigel Kent
0	223°01.4'	S 20°12.6'	11.8'	6.6'	54.9'	48°18.2'	28°25.7'	12°08.5'	19°05.6'	19°15.3'		61°26.1'	74°40.0'
1	237°32.1'	S 20°06.1'	11.8'	6.6'	54.8'	47°50.5'	28°01.5'	12°38.3'	19°35.6'	19°44.0'		61°56.3'	75°00.6'
2	252°03.0'	S 19°59.4'	11.9'	6.7'	54.8'	47°22.7'	27°37.6'	13°08.2'	20°05.5'	20°12.6'		62°26.5'	75°21.2'
3	266°33.9'	S 19°52.7'	12.0'	6.8'	54.8'	46°55.0'	27°13.9'	13°38.0'	20°35.5'	20°41.3'		62°56.6'	75°41.8'
4	281°04.9'	S 19°45.9'	12.0'	6.9'	54.8'	46°27.3'	26°50.5'	14°07.9'	21°05.5'	21°10.0'		63°26.8'	76°02.5'
5	295°35.9'	S 19°38.9'	12.1'	7.0'	54.8'	45°59.6'	26°27.2'	14°37.7'	21°35.4'	21°38.6'		63°56.9'	76°23.2'
6	310°07.0'	S 19°31.9'	12.2'	7.1'	54.7'	45°31.9'	26°04.2'	15°07.6'	22°05.3'	22°07.2'		64°27.0'	76°43.9'
7	324°38.2'	S 19°24.8'	12.2'	7.2'	54.7'	45°04.3'	25°41.5'	15°37.5'	22°35.2'	22°35.8'		64°57.1'	77°04.7'
8	339°09.4'	S 19°17.7'	12.3'	7.3'	54.7'	44°36.6'	25°19.0'	16°07.3'	23°05.1'	23°04.4'		65°27.2'	77°25.5'
9	353°40.7'	S 19°10.4'	12.3'	7.3'	54.7'	44°09.0'	24°56.7'	16°37.2'	23°35.0'	23°33.0'		65°57.3'	77°46.2'
10	8°12.0'	S 19°03.1'	12.4'	7.4'	54.7'	43°41.4'	24°34.8'	17°07.1'	24°04.8'	24°01.5'		66°27.4'	78°07.1'
11	22°43.4'	S 18°55.6'	12.5'	7.5'	54.7'	43°13.9'	24°13.2'	17°36.9'	24°34.7'	24°30.0'		66°57.4'	78°27.9'
12	37°14.9'	S 18°48.1'	12.5'	7.6'	54.6'	42°46.3'	23°51.8'	18°06.8'	25°04.5'	24°58.6'		67°27.4'	78°48.7'
13	51°46.4'	S 18°40.5'	12.6'	7.7'	54.6'	42°18.8'	23°30.8'	18°36.7'	25°34.4'	25°27.1'		67°57.4'	79°09.6'
14	66°18.0'	S 18°32.9'	12.7'	7.8'	54.6'	41°51.3'	23°10.1'	19°06.5'	26°04.2'	25°55.6'		68°27.5'	79°30.5'
15	80°49.7'	S 18°25.1'	12.7'	7.8'	54.6'	41°23.8'	22°49.7'	19°36.4'	26°34.0'	26°24.0'		68°57.4'	79°51.4'
16	95°21.4'	S 18°17.3'	12.8'	7.9'	54.6'	40°56.3'	22°29.8'	20°06.2'	27°03.7'	26°52.5'	36°57.6'	69°27.4'	80°12.3'
17	109°53.2'	S 18°09.4'	12.8'	8.0'	54.6'	40°28.9'	22°10.1'	20°36.1'	27°33.5'	27°21.0'	37°12.7'	69°57.4'	80°33.2'
18	124°25.1'	S 18°01.4'	12.9'	8.1'	54.5'	40°01.5'	21°50.9'	21°05.9'	28°03.3'	27°49.4'	37°28.0'	70°27.3'	80°54.1'
19	138°57.0'	S 17°53.3'	13.0'	8.1'	54.5'		21°32.1'	21°35.7'	28°33.0'	28°17.8'	37°43.5'	70°57.3'	81°15.1'
20	153°28.9'	S 17°45.2'	13.0'	8.2'	54.5'		21°13.7'	22°05.5'	29°02.8'	28°46.2'	37°59.3'	71°27.2'	81°36.0'
21	168°01.0'	S 17°37.0'	13.1'	8.3'	54.5'		20°55.8'	22°35.3'	29°32.5'	29°14.6'	38°15.3'	71°57.1'	81°57.0'
22	182°33.0'	S 17°28.7'	13.1'	8.4'	54.5'		20°38.3'	23°05.1'	30°02.2'	29°43.0'	38°31.6'	72°27.0'	82°18.0'
23	197°05.2'	S 17°20.3'	13.2'	8.4'	54.5'		20°21.3'	23°34.9'	30°31.9'	30°11.4'	38°48.1'	72°56.9'	82°39.0'
Mer. pass.		9 h 26 m SD 15.0'		phase 17%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.9'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°05.3'	N 89°21.1'
Rigel Kent	-0.0	139°45.0'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	178°58.2'		178°12.2'	N 0°19.9'	135°27.8'	N 19°29.2'	244°14.9'	S 21°32.2'	236°52.2'	S 20°12.7'	243°49.1'	S 22°11.7'
1	194°00.6'		193°12.4'	N 0°20.9'	150°27.8'	N 19°30.1'	259°17.0'	S 21°32.1'	251°54.5'	S 20°12.7'	258°49.8'	S 22°11.5'
2	209°03.1'		208°12.5'	N 0°21.9'	165°27.7'	N 19°31.0'	274°19.0'	S 21°32.1'	266°56.7'	S 20°12.6'	273°50.4'	S 22°11.2'
3	224°05.6'		223°12.7'	N 0°22.9'	180°27.7'	N 19°31.9'	289°21.1'	S 21°32.0'	281°59.0'	S 20°12.6'	288°51.0'	S 22°11.0'
4	239°08.0'		238°12.9'	N 0°23.9'	195°27.6'	N 19°32.9'	304°23.2'	S 21°32.0'	297°01.3'	S 20°12.6'	303°51.6'	S 22°10.7'
5	254°10.5'		253°13.1'	N 0°24.9'	210°27.6'	N 19°33.8'	319°25.3'	S 21°31.9'	312°03.5'	S 20°12.5'	318°52.2'	S 22°10.5'
6	269°12.9'		268°13.3'	N 0°25.9'	225°27.5'	N 19°34.7'	334°27.3'	S 21°31.8'	327°05.8'	S 20°12.5'	333°52.8'	S 22°10.2'
7	284°15.4'		283°13.5'	N 0°26.8'	240°27.5'	N 19°35.6'	349°29.4'	S 21°31.8'	342°08.0'	S 20°12.5'	348°53.4'	S 22°10.0'
8	299°17.9'		298°13.7'	N 0°27.8'	255°27.5'	N 19°36.5'	4°31.5'	S 21°31.7'	357°10.3'	S 20°12.4'	3°54.0'	S 22°09.7'
9	314°20.3'		313°13.8'	N 0°28.8'	270°27.4'	N 19°37.5'	19°33.5'	S 21°31.7'	12°12.6'	S 20°12.4'	18°54.6'	S 22°09.5'
10	329°22.8'		328°14.0'	N 0°29.8'	285°27.4'	N 19°38.4'	34°35.6'	S 21°31.6'	27°14.8'	S 20°12.4'	33°55.2'	S 22°09.2'
11	344°25.3'		343°14.2'	N 0°30.8'	300°27.3'	N 19°39.3'	49°37.7'	S 21°31.6'	42°17.1'	S 20°12.3'	48°55.8'	S 22°09.0'
12	359°27.7'		358°14.4'	N 0°31.8'	315°27.3'	N 19°40.2'	64°39.7'	S 21°31.5'	57°19.4'	S 20°12.3'	63°56.4'	S 22°08.7'
13	14°30.2'		13°14.6'	N 0°32.8'	330°27.2'	N 19°41.1'	79°41.8'	S 21°31.4'	72°21.6'	S 20°12.2'	78°57.0'	S 22°08.5'
14	29°32.7'		28°14.8'	N 0°33.8'	345°27.2'	N 19°42.0'	94°43.9'	S 21°31.4'	87°23.9'	S 20°12.2'	93°57.7'	S 22°08.2'
15	44°35.1'		43°15.0'	N 0°34.7'	0°27.2'	N 19°42.9'	109°46.0'	S 21°31.3'	102°26.2'	S 20°12.2'	108°58.3'	S 22°08.0'
16	59°37.6'		58°15.1'	N 0°35.7'	15°27.1'	N 19°43.9'	124°48.0'	S 21°31.3'	117°28.4'	S 20°12.1'	123°58.9'	S 22°07.7'
17	74°40.0'		73°15.3'	N 0°36.7'	30°27.1'	N 19°44.8'	139°50.1'	S 21°31.2'	132°30.7'	S 20°12.1'	138°59.5'	S 22°07.5'
18	89°42.5'		88°15.5'	N 0°37.7'	45°27.0'	N 19°45.7'	154°52.2'	S 21°31.2'	147°33.0'	S 20°12.1'	154°00.1'	S 22°07.2'
19	104°45.0'		103°15.7'	N 0°38.7'	60°27.0'	N 19°46.6'	169°54.3'	S 21°31.1'	162°35.2'	S 20°12.0'	169°00.7'	S 22°06.9'
20	119°47.4'		118°15.9'	N 0°39.7'	75°26.9'	N 19°47.5'	184°56.3'	S 21°31.0'	177°37.5'	S 20°12.0'	184°01.3'	S 22°06.7'
21	134°49.9'		133°16.1'	N 0°40.7'	90°26.9'	N 19°48.4'	199°58.4'	S 21°31.0'	192°39.8'	S 20°11.9'	199°01.9'	S 22°06.4'
22	149°52.4'		148°16.3'	N 0°41.6'	105°26.9'	N 19°49.3'	215°00.5'	S 21°30.9'	207°42.0'	S 20°11.9'	214°02.5'	S 22°06.2'
23	164°54.8'		163°16.4'	N 0°42.6'	120°26.8'	N 19°50.2'	230°02.6'	S 21°30.9'	222°44.3'	S 20°11.9'	229°03.1'	S 22°05.9'
			SD 16.0'	d 1.0'	v -0.0'	d 0.9'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.6'	d 0.3'
Mer. pass.			12 h 7 m 3 s		14 h 58 m		7 h 42 m		8 h 11 m		7 h 44 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	+Saturn	+Mars	+Jupiter	+Altair	+Antares	+Rigel Kent	+Hadar
0	211°37.4'	S 17°11.9'	13.3'	8.5'	54.5'	20°04.8'	24°04.7'	30°39.7'	31°01.6'	39°04.8'	73°26.8'	82°60.0'	87°05.8'
1	226°09.7'	S 17°03.4'	13.3'	8.6'	54.4'	19°48.8'	24°34.5'	31°08.0'	31°31.3'	39°21.7'	73°56.7'	83°21.0'	87°26.2'
2	240°42.0'	S 16°54.8'	13.4'	8.6'	54.4'		25°04.2'	31°36.4'	32°00.9'	39°38.8'	74°26.5'	83°42.0'	87°46.6'
3	255°14.4'	S 16°46.2'	13.4'	8.7'	54.4'		25°34.0'	32°04.7'	32°30.6'	39°56.1'	74°56.3'	84°03.0'	88°07.0'
4	269°46.8'	S 16°37.4'	13.5'	8.8'	54.4'		26°03.7'	32°33.0'	33°00.2'	40°13.7'	75°26.2'	84°24.0'	88°27.4'
5	284°19.3'	S 16°28.7'	13.6'	8.9'	54.4'		26°33.5'	33°01.3'	33°29.8'	40°31.4'	75°56.0'	84°45.0'	88°47.8'
6	298°51.9'	S 16°19.8'	13.6'	8.9'	54.4'		27°03.2'	33°29.6'	33°59.4'	40°49.3'	76°25.8'	85°06.1'	89°08.1'
7	313°24.5'	S 16°10.9'	13.7'	9.0'	54.4'		27°32.9'	33°57.8'	34°29.1'	41°07.4'	76°55.6'	85°27.1'	89°28.5'
8	327°57.2'	S 16°01.9'	13.7'	9.0'	54.3'		28°02.7'	34°26.1'	34°58.6'	41°25.7'	77°25.4'	85°48.1'	89°48.9'
9	342°29.9'	S 15°52.9'	13.8'	9.1'	54.3'		28°32.4'	34°54.3'	35°28.2'	41°44.2'	77°55.2'	86°09.2'	90°09.2'
10	357°02.7'	S 15°43.7'	13.8'	9.2'	54.3'		29°02.1'	35°22.5'	35°57.8'	42°02.8'	78°24.9'	86°30.2'	90°29.6'
11	11°35.6'	S 15°34.6'	13.9'	9.2'	54.3'		29°31.8'	35°50.8'	36°27.4'	42°21.6'	78°54.7'	86°51.3'	90°49.9'
12	26°08.5'	S 15°25.3'	14.0'	9.3'	54.3'		30°01.4'	36°19.0'	36°56.9'	42°40.6'	79°24.4'	87°12.3'	91°10.3'
13	40°41.4'	S 15°16.0'	14.0'	9.4'	54.3'		30°31.1'	36°47.2'	37°26.5'	42°59.8'	79°54.2'	87°33.3'	91°30.6'
14	55°14.4'	S 15°06.7'	14.1'	9.4'	54.3'		31°00.8'	37°15.4'	37°56.0'	43°19.0'	80°23.9'	87°54.4'	91°50.9'
15	69°47.5'	S 14°57.2'	14.1'	9.5'	54.3'		31°30.4'	37°43.5'	38°25.5'	43°38.5'	80°53.6'	88°15.4'	92°11.2'
16	84°20.6'	S 14°47.8'	14.2'	9.5'	54.3'		32°00.1'	38°11.7'	38°55.0'	43°58.1'	81°23.3'	88°36.4'	92°31.5'
17	98°53.8'	S 14°38.2'	14.2'	9.6'	54.2'		32°29.7'	38°39.9'	39°24.5'	44°17.8'	81°53.0'	88°57.5'	92°51.8'
18	113°27.0'	S 14°28.6'	14.3'	9.7'	54.2'		32°59.3'	39°08.0'	39°54.0'	44°37.7'	82°22.7'	89°18.5'	93°12.0'
19	128°00.3'	S 14°19.0'	14.3'	9.7'	54.2'		33°29.0'	39°36.1'	40°23.5'	44°57.7'	82°52.4'	89°39.5'	93°32.3'
20	142°33.6'	S 14°09.2'	14.4'	9.8'	54.2'		33°58.6'	40°04.3'	40°53.0'	45°17.9'	83°22.0'	90°00.5'	93°52.5'
21	157°07.0'	S 13°59.5'	14.4'	9.8'	54.2'		34°28.2'	40°32.4'	41°22.5'	45°38.2'	83°51.7'	90°21.5'	94°12.7'
22	171°40.4'	S 13°49.6'	14.5'	9.9'	54.2'		34°57.8'	41°00.5'	41°51.9'	45°58.6'	84°21.3'	90°42.5'	94°32.9'
23	186°13.9'	S 13°39.8'	14.5'	9.9'	54.2'		35°27.4'	41°28.6'	42°21.4'	46°19.2'	84°51.0'	91°03.5'	94°53.1'
Mer. pass.			10 h 12 m	SD 14.9'	phase 10%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.7'	N 5°10.2'	Polaris	+2.0	316°05.7'	N 89°21.1'
Rigel Kent	-0.0	139°45.0'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.7'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

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	179°57.3'	178°16.6'	N 0°43.6'	135°26.8'	N 19°51.1'		245°04.6'	S 21°30.8'	237°46.6'	S 20°11.8'	244°03.7'	S 22°05.7'						
1	194°59.8'	193°16.8'	N 0°44.6'	150°26.7'	N 19°52.0'		260°06.7'	S 21°30.8'	252°48.8'	S 20°11.8'	259°04.4'	S 22°05.4'						
2	210°02.2'	208°17.0'	N 0°45.6'	165°26.7'	N 19°52.9'		275°08.8'	S 21°30.7'	267°51.1'	S 20°11.8'	274°05.0'	S 22°05.2'						
3	225°04.7'	223°17.2'	N 0°46.6'	180°26.7'	N 19°53.8'		290°10.9'	S 21°30.6'	282°53.4'	S 20°11.7'	289°05.6'	S 22°04.9'						
4	240°07.2'	238°17.4'	N 0°47.6'	195°26.6'	N 19°54.8'		305°12.9'	S 21°30.6'	297°55.7'	S 20°11.7'	304°06.2'	S 22°04.6'						
5	255°09.6'	253°17.6'	N 0°48.6'	210°26.6'	N 19°55.7'		320°15.0'	S 21°30.5'	312°57.9'	S 20°11.7'	319°06.8'	S 22°04.4'						
6	270°12.1'	268°17.8'	N 0°49.5'	225°26.5'	N 19°56.6'		335°17.1'	S 21°30.5'	328°00.2'	S 20°11.6'	334°07.4'	S 22°04.1'						
7	285°14.5'	283°17.9'	N 0°50.5'	240°26.5'	N 19°57.5'		350°19.2'	S 21°30.4'	343°02.5'	S 20°11.6'	349°08.0'	S 22°03.9'						
8	300°17.0'	298°18.1'	N 0°51.5'	255°26.5'	N 19°58.4'		5°21.2'	S 21°30.4'	358°04.7'	S 20°11.5'	4°08.6'	S 22°03.6'						
9	315°19.5'	313°18.3'	N 0°52.5'	270°26.4'	N 19°59.3'		20°23.3'	S 21°30.3'	13°07.0'	S 20°11.5'	19°09.2'	S 22°03.4'						
10	330°21.9'	328°18.5'	N 0°53.5'	285°26.4'	N 20°00.2'		35°25.4'	S 21°30.3'	28°09.3'	S 20°11.5'	34°09.8'	S 22°03.1'						
11	345°24.4'	343°18.7'	N 0°54.5'	300°26.3'	N 20°01.1'		50°27.5'	S 21°30.2'	43°11.5'	S 20°11.4'	49°10.5'	S 22°02.8'						
12	0°26.9'	358°18.9'	N 0°55.5'	315°26.3'	N 20°02.0'		65°29.5'	S 21°30.1'	58°13.8'	S 20°11.4'	64°11.1'	S 22°02.6'						
13	15°29.3'	13°19.1'	N 0°56.4'	330°26.3'	N 20°02.8'		80°31.6'	S 21°30.1'	73°16.1'	S 20°11.4'	79°11.7'	S 22°02.3'						
14	30°31.8'	28°19.2'	N 0°57.4'	345°26.2'	N 20°03.7'		95°33.7'	S 21°30.0'	88°18.3'	S 20°11.3'	94°12.3'	S 22°02.1'						
15	45°34.3'	43°19.4'	N 0°58.4'	0°26.2'	N 20°04.6'		110°35.8'	S 21°30.0'	103°20.6'	S 20°11.3'	109°12.9'	S 22°01.8'						
16	60°36.7'	58°19.6'	N 0°59.4'	15°26.2'	N 20°05.5'		125°37.9'	S 21°29.9'	118°22.9'	S 20°11.3'	124°13.5'	S 22°01.5'						
17	75°39.2'	73°19.8'	N 1°00.4'	30°26.1'	N 20°06.4'		140°39.9'	S 21°29.9'	133°25.2'	S 20°11.2'	139°14.1'	S 22°01.3'						
18	90°41.6'	88°20.0'	N 1°01.4'	45°26.1'	N 20°07.3'		155°42.0'	S 21°29.8'	148°27.4'	S 20°11.2'	154°14.7'	S 22°01.0'						
19	105°44.1'	103°20.2'	N 1°02.4'	60°26.0'	N 20°08.2'		170°44.1'	S 21°29.7'	163°29.7'	S 20°11.1'	169°15.3'	S 22°00.8'						
20	120°46.6'	118°20.4'	N 1°03.4'	75°26.0'	N 20°09.1'		185°46.2'	S 21°29.7'	178°32.0'	S 20°11.1'	184°16.0'	S 22°00.5'						
21	135°49.0'	133°20.6'	N 1°04.3'	90°26.0'	N 20°10.0'		200°48.3'	S 21°29.6'	193°34.2'	S 20°11.1'	199°16.6'	S 22°00.2'						
22	150°51.5'	148°20.7'	N 1°05.3'	105°25.9'	N 20°10.9'		215°50.3'	S 21°29.6'	208°36.5'	S 20°11.0'	214°17.2'	S 21°60.0'						
23	165°54.0'	163°20.9'	N 1°06.3'	120°25.9'	N 20°11.8'		230°52.4'	S 21°29.5'	223°38.8'	S 20°11.0'	229°17.8'	S 21°59.7'						
		SD 16.0' d 1.0'		v -0.0' d 0.9'			v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.3'							
Mer. pass.		12 h 6 m 45 s		14 h 58 m			7 h 39 m		8 h 8 m		7 h 43 m							

h	Moon				+Fomalhaut	+Saturn	+Mars	Lunar distance				+Rigil Kent	+Hadar
	GHA	dec	v	d				HP	+Jupiter	+Altair	+Antares		
0	200°47.4'	S 13°29.8'	14.6'	10.0'	54.2'		35°57.0'	41°56.7'	42°50.8'	46°39.8'	85°20.6'	91°24.5'	95°13.3'
1	215°21.0'	S 13°19.8'	14.6'	10.0'	54.2'		36°26.5'	42°24.8'	43°20.3'	47°00.6'	85°50.2'	91°45.5'	95°33.4'
2	229°54.6'	S 13°09.8'	14.7'	10.1'	54.1'		36°56.1'	42°52.8'	43°49.7'	47°21.5'	86°19.9'	92°06.5'	95°53.5'
3	244°28.3'	S 12°59.7'	14.7'	10.1'	54.1'		37°25.7'	43°20.9'	44°19.1'	47°42.5'	86°49.5'	92°27.4'	96°13.7'
4	259°02.0'	S 12°49.6'	14.8'	10.2'	54.1'		37°55.2'	43°49.0'	44°48.5'	48°03.7'	87°19.1'	92°48.4'	96°33.7'
5	273°35.7'	S 12°39.4'	14.8'	10.2'	54.1'		38°24.8'	44°17.0'	45°17.9'	48°24.9'	87°48.6'	93°09.3'	96°53.8'
6	288°09.5'	S 12°29.1'	14.9'	10.3'	54.1'		38°54.3'	44°45.1'	45°47.3'	48°46.3'	88°18.2'	93°30.2'	97°13.9'
7	302°43.4'	S 12°18.9'	14.9'	10.3'	54.1'		39°23.9'	45°13.1'	46°16.7'	49°07.7'	88°47.8'	93°51.1'	97°33.9'
8	317°17.3'	S 12°08.5'	14.9'	10.4'	54.1'		39°53.4'	45°41.1'	46°46.1'	49°29.3'	89°17.4'	94°12.0'	97°53.9'
9	331°51.3'	S 11°58.2'	15.0'	10.4'	54.1'		40°22.9'	46°09.1'	47°15.4'	49°50.9'	89°46.9'	94°32.9'	98°13.8'
10	346°25.2'	S 11°47.7'	15.0'	10.5'	54.1'		40°52.4'	46°37.1'	47°44.8'	50°12.6'	90°16.5'	94°53.7'	98°33.8'
11	0°59.3'	S 11°37.3'	15.1'	10.5'	54.1'		41°21.9'	47°05.1'	48°14.2'	50°34.5'	90°46.0'	95°14.6'	98°53.7'
12	15°33.4'	S 11°26.7'	15.1'	10.6'	54.1'		41°51.4'	47°33.1'	48°43.5'	50°56.4'	91°15.6'	95°35.4'	99°13.6'
13	30°07.5'	S 11°16.2'	15.2'	10.6'	54.0'		42°20.9'	48°01.1'	49°12.9'	51°18.4'	91°45.1'	95°56.2'	99°33.5'
14	44°41.6'	S 11°05.6'	15.2'	10.6'	54.0'		42°50.4'	48°29.1'	49°42.2'	51°40.5'	92°14.6'	96°17.0'	99°53.3'
15	59°15.8'	S 10°54.9'	15.2'	10.7'	54.0'		43°19.9'	48°57.1'	50°11.6'	52°02.7'	92°44.1'	96°37.8'	100°13.1'
16	73°50.1'	S 10°44.3'	15.3'	10.7'	54.0'		43°49.4'	49°25.1'	50°40.9'	52°25.0'	93°13.7'	96°58.5'	100°32.9'
17	88°24.4'	S 10°33.5'	15.3'	10.8'	54.0'		44°18.9'	49°53.0'	51°10.2'	52°47.3'	93°43.2'	97°19.3'	100°52.7'
18	102°58.7'	S 10°22.8'	15.4'	10.8'	54.0'		44°48.3'	50°21.0'	51°39.5'	53°09.8'	94°12.7'	97°40.0'	101°12.4'
19	117°33.0'	S 10°12.0'	15.4'	10.8'	54.0'	19°35.6'	45°17.8'	50°48.9'	52°08.8'	53°32.3'	94°42.2'	98°00.7'	101°32.1'
20	132°07.4'	S 10°01.1'	15.4'	10.9'	54.0'	19°50.9'	45°47.3'	51°16.9'	52°38.1'	53°54.9'	95°11.6'	98°21.4'	101°51.7'
21	146°41.9'	S 9°50.3'	15.5'	10.9'	54.0'	20°06.8'	46°16.7'	51°44.8'	53°07.4'	54°17.5'	95°41.1'	98°42.0'	102°11.3'
22	161°16.3'	S 9°39.3'	15.5'	11.0'	54.0'	20°23.1'	46°46.2'	52°12.7'	53°36.7'	54°40.3'	96°10.6'	99°02.6'	102°30.9'
23	175°50.8'	S 9°28.4'	15.5'	11.0'	54.0'	20°39.9'	47°15.6'	52°40.7'	54°06.0'	55°03.1'	96°40.1'	99°23.2'	102°50.5'
Mer. pass.		10 h 56 m SD 14.8'		phase 5%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.6'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°06.0'	N 89°21.1'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.0'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	180°56.4'	178°21.1'	N 1°07.3'	135°25.9'	N 20°12.7'		245°54.5'	S 21°29.5'		238°41.0'	S 20°11.0'		244°18.4'	S 21°59.4'				
1	195°58.9'	193°21.3'	N 1°08.3'	150°25.8'	N 20°13.5'		260°56.6'	S 21°29.4'		253°43.3'	S 20°10.9'		259°19.0'	S 21°59.2'				
2	211°01.4'	208°21.5'	N 1°09.3'	165°25.8'	N 20°14.4'		275°58.7'	S 21°29.4'		268°45.6'	S 20°10.9'		274°19.6'	S 21°58.9'				
3	226°03.8'	223°21.7'	N 1°10.3'	180°25.8'	N 20°15.3'		291°00.7'	S 21°29.3'		283°47.9'	S 20°10.9'		289°20.2'	S 21°58.7'				
4	241°06.3'	238°21.9'	N 1°11.2'	195°25.7'	N 20°16.2'		306°02.8'	S 21°29.2'		298°50.1'	S 20°10.8'		304°20.8'	S 21°58.4'				
5	256°08.8'	253°22.0'	N 1°12.2'	210°25.7'	N 20°17.1'		321°04.9'	S 21°29.2'		313°52.4'	S 20°10.8'		319°21.5'	S 21°58.1'				
6	271°11.2'	268°22.2'	N 1°13.2'	225°25.7'	N 20°18.0'		336°07.0'	S 21°29.1'		328°54.7'	S 20°10.8'		334°22.1'	S 21°57.9'				
7	286°13.7'	283°22.4'	N 1°14.2'	240°25.6'	N 20°18.9'		351°09.1'	S 21°29.1'		343°56.9'	S 20°10.7'		349°22.7'	S 21°57.6'				
8	301°16.1'	298°22.6'	N 1°15.2'	255°25.6'	N 20°19.7'		6°11.1'	S 21°29.0'		358°59.2'	S 20°10.7'		4°23.3'	S 21°57.3'				
9	316°18.6'	313°22.8'	N 1°16.2'	270°25.6'	N 20°20.6'		21°13.2'	S 21°29.0'		14°01.5'	S 20°10.6'		19°23.9'	S 21°57.1'				
10	331°21.1'	328°23.0'	N 1°17.1'	285°25.5'	N 20°21.5'		36°15.3'	S 21°28.9'		29°03.8'	S 20°10.6'		34°24.5'	S 21°56.8'				
11	346°23.5'	343°23.2'	N 1°18.1'	300°25.5'	N 20°22.4'		51°17.4'	S 21°28.9'		44°06.0'	S 20°10.6'		49°25.1'	S 21°56.5'				
12	1°26.0'	358°23.4'	N 1°19.1'	315°25.5'	N 20°23.3'		66°19.5'	S 21°28.8'		59°08.3'	S 20°10.5'		64°25.7'	S 21°56.3'				
13	16°28.5'	13°23.5'	N 1°20.1'	330°25.5'	N 20°24.1'		81°21.6'	S 21°28.7'		74°10.6'	S 20°10.5'		79°26.4'	S 21°56.0'				
14	31°30.9'	28°23.7'	N 1°21.1'	345°25.4'	N 20°25.0'		96°23.6'	S 21°28.7'		89°12.9'	S 20°10.5'		94°27.0'	S 21°55.7'				
15	46°33.4'	43°23.9'	N 1°22.1'	0°25.4'	N 20°25.9'		111°25.7'	S 21°28.6'		104°15.1'	S 20°10.4'		109°27.6'	S 21°55.5'				
16	61°35.9'	58°24.1'	N 1°23.1'	15°25.4'	N 20°26.8'		126°27.8'	S 21°28.6'		119°17.4'	S 20°10.4'		124°28.2'	S 21°55.2'				
17	76°38.3'	73°24.3'	N 1°24.0'	30°25.3'	N 20°27.6'		141°29.9'	S 21°28.5'		134°19.7'	S 20°10.4'		139°28.8'	S 21°54.9'				
18	91°40.8'	88°24.5'	N 1°25.0'	45°25.3'	N 20°28.5'		156°32.0'	S 21°28.5'		149°21.9'	S 20°10.3'		154°29.4'	S 21°54.7'				
19	106°43.2'	103°24.7'	N 1°26.0'	60°25.3'	N 20°29.4'		171°34.1'	S 21°28.4'		164°24.2'	S 20°10.3'		169°30.0'	S 21°54.4'				
20	121°45.7'	118°24.9'	N 1°27.0'	75°25.2'	N 20°30.3'		186°36.2'	S 21°28.3'		179°26.5'	S 20°10.3'		184°30.7'	S 21°54.1'				
21	136°48.2'	133°25.0'	N 1°28.0'	90°25.2'	N 20°31.1'		201°38.2'	S 21°28.3'		194°28.8'	S 20°10.2'		199°31.3'	S 21°53.8'				
22	151°50.6'	148°25.2'	N 1°29.0'	105°25.2'	N 20°32.0'		216°40.3'	S 21°28.2'		209°31.0'	S 20°10.2'		214°31.9'	S 21°53.6'				
23	166°53.1'	163°25.4'	N 1°30.0'	120°25.2'	N 20°32.9'		231°42.4'	S 21°28.2'		224°33.3'	S 20°10.1'		229°32.5'	S 21°53.3'				
		SD 16.0' d 1.0'		v -0.0' d 0.9'			v 2.1' d 0.1'			v 2.3' d 0.0'			v 0.6' d 0.3'					
Mer. pass.		12 h 6 m 27 s		14 h 58 m			7 h 35 m			8 h 4 m			7 h 42 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Fomalhaut	+Saturn	+Mars	+Jupiter	+Altair	+Antares	+Rigel Kent	+Hadar
0	190°25.4'	S 9°17.4'	15.6'	11.0'	54.0'	20°57.2'	47°45.1'	53°08.6'	54°35.3'	55°25.9'	97°09.5'	99°43.8'	103°10.0'
1	204°59.9'	S 9°06.4'	15.6'	11.1'	54.0'	21°14.9'	48°14.5'	53°36.5'	55°04.6'	55°48.9'	97°39.0'	100°04.3'	103°29.5'
2	219°34.5'	S 8°55.3'	15.6'	11.1'	54.0'	21°33.0'	48°43.9'	54°04.4'	55°33.9'	56°11.9'	98°08.4'	100°24.9'	103°48.9'
3	234°09.2'	S 8°44.2'	15.7'	11.1'	54.0'	21°51.5'	49°13.3'	54°32.3'	56°03.1'	56°34.9'	98°37.9'	100°45.4'	104°08.3'
4	248°43.9'	S 8°33.1'	15.7'	11.2'	54.0'	22°10.4'	49°42.8'	55°00.2'	56°32.4'	56°58.1'	99°07.3'	101°05.8'	104°27.7'
5	263°18.6'	S 8°22.0'	15.7'	11.2'	53.9'	22°29.6'	50°12.2'	55°28.1'	57°01.6'	57°21.3'	99°36.8'	101°26.3'	104°47.0'
6	277°53.3'	S 8°10.8'	15.8'	11.2'	53.9'	22°49.2'	50°41.6'	55°56.0'	57°30.9'	57°44.5'	100°06.2'	101°46.7'	105°06.2'
7	292°28.1'	S 7°59.6'	15.8'	11.2'	53.9'	23°09.2'	51°11.0'	56°23.9'	58°00.2'	58°07.8'	100°35.6'	102°07.0'	105°25.5'
8	307°02.9'	S 7°48.3'	15.8'	11.3'	53.9'	23°29.4'	51°40.4'	56°51.8'	58°29.4'	58°31.2'	101°05.0'	102°27.4'	105°44.7'
9	321°37.7'	S 7°37.1'	15.9'	11.3'	53.9'	23°50.0'	52°09.8'	57°19.6'	58°58.7'	58°54.6'	101°34.4'	102°47.7'	106°03.8'
10	336°12.5'	S 7°25.8'	15.9'	11.3'	53.9'	24°10.8'	52°39.2'	57°47.5'	59°27.9'	59°18.1'	102°03.9'	103°08.0'	106°22.9'
11	350°47.4'	S 7°14.4'	15.9'	11.4'	53.9'	24°32.0'	53°08.6'	58°15.4'	59°57.1'	59°41.6'	102°33.3'	103°28.2'	106°42.0'
12	5°22.3'	S 7°03.1'	15.9'	11.4'	53.9'	24°53.4'	53°38.0'	58°43.3'	60°26.4'	60°05.2'	103°02.7'	103°48.4'	107°01.0'
13	19°57.3'	S 6°51.7'	16.0'	11.4'	53.9'	25°15.0'	54°07.4'	59°11.1'	60°55.6'	60°28.8'	103°32.1'	104°08.6'	107°20.0'
14	34°32.2'	S 6°40.3'	16.0'	11.4'	53.9'	25°36.9'	54°36.8'	59°39.0'	61°24.8'	60°52.5'	104°01.5'	104°28.7'	107°38.9'
15	49°07.2'	S 6°28.9'	16.0'	11.5'	53.9'								
16	63°42.2'	S 6°17.4'	16.0'	11.5'	53.9'								
17	78°17.2'	S 6°05.9'	16.1'	11.5'	53.9'								
18	92°52.3'	S 5°54.4'	16.1'	11.5'	53.9'								
19	107°27.4'	S 5°42.9'	16.1'	11.5'	53.9'								
20	122°02.5'	S 5°31.4'	16.1'	11.6'	53.9'								
21	136°37.6'	S 5°19.8'	16.1'	11.6'	53.9'								
22	151°12.7'	S 5°08.2'	16.2'	11.6'	53.9'								
23	165°47.9'	S 4°56.6'	16.2'	11.6'	53.9'								
Mer. pass.		11 h 38 m SD 14.7'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°06.4'	N 89°21.1'
Rigel Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.4'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

Tuesday 24 March 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	181°55.6'	178°25.6'	N 1°30.9'	135°25.1'	N 20°33.8'		246°44.5'	S 21°28.1'		239°35.6'	S 20°10.1'		244°33.1'	S 21°53.0'				
1	196°58.0'	193°25.8'	N 1°31.9'	150°25.1'	N 20°34.6'		261°46.6'	S 21°28.1'		254°37.9'	S 20°10.1'		259°33.7'	S 21°52.8'				
2	212°00.5'	208°26.0'	N 1°32.9'	165°25.1'	N 20°35.5'		276°48.7'	S 21°28.0'		269°40.1'	S 20°10.0'		274°34.3'	S 21°52.5'				
3	227°03.0'	223°26.2'	N 1°33.9'	180°25.1'	N 20°36.4'		291°50.8'	S 21°28.0'		284°42.4'	S 20°10.0'		289°35.0'	S 21°52.2'				
4	242°05.4'	238°26.4'	N 1°34.9'	195°25.0'	N 20°37.2'		306°52.8'	S 21°27.9'		299°44.7'	S 20°10.0'		304°35.6'	S 21°51.9'				
5	257°07.9'	253°26.5'	N 1°35.9'	210°25.0'	N 20°38.1'		321°54.9'	S 21°27.9'		314°47.0'	S 20°09.9'		319°36.2'	S 21°51.7'				
6	272°10.4'	268°26.7'	N 1°36.8'	225°25.0'	N 20°39.0'		336°57.0'	S 21°27.8'		329°49.2'	S 20°09.9'		334°36.8'	S 21°51.4'				
7	287°12.8'	283°26.9'	N 1°37.8'	240°25.0'	N 20°39.8'		351°59.1'	S 21°27.7'		344°51.5'	S 20°09.9'		349°37.4'	S 21°51.1'				
8	302°15.3'	298°27.1'	N 1°38.8'	255°24.9'	N 20°40.7'		7°01.2'	S 21°27.7'		359°53.8'	S 20°09.8'		4°38.0'	S 21°50.9'				
9	317°17.7'	313°27.3'	N 1°39.8'	270°24.9'	N 20°41.5'		22°03.3'	S 21°27.6'		14°56.1'	S 20°09.8'		19°38.6'	S 21°50.6'				
10	332°20.2'	328°27.5'	N 1°40.8'	285°24.9'	N 20°42.4'		37°05.4'	S 21°27.6'		29°58.3'	S 20°09.8'		34°39.3'	S 21°50.3'				
11	347°22.7'	343°27.7'	N 1°41.8'	300°24.9'	N 20°43.3'		52°07.5'	S 21°27.5'		45°00.6'	S 20°09.7'		49°39.9'	S 21°50.0'				
12	2°25.1'	358°27.9'	N 1°42.7'	315°24.8'	N 20°44.1'		67°09.5'	S 21°27.5'		60°02.9'	S 20°09.7'		64°40.5'	S 21°49.8'				
13	17°27.6'	13°28.0'	N 1°43.7'	330°24.8'	N 20°45.0'		82°11.6'	S 21°27.4'		75°05.2'	S 20°09.7'		79°41.1'	S 21°49.5'				
14	32°30.1'	28°28.2'	N 1°44.7'	345°24.8'	N 20°45.8'		97°13.7'	S 21°27.4'		90°07.4'	S 20°09.6'		94°41.7'	S 21°49.2'				
15	47°32.5'	43°28.4'	N 1°45.7'	0°24.8'	N 20°46.7'		112°15.8'	S 21°27.3'		105°09.7'	S 20°09.6'		109°42.3'	S 21°48.9'				
16	62°35.0'	58°28.6'	N 1°46.7'	15°24.7'	N 20°47.6'		127°17.9'	S 21°27.2'		120°12.0'	S 20°09.6'		124°43.0'	S 21°48.7'				
17	77°37.5'	73°28.8'	N 1°47.7'	30°24.7'	N 20°48.4'		142°20.0'	S 21°27.2'		135°14.3'	S 20°09.5'		139°43.6'	S 21°48.4'				
18	92°39.9'	88°29.0'	N 1°48.6'	45°24.7'	N 20°49.3'		157°22.1'	S 21°27.1'		150°16.6'	S 20°09.5'		154°44.2'	S 21°48.1'				
19	107°42.4'	103°29.2'	N 1°49.6'	60°24.7'	N 20°50.1'		172°24.2'	S 21°27.1'		165°18.8'	S 20°09.4'		169°44.8'	S 21°47.8'				
20	122°44.9'	118°29.4'	N 1°50.6'	75°24.7'	N 20°51.0'		187°26.3'	S 21°27.0'		180°21.1'	S 20°09.4'		184°45.4'	S 21°47.6'				
21	137°47.3'	133°29.5'	N 1°51.6'	90°24.6'	N 20°51.8'		202°28.4'	S 21°27.0'		195°23.4'	S 20°09.4'		199°46.0'	S 21°47.3'				
22	152°49.8'	148°29.7'	N 1°52.6'	105°24.6'	N 20°52.7'		217°30.5'	S 21°26.9'		210°25.7'	S 20°09.3'		214°46.7'	S 21°47.0'				
23	167°52.2'	163°29.9'	N 1°53.6'	120°24.6'	N 20°53.5'		232°32.5'	S 21°26.9'		225°27.9'	S 20°09.3'		229°47.3'	S 21°46.7'				
		SD 16.0'	d 1.0'		v -0.0'	d 0.9'		v 2.1'	d 0.1'		v 2.3'	d 0.0'		v 0.6'	d 0.3'			
Mer. pass.		12 h 6 m 9 s		14 h 58 m		7 h 32 m		8 h 0 m		7 h 41 m								

h	Moon				
	GHA	dec	v	d	HP
0	180°23.0'	S 4°45.0'	16.2'	11.6'	53.9'
1	194°58.2'	S 4°33.4'	16.2'	11.7'	53.9'
2	209°33.4'	S 4°21.7'	16.2'	11.7'	53.9'
3	224°08.7'	S 4°10.1'	16.2'	11.7'	53.9'
4	238°43.9'	S 3°58.4'	16.3'	11.7'	53.9'
5	253°19.1'	S 3°46.7'	16.3'	11.7'	53.9'
6	267°54.4'	S 3°35.0'	16.3'	11.7'	53.9'
7	282°29.7'	S 3°23.3'	16.3'	11.7'	53.9'
8	297°05.0'	S 3°11.5'	16.3'	11.7'	53.9'
9	311°40.3'	S 2°59.8'	16.3'	11.8'	53.9'
10	326°15.6'	S 2°48.0'	16.3'	11.8'	53.9'
11	340°50.9'	S 2°36.2'	16.3'	11.8'	53.9'
12	355°26.3'	S 2°24.5'	16.3'	11.8'	53.9'
13	10°01.6'	S 2°12.7'	16.4'	11.8'	53.9'
14	24°37.0'	S 2°00.9'	16.4'	11.8'	53.9'
15	39°12.3'	S 1°49.1'	16.4'	11.8'	53.9'
16	53°47.7'	S 1°37.2'	16.4'	11.8'	53.9'
17	68°23.0'	S 1°25.4'	16.4'	11.8'	53.9'
18	82°58.4'	S 1°13.6'	16.4'	11.8'	53.9'
19	97°33.8'	S 1°01.8'	16.4'	11.8'	53.9'
20	112°09.2'	S 0°49.9'	16.4'	11.8'	53.9'
21	126°44.6'	S 0°38.1'	16.4'	11.8'	53.9'
22	141°20.0'	S 0°26.3'	16.4'	11.8'	53.9'
23	155°55.3'	S 0°14.4'	16.4'	11.8'	53.9'
Mer. pass.	12 h 19 m	SD 14.7'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.9'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°06.8'	N 89°21.1'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				



h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	182°54.7'	178°30.1'	N 1°54.5'	135°24.6'	N 20°54.4'		247°34.6'	S 21°26.8'		240°30.2'	S 20°09.3'		244°47.9'	S 21°46.4'				
1	197°52.2'	193°30.3'	N 1°55.5'	150°24.6'	N 20°55.2'		262°36.7'	S 21°26.7'		255°32.5'	S 20°09.2'		259°48.5'	S 21°46.2'				
2	212°59.6'	208°30.5'	N 1°56.5'	165°24.5'	N 20°56.1'		277°38.8'	S 21°26.7'		270°34.8'	S 20°09.2'		274°49.1'	S 21°45.9'				
3	228°02.1'	223°30.7'	N 1°57.5'	180°24.5'	N 20°56.9'		292°40.9'	S 21°26.6'		285°37.1'	S 20°09.2'		289°49.7'	S 21°45.6'				
4	243°04.6'	238°30.9'	N 1°58.5'	195°24.5'	N 20°57.8'		307°43.0'	S 21°26.6'		300°39.3'	S 20°09.1'		304°50.4'	S 21°45.3'				
5	258°07.0'	253°31.1'	N 1°59.5'	210°24.5'	N 20°58.6'		322°45.1'	S 21°26.5'		315°41.6'	S 20°09.1'		319°51.0'	S 21°45.0'				
6	273°09.5'	268°31.2'	N 2°00.4'	225°24.5'	N 20°59.5'		337°47.2'	S 21°26.5'		330°43.9'	S 20°09.1'		334°51.6'	S 21°44.8'				
7	288°12.0'	283°31.4'	N 2°01.4'	240°24.4'	N 21°00.3'		352°49.3'	S 21°26.4'		345°46.2'	S 20°09.0'		349°52.2'	S 21°44.5'				
8	303°14.4'	298°31.6'	N 2°02.4'	255°24.4'	N 21°01.2'		7°51.4'	S 21°26.4'		0°48.4'	S 20°09.0'		4°52.8'	S 21°44.2'				
9	318°16.9'	313°31.8'	N 2°03.4'	270°24.4'	N 21°02.0'		22°53.5'	S 21°26.3'		15°50.7'	S 20°09.0'		19°53.4'	S 21°43.9'				
10	333°19.3'	328°32.0'	N 2°04.4'	285°24.4'	N 21°02.9'		37°55.6'	S 21°26.3'		30°53.0'	S 20°08.9'		34°54.1'	S 21°43.6'				
11	348°21.8'	343°32.2'	N 2°05.3'	300°24.4'	N 21°03.7'		52°57.7'	S 21°26.2'		45°55.3'	S 20°08.9'		49°54.7'	S 21°43.4'				
12	3°24.3'	358°32.4'	N 2°06.3'	315°24.4'	N 21°04.5'		67°59.8'	S 21°26.1'		60°57.6'	S 20°08.9'		64°55.3'	S 21°43.1'				
13	18°26.7'	13°32.6'	N 2°07.3'	330°24.4'	N 21°05.4'		83°01.9'	S 21°26.1'		75°59.8'	S 20°08.8'		79°55.9'	S 21°42.8'				
14	33°29.2'	28°32.7'	N 2°08.3'	345°24.3'	N 21°06.2'		98°03.9'	S 21°26.0'		91°02.1'	S 20°08.8'		94°56.5'	S 21°42.5'				
15	48°31.7'	43°32.9'	N 2°09.3'	0°24.3'	N 21°07.1'		113°06.0'	S 21°26.0'		106°04.4'	S 20°08.8'		109°57.2'	S 21°42.2'				
16	63°34.1'	58°33.1'	N 2°10.3'	15°24.3'	N 21°07.9'		128°08.1'	S 21°25.9'		121°06.7'	S 20°08.7'		124°57.8'	S 21°41.9'				
17	78°36.6'	73°33.3'	N 2°11.2'	30°24.3'	N 21°08.7'		143°10.2'	S 21°25.9'		136°09.0'	S 20°08.7'		139°58.4'	S 21°41.7'				
18	93°39.1'	88°33.5'	N 2°12.2'	45°24.3'	N 21°09.6'		158°12.3'	S 21°25.8'		151°11.2'	S 20°08.7'		154°59.0'	S 21°41.4'				
19	108°41.5'	103°33.7'	N 2°13.2'	60°24.3'	N 21°10.4'		173°14.4'	S 21°25.8'		166°13.5'	S 20°08.6'		169°59.6'	S 21°41.1'				
20	123°44.0'	118°33.9'	N 2°14.2'	75°24.3'	N 21°11.2'		188°16.5'	S 21°25.7'		181°15.8'	S 20°08.6'		185°00.3'	S 21°40.8'				
21	138°46.5'	133°34.1'	N 2°15.2'	90°24.2'	N 21°12.1'		203°18.6'	S 21°25.7'		196°18.1'	S 20°08.5'		200°00.9'	S 21°40.5'				
22	153°48.9'	148°34.2'	N 2°16.1'	105°24.2'	N 21°12.9'		218°20.7'	S 21°25.6'		211°20.4'	S 20°08.5'		215°01.5'	S 21°40.2'				
23	168°51.4'	163°34.4'	N 2°17.1'	120°24.2'	N 21°13.8'		233°22.8'	S 21°25.5'		226°22.6'	S 20°08.5'		230°02.1'	S 21°39.9'				
		SD 16.0'	d 1.0'	v -0.0'	d 0.8'		v 2.1'	d 0.1'		v 2.3'	d 0.0'		v 0.6'	d 0.3'				
Mer. pass.		12 h 5 m 51 s		14 h 58 m			7 h 29 m			7 h 57 m			7 h 41 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Procyon	-Pollux	-Adhara	-Sirius	-Capella	-Rigel	-Aldebaran	-Venus
0	170°30.7'	S 0°02.6'	16.4'	11.8'	53.9'								
1	185°06.1'	N 0°09.3'	16.4'	11.8'	53.9'								
2	199°41.5'	N 0°21.1'	16.4'	11.8'	53.9'								
3	214°16.9'	N 0°33.0'	16.4'	11.8'	53.9'								
4	228°52.3'	N 0°44.8'	16.4'	11.8'	53.9'								
5	243°27.7'	N 0°56.7'	16.4'	11.8'	53.9'	100°18.0'	100°06.6'	90°37.8'	87°15.4'	72°08.8'	64°39.0'	55°57.4'	37°57.8'
6	258°03.0'	N 1°08.5'	16.4'	11.8'	53.9'	99°49.9'	99°37.1'	90°19.8'	86°52.9'	71°42.0'	64°14.3'	55°28.0'	37°31.2'
7	272°38.4'	N 1°20.3'	16.4'	11.8'	53.9'	99°21.8'	99°07.7'	90°01.9'	86°30.4'	71°15.2'	63°49.6'	54°58.5'	37°04.5'
8	287°13.8'	N 1°32.2'	16.4'	11.8'	53.9'	98°53.7'	98°38.2'	89°43.9'	86°07.9'	70°48.5'	63°24.9'	54°29.0'	36°37.9'
9	301°49.1'	N 1°44.0'	16.3'	11.8'	53.9'	98°25.6'	98°08.8'	89°26.0'	85°45.5'	70°21.7'	63°00.3'	53°59.5'	36°11.4'
10	316°24.5'	N 1°55.8'	16.3'	11.8'	53.9'	97°57.5'	97°39.3'	89°08.0'	85°23.0'	69°55.0'	62°35.7'	53°30.0'	35°44.8'
11	330°59.8'	N 2°07.6'	16.3'	11.8'	53.9'	97°29.4'	97°09.9'	88°50.1'	85°00.5'	69°28.3'	62°11.1'	53°00.5'	35°18.2'
12	345°35.1'	N 2°19.4'	16.3'	11.8'	53.9'	97°01.3'	96°40.4'	88°32.1'	84°38.1'	69°01.6'	61°46.6'	52°31.1'	34°51.6'
13	0°10.5'	N 2°31.2'	16.3'	11.8'	53.9'	96°33.2'	96°10.9'	88°14.2'	84°15.6'	68°35.0'	61°22.2'	52°01.6'	34°25.1'
14	14°45.8'	N 2°43.0'	16.3'	11.8'	53.9'	96°05.0'	95°41.5'	87°56.3'	83°53.2'	68°08.3'	60°57.7'	51°32.1'	33°58.5'
15	29°21.1'	N 2°54.8'	16.3'	11.8'	53.9'	95°36.9'	95°12.0'	87°38.3'	83°30.7'	67°41.7'	60°33.4'	51°02.6'	33°32.0'
16	43°56.4'	N 3°06.6'	16.3'	11.8'	53.9'	95°08.8'	94°42.5'	87°20.4'	83°08.3'	67°15.0'	60°09.0'	50°33.1'	33°05.4'
17	58°31.6'	N 3°18.4'	16.3'	11.8'	53.9'	94°40.6'	94°13.1'	87°02.5'	82°45.9'	66°48.4'	59°44.7'	50°03.6'	32°38.9'
18	73°06.9'	N 3°30.1'	16.2'	11.7'	53.9'	94°12.5'	93°43.6'	86°44.6'	82°23.5'	66°21.9'	59°20.5'	49°34.1'	32°12.4'
19	87°42.2'	N 3°41.9'	16.2'	11.7'	53.9'	93°44.3'	93°14.1'	86°26.6'	82°01.1'	65°55.3'	58°56.3'	49°04.6'	31°45.9'
20	102°17.4'	N 3°53.6'	16.2'	11.7'	53.9'	93°16.2'	92°44.6'	86°08.7'	81°38.8'	65°28.7'	58°32.1'	48°35.1'	31°19.4'
21	116°52.6'	N 4°05.3'	16.2'	11.7'	53.9'	92°48.0'	92°15.1'	85°50.9'	81°16.4'	65°02.2'	58°08.0'	48°05.6'	30°53.0'
22	131°27.8'	N 4°17.0'	16.2'	11.7'	53.9'	92°19.8'	91°45.6'	85°33.0'	80°54.0'	64°35.7'	57°44.0'	47°36.1'	30°26.5'
23	146°03.0'	N 4°28.7'	16.2'	11.7'	53.9'	91°51.7'	91°16.1'	85°15.1'	80°31.7'	64°09.2'	57°20.0'	47°06.6'	30°00.0'
Mer. pass.		12 h 59 m SD 14.7'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.9'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°07.1'	N 89°21.1'
Rigel Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	183°53.8'	178°34.6'	N 2°18.1'	135°24.2'	N 21°14.6'		248°24.9'	S 21°25.5'		241°24.9'	S 20°08.4'		245°02.7'	S 21°39.7'				
1	198°56.3'	193°34.8'	N 2°19.1'	150°24.2'	N 21°15.4'		263°27.0'	S 21°25.4'		256°27.2'	S 20°08.4'		260°03.3'	S 21°39.4'				
2	213°58.8'	208°35.0'	N 2°20.1'	165°24.2'	N 21°16.2'		278°29.1'	S 21°25.4'		271°29.5'	S 20°08.4'		275°04.0'	S 21°39.1'				
3	229°01.2'	223°35.2'	N 2°21.0'	180°24.2'	N 21°17.1'		293°31.2'	S 21°25.3'		286°31.8'	S 20°08.3'		290°04.6'	S 21°38.8'				
4	244°03.7'	238°35.4'	N 2°22.0'	195°24.2'	N 21°17.9'		308°33.3'	S 21°25.3'		301°34.0'	S 20°08.3'		305°05.2'	S 21°38.5'				
5	259°06.2'	253°35.6'	N 2°23.0'	210°24.2'	N 21°18.7'		323°35.4'	S 21°25.2'		316°36.3'	S 20°08.3'		320°05.8'	S 21°38.2'				
6	274°08.6'	268°35.8'	N 2°24.0'	225°24.2'	N 21°19.6'		338°37.5'	S 21°25.2'		331°38.6'	S 20°08.2'		335°06.4'	S 21°37.9'				
7	289°11.1'	283°35.9'	N 2°25.0'	240°24.1'	N 21°20.4'		353°39.6'	S 21°25.1'		346°40.9'	S 20°08.2'		350°07.1'	S 21°37.6'				
8	304°13.6'	298°36.1'	N 2°25.9'	255°24.1'	N 21°21.2'		8°41.7'	S 21°25.1'		1°43.2'	S 20°08.2'		5°07.7'	S 21°37.4'				
9	319°16.0'	313°36.3'	N 2°26.9'	270°24.1'	N 21°22.0'		23°43.8'	S 21°25.0'		16°45.5'	S 20°08.1'		20°08.3'	S 21°37.1'				
10	334°18.5'	328°36.5'	N 2°27.9'	285°24.1'	N 21°22.9'		38°45.9'	S 21°25.0'		31°47.7'	S 20°08.1'		35°08.9'	S 21°36.8'				
11	349°20.9'	343°36.7'	N 2°28.9'	300°24.1'	N 21°23.7'		53°48.0'	S 21°24.9'		46°50.0'	S 20°08.1'		50°09.6'	S 21°36.5'				
12	4°23.4'	358°36.9'	N 2°29.9'	315°24.1'	N 21°24.5'		68°50.1'	S 21°24.8'		61°52.3'	S 20°08.0'		65°10.2'	S 21°36.2'				
13	19°25.9'	13°37.1'	N 2°30.8'	330°24.1'	N 21°25.3'		83°52.2'	S 21°24.8'		76°54.6'	S 20°08.0'		80°10.8'	S 21°35.9'				
14	34°28.3'	28°37.3'	N 2°31.8'	345°24.1'	N 21°26.1'		98°54.3'	S 21°24.7'		91°56.9'	S 20°08.0'		95°11.4'	S 21°35.6'				
15	49°30.8'	43°37.4'	N 2°32.8'	0°24.1'	N 21°27.0'		113°56.4'	S 21°24.7'		106°59.2'	S 20°07.9'		110°12.0'	S 21°35.3'				
16	64°33.3'	58°37.6'	N 2°33.8'	15°24.1'	N 21°27.8'		128°58.5'	S 21°24.6'		122°01.4'	S 20°07.9'		125°12.7'	S 21°35.0'				
17	79°35.7'	73°37.8'	N 2°34.8'	30°24.1'	N 21°28.6'		144°00.6'	S 21°24.6'		137°03.7'	S 20°07.9'		140°13.3'	S 21°34.7'				
18	94°38.2'	88°38.0'	N 2°35.7'	45°24.1'	N 21°29.4'		159°02.7'	S 21°24.5'		152°06.0'	S 20°07.8'		155°13.9'	S 21°34.5'				
19	109°40.7'	103°38.2'	N 2°36.7'	60°24.1'	N 21°30.2'		174°04.8'	S 21°24.5'		167°08.3'	S 20°07.8'		170°14.5'	S 21°34.2'				
20	124°43.1'	118°38.4'	N 2°37.7'	75°24.1'	N 21°31.1'		189°06.9'	S 21°24.4'		182°10.6'	S 20°07.8'		185°15.1'	S 21°33.9'				
21	139°45.6'	133°38.6'	N 2°38.7'	90°24.1'	N 21°31.9'		204°09.0'	S 21°24.4'		197°12.9'	S 20°07.7'		200°15.8'	S 21°33.6'				
22	154°48.1'	148°38.8'	N 2°39.7'	105°24.1'	N 21°32.7'		219°11.1'	S 21°24.3'		212°15.1'	S 20°07.7'		215°16.4'	S 21°33.3'				
23	169°50.5'	163°38.9'	N 2°40.6'	120°24.1'	N 21°33.5'		234°13.2'	S 21°24.3'		227°17.4'	S 20°07.7'		230°17.0'	S 21°33.0'				
		SD 16.0'	d 1.0'		v -0.0'	d 0.8'		v 2.1'	d 0.1'		v 2.3'	d 0.0'		v 0.6'	d 0.3'			
Mer. pass.		12 h 5 m 33 s			14 h 58 m			7 h 25 m			7 h 53 m			7 h 40 m				

h	Moon				Lunar distance												
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Adhara	-Capella	-Rigel	-Aldebaran	-Venus				
0	160°38.2'	N 4°40.4'	16.1'	11.7'	53.9'			91°23.5'	90°46.6'	84°57.2'	63°42.7'	56°56.0'	46°37.1'	29°33.6'			
1	175°13.3'	N 4°52.1'	16.1'	11.6'	53.9'			90°55.3'	90°17.1'	84°39.4'	63°16.3'	56°32.1'	46°07.6'	29°07.2'			
2	189°48.4'	N 5°03.7'	16.1'	11.6'	53.9'			90°27.1'	89°47.6'	84°21.6'	62°49.9'	56°08.3'	45°38.1'	28°40.8'			
3	204°23.5'	N 5°15.3'	16.1'	11.6'	54.0'			89°58.9'	89°18.1'	84°03.7'	62°23.5'	55°44.5'	45°08.6'	28°14.4'			
4	218°58.6'	N 5°27.0'	16.1'	11.6'	54.0'			89°30.7'	88°48.6'	83°45.9'	61°57.1'	55°20.8'	44°39.0'	27°48.0'			
5	233°33.7'	N 5°38.6'	16.0'	11.6'	54.0'			89°02.5'	88°19.1'	83°28.1'	61°30.7'	54°57.2'	44°09.5'	27°21.7'			
6	248°08.7'	N 5°50.1'	16.0'	11.6'	54.0'			88°34.3'	87°49.6'	83°10.4'	61°04.4'	54°33.6'	43°40.0'	26°55.3'			
7	262°43.8'	N 6°01.7'	16.0'	11.5'	54.0'			88°06.1'	87°20.0'	82°52.6'	60°38.1'	54°10.0'	43°10.5'	26°29.0'			
8	277°18.8'	N 6°13.2'	16.0'	11.5'	54.0'			87°37.9'	86°50.5'	82°34.9'	60°11.8'	53°46.6'	42°40.9'	26°02.7'			
9	291°53.7'	N 6°24.7'	15.9'	11.5'	54.0'			87°09.7'	86°20.9'	82°17.1'	59°45.6'	53°23.2'	42°11.4'	25°36.5'			
10	306°28.7'	N 6°36.2'	15.9'	11.5'	54.0'			86°41.5'	85°51.4'	81°59.4'	59°19.3'	52°59.8'	41°41.9'	25°10.2'			
11	321°03.6'	N 6°47.7'	15.9'	11.4'	54.0'			86°13.3'	85°21.8'	81°41.8'	58°53.1'	52°36.6'	41°12.3'	24°44.0'			
12	335°38.5'	N 6°59.1'	15.9'	11.4'	54.0'			85°45.0'	84°52.3'	81°24.1'	58°27.0'	52°13.4'	40°42.8'	24°17.8'			
13	350°13.3'	N 7°10.5'	15.8'	11.4'	54.0'			85°16.8'	84°22.7'	81°06.5'	58°00.8'	51°50.3'	40°13.3'	23°51.7'			
14	4°48.2'	N 7°21.9'	15.8'	11.4'	54.0'	119°51.5'		84°48.6'	83°53.1'	80°48.8'	57°34.7'	51°27.2'	39°43.7'	23°25.5'			
15	19°23.0'	N 7°33.3'	15.8'	11.3'	54.0'	119°21.9'		84°20.4'	83°23.6'	80°31.2'	57°08.6'	51°04.3'	39°14.2'	22°59.4'			
16	33°57.8'	N 7°44.7'	15.7'	11.3'	54.0'	118°52.3'		83°52.1'	82°54.0'	80°13.7'	56°42.6'	50°41.4'	38°44.6'	22°33.4'			
17	48°32.5'	N 7°56.0'	15.7'	11.3'	54.0'	118°22.7'		83°23.9'	82°24.4'	79°56.1'	56°16.6'	50°18.6'	38°15.0'	22°07.3'			
18	63°07.2'	N 8°07.3'	15.7'	11.3'	54.1'	117°53.0'		82°55.6'	81°54.8'	79°38.6'	55°50.6'	49°55.8'	37°45.5'	21°41.4'			
19	77°41.9'	N 8°18.5'	15.6'	11.2'	54.1'	117°23.4'		82°27.4'	81°25.2'	79°21.1'	55°24.7'	49°33.2'	37°15.9'	21°15.4'			
20	92°16.6'	N 8°29.8'	15.6'	11.2'	54.1'	116°53.8'		81°59.1'	80°55.6'	79°03.7'	54°58.7'	49°10.7'	36°46.4'	20°49.5'			
21	106°51.2'	N 8°41.0'	15.6'	11.2'	54.1'	116°24.1'		81°30.9'	80°26.0'	78°46.2'	54°32.9'	48°48.2'	36°16.8'	20°23.7'			
22	121°25.8'	N 8°52.1'	15.5'	11.1'	54.1'	115°54.5'		81°02.6'	79°56.4'	78°28.8'	54°07.0'	48°25.8'	35°47.2'	19°57.9'			
23	136°00.3'	N 9°03.3'	15.5'	11.1'	54.1'	115°24.8'		80°34.3'	79°26.7'	78°11.4'	53°41.3'	48°03.5'	35°17.6'	19°32.2'			
Mer. pass.		13 h 40 m SD 14.7'			phase 2%												

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.1'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°07.5'	N 89°21.1'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	184°53.0'		178°39.1'	N 2°41.6'	135°24.1'	N 21°34.3'	249°15.3'	S 21°24.2'	242°19.7'	S 20°07.6'	245°17.6'	S 21°32.7'
1	199°55.4'		193°39.3'	N 2°42.6'	150°24.1'	N 21°35.1'	264°17.4'	S 21°24.1'	257°22.0'	S 20°07.6'	260°18.3'	S 21°32.4'
2	214°57.9'		208°39.5'	N 2°43.6'	165°24.1'	N 21°35.9'	279°19.5'	S 21°24.1'	272°24.3'	S 20°07.6'	275°18.9'	S 21°32.1'
3	230°00.4'		223°39.7'	N 2°44.6'	180°24.1'	N 21°36.7'	294°21.7'	S 21°24.0'	287°26.6'	S 20°07.5'	290°19.5'	S 21°31.8'
4	245°02.8'		238°39.9'	N 2°45.5'	195°24.1'	N 21°37.6'	309°23.8'	S 21°24.0'	302°28.8'	S 20°07.5'	305°20.1'	S 21°31.5'
5	260°05.3'		253°40.1'	N 2°46.5'	210°24.1'	N 21°38.4'	324°25.9'	S 21°23.9'	317°31.1'	S 20°07.5'	320°20.7'	S 21°31.2'
6	275°07.8'		268°40.3'	N 2°47.5'	225°24.1'	N 21°39.2'	339°28.0'	S 21°23.9'	332°33.4'	S 20°07.4'	335°21.4'	S 21°30.9'
7	290°10.2'		283°40.5'	N 2°48.5'	240°24.1'	N 21°40.0'	354°30.1'	S 21°23.8'	347°35.7'	S 20°07.4'	350°22.0'	S 21°30.6'
8	305°12.7'		298°40.6'	N 2°49.4'	255°24.1'	N 21°40.8'	9°32.2'	S 21°23.8'	2°38.0'	S 20°07.4'	5°22.6'	S 21°30.3'
9	320°15.2'		313°40.8'	N 2°50.4'	270°24.1'	N 21°41.6'	24°34.3'	S 21°23.7'	17°40.3'	S 20°07.3'	20°23.2'	S 21°30.0'
10	335°17.6'		328°41.0'	N 2°51.4'	285°24.1'	N 21°42.4'	39°36.4'	S 21°23.7'	32°42.6'	S 20°07.3'	35°23.9'	S 21°29.7'
11	350°20.1'		343°41.2'	N 2°52.4'	300°24.1'	N 21°43.2'	54°38.5'	S 21°23.6'	47°44.8'	S 20°07.3'	50°24.5'	S 21°29.5'
12	5°22.5'		358°41.4'	N 2°53.4'	315°24.1'	N 21°44.0'	69°40.6'	S 21°23.6'	62°47.1'	S 20°07.2'	65°25.1'	S 21°29.2'
13	20°25.0'		13°41.6'	N 2°54.3'	330°24.1'	N 21°44.8'	84°42.7'	S 21°23.5'	77°49.4'	S 20°07.2'	80°25.7'	S 21°28.9'
14	35°27.5'		28°41.8'	N 2°55.3'	345°24.1'	N 21°45.6'	99°44.8'	S 21°23.5'	92°51.7'	S 20°07.2'	95°26.4'	S 21°28.6'
15	50°29.9'		43°42.0'	N 2°56.3'	0°24.1'	N 21°46.4'	114°46.9'	S 21°23.4'	107°54.0'	S 20°07.1'	110°27.0'	S 21°28.3'
16	65°32.4'		58°42.1'	N 2°57.3'	15°24.1'	N 21°47.2'	129°49.0'	S 21°23.3'	122°56.3'	S 20°07.1'	125°27.6'	S 21°28.0'
17	80°34.9'		73°42.3'	N 2°58.2'	30°24.1'	N 21°48.0'	144°51.1'	S 21°23.3'	137°58.6'	S 20°07.1'	140°28.2'	S 21°27.7'
18	95°37.3'		88°42.5'	N 2°59.2'	45°24.1'	N 21°48.8'	159°53.3'	S 21°23.2'	153°00.9'	S 20°07.0'	155°28.9'	S 21°27.4'
19	110°39.8'		103°42.7'	N 3°00.2'	60°24.1'	N 21°49.6'	174°55.4'	S 21°23.2'	168°03.1'	S 20°07.0'	170°29.5'	S 21°27.1'
20	125°42.3'		118°42.9'	N 3°01.2'	75°24.1'	N 21°50.4'	189°57.5'	S 21°23.1'	183°05.4'	S 20°07.0'	185°30.1'	S 21°26.8'
21	140°44.7'		133°43.1'	N 3°02.2'	90°24.1'	N 21°51.2'	204°59.6'	S 21°23.1'	198°07.7'	S 20°06.9'	200°30.7'	S 21°26.5'
22	155°47.2'		148°43.3'	N 3°03.1'	105°24.1'	N 21°52.0'	220°01.7'	S 21°23.0'	213°10.0'	S 20°06.9'	215°31.4'	S 21°26.2'
23	170°49.7'		163°43.5'	N 3°04.1'	120°24.1'	N 21°52.8'	235°03.8'	S 21°23.0'	228°12.3'	S 20°06.9'	230°32.0'	S 21°25.9'
			SD 16.0'	d 1.0'	v 0.0'	d 0.8'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.6'	d 0.3'
Mer. pass.			12 h 5 m 15 s		14 h 58 m		7 h 22 m		7 h 50 m		7 h 39 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Capella	-Rigel	-Aldebaran	-Venus	+Achernar
0	150°34.8'	N 9°14.4'	15.5'	11.1'	54.1'	114°55.1'	80°06.1'	78°57.1'	53°15.5'	47°41.4'	34°48.0'	19°06.5'	
1	165°09.3'	N 9°25.5'	15.4'	11.0'	54.1'	114°25.4'	79°37.8'	78°27.4'	52°49.8'	47°19.3'	34°18.5'	18°40.9'	
2	179°43.7'	N 9°36.5'	15.4'	11.0'	54.1'	113°55.7'	79°09.5'	77°57.8'	52°24.1'	46°57.3'	33°48.9'	18°15.3'	
3	194°18.1'	N 9°47.5'	15.4'	11.0'	54.1'	113°26.0'	78°41.3'	77°28.1'	51°58.5'	46°35.4'	33°19.3'	17°49.9'	
4	208°52.5'	N 9°58.5'	15.3'	10.9'	54.1'	112°56.3'	78°13.0'	76°58.5'	51°32.9'	46°13.7'	32°49.7'	17°24.5'	
5	223°26.8'	N 10°09.4'	15.3'	10.9'	54.2'	112°26.6'	77°44.7'	76°28.8'	51°07.4'	45°52.0'	32°20.1'	16°59.2'	
6	238°01.1'	N 10°20.3'	15.2'	10.9'	54.2'	111°56.9'	77°16.4'	75°59.1'	50°41.9'	45°30.5'	31°50.5'	16°34.0'	
7	252°35.3'	N 10°31.2'	15.2'	10.8'	54.2'	111°27.1'	76°48.1'	75°29.4'	50°16.5'	45°09.1'	31°20.9'	16°08.9'	
8	267°09.5'	N 10°42.0'	15.2'	10.8'	54.2'	110°57.4'	76°19.9'	74°59.7'	49°51.1'	44°47.7'	30°51.3'	15°44.0'	
9	281°43.7'	N 10°52.8'	15.1'	10.7'	54.2'	110°27.6'	75°51.6'	74°30.0'	49°25.7'	44°26.6'	30°21.6'	15°19.1'	
10	296°17.8'	N 11°03.5'	15.1'	10.7'	54.2'	109°57.9'	75°23.3'	74°00.3'	49°00.5'	44°05.5'	29°52.0'	14°54.4'	
11	310°51.8'	N 11°14.2'	15.0'	10.7'	54.2'	109°28.1'	74°55.0'	73°30.5'	48°35.2'	43°44.6'	29°22.4'	14°29.8'	
12	325°25.9'	N 11°24.9'	15.0'	10.6'	54.2'	108°58.3'	74°26.7'	73°00.8'	48°10.1'	43°23.8'	28°52.8'	14°05.4'	
13	339°59.8'	N 11°35.5'	14.9'	10.6'	54.2'	108°28.5'	73°58.4'	72°31.1'	47°45.0'	43°03.1'	28°23.2'	13°41.2'	
14	354°33.8'	N 11°46.1'	14.9'	10.5'	54.3'	107°58.7'	73°30.1'	72°01.3'	47°19.9'	42°42.6'	27°53.5'	13°17.2'	
15	9°07.6'	N 11°56.7'	14.8'	10.5'	54.3'	107°28.9'	73°01.8'	71°31.5'	46°54.9'	42°22.2'	27°23.9'	12°53.3'	70°27.7'
16	23°41.5'	N 12°07.2'	14.8'	10.4'	54.3'	106°59.1'	72°33.5'	71°01.8'	46°30.0'	42°01.9'	26°54.3'	12°29.7'	70°42.7'
17	38°15.3'	N 12°17.6'	14.7'	10.4'	54.3'	106°29.2'	72°05.2'	70°32.0'	46°05.2'	41°41.9'	26°24.6'	12°06.4'	70°57.9'
18	52°49.0'	N 12°28.0'	14.7'	10.4'	54.3'	105°59.4'	71°36.9'	70°02.2'	45°40.4'	41°21.9'	25°55.0'	11°43.4'	71°13.1'
19	67°22.7'	N 12°38.4'	14.6'	10.3'	54.3'	105°29.5'	71°08.6'	69°32.4'	45°15.7'	41°02.2'	25°25.4'	11°20.6'	71°28.3'
20	81°56.4'	N 12°48.7'	14.6'	10.3'	54.3'	104°59.6'	70°40.3'	69°02.5'	44°51.0'	40°42.5'	24°55.7'	10°58.2'	71°43.7'
21	96°29.9'	N 12°58.9'	14.5'	10.2'	54.3'	104°29.7'	70°11.9'	68°32.7'	44°26.5'	40°23.1'	24°26.1'	10°36.2'	71°59.1'
22	111°03.5'	N 13°09.2'	14.5'	10.2'	54.4'	103°59.8'	69°43.6'	68°02.9'	44°02.0'	40°03.8'	23°56.5'	10°14.7'	72°14.6'
23	125°37.0'	N 13°19.3'	14.4'	10.1'	54.4'	103°29.9'	69°15.3'	67°33.0'	43°37.6'	39°44.7'	23°26.8'	9°53.6'	72°30.1'
Mer. pass.			14 h 22 m SD 14.8'		phase 6%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°07.7'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	185°52.1'		178°43.6'	N 3°05.1'	135°24.2'	N 21°53.6'	250°05.9'	S 21°22.9'	243°14.6'	S 20°06.8'	245°32.6'	S 21°25.6'
1	200°54.6'		193°43.8'	N 3°06.1'	150°24.2'	N 21°54.4'	265°08.0'	S 21°22.9'	258°16.9'	S 20°06.8'	260°33.2'	S 21°25.3'
2	215°57.0'		208°44.0'	N 3°07.0'	165°24.2'	N 21°55.2'	280°10.1'	S 21°22.8'	273°19.2'	S 20°06.8'	275°33.9'	S 21°25.0'
3	230°59.5'		223°44.2'	N 3°08.0'	180°24.2'	N 21°56.0'	295°12.2'	S 21°22.8'	288°21.4'	S 20°06.7'	290°34.5'	S 21°24.7'
4	246°02.0'		238°44.4'	N 3°09.0'	195°24.2'	N 21°56.7'	310°14.4'	S 21°22.7'	303°23.7'	S 20°06.7'	305°35.1'	S 21°24.4'
5	261°04.4'		253°44.6'	N 3°10.0'	210°24.2'	N 21°57.5'	325°16.5'	S 21°22.7'	318°26.0'	S 20°06.7'	320°35.7'	S 21°24.0'
6	276°06.9'		268°44.8'	N 3°10.9'	225°24.2'	N 21°58.3'	340°18.6'	S 21°22.6'	333°28.3'	S 20°06.6'	335°36.4'	S 21°23.7'
7	291°09.4'		283°45.0'	N 3°11.9'	240°24.2'	N 21°59.1'	355°20.7'	S 21°22.6'	348°30.6'	S 20°06.6'	350°37.0'	S 21°23.4'
8	306°11.8'		298°45.2'	N 3°12.9'	255°24.2'	N 21°59.9'	10°22.8'	S 21°22.5'	3°32.9'	S 20°06.6'	5°37.6'	S 21°23.1'
9	321°14.3'		313°45.3'	N 3°13.9'	270°24.2'	N 22°00.7'	25°24.9'	S 21°22.4'	18°35.2'	S 20°06.5'	20°38.2'	S 21°22.8'
10	336°16.8'		328°45.5'	N 3°14.8'	285°24.3'	N 22°01.5'	40°27.0'	S 21°22.4'	33°37.5'	S 20°06.5'	35°38.9'	S 21°22.5'
11	351°19.2'		343°45.7'	N 3°15.8'	300°24.3'	N 22°02.2'	55°29.1'	S 21°22.3'	48°39.8'	S 20°06.5'	50°39.5'	S 21°22.2'
12	6°21.7'		358°45.9'	N 3°16.8'	315°24.3'	N 22°03.0'	70°31.2'	S 21°22.3'	63°42.0'	S 20°06.4'	65°40.1'	S 21°21.9'
13	21°24.2'		13°46.1'	N 3°17.8'	330°24.3'	N 22°03.8'	85°33.4'	S 21°22.2'	78°44.3'	S 20°06.4'	80°40.7'	S 21°21.6'
14	36°26.6'		28°46.3'	N 3°18.7'	345°24.3'	N 22°04.6'	100°35.5'	S 21°22.2'	93°46.6'	S 20°06.4'	95°41.4'	S 21°21.3'
15	51°29.1'		43°46.5'	N 3°19.7'	0°24.3'	N 22°05.4'	115°37.6'	S 21°22.1'	108°48.9'	S 20°06.3'	110°42.0'	S 21°21.0'
16	66°31.5'		58°46.7'	N 3°20.7'	15°24.4'	N 22°06.2'	130°39.7'	S 21°22.1'	123°51.2'	S 20°06.3'	125°42.6'	S 21°20.7'
17	81°34.0'		73°46.8'	N 3°21.7'	30°24.4'	N 22°06.9'	145°41.8'	S 21°22.0'	138°53.5'	S 20°06.3'	140°43.3'	S 21°20.4'
18	96°36.5'		88°47.0'	N 3°22.6'	45°24.4'	N 22°07.7'	160°43.9'	S 21°22.0'	153°55.8'	S 20°06.3'	155°43.9'	S 21°20.1'
19	111°38.9'		103°47.2'	N 3°23.6'	60°24.4'	N 22°08.5'	175°46.0'	S 21°21.9'	168°58.1'	S 20°06.2'	170°44.5'	S 21°19.8'
20	126°41.4'		118°47.4'	N 3°24.6'	75°24.4'	N 22°09.3'	190°48.2'	S 21°21.9'	184°00.4'	S 20°06.2'	185°45.1'	S 21°19.5'
21	141°43.9'		133°47.6'	N 3°25.6'	90°24.4'	N 22°10.0'	205°50.3'	S 21°21.8'	199°02.7'	S 20°06.2'	200°45.8'	S 21°19.2'
22	156°46.3'		148°47.8'	N 3°26.5'	105°24.5'	N 22°10.8'	220°52.4'	S 21°21.8'	214°04.9'	S 20°06.1'	215°46.4'	S 21°18.9'
23	171°48.8'		163°48.0'	N 3°27.5'	120°24.5'	N 22°11.6'	235°54.5'	S 21°21.7'	229°07.2'	S 20°06.1'	230°47.0'	S 21°18.5'
			SD 16.0'	d 1.0'	v 0.0'	d 0.8'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.6'	d 0.3'
Mer. pass.			12 h 4 m 57 s		14 h 58 m		7 h 19 m		7 h 46 m		7 h 38 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Adhara	-Betelgeuse	-Rigel	-Aldebaran	-Venus	+Sun	+Achernar
0	140°10.4'	N 13°29.4'	14.4'	10.1'	54.4'	103°00.0'	71°09.7'	43°01.3'	39°25.8'	22°57.2'	9°33.0'		72°45.8'
1	154°43.8'	N 13°39.5'	14.3'	10.0'	54.4'	102°30.1'	70°53.5'	42°33.8'	39°07.1'	22°27.6'	9°13.1'		73°01.4'
2	169°17.1'	N 13°49.5'	14.3'	10.0'	54.4'	102°00.1'	70°37.3'	42°06.2'	38°48.5'	21°58.0'	8°53.8'	40°23.1'	73°17.2'
3	183°50.4'	N 13°59.5'	14.2'	9.9'	54.4'	101°30.2'	70°21.2'	41°38.8'	38°30.2'	21°28.3'		40°50.4'	73°33.0'
4	198°23.6'	N 14°09.4'	14.2'	9.9'	54.4'	101°00.2'	70°05.1'	41°11.3'	38°12.0'	20°58.7'		41°17.7'	73°48.9'
5	212°56.8'	N 14°19.2'	14.1'	9.8'	54.4'	100°30.2'	69°49.1'	40°43.9'	37°54.1'	20°29.1'		41°45.0'	74°04.8'
6	227°29.9'	N 14°29.0'	14.1'	9.7'	54.5'	100°00.2'	69°33.2'	40°16.6'	37°36.4'	19°59.5'		42°12.4'	74°20.8'
7	242°03.0'	N 14°38.8'	14.0'	9.7'	54.5'	99°30.2'	69°17.3'	39°49.2'	37°18.9'	19°29.9'		42°39.7'	74°36.9'
8	256°36.0'	N 14°48.4'	13.9'	9.6'	54.5'	99°00.1'	69°01.5'	39°22.0'	37°01.6'	19°00.4'		43°07.1'	74°53.0'
9	271°08.9'	N 14°58.1'	13.9'	9.6'	54.5'	98°30.1'	68°45.7'	38°54.7'	36°44.5'	18°30.8'		43°34.5'	75°09.2'
10	285°41.8'	N 15°07.6'	13.8'	9.5'	54.5'	98°00.0'	68°30.0'	38°27.5'	36°27.7'	18°01.3'		44°02.0'	75°25.4'
11	300°14.6'	N 15°17.1'	13.8'	9.4'	54.5'	97°29.9'	68°14.4'	38°00.4'	36°11.1'	17°31.7'		44°29.4'	75°41.7'
12	314°47.4'	N 15°26.6'	13.7'	9.4'	54.6'	96°59.9'	67°58.9'	37°33.3'	35°54.8'	17°02.2'		44°56.9'	75°58.1'
13	329°20.1'	N 15°36.0'	13.6'	9.3'	54.6'	96°29.7'	67°43.4'	37°06.3'	35°38.7'	16°32.7'		45°24.3'	76°14.5'
14	343°52.7'	N 15°45.3'	13.6'	9.3'	54.6'	95°59.6'	67°28.0'	36°39.3'	35°22.8'	16°03.3'		45°51.8'	76°30.9'
15	358°25.3'	N 15°54.5'	13.5'	9.2'	54.6'	95°29.5'	67°12.7'	36°12.4'	35°07.3'	15°33.8'		46°19.4'	76°47.4'
16	12°57.8'	N 16°03.7'	13.5'	9.1'	54.6'	94°59.3'	66°57.4'	35°45.5'	34°52.0'	15°04.4'		46°46.9'	77°04.0'
17	27°30.3'	N 16°12.9'	13.4'	9.1'	54.6'	94°29.2'	66°42.2'	35°18.7'		14°35.1'		47°14.4'	77°20.6'
18	42°02.7'	N 16°21.9'	13.3'	9.0'	54.7'	93°59.0'	66°27.1'	34°52.0'		14°05.8'		47°42.0'	77°37.3'
19	56°35.0'	N 16°31.0'	13.3'	8.9'	54.7'	93°28.8'		34°25.4'		13°36.5'		48°09.6'	77°54.0'
20	71°07.3'	N 16°39.9'	13.2'	8.9'	54.7'	92°58.5'		33°58.8'		13°07.3'		48°37.2'	78°10.8'
21	85°39.5'	N 16°48.8'	13.1'	8.8'	54.7'	92°28.3'		33°32.3'		12°38.1'		49°04.9'	78°27.6'
22	100°11.6'	N 16°57.6'	13.1'	8.7'	54.7'	91°58.1'		33°05.9'		12°09.1'		49°32.5'	78°44.4'
23	114°43.7'	N 17°06.3'	13.0'	8.7'	54.7'	91°27.8'		32°39.5'		11°40.1'		50°00.2'	79°01.3'
Mer. pass.			15 h 7 m SD 14.8'		phase 11%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.2'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°08.0'	N 89°21.0'
Rigel Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.8'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	186°51.3'	178°48.2'	N 3°28.5'	135°24.5'	N 22°12.4'		250°56.6'	S 21°21.7'		244°09.5'	S 20°06.1'		245°47.6'	S 21°18.2'				
1	201°53.7'	193°48.3'	N 3°29.5'	150°24.5'	N 22°13.1'		265°58.7'	S 21°21.6'		259°11.8'	S 20°06.0'		260°48.3'	S 21°17.9'				
2	216°56.2'	208°48.5'	N 3°30.4'	165°24.5'	N 22°13.9'		281°00.9'	S 21°21.6'		274°14.1'	S 20°06.0'		275°48.9'	S 21°17.6'				
3	231°58.6'	223°48.7'	N 3°31.4'	180°24.6'	N 22°14.7'		296°03.0'	S 21°21.5'		289°16.4'	S 20°06.0'		290°49.5'	S 21°17.3'				
4	247°01.1'	238°48.9'	N 3°32.4'	195°24.6'	N 22°15.5'		311°05.1'	S 21°21.5'		304°18.7'	S 20°05.9'		305°50.2'	S 21°17.0'				
5	262°03.6'	253°49.1'	N 3°33.3'	210°24.6'	N 22°16.2'		326°07.2'	S 21°21.4'		319°21.0'	S 20°05.9'		320°50.8'	S 21°16.7'				
6	277°06.0'	268°49.3'	N 3°34.3'	225°24.6'	N 22°17.0'		341°09.3'	S 21°21.4'		334°23.3'	S 20°05.9'		335°51.4'	S 21°16.4'				
7	292°08.5'	283°49.5'	N 3°35.3'	240°24.6'	N 22°17.8'		356°11.4'	S 21°21.3'		349°25.6'	S 20°05.8'		350°52.1'	S 21°16.1'				
8	307°11.0'	298°49.7'	N 3°36.3'	255°24.7'	N 22°18.5'		11°13.6'	S 21°21.2'		4°27.9'	S 20°05.8'		5°52.7'	S 21°15.8'				
9	322°13.4'	313°49.8'	N 3°37.2'	270°24.7'	N 22°19.3'		26°15.7'	S 21°21.2'		19°30.2'	S 20°05.8'		20°53.3'	S 21°15.5'				
10	337°15.9'	328°50.0'	N 3°38.2'	285°24.7'	N 22°20.1'		41°17.8'	S 21°21.1'		34°32.5'	S 20°05.7'		35°53.9'	S 21°15.1'				
11	352°18.4'	343°50.2'	N 3°39.2'	300°24.7'	N 22°20.8'		56°19.9'	S 21°21.1'		49°34.7'	S 20°05.7'		50°54.6'	S 21°14.8'				
12	7°20.8'	358°50.4'	N 3°40.2'	315°24.8'	N 22°21.6'		71°22.0'	S 21°21.0'		64°37.0'	S 20°05.7'		65°55.2'	S 21°14.5'				
13	22°23.3'	13°50.6'	N 3°41.1'	330°24.8'	N 22°22.3'		86°24.2'	S 21°21.0'		79°39.3'	S 20°05.6'		80°55.8'	S 21°14.2'				
14	37°25.8'	28°50.8'	N 3°42.1'	345°24.8'	N 22°23.1'		101°26.3'	S 21°20.9'		94°41.6'	S 20°05.6'		95°56.5'	S 21°13.9'				
15	52°28.2'	43°51.0'	N 3°43.1'	0°24.9'	N 22°23.9'		116°28.4'	S 21°20.9'		109°43.9'	S 20°05.6'		110°57.1'	S 21°13.6'				
16	67°30.7'	58°51.2'	N 3°44.0'	15°24.9'	N 22°24.6'		131°30.5'	S 21°20.8'		124°46.2'	S 20°05.5'		125°57.7'	S 21°13.3'				
17	82°33.1'	73°51.3'	N 3°45.0'	30°24.9'	N 22°25.4'		146°32.6'	S 21°20.8'		139°48.5'	S 20°05.5'		140°58.3'	S 21°12.9'				
18	97°35.6'	88°51.5'	N 3°46.0'	45°24.9'	N 22°26.1'		161°34.8'	S 21°20.7'		154°50.8'	S 20°05.5'		155°59.0'	S 21°12.6'				
19	112°38.1'	103°51.7'	N 3°47.0'	60°25.0'	N 22°26.9'		176°36.9'	S 21°20.7'		169°53.1'	S 20°05.4'		170°59.6'	S 21°12.3'				
20	127°40.5'	118°51.9'	N 3°47.9'	75°25.0'	N 22°27.7'		191°39.0'	S 21°20.6'		184°55.4'	S 20°05.4'		186°00.2'	S 21°12.0'				
21	142°43.0'	133°52.1'	N 3°48.9'	90°25.0'	N 22°28.4'		206°41.1'	S 21°20.6'		199°57.7'	S 20°05.4'		201°00.9'	S 21°11.7'				
22	157°45.5'	148°52.3'	N 3°49.9'	105°25.1'	N 22°29.2'		221°43.2'	S 21°20.5'		214°60.0'	S 20°05.4'		216°01.5'	S 21°11.4'				
23	172°47.9'	163°52.5'	N 3°50.8'	120°25.1'	N 22°29.9'		236°45.4'	S 21°20.5'		230°02.3'	S 20°05.3'		231°02.1'	S 21°11.1'				
		SD 16.0' d 1.0'		v 0.0' d 0.8'			v 2.1' d 0.1'			v 2.3' d 0.0'			v 0.6' d 0.3'					
Mer. pass.		12 h 4 m 39 s		14 h 58 m			7 h 15 m			7 h 42 m			7 h 37 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Sirius	-Capella	-Betelgeuse	-Aldebaran	+Venus	+Sun	+Achernar
0	129°15.7'	N 17°14.9'	12.9'	8.6'	54.8'	90°57.5'	55°01.0'	34°03.2'	32°13.3'	11°11.2'		50°27.9'	79°18.3'
1	143°47.7'	N 17°23.5'	12.9'	8.5'	54.8'	90°27.2'	54°42.5'	33°42.2'	31°47.1'	10°42.5'		50°55.6'	79°35.3'
2	158°19.5'	N 17°32.0'	12.8'	8.4'	54.8'	89°56.9'	54°24.1'	33°21.4'	31°21.1'	10°13.9'		51°23.3'	79°52.3'
3	172°51.4'	N 17°40.5'	12.7'	8.4'	54.8'	89°26.5'	54°05.8'	33°00.7'	30°55.1'	9°45.4'		51°51.1'	80°09.4'
4	187°23.1'	N 17°48.9'	12.7'	8.3'	54.8'	88°56.2'	53°47.6'	32°40.3'	30°29.3'	9°17.2'		52°18.8'	80°26.6'
5	201°54.8'	N 17°57.2'	12.6'	8.2'	54.9'	88°25.8'	53°29.6'	32°20.1'	30°03.5'	8°49.1'	9°04.1'	52°46.6'	80°43.7'
6	216°26.4'	N 18°05.4'	12.5'	8.1'	54.9'	87°55.4'	53°11.7'	32°00.1'	29°37.9'	8°21.3'	9°24.2'	53°14.5'	81°01.0'
7	230°57.9'	N 18°13.5'	12.5'	8.1'	54.9'	87°24.9'	52°53.9'	31°40.4'	29°12.4'	7°53.8'	9°44.9'	53°42.3'	81°18.2'
8	245°29.4'	N 18°21.6'	12.4'	8.0'	54.9'	86°54.5'	52°36.2'	31°20.9'	28°47.1'	7°26.7'	10°06.1'	54°10.2'	81°35.5'
9	260°00.8'	N 18°29.6'	12.3'	7.9'	54.9'	86°24.0'	52°18.6'	31°01.7'	28°21.9'	7°00.1'	10°28.0'	54°38.0'	81°52.8'
10	274°32.2'	N 18°37.5'	12.3'	7.8'	55.0'	85°53.6'	52°01.2'	30°42.7'	27°56.8'	6°34.0'	10°50.3'	55°06.0'	82°10.2'
11	289°03.4'	N 18°45.3'	12.2'	7.7'	55.0'	85°23.1'	51°43.9'	30°24.0'	27°31.9'		11°13.1'	55°33.9'	82°27.6'
12	303°34.6'	N 18°53.1'	12.1'	7.7'	55.0'	84°52.5'	51°26.8'	30°05.5'	27°07.1'		11°36.3'	56°01.8'	82°45.1'
13	318°05.8'	N 19°00.7'	12.1'	7.6'	55.0'	84°22.0'	51°09.7'	29°47.4'	26°42.5'		11°59.9'	56°29.8'	83°02.5'
14	332°36.8'	N 19°08.3'	12.0'	7.5'	55.0'	83°51.4'	50°52.9'	29°29.6'	26°18.1'		12°23.8'	56°57.8'	83°20.1'
15	347°07.8'	N 19°15.8'	11.9'	7.4'	55.1'	83°20.8'	50°36.1'	29°12.0'	25°53.9'		12°48.0'	57°25.8'	83°37.6'
16	1°38.7'	N 19°23.2'	11.9'	7.3'	55.1'	82°50.2'	50°19.5'	28°54.8'	25°29.8'		13°12.5'	57°53.9'	83°55.2'
17	16°09.6'	N 19°30.6'	11.8'	7.2'	55.1'	82°19.6'	50°03.1'	28°37.9'	25°06.0'		13°37.2'	58°21.9'	84°12.8'
18	30°40.4'	N 19°37.8'	11.7'	7.2'	55.1'	81°49.0'	49°46.8'	28°21.4'	24°42.4'		14°02.2'	58°50.0'	84°30.5'
19	45°11.1'	N 19°45.0'	11.6'	7.1'	55.2'	81°18.3'	49°30.7'	28°05.2'	24°19.0'		14°27.4'	59°18.1'	84°48.1'
20	59°41.7'	N 19°52.0'	11.6'	7.0'	55.2'	80°47.6'	49°14.7'	27°49.4'	23°55.9'		14°52.8'	59°46.3'	85°05.8'
21	74°12.3'	N 19°59.0'	11.5'	6.9'	55.2'	80°16.9'	48°58.9'	27°33.9'	23°33.0'		15°18.5'	60°14.4'	85°23.6'
22	88°42.8'	N 20°05.9'	11.4'	6.8'	55.2'	79°46.1'	48°43.2'		23°10.4'		15°44.2'	60°42.6'	85°41.3'
23	103°13.2'	N 20°12.7'	11.4'	6.7'	55.3'	79°15.4'	48°27.8'		22°48.1'		16°10.2'	61°10.8'	85°59.1'
Mer. pass.		15 h 53 m SD 14.9'		phase 18%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.1'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°08.2'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

Monday 30 March 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	187°50.4'	178°52.6'	N 3°51.8'	135°25.1'	N 22°30.7'		251°47.5'	S 21°20.4'		245°04.6'	S 20°05.3'		246°02.8'	S 21°10.7'				
1	202°52.9'	193°52.8'	N 3°52.8'	150°25.2'	N 22°31.4'		266°49.6'	S 21°20.4'		260°06.9'	S 20°05.3'		261°03.4'	S 21°10.4'				
2	217°55.3'	208°53.0'	N 3°53.8'	165°25.2'	N 22°32.2'		281°51.7'	S 21°20.3'		275°09.2'	S 20°05.2'		276°04.0'	S 21°10.1'				
3	232°57.8'	223°53.2'	N 3°54.7'	180°25.2'	N 22°32.9'		296°53.9'	S 21°20.3'		290°11.5'	S 20°05.2'		291°04.7'	S 21°09.8'				
4	248°00.3'	238°53.4'	N 3°55.7'	195°25.3'	N 22°33.7'		311°56.0'	S 21°20.2'		305°13.7'	S 20°05.2'		306°05.3'	S 21°09.5'				
5	263°02.7'	253°53.6'	N 3°56.7'	210°25.3'	N 22°34.4'		326°58.1'	S 21°20.2'		320°16.0'	S 20°05.1'		321°05.9'	S 21°09.2'				
6	278°05.2'	268°53.8'	N 3°57.6'	225°25.3'	N 22°35.2'		342°00.2'	S 21°20.1'		335°18.3'	S 20°05.1'		336°06.6'	S 21°08.8'				
7	293°07.6'	283°54.0'	N 3°58.6'	240°25.4'	N 22°35.9'		357°02.3'	S 21°20.1'		350°20.6'	S 20°05.1'		351°07.2'	S 21°08.5'				
8	308°10.1'	298°54.1'	N 3°59.6'	255°25.4'	N 22°36.7'		12°04.5'	S 21°20.0'		5°22.9'	S 20°05.0'		6°07.8'	S 21°08.2'				
9	323°12.6'	313°54.3'	N 4°00.5'	270°25.4'	N 22°37.4'		27°06.6'	S 21°20.0'		20°25.2'	S 20°05.0'		21°08.4'	S 21°07.9'				
10	338°15.0'	328°54.5'	N 4°01.5'	285°25.5'	N 22°38.2'		42°08.7'	S 21°19.9'		35°27.5'	S 20°05.0'		36°09.1'	S 21°07.6'				
11	353°17.5'	343°54.7'	N 4°02.5'	300°25.5'	N 22°38.9'		57°10.8'	S 21°19.9'		50°29.8'	S 20°04.9'		51°09.7'	S 21°07.3'				
12	8°20.0'	358°54.9'	N 4°03.5'	315°25.5'	N 22°39.7'		72°13.0'	S 21°19.8'		65°32.1'	S 20°04.9'		66°10.3'	S 21°06.9'				
13	23°22.4'	13°55.1'	N 4°04.4'	330°25.6'	N 22°40.4'		87°15.1'	S 21°19.8'		80°34.4'	S 20°04.9'		81°11.0'	S 21°06.6'				
14	38°24.9'	28°55.3'	N 4°05.4'	345°25.6'	N 22°41.1'		102°17.2'	S 21°19.7'		95°36.7'	S 20°04.9'		96°11.6'	S 21°06.3'				
15	53°27.4'	43°55.5'	N 4°06.4'	0°25.7'	N 22°41.9'		117°19.4'	S 21°19.7'		110°39.0'	S 20°04.8'		111°12.2'	S 21°06.0'				
16	68°29.8'	58°55.6'	N 4°07.3'	15°25.7'	N 22°42.6'		132°21.5'	S 21°19.6'		125°41.3'	S 20°04.8'		126°12.9'	S 21°05.7'				
17	83°32.3'	73°55.8'	N 4°08.3'	30°25.7'	N 22°43.4'		147°23.6'	S 21°19.6'		140°43.6'	S 20°04.8'		141°13.5'	S 21°05.3'				
18	98°34.7'	88°56.0'	N 4°09.3'	45°25.8'	N 22°44.1'		162°25.7'	S 21°19.5'		155°45.9'	S 20°04.7'		156°14.1'	S 21°05.0'				
19	113°37.2'	103°56.2'	N 4°10.2'	60°25.8'	N 22°44.8'		177°27.9'	S 21°19.4'		170°48.2'	S 20°04.7'		171°14.8'	S 21°04.7'				
20	128°39.7'	118°56.4'	N 4°11.2'	75°25.9'	N 22°45.6'		192°30.0'	S 21°19.4'		185°50.5'	S 20°04.7'		186°15.4'	S 21°04.4'				
21	143°42.1'	133°56.6'	N 4°12.2'	90°25.9'	N 22°46.3'		207°32.1'	S 21°19.3'		200°52.8'	S 20°04.6'		201°16.0'	S 21°04.0'				
22	158°44.6'	148°56.8'	N 4°13.1'	105°26.0'	N 22°47.0'		222°34.2'	S 21°19.3'		215°55.1'	S 20°04.6'		216°16.7'	S 21°03.7'				
23	173°47.1'	163°56.9'	N 4°14.1'	120°26.0'	N 22°47.8'		237°36.4'	S 21°19.2'		230°57.4'	S 20°04.6'		231°17.3'	S 21°03.4'				
		SD 16.0' d 1.0'		v 0.0' d 0.7'			v 2.1' d 0.1'			v 2.3' d 0.0'			v 0.6' d 0.3'					
Mer. pass.		12 h 4 m 21 s		14 h 58 m			7 h 12 m			7 h 39 m			7 h 36 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sirius	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Venus	+Sun	+Achernar
0	117°43.6'	N 20°19.4'	11.3'	6.6'	55.3'	48°12.5'	46°12.7'	42°52.8'	22°26.1'		16°36.3'	61°39.1'	86°17.0'
1	132°13.9'	N 20°26.0'	11.2'	6.5'	55.3'		45°44.8'	42°22.1'	22°04.4'		17°02.6'	62°07.3'	86°34.8'
2	146°44.1'	N 20°32.6'	11.1'	6.4'	55.3'		45°16.9'	41°51.5'	21°43.1'		17°29.0'	62°35.6'	86°52.7'
3	161°14.2'	N 20°39.0'	11.1'	6.3'	55.3'		44°49.1'	41°20.8'	21°22.0'		17°55.5'	63°04.0'	87°10.6'
4	175°44.3'	N 20°45.3'	11.0'	6.2'	55.4'		44°21.2'	40°50.1'	21°01.4'		18°22.1'	63°32.3'	87°28.5'
5	190°14.3'	N 20°51.6'	10.9'	6.1'	55.4'		43°53.5'	40°19.4'	20°41.2'		18°48.9'	64°00.7'	87°46.4'
6	204°44.2'	N 20°57.7'	10.9'	6.0'	55.4'		43°25.7'	39°48.6'	20°21.3'		19°15.8'	64°29.1'	88°04.4'
7	219°14.0'	N 21°03.7'	10.8'	5.9'	55.4'		42°58.0'	39°17.9'	20°02.0'		19°42.8'	64°57.5'	88°22.4'
8	233°43.8'	N 21°09.7'	10.7'	5.8'	55.5'		42°30.3'	38°47.1'	19°43.0'	6°43.6'	20°09.8'	65°25.9'	88°40.4'
9	248°13.5'	N 21°15.5'	10.6'	5.7'	55.5'		42°02.7'	38°16.3'	19°24.6'	7°10.5'	20°37.0'	65°54.4'	88°58.4'
10	262°43.2'	N 21°21.3'	10.6'	5.6'	55.5'		41°35.1'	37°45.5'	19°06.7'	7°37.8'	21°04.3'	66°22.9'	89°16.5'
11	277°12.7'	N 21°26.9'	10.5'	5.5'	55.5'		41°07.6'	37°14.6'	18°49.3'	8°05.7'	21°31.6'	66°51.5'	89°34.6'
12	291°42.2'	N 21°32.5'	10.4'	5.4'	55.6'		40°40.1'	36°43.8'	18°32.4'	8°33.9'	21°59.1'	67°20.0'	89°52.6'
13	306°11.7'	N 21°37.9'	10.4'	5.3'	55.6'		40°12.6'	36°12.9'	18°16.2'	9°02.5'	22°26.6'	67°48.6'	90°10.7'
14	320°41.0'	N 21°43.2'	10.3'	5.2'	55.6'		39°45.2'	35°42.0'		9°31.4'	22°54.2'	68°17.2'	90°28.9'
15	335°10.3'	N 21°48.5'	10.2'	5.1'	55.7'		39°17.9'	35°11.1'		10°00.6'	23°21.9'	68°45.9'	90°47.0'
16	349°39.5'	N 21°53.6'	10.1'	5.0'	55.7'		38°50.6'	34°40.1'		10°30.0'	23°49.6'	69°14.6'	91°05.1'
17	4°08.6'	N 21°58.6'	10.1'	4.9'	55.7'		38°23.4'	34°09.2'		10°59.5'	24°17.4'	69°43.3'	91°23.3'
18	18°37.7'	N 22°03.5'	10.0'	4.8'	55.7'		37°56.2'	33°38.2'		11°29.3'	24°45.3'	70°12.0'	91°41.5'
19	33°06.7'	N 22°08.3'	9.9'	4.7'	55.8'		37°29.1'	33°07.2'		11°59.2'	25°13.3'	70°40.8'	91°59.7'
20	47°35.7'	N 22°13.0'	9.9'	4.6'	55.8'		37°02.1'	32°36.2'		12°29.3'	25°41.3'	71°09.6'	92°17.9'
21	62°04.5'	N 22°17.6'	9.8'	4.5'	55.8'		36°35.2'	32°05.2'		12°59.5'	26°09.4'	71°38.4'	92°36.1'
22	76°33.3'	N 22°22.1'	9.7'	4.4'	55.9'		36°08.3'	31°34.1'		13°29.8'	26°37.5'	72°07.3'	92°54.3'
23	91°02.0'	N 22°26.4'	9.7'	4.2'	55.9'		35°41.5'	31°03.0'		14°00.2'	27°05.7'	72°36.2'	93°12.5'
Mer. pass.		16 h 43 m SD 15.1'		phase 26%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.4'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°08.4'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.8'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	188°49.5'		178°57.1'	N 4°15.1'	135°26.0'	N 22°48.5'	252°38.5'	S 21°19.2'	245°59.7'	S 20°04.5'	246°17.9'	S 21°03.1'
1	203°52.0'		193°57.3'	N 4°16.0'	150°26.1'	N 22°49.2'	267°40.6'	S 21°19.1'	261°02.0'	S 20°04.5'	261°18.6'	S 21°02.8'
2	218°54.5'		208°57.5'	N 4°17.0'	165°26.1'	N 22°50.0'	282°42.8'	S 21°19.1'	276°04.3'	S 20°04.5'	276°19.2'	S 21°02.4'
3	233°56.9'		223°57.7'	N 4°18.0'	180°26.2'	N 22°50.7'	297°44.9'	S 21°19.0'	291°06.6'	S 20°04.4'	291°19.9'	S 21°02.1'
4	248°59.4'		238°57.9'	N 4°18.9'	195°26.2'	N 22°51.4'	312°47.0'	S 21°19.0'	306°08.9'	S 20°04.4'	306°20.5'	S 21°01.8'
5	264°01.9'		253°58.1'	N 4°19.9'	210°26.3'	N 22°52.2'	327°49.1'	S 21°18.9'	321°11.2'	S 20°04.4'	321°21.1'	S 21°01.5'
6	279°04.3'		268°58.2'	N 4°20.9'	225°26.3'	N 22°52.9'	342°51.3'	S 21°18.9'	336°13.5'	S 20°04.4'	336°21.8'	S 21°01.1'
7	294°06.8'		283°58.4'	N 4°21.8'	240°26.4'	N 22°53.6'	357°53.4'	S 21°18.8'	351°15.8'	S 20°04.3'	351°22.4'	S 21°00.8'
8	309°09.2'		298°58.6'	N 4°22.8'	255°26.4'	N 22°54.3'	12°55.5'	S 21°18.8'	6°18.1'	S 20°04.3'	6°23.0'	S 21°00.5'
9	324°11.7'		313°58.8'	N 4°23.8'	270°26.5'	N 22°55.1'	27°57.7'	S 21°18.7'	21°20.4'	S 20°04.3'	21°23.7'	S 21°00.2'
10	339°14.2'		328°59.0'	N 4°24.7'	285°26.5'	N 22°55.8'	42°59.8'	S 21°18.7'	36°22.7'	S 20°04.2'	36°24.3'	S 20°59.8'
11	354°16.6'		343°59.2'	N 4°25.7'	300°26.6'	N 22°56.5'	58°01.9'	S 21°18.6'	51°25.0'	S 20°04.2'	51°24.9'	S 20°59.5'
12	9°19.1'		358°59.4'	N 4°26.7'	315°26.6'	N 22°57.2'	73°04.1'	S 21°18.6'	66°27.3'	S 20°04.2'	66°25.6'	S 20°59.2'
13	24°21.6'		13°59.5'	N 4°27.6'	330°26.7'	N 22°58.0'	88°06.2'	S 21°18.5'	81°29.6'	S 20°04.1'	81°26.2'	S 20°58.8'
14	39°24.0'		28°59.7'	N 4°28.6'	345°26.7'	N 22°58.7'	103°08.3'	S 21°18.5'	96°31.9'	S 20°04.1'	96°26.8'	S 20°58.5'
15	54°26.5'		43°59.9'	N 4°29.6'	0°26.8'	N 22°59.4'	118°10.5'	S 21°18.4'	111°34.2'	S 20°04.1'	111°27.5'	S 20°58.2'
16	69°29.0'		59°00.1'	N 4°30.5'	15°26.9'	N 23°00.1'	133°12.6'	S 21°18.4'	126°36.5'	S 20°04.1'	126°28.1'	S 20°57.9'
17	84°31.4'		74°00.3'	N 4°31.5'	30°26.9'	N 23°00.8'	148°14.7'	S 21°18.3'	141°38.8'	S 20°04.0'	141°28.7'	S 20°57.5'
18	99°33.9'		89°00.5'	N 4°32.5'	45°27.0'	N 23°01.6'	163°16.9'	S 21°18.3'	156°41.1'	S 20°04.0'	156°29.4'	S 20°57.2'
19	114°36.4'		104°00.7'	N 4°33.4'	60°27.0'	N 23°02.3'	178°19.0'	S 21°18.2'	171°43.4'	S 20°04.0'	171°30.0'	S 20°56.9'
20	129°38.8'		119°00.8'	N 4°34.4'	75°27.1'	N 23°03.0'	193°21.1'	S 21°18.2'	186°45.7'	S 20°03.9'	186°30.7'	S 20°56.6'
21	144°41.3'		134°01.0'	N 4°35.4'	90°27.1'	N 23°03.7'	208°23.3'	S 21°18.1'	201°48.0'	S 20°03.9'	201°31.3'	S 20°56.2'
22	159°43.7'		149°01.2'	N 4°36.3'	105°27.2'	N 23°04.4'	223°25.4'	S 21°18.1'	216°50.3'	S 20°03.9'	216°31.9'	S 20°55.9'
23	174°46.2'		164°01.4'	N 4°37.3'	120°27.2'	N 23°05.1'	238°27.5'	S 21°18.0'	231°52.6'	S 20°03.8'	231°32.6'	S 20°55.6'
			SD 16.0' d 1.0'		v 0.1' d 0.7'		v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.6' d 0.3'	
Mer. pass.			12 h 4 m 3 s		14 h 58 m		7 h 8 m		7 h 35 m		7 h 34 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Venus	+Rigel	+Sun
0	105°30.7'	N 22°30.7'	9.6'	4.1'	55.9'	66°17.7'	35°14.8'	30°32.0'		14°30.8'	27°34.0'		73°05.1'
1	119°59.3'	N 22°34.8'	9.5'	4.0'	55.9'	65°46.2'	34°48.2'	30°00.9'		15°01.4'	28°02.3'		73°34.1'
2	134°27.8'	N 22°38.8'	9.5'	3.9'	56.0'	65°14.7'	34°21.7'	29°29.7'		15°32.1'	28°30.7'		74°03.1'
3	148°56.3'	N 22°42.7'	9.4'	3.8'	56.0'	64°43.2'	33°55.2'	28°58.6'		16°02.9'	28°59.2'		74°32.1'
4	163°24.7'	N 22°46.5'	9.3'	3.7'	56.0'	64°11.6'	33°28.9'	28°27.4'		16°33.8'	29°27.7'		75°01.1'
5	177°53.0'	N 22°50.2'	9.3'	3.6'	56.1'	63°40.0'	33°02.7'	27°56.3'		17°04.8'	29°56.2'		75°30.2'
6	192°21.2'	N 22°53.7'	9.2'	3.4'	56.1'	63°08.4'	32°36.6'	27°25.1'		17°35.8'	30°24.8'		75°59.3'
7	206°49.4'	N 22°57.2'	9.1'	3.3'	56.1'	62°36.7'	32°10.7'	26°53.9'		18°06.9'	30°53.5'		76°28.5'
8	221°17.6'	N 23°00.5'	9.1'	3.2'	56.1'	62°05.0'	31°44.9'	26°22.7'		18°38.1'	31°22.2'		76°57.7'
9	235°45.6'	N 23°03.7'	9.0'	3.1'	56.2'	61°33.3'	31°19.2'	25°51.5'		19°09.4'	31°51.0'		77°26.9'
10	250°13.6'	N 23°06.7'	8.9'	3.0'	56.2'	61°01.6'	30°53.6'	25°20.2'		19°40.7'	32°19.8'		77°56.2'
11	264°41.6'	N 23°09.7'	8.9'	2.8'	56.2'	60°29.8'	30°28.2'	24°49.0'		20°12.0'	32°48.7'		78°25.5'
12	279°09.4'	N 23°12.5'	8.8'	2.7'	56.3'	59°57.9'	30°03.0'	24°17.8'		20°43.5'	33°17.6'		78°54.8'
13	293°37.2'	N 23°15.2'	8.8'	2.6'	56.3'	59°26.1'	29°37.9'	23°46.5'		21°15.0'	33°46.6'		79°24.1'
14	308°05.0'	N 23°17.8'	8.7'	2.5'	56.3'	58°54.2'	29°13.0'	23°15.3'		21°46.5'	34°15.7'		79°53.5'
15	322°32.7'	N 23°20.3'	8.6'	2.3'	56.4'	58°22.2'	28°48.3'	22°44.0'		22°18.1'	34°44.7'	33°59.8'	80°23.0'
16	337°00.3'	N 23°22.6'	8.6'	2.2'	56.4'	57°50.3'	28°23.8'	22°12.7'		22°49.7'	35°13.9'	34°14.9'	80°52.4'
17	351°27.9'	N 23°24.8'	8.5'	2.1'	56.4'	57°18.3'	27°59.5'	21°41.5'		23°21.5'	35°43.1'	34°30.4'	81°22.0'
18	5°55.4'	N 23°26.9'	8.5'	2.0'	56.5'	56°46.2'	27°35.4'	21°10.2'		23°53.2'	36°12.3'	34°46.3'	81°51.5'
19	20°22.9'	N 23°28.8'	8.4'	1.8'	56.5'	56°14.2'	27°11.5'	20°39.0'		24°25.0'	36°41.6'	35°02.4'	82°21.1'
20	34°50.3'	N 23°30.7'	8.3'	1.7'	56.5'	55°42.1'	26°47.9'	20°07.8'		24°56.9'	37°10.9'	35°18.9'	82°50.7'
21	49°17.6'	N 23°32.4'	8.3'	1.6'	56.6'	55°09.9'	26°24.5'	19°36.5'		25°28.8'	37°40.3'	35°35.8'	83°20.3'
22	63°44.9'	N 23°33.9'	8.2'	1.4'	56.6'	54°37.8'	26°01.4'	19°05.3'		26°00.7'	38°09.7'	35°53.0'	83°50.0'
23	78°12.2'	N 23°35.4'	8.2'	1.3'	56.6'	54°05.5'	25°38.6'	18°34.2'	17°42.8'	26°32.8'	38°39.2'	36°10.4'	84°19.8'
Mer. pass.			17 h 35 m SD 15.2'		phase 35%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°08.6'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.0'	Canopus	-0.6	263°54.1'	S 52°42.8'				