

Friday 01 April 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	189°20.1'	N 4°26.9'	178°59.8'	N 4°26.9'	222°16.7'	S 12°20.6'	196°55.8'	S 4°22.6'	224°36.9'	S 15°03.4'	227°11.6'	S 16°10.6'
1	204°22.5'	N 4°27.9'	193°60.0'	N 4°27.9'	237°16.5'	S 12°20.0'	211°57.7'	S 4°22.4'	239°39.1'	S 15°03.3'	242°12.2'	S 16°10.0'
2	219°25.0'	N 4°28.8'	209°00.1'	N 4°28.8'	252°16.3'	S 12°19.3'	226°59.6'	S 4°22.1'	254°41.3'	S 15°03.2'	257°12.8'	S 16°09.5'
3	234°27.5'	N 4°29.8'	224°00.3'	N 4°29.8'	267°16.2'	S 12°18.7'	242°01.5'	S 4°21.9'	269°43.6'	S 15°03.1'	272°13.4'	S 16°08.9'
4	249°29.9'	N 4°30.8'	239°00.5'	N 4°30.8'	282°16.0'	S 12°18.0'	257°03.5'	S 4°21.7'	284°45.8'	S 15°03.1'	287°14.0'	S 16°08.3'
5	264°32.4'	N 4°31.7'	254°00.7'	N 4°31.7'	297°15.9'	S 12°17.4'	272°05.4'	S 4°21.5'	299°48.1'	S 15°03.0'	302°14.6'	S 16°07.8'
6	279°34.9'	N 4°32.7'	269°00.9'	N 4°32.7'	312°15.7'	S 12°16.7'	287°07.3'	S 4°21.2'	314°50.3'	S 15°02.9'	317°15.2'	S 16°07.2'
7	294°37.3'	N 4°33.7'	284°01.1'	N 4°33.7'	327°15.6'	S 12°16.0'	302°09.2'	S 4°21.0'	329°52.5'	S 15°02.9'	332°15.8'	S 16°06.6'
8	309°39.8'	N 4°34.6'	299°01.3'	N 4°34.6'	342°15.4'	S 12°15.4'	317°11.1'	S 4°20.8'	344°54.8'	S 15°02.8'	347°16.4'	S 16°06.1'
9	324°42.3'	N 4°35.6'	314°01.4'	N 4°35.6'	357°15.2'	S 12°14.7'	332°13.1'	S 4°20.5'	359°57.0'	S 15°02.7'	2°16.9'	S 16°05.5'
10	339°44.7'	N 4°36.6'	329°01.6'	N 4°36.6'	12°15.1'	S 12°14.0'	347°15.0'	S 4°20.3'	14°59.2'	S 15°02.7'	17°17.5'	S 16°04.9'
11	354°47.2'	N 4°37.5'	344°01.8'	N 4°37.5'	27°14.9'	S 12°13.4'	2°16.9'	S 4°20.1'	30°01.5'	S 15°02.6'	32°18.1'	S 16°04.4'
12	9°49.6'	N 4°38.5'	359°02.0'	N 4°38.5'	42°14.8'	S 12°12.7'	17°18.8'	S 4°19.9'	45°03.7'	S 15°02.5'	47°18.7'	S 16°03.8'
13	24°52.1'	N 4°39.5'	14°02.2'	N 4°39.5'	57°14.6'	S 12°12.1'	32°20.8'	S 4°19.6'	60°06.0'	S 15°02.5'	62°19.3'	S 16°03.2'
14	39°54.6'	N 4°40.4'	29°02.4'	N 4°40.4'	72°14.5'	S 12°11.4'	47°22.7'	S 4°19.4'	75°08.2'	S 15°02.4'	77°19.9'	S 16°02.7'
15	54°57.0'	N 4°41.4'	44°02.5'	N 4°41.4'	87°14.3'	S 12°10.7'	62°24.6'	S 4°19.2'	90°10.4'	S 15°02.3'	92°20.5'	S 16°02.1'
16	69°59.5'	N 4°42.4'	59°02.7'	N 4°42.4'	102°14.1'	S 12°10.1'	77°26.5'	S 4°19.0'	105°12.7'	S 15°02.3'	107°21.1'	S 16°01.5'
17	85°02.0'	N 4°43.3'	74°02.9'	N 4°43.3'	117°14.0'	S 12°09.4'	92°28.4'	S 4°18.7'	120°14.9'	S 15°02.2'	122°21.7'	S 16°01.0'
18	100°04.4'	N 4°44.3'	89°03.1'	N 4°44.3'	132°13.8'	S 12°08.7'	107°30.4'	S 4°18.5'	135°17.2'	S 15°02.1'	137°22.3'	S 16°00.4'
19	115°06.9'	N 4°45.2'	104°03.3'	N 4°45.2'	147°13.7'	S 12°08.0'	122°32.3'	S 4°18.3'	150°19.4'	S 15°02.0'	152°22.9'	S 15°59.8'
20	130°09.4'	N 4°46.2'	119°03.5'	N 4°46.2'	162°13.5'	S 12°07.4'	137°34.2'	S 4°18.0'	165°21.6'	S 15°02.0'	167°23.5'	S 15°59.3'
21	145°11.8'	N 4°47.2'	134°03.6'	N 4°47.2'	177°13.4'	S 12°06.7'	152°36.1'	S 4°17.8'	180°23.9'	S 15°01.9'	182°24.1'	S 15°58.7'
22	160°14.3'	N 4°48.1'	149°03.8'	N 4°48.1'	192°13.2'	S 12°06.0'	167°38.1'	S 4°17.6'	195°26.1'	S 15°01.8'	197°24.6'	S 15°58.1'
23	175°16.8'	N 4°49.1'	164°04.0'	N 4°49.1'	207°13.0'	S 12°05.4'	182°40.0'	S 4°17.4'	210°28.4'	S 15°01.8'	212°25.2'	S 15°57.5'
			SD 16.0' d 1.0'		v -0.2' d 0.7'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.6' d 0.6'	
Mer. pass.			12 h 3 m 52 s		9 h 11 m		10 h 51 m		9 h 0 m		8 h 51 m	

h	Moon				
	GHA	dec	v	d	HP
0	180°32.6'	S 0°11.0'	14.1'	14.9'	56.9'
1	195°05.7'	N 0°03.9'	14.1'	14.8'	56.8'
2	209°38.9'	N 0°18.7'	14.1'	14.8'	56.8'
3	224°12.0'	N 0°33.5'	14.2'	14.8'	56.8'
4	238°45.2'	N 0°48.4'	14.2'	14.8'	56.8'
5	253°18.3'	N 1°03.2'	14.2'	14.8'	56.7'
6	267°51.5'	N 1°17.9'	14.2'	14.8'	56.7'
7	282°24.8'	N 1°32.7'	14.2'	14.7'	56.7'
8	296°58.0'	N 1°47.5'	14.3'	14.7'	56.7'
9	311°31.3'	N 2°02.2'	14.3'	14.7'	56.6'
10	326°04.5'	N 2°16.9'	14.3'	14.7'	56.6'
11	340°37.8'	N 2°31.6'	14.3'	14.7'	56.6'
12	355°11.1'	N 2°46.2'	14.3'	14.6'	56.6'
13	9°44.4'	N 3°00.9'	14.3'	14.6'	56.6'
14	24°17.7'	N 3°15.5'	14.3'	14.6'	56.5'
15	38°51.1'	N 3°30.1'	14.3'	14.6'	56.5'
16	53°24.4'	N 3°44.6'	14.4'	14.5'	56.5'
17	67°57.8'	N 3°59.2'	14.4'	14.5'	56.5'
18	82°31.1'	N 4°13.7'	14.4'	14.5'	56.4'
19	97°04.5'	N 4°28.1'	14.4'	14.4'	56.4'
20	111°37.9'	N 4°42.6'	14.4'	14.4'	56.4'
21	126°11.3'	N 4°57.0'	14.4'	14.4'	56.4'
22	140°44.6'	N 5°11.4'	14.4'	14.3'	56.3'
23	155°18.0'	N 5°25.7'	14.4'	14.3'	56.3'
Mer. pass.	12 h 20 m	SD 15.5'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.3'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.3'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°47.9'	Pollux	+1.2	243°20.0'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.1'
Antares	+1.1	112°18.5'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°30.6'	N 89°21.6'
Rigil Kent	-0.0	139°42.9'	S 60°55.5'	Adhara	+1.5	255°07.6'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.7'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	190°19.2'	179°04.2'	N 4°50.1'	222°12.9'	S 12°04.7'		197°41.9'	S 4°17.1'	225°30.6'	S 15°01.7'	227°25.8'	S 15°57.0'						
1	205°21.7'	194°04.4'	N 4°51.0'	237°12.7'	S 12°04.0'		212°43.8'	S 4°16.9'	240°32.8'	S 15°01.6'	242°26.4'	S 15°56.4'						
2	220°24.1'	209°04.6'	N 4°52.0'	252°12.6'	S 12°03.3'		227°45.8'	S 4°16.7'	255°35.1'	S 15°01.6'	257°27.0'	S 15°55.8'						
3	235°26.6'	224°04.7'	N 4°53.0'	267°12.4'	S 12°02.7'		242°47.7'	S 4°16.5'	270°37.3'	S 15°01.5'	272°27.6'	S 15°55.3'						
4	250°29.1'	239°04.9'	N 4°53.9'	282°12.2'	S 12°02.0'		257°49.6'	S 4°16.2'	285°39.6'	S 15°01.4'	287°28.2'	S 15°54.7'						
5	265°31.5'	254°05.1'	N 4°54.9'	297°12.1'	S 12°01.3'		272°51.5'	S 4°16.0'	300°41.8'	S 15°01.4'	302°28.8'	S 15°54.1'						
6	280°34.0'	269°05.3'	N 4°55.8'	312°11.9'	S 12°00.6'		287°53.5'	S 4°15.8'	315°44.0'	S 15°01.3'	317°29.4'	S 15°53.5'						
7	295°36.5'	284°05.5'	N 4°56.8'	327°11.8'	S 11°60.0'		302°55.4'	S 4°15.5'	330°46.3'	S 15°01.2'	332°30.0'	S 15°53.0'						
8	310°38.9'	299°05.7'	N 4°57.8'	342°11.6'	S 11°59.3'		317°57.3'	S 4°15.3'	345°48.5'	S 15°01.2'	347°30.6'	S 15°52.4'						
9	325°41.4'	314°05.8'	N 4°58.7'	357°11.4'	S 11°58.6'		332°59.2'	S 4°15.1'	0°50.8'	S 15°01.1'	2°31.2'	S 15°51.8'						
10	340°43.9'	329°06.0'	N 4°59.7'	12°11.3'	S 11°57.9'		348°01.1'	S 4°14.9'	15°53.0'	S 15°01.0'	17°31.8'	S 15°51.3'						
11	355°46.3'	344°06.2'	N 5°00.6'	27°11.1'	S 11°57.2'		3°03.1'	S 4°14.6'	30°55.2'	S 15°01.0'	32°32.4'	S 15°50.7'						
12	10°48.8'	359°06.4'	N 5°01.6'	42°11.0'	S 11°56.6'		18°05.0'	S 4°14.4'	45°57.5'	S 15°00.9'	47°33.0'	S 15°50.1'						
13	25°51.3'	14°06.6'	N 5°02.6'	57°10.8'	S 11°55.9'		33°06.9'	S 4°14.2'	60°59.7'	S 15°00.8'	62°33.6'	S 15°49.5'						
14	40°53.7'	29°06.8'	N 5°03.5'	72°10.6'	S 11°55.2'		48°08.8'	S 4°14.0'	76°02.0'	S 15°00.7'	77°34.2'	S 15°49.0'						
15	55°56.2'	44°06.9'	N 5°04.5'	87°10.5'	S 11°54.5'		63°10.8'	S 4°13.7'	91°04.2'	S 15°00.7'	92°34.8'	S 15°48.4'						
16	70°58.6'	59°07.1'	N 5°05.4'	102°10.3'	S 11°53.8'		78°12.7'	S 4°13.5'	106°06.4'	S 15°00.6'	107°35.4'	S 15°47.8'						
17	86°01.1'	74°07.3'	N 5°06.4'	117°10.2'	S 11°53.1'		93°14.6'	S 4°13.3'	121°08.7'	S 15°00.5'	122°35.9'	S 15°47.2'						
18	101°03.6'	89°07.5'	N 5°07.4'	132°10.0'	S 11°52.5'		108°16.5'	S 4°13.1'	136°10.9'	S 15°00.5'	137°36.5'	S 15°46.7'						
19	116°06.0'	104°07.7'	N 5°08.3'	147°09.8'	S 11°51.8'		123°18.5'	S 4°12.8'	151°13.2'	S 15°00.4'	152°37.1'	S 15°46.1'						
20	131°08.5'	119°07.9'	N 5°09.3'	162°09.7'	S 11°51.1'		138°20.4'	S 4°12.6'	166°15.4'	S 15°00.3'	167°37.7'	S 15°45.5'						
21	146°11.0'	134°08.0'	N 5°10.2'	177°09.5'	S 11°50.4'		153°22.3'	S 4°12.4'	181°17.7'	S 15°00.3'	182°38.3'	S 15°44.9'						
22	161°13.4'	149°08.2'	N 5°11.2'	192°09.3'	S 11°49.7'		168°24.2'	S 4°12.1'	196°19.9'	S 15°00.2'	197°38.9'	S 15°44.3'						
23	176°15.9'	164°08.4'	N 5°12.2'	207°09.2'	S 11°49.0'		183°26.2'	S 4°11.9'	211°22.1'	S 15°00.1'	212°39.5'	S 15°43.8'						
		SD 16.0' d 1.0'		v -0.2' d 0.7'			v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.6' d 0.6'							
Mer. pass.		12 h 3 m 35 s		9 h 11 m			10 h 48 m		8 h 57 m		8 h 50 m							

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Achernar
0	169°51.4'	N 5°40.0'	14.4'	14.3'	56.3'								
1	184°24.8'	N 5°54.3'	14.4'	14.2'	56.3'								
2	198°58.2'	N 6°08.5'	14.4'	14.2'	56.2'		93°05.5'	91°42.8'	67°07.9'	63°48.5'	59°03.8'	47°56.3'	
3	213°31.6'	N 6°22.7'	14.4'	14.2'	56.2'		92°35.4'	91°10.7'	66°37.8'	63°18.8'	58°39.0'	47°24.5'	
4	228°05.0'	N 6°36.9'	14.4'	14.1'	56.2'		92°05.3'	90°38.5'	66°07.7'	62°49.1'	58°14.4'	46°52.8'	
5	242°38.3'	N 6°51.0'	14.4'	14.1'	56.2'		91°35.2'	90°06.4'	65°37.7'	62°19.5'	57°49.8'	46°21.1'	
6	257°11.7'	N 7°05.1'	14.4'	14.0'	56.1'		91°05.1'	89°34.3'	65°07.7'	61°50.0'	57°25.3'	45°49.5'	
7	271°45.1'	N 7°19.1'	14.4'	14.0'	56.1'		90°35.1'	89°02.2'	64°37.8'	61°20.5'	57°00.9'	45°17.8'	
8	286°18.5'	N 7°33.1'	14.4'	13.9'	56.1'		90°05.1'	88°30.2'	64°07.9'	60°51.1'	56°36.6'	44°46.3'	
9	300°51.8'	N 7°47.0'	14.4'	13.9'	56.1'		89°35.1'	87°58.2'	63°38.0'	60°21.7'	56°12.4'	44°14.7'	
10	315°25.2'	N 8°00.9'	14.4'	13.9'	56.1'		89°05.2'	87°26.2'	63°08.2'	59°52.3'	55°48.3'	43°43.2'	
11	329°58.6'	N 8°14.8'	14.3'	13.8'	56.0'		88°35.2'	86°54.3'	62°38.5'	59°23.1'	55°24.4'	43°11.7'	
12	344°31.9'	N 8°28.6'	14.3'	13.8'	56.0'		88°05.3'	86°22.3'	62°08.8'	58°53.8'	55°00.5'	42°40.3'	
13	359°05.2'	N 8°42.3'	14.3'	13.7'	56.0'		87°35.5'	85°50.4'	61°39.1'	58°24.7'	54°36.8'	42°08.9'	
14	13°38.6'	N 8°56.0'	14.3'	13.7'	56.0'		87°05.6'	85°18.6'	61°09.5'	57°55.5'	54°13.1'	41°37.5'	
15	28°11.9'	N 9°09.7'	14.3'	13.6'	55.9'		86°35.8'	84°46.7'	60°39.9'	57°26.5'	53°49.6'	41°06.2'	
16	42°45.2'	N 9°23.3'	14.3'	13.6'	55.9'		86°06.0'	84°14.9'	60°10.4'	56°57.5'	53°26.3'	40°34.9'	
17	57°18.5'	N 9°36.9'	14.3'	13.5'	55.9'		85°36.3'	83°43.1'	59°40.9'	56°28.5'	53°03.0'	40°03.7'	
18	71°51.8'	N 9°50.4'	14.3'	13.5'	55.9'	119°31.4'	85°06.5'	83°11.4'	59°11.5'	55°59.6'	52°39.8'	39°32.5'	
19	86°25.0'	N 10°03.8'	14.2'	13.4'	55.8'	118°59.7'	84°36.8'	82°39.6'	58°42.2'	55°30.8'	52°16.8'	39°01.3'	
20	100°58.3'	N 10°17.2'	14.2'	13.3'	55.8'	118°28.2'	84°07.2'	82°07.9'	58°12.9'	55°02.0'	51°53.9'	38°30.2'	67°34.2'
21	115°31.5'	N 10°30.6'	14.2'	13.3'	55.8'	117°56.6'	83°37.5'	81°36.3'	57°43.6'	54°33.3'	51°31.2'	37°59.1'	67°49.2'
22	130°04.7'	N 10°43.9'	14.2'	13.2'	55.8'	117°25.1'	83°07.9'	81°04.6'	57°14.4'	54°04.7'	51°08.6'	37°28.1'	68°04.3'
23	144°37.9'	N 10°57.1'	14.2'	13.2'	55.8'	116°53.6'	82°38.3'	80°33.0'	56°45.2'	53°36.1'	50°46.1'	36°57.1'	68°19.5'
Mer. pass.		13 h 4 m SD 15.4'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.3'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.3'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.0'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°30.9'	N 89°21.6'
Rigel Kent	-0.0	139°42.9'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	191°18.4'	N 5°13.1'	179°08.6'	N 5°14.1'	222°09.0'	S 11°48.3'	198°28.1'	S 4°11.7'	226°24.4'	S 15°00.1'	227°40.1'	S 15°43.2'
1	206°20.8'	N 5°15.0'	194°08.8'	N 5°15.0'	237°08.9'	S 11°47.6'	213°30.0'	S 4°11.5'	241°26.6'	S 15°00.0'	242°40.7'	S 15°42.6'
2	221°23.3'	N 5°16.0'	209°09.0'	N 5°16.0'	252°08.7'	S 11°47.0'	228°31.9'	S 4°11.2'	256°28.9'	S 14°59.9'	257°41.3'	S 15°42.0'
3	236°25.7'	N 5°17.0'	224°09.1'	N 5°17.0'	267°08.5'	S 11°46.3'	243°33.9'	S 4°11.0'	271°31.1'	S 14°59.9'	272°41.9'	S 15°41.5'
4	251°28.2'	N 5°17.9'	239°09.3'	N 5°17.9'	282°08.4'	S 11°45.6'	258°35.8'	S 4°10.8'	286°33.4'	S 14°59.8'	287°42.5'	S 15°40.9'
5	266°30.7'	N 5°18.9'	254°09.5'	N 5°18.9'	297°08.2'	S 11°44.9'	273°37.7'	S 4°10.6'	301°35.6'	S 14°59.7'	302°43.1'	S 15°40.3'
6	281°33.1'	N 5°19.8'	269°09.7'	N 5°19.8'	312°08.0'	S 11°44.2'	288°39.6'	S 4°10.3'	316°37.8'	S 14°59.7'	317°43.7'	S 15°39.7'
7	296°35.6'	N 5°20.8'	284°09.9'	N 5°20.8'	327°07.9'	S 11°43.5'	303°41.6'	S 4°10.1'	331°40.1'	S 14°59.6'	332°44.3'	S 15°39.1'
8	311°38.1'	N 5°21.8'	299°10.0'	N 5°21.8'	342°07.7'	S 11°42.8'	318°43.5'	S 4°09.9'	346°42.3'	S 14°59.5'	347°44.9'	S 15°38.6'
9	326°40.5'	N 5°22.7'	314°10.2'	N 5°22.7'	357°07.6'	S 11°42.1'	333°45.4'	S 4°09.7'	1°44.6'	S 14°59.5'	2°45.5'	S 15°38.0'
10	341°43.0'	N 5°23.7'	329°10.4'	N 5°23.7'	12°07.4'	S 11°41.4'	348°47.3'	S 4°09.4'	16°46.8'	S 14°59.4'	17°46.1'	S 15°37.4'
11	356°45.5'	N 5°24.6'	344°10.6'	N 5°24.6'	27°07.2'	S 11°40.7'	3°49.3'	S 4°09.2'	31°49.1'	S 14°59.3'	32°46.7'	S 15°36.8'
12	11°47.9'	N 5°25.6'	359°10.8'	N 5°25.6'	42°07.1'	S 11°40.0'	18°51.2'	S 4°09.0'	46°51.3'	S 14°59.3'	47°47.3'	S 15°36.2'
13	26°50.4'	N 5°26.5'	14°11.0'	N 5°26.5'	57°06.9'	S 11°39.3'	33°53.1'	S 4°08.7'	61°53.5'	S 14°59.2'	62°47.9'	S 15°35.7'
14	41°52.9'	N 5°27.5'	29°11.1'	N 5°27.5'	72°06.7'	S 11°38.6'	48°55.0'	S 4°08.5'	76°55.8'	S 14°59.1'	77°48.5'	S 15°35.1'
15	56°55.3'	N 5°28.4'	44°11.3'	N 5°28.4'	87°06.6'	S 11°37.9'	63°57.0'	S 4°08.3'	91°58.0'	S 14°59.1'	92°49.1'	S 15°34.5'
16	71°57.8'	N 5°29.4'	59°11.5'	N 5°29.4'	102°06.4'	S 11°37.2'	78°58.9'	S 4°08.1'	107°00.3'	S 14°59.0'	107°49.7'	S 15°33.9'
17	87°00.2'	N 5°30.4'	74°11.7'	N 5°30.4'	117°06.2'	S 11°36.5'	94°00.8'	S 4°07.8'	122°02.5'	S 14°58.9'	122°50.3'	S 15°33.3'
18	102°02.7'	N 5°31.3'	89°11.9'	N 5°31.3'	132°06.1'	S 11°35.8'	109°02.7'	S 4°07.6'	137°04.8'	S 14°58.9'	137°50.9'	S 15°32.8'
19	117°05.2'	N 5°32.3'	104°12.0'	N 5°32.3'	147°05.9'	S 11°35.1'	124°04.7'	S 4°07.4'	152°07.0'	S 14°58.8'	152°51.5'	S 15°32.2'
20	132°07.6'	N 5°33.2'	119°12.2'	N 5°33.2'	162°05.8'	S 11°34.4'	139°06.6'	S 4°07.2'	167°09.3'	S 14°58.7'	167°52.1'	S 15°31.6'
21	147°10.1'	N 5°34.2'	134°12.4'	N 5°34.2'	177°05.6'	S 11°33.7'	154°08.5'	S 4°06.9'	182°11.5'	S 14°58.7'	182°52.7'	S 15°31.0'
22	162°12.6'	N 5°35.1'	149°12.6'	N 5°35.1'	192°05.4'	S 11°33.0'	169°10.5'	S 4°06.7'	197°13.7'	S 14°58.6'	197°53.3'	S 15°30.4'
23	177°15.0'	N 5°35.1'	164°12.8'	N 5°35.1'	207°05.3'	S 11°32.3'	184°12.4'	S 4°06.5'	212°16.0'	S 14°58.5'	212°53.9'	S 15°29.9'
			SD 16.0' d 1.0'		v -0.2' d 0.7'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.6' d 0.6'	
Mer. pass.			12 h 3 m 17 s		9 h 12 m		10 h 45 m		8 h 53 m		8 h 49 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Adhara	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Achernar
0	159°11.1'	N 11°10.3'	14.2'	13.1'	55.7'	116°22.1'	82°08.8'	80°46.0'	56°16.1'	53°07.6'	50°23.7'	36°26.1'	68°34.7'
1	173°44.3'	N 11°23.4'	14.1'	13.1'	55.7'	115°50.6'	81°39.3'	80°28.7'	55°47.1'	52°39.2'	50°01.5'	35°55.2'	68°50.0'
2	188°17.4'	N 11°36.4'	14.1'	13.0'	55.7'	115°19.2'	81°09.8'	80°11.4'	55°18.1'	52°10.8'	49°39.5'	35°24.3'	69°05.4'
3	202°50.5'	N 11°49.4'	14.1'	12.9'	55.7'	114°47.8'	80°40.3'	79°54.3'	54°49.2'	51°42.5'	49°17.5'	34°53.5'	69°20.9'
4	217°23.6'	N 12°02.4'	14.1'	12.9'	55.6'	114°16.4'	80°10.9'	79°37.1'	54°20.3'	51°14.2'	48°55.8'	34°22.7'	69°36.5'
5	231°56.7'	N 12°15.2'	14.1'	12.8'	55.6'	113°45.1'	79°41.5'	79°20.0'	53°51.5'	50°46.0'	48°34.2'	33°52.0'	69°52.1'
6	246°29.8'	N 12°28.0'	14.0'	12.7'	55.6'	113°13.7'	79°12.1'	79°03.0'	53°22.7'	50°17.9'	48°12.7'	33°21.3'	70°07.7'
7	261°02.8'	N 12°40.8'	14.0'	12.7'	55.6'	112°42.4'	78°42.8'	78°46.0'	52°54.1'	49°49.9'	47°51.4'	32°50.7'	70°23.5'
8	275°35.8'	N 12°53.5'	14.0'	12.6'	55.5'	112°11.2'	78°13.5'	78°29.1'	52°25.4'	49°22.0'	47°30.2'	32°20.1'	70°39.3'
9	290°08.8'	N 13°06.1'	14.0'	12.5'	55.5'	111°39.9'	77°44.3'	78°12.2'	51°56.9'	48°54.1'	47°09.2'	31°49.6'	70°55.1'
10	304°41.8'	N 13°18.6'	13.9'	12.5'	55.5'	111°08.7'	77°15.0'	77°55.4'	51°28.3'	48°26.3'	46°48.4'	31°19.1'	71°11.1'
11	319°14.7'	N 13°31.1'	13.9'	12.4'	55.5'	110°37.5'	76°45.8'	77°38.7'	50°59.9'	47°58.5'	46°27.8'	30°48.6'	71°27.0'
12	333°47.7'	N 13°43.5'	13.9'	12.3'	55.5'	110°06.4'	76°16.7'	77°22.0'	50°31.5'	47°30.9'	46°07.3'	30°18.3'	71°43.1'
13	348°20.5'	N 13°55.9'	13.9'	12.3'	55.4'	109°35.2'	75°47.6'	77°05.4'	50°03.2'	47°03.3'	45°47.0'	29°47.9'	71°59.2'
14	2°53.4'	N 14°08.1'	13.8'	12.2'	55.4'	109°04.1'	75°18.5'	76°48.8'	49°35.0'	46°35.8'	45°26.8'	29°17.7'	72°15.3'
15	17°26.2'	N 14°20.3'	13.8'	12.1'	55.4'	108°33.0'	74°49.4'	76°32.3'	49°06.8'	46°08.4'	45°06.9'	28°47.5'	72°31.5'
16	31°59.1'	N 14°32.5'	13.8'	12.1'	55.4'	108°01.9'	74°20.4'	76°15.8'	48°38.7'	45°41.1'	44°47.1'	28°17.3'	72°47.8'
17	46°31.8'	N 14°44.5'	13.7'	12.0'	55.3'	107°30.9'	73°51.4'	75°59.5'	48°10.7'	45°13.9'	44°27.6'	27°47.2'	73°04.1'
18	61°04.6'	N 14°56.5'	13.7'	11.9'	55.3'	106°59.9'	73°22.5'	75°43.1'	47°42.7'	44°46.8'	44°08.2'	27°17.2'	73°20.4'
19	75°37.3'	N 15°08.4'	13.7'	11.8'	55.3'	106°28.9'	72°53.5'	75°26.9'	47°14.8'	44°19.7'	43°49.0'	26°47.2'	73°36.8'
20	90°10.0'	N 15°20.3'	13.7'	11.8'	55.3'	105°58.0'	72°24.7'	75°10.7'	46°47.0'	43°52.8'	43°30.0'	26°17.3'	73°53.3'
21	104°42.6'	N 15°32.0'	13.6'	11.7'	55.3'	105°27.0'	71°55.8'	74°54.6'	46°19.3'	43°25.9'	43°11.2'	25°47.5'	74°09.8'
22	119°15.3'	N 15°43.7'	13.6'	11.6'	55.2'	104°56.1'	71°27.0'	74°38.6'	45°51.6'	42°59.2'	42°52.6'	25°17.7'	74°26.3'
23	133°47.9'	N 15°55.3'	13.6'	11.5'	55.2'	104°25.2'	70°58.3'	74°22.6'	45°24.0'	42°32.5'	42°34.3'	24°48.0'	74°42.9'
Mer. pass.			13 h 48 m	SD 15.2'	phase 3%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.3'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.3'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.0'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.1'	N 89°21.6'
Rigil Kent	-0.0	139°42.9'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	192°17.5'	179°13.0' N 5°36.1'	222°05.1' S 11°31.6'	199°14.3' S 4°06.3'	227°18.2' S 14°58.5'	227°54.5' S 15°29.3'						
1	207°20.0'	194°13.1' N 5°37.1'	237°04.9' S 11°30.9'	214°16.2' S 4°06.0'	242°20.5' S 14°58.4'	242°55.1' S 15°28.7'						
2	222°22.4'	209°13.3' N 5°38.0'	252°04.8' S 11°30.2'	229°18.2' S 4°05.8'	257°22.7' S 14°58.3'	257°55.7' S 15°28.1'						
3	237°24.9'	224°13.5' N 5°39.0'	267°04.6' S 11°29.5'	244°20.1' S 4°05.6'	272°25.0' S 14°58.3'	272°56.3' S 15°27.5'						
4	252°27.3'	239°13.7' N 5°39.9'	282°04.4' S 11°28.7'	259°22.0' S 4°05.4'	287°27.2' S 14°58.2'	287°56.9' S 15°26.9'						
5	267°29.8'	254°13.9' N 5°40.9'	297°04.3' S 11°28.0'	274°23.9' S 4°05.1'	302°29.5' S 14°58.1'	302°57.5' S 15°26.3'						
6	282°32.3'	269°14.0' N 5°41.8'	312°04.1' S 11°27.3'	289°25.9' S 4°04.9'	317°31.7' S 14°58.1'	317°58.1' S 15°25.8'						
7	297°34.7'	284°14.2' N 5°42.8'	327°03.9' S 11°26.6'	304°27.8' S 4°04.7'	332°34.0' S 14°58.0'	332°58.7' S 15°25.2'						
8	312°37.2'	299°14.4' N 5°43.7'	342°03.8' S 11°25.9'	319°29.7' S 4°04.5'	347°36.2' S 14°57.9'	347°59.3' S 15°24.6'						
9	327°39.7'	314°14.6' N 5°44.7'	357°03.6' S 11°25.2'	334°31.6' S 4°04.2'	2°38.4' S 14°57.9'	2°59.9' S 15°24.0'						
10	342°42.1'	329°14.8' N 5°45.6'	12°03.4' S 11°24.5'	349°33.6' S 4°04.0'	17°40.7' S 14°57.8'	18°00.5' S 15°23.4'						
11	357°44.6'	344°14.9' N 5°46.6'	27°03.3' S 11°23.8'	4°35.5' S 4°03.8'	32°42.9' S 14°57.7'	33°01.1' S 15°22.8'						
12	12°47.1'	359°15.1' N 5°47.5'	42°03.1' S 11°23.0'	19°37.4' S 4°03.5'	47°45.2' S 14°57.7'	48°01.7' S 15°22.3'						
13	27°49.5'	14°15.3' N 5°48.5'	57°02.9' S 11°22.3'	34°39.4' S 4°03.3'	62°47.4' S 14°57.6'	63°02.3' S 15°21.7'						
14	42°52.0'	29°15.5' N 5°49.5'	72°02.8' S 11°21.6'	49°41.3' S 4°03.1'	77°49.7' S 14°57.5'	78°02.9' S 15°21.1'						
15	57°54.5'	44°15.7' N 5°50.4'	87°02.6' S 11°20.9'	64°43.2' S 4°02.9'	92°51.9' S 14°57.5'	93°03.5' S 15°20.5'						
16	72°56.9'	59°15.8' N 5°51.4'	102°02.4' S 11°20.2'	79°45.1' S 4°02.6'	107°54.2' S 14°57.4'	108°04.2' S 15°19.9'						
17	87°59.4'	74°16.0' N 5°52.3'	117°02.3' S 11°19.5'	94°47.1' S 4°02.4'	122°56.4' S 14°57.3'	123°04.8' S 15°19.3'						
18	103°01.8'	89°16.2' N 5°53.3'	132°02.1' S 11°18.7'	109°49.0' S 4°02.2'	137°58.7' S 14°57.3'	138°05.4' S 15°18.7'						
19	118°04.3'	104°16.4' N 5°54.2'	147°01.9' S 11°18.0'	124°50.9' S 4°02.0'	153°00.9' S 14°57.2'	153°06.0' S 15°18.1'						
20	133°06.8'	119°16.6' N 5°55.2'	162°01.8' S 11°17.3'	139°52.8' S 4°01.7'	168°03.2' S 14°57.1'	168°06.6' S 15°17.6'						
21	148°09.2'	134°16.7' N 5°56.1'	177°01.6' S 11°16.6'	154°54.8' S 4°01.5'	183°05.4' S 14°57.1'	183°07.2' S 15°17.0'						
22	163°11.7'	149°16.9' N 5°57.1'	192°01.4' S 11°15.9'	169°56.7' S 4°01.3'	198°07.7' S 14°57.0'	198°07.8' S 15°16.4'						
23	178°14.2'	164°17.1' N 5°58.0'	207°01.3' S 11°15.1'	184°58.6' S 4°01.1'	213°09.9' S 14°56.9'	213°08.4' S 15°15.8'						
		SD 16.0' d 1.0'	v -0.2' d 0.7'	v 1.9' d 0.2'	v 2.2' d 0.1'	v 0.6' d 0.6'						
Mer. pass.		12 h 3 m 0 s	9 h 12 m	10 h 42 m	8 h 49 m	8 h 48 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Adhara	-Betelgeuse	-Rigel	-Capella	-Aldebaran	+Sun	+Achernar
0	148°20.4'	N 16°06.8'	13.5'	11.5'	55.2'	103°54.4'	74°06.7'	44°56.5'	42°16.1'	42°05.9'	24°18.4'		74°59.5'
1	162°52.9'	N 16°18.3'	13.5'	11.4'	55.2'	103°23.5'	73°50.8'	44°29.1'	41°58.2'	41°39.5'	23°48.8'		75°16.1'
2	177°25.4'	N 16°29.7'	13.5'	11.3'	55.2'	102°52.7'	73°35.1'	44°01.8'	41°40.5'	41°13.1'	23°19.4'		75°32.8'
3	191°57.9'	N 16°41.0'	13.4'	11.2'	55.1'	102°21.9'	73°19.4'	43°34.5'	41°23.0'	40°46.9'	22°50.0'		75°49.6'
4	206°30.3'	N 16°52.2'	13.4'	11.1'	55.1'	101°51.2'	73°03.8'	43°07.3'	41°05.7'	40°20.8'	22°20.7'		76°06.3'
5	221°02.7'	N 17°03.3'	13.4'	11.0'	55.1'	101°20.4'	72°48.2'	42°40.3'	40°48.7'	39°54.8'	21°51.5'		76°23.1'
6	235°35.1'	N 17°14.3'	13.3'	11.0'	55.1'	100°49.7'	72°32.8'	42°13.3'	40°31.9'	39°28.9'	21°22.4'		76°40.0'
7	250°07.4'	N 17°25.3'	13.3'	10.9'	55.1'	100°19.0'	72°17.4'	41°46.4'	40°15.3'	39°03.1'	20°53.4'		76°56.9'
8	264°39.7'	N 17°36.2'	13.2'	10.8'	55.0'	99°48.4'	72°02.1'	41°19.6'	39°59.0'	38°37.4'	20°24.6'		77°13.8'
9	279°11.9'	N 17°47.0'	13.2'	10.7'	55.0'	99°17.7'	71°46.9'	40°52.9'	39°43.0'	38°11.9'	19°55.8'		77°30.7'
10	293°44.1'	N 17°57.7'	13.2'	10.6'	55.0'	98°47.1'	71°31.7'	40°26.3'	39°27.2'	37°46.5'	19°27.1'		77°47.6'
11	308°16.3'	N 18°08.3'	13.1'	10.5'	55.0'	98°16.5'		39°59.8'	39°11.6'	37°21.2'	18°58.6'		78°04.6'
12	322°48.4'	N 18°18.8'	13.1'	10.4'	55.0'	97°45.9'		39°33.4'	38°56.4'	36°56.1'	18°30.2'		78°21.6'
13	337°20.5'	N 18°29.3'	13.1'	10.4'	54.9'	97°15.4'		39°07.2'		36°31.1'	18°01.9'		78°38.7'
14	351°52.6'	N 18°39.7'	13.0'	10.3'	54.9'	96°44.9'		38°41.0'		36°06.3'	17°33.8'		78°55.8'
15	6°24.6'	N 18°49.9'	13.0'	10.2'	54.9'	96°14.4'		38°14.9'		35°41.6'	17°05.9'		79°12.8'
16	20°56.6'	N 19°00.1'	12.9'	10.1'	54.9'	95°43.9'		37°49.0'		35°17.0'	16°38.1'		79°30.0'
17	35°28.5'	N 19°10.2'	12.9'	10.0'	54.9'	95°13.4'		37°23.2'		34°52.6'	16°10.5'	40°00.6'	79°47.1'
18	50°00.4'	N 19°20.2'	12.9'	9.9'	54.9'	94°43.0'		36°57.5'		34°28.4'	15°43.1'	40°28.5'	80°04.3'
19	64°32.3'	N 19°30.1'	12.8'	9.8'	54.8'	94°12.6'		36°31.9'		34°04.4'	15°16.0'	40°56.5'	80°21.4'
20	79°04.1'	N 19°39.9'	12.8'	9.7'	54.8'	93°42.2'		36°06.4'		33°40.5'	14°49.0'	41°24.4'	80°38.6'
21	93°35.9'	N 19°49.6'	12.7'	9.6'	54.8'	93°11.8'		35°41.1'		33°16.7'	14°22.3'	41°52.3'	80°55.8'
22	108°07.6'	N 19°59.3'	12.7'	9.5'	54.8'	92°41.5'		35°15.9'		32°53.2'	13°55.9'	42°20.2'	81°13.1'
23	122°39.3'	N 20°08.8'	12.7'	9.4'	54.8'	92°11.2'		34°50.9'		32°29.9'	13°29.8'	42°48.0'	81°30.3'
Mer. pass.		14 h 34 m SD 15.1'	phase 8%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.3'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.3'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.3'	N 89°21.6'
Rigel Kent	-0.0	139°42.9'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	193°16.6'		179°17.3'	N 5°59.0'	222°01.1'	S 11°14.4'	200°00.6'	S 4°00.8'	228°12.2'	S 14°56.9'	228°09.0'	S 15°15.2'
1	208°19.1'		194°17.5'	N 5°59.9'	237°00.9'	S 11°13.7'	215°02.5'	S 4°00.6'	243°14.4'	S 14°56.8'	243°09.6'	S 15°14.6'
2	223°21.6'		209°17.6'	N 6°00.9'	252°00.8'	S 11°13.0'	230°04.4'	S 4°00.4'	258°16.6'	S 14°56.7'	258°10.2'	S 15°14.0'
3	238°24.0'		224°17.8'	N 6°01.8'	267°00.6'	S 11°12.3'	245°06.3'	S 4°00.2'	273°18.9'	S 14°56.7'	273°10.8'	S 15°13.4'
4	253°26.5'		239°18.0'	N 6°02.8'	282°00.4'	S 11°11.5'	260°08.3'	S 3°59.9'	288°21.1'	S 14°56.6'	288°11.4'	S 15°12.8'
5	268°29.0'		254°18.2'	N 6°03.7'	297°00.3'	S 11°10.8'	275°10.2'	S 3°59.7'	303°23.4'	S 14°56.5'	303°12.0'	S 15°12.2'
6	283°31.4'		269°18.3'	N 6°04.7'	312°00.1'	S 11°10.1'	290°12.1'	S 3°59.5'	318°25.6'	S 14°56.5'	318°12.6'	S 15°11.7'
7	298°33.9'		284°18.5'	N 6°05.6'	326°59.9'	S 11°09.3'	305°14.1'	S 3°59.3'	333°27.9'	S 14°56.4'	333°13.2'	S 15°11.1'
8	313°36.3'		299°18.7'	N 6°06.6'	341°59.8'	S 11°08.6'	320°16.0'	S 3°59.0'	348°30.1'	S 14°56.3'	348°13.8'	S 15°10.5'
9	328°38.8'		314°18.9'	N 6°07.5'	356°59.6'	S 11°07.9'	335°17.9'	S 3°58.8'	3°32.4'	S 14°56.3'	3°14.4'	S 15°09.9'
10	343°41.3'		329°19.1'	N 6°08.5'	11°59.4'	S 11°07.2'	350°19.8'	S 3°58.6'	18°34.6'	S 14°56.2'	18°15.0'	S 15°09.3'
11	358°43.7'		344°19.2'	N 6°09.4'	26°59.2'	S 11°06.4'	5°21.8'	S 3°58.4'	33°36.9'	S 14°56.1'	33°15.7'	S 15°08.7'
12	13°46.2'		359°19.4'	N 6°10.4'	41°59.1'	S 11°05.7'	20°23.7'	S 3°58.1'	48°39.1'	S 14°56.1'	48°16.3'	S 15°08.1'
13	28°48.7'		14°19.6'	N 6°11.3'	56°58.9'	S 11°05.0'	35°25.6'	S 3°57.9'	63°41.4'	S 14°56.0'	63°16.9'	S 15°07.5'
14	43°51.1'		29°19.8'	N 6°12.3'	71°58.7'	S 11°04.2'	50°27.6'	S 3°57.7'	78°43.6'	S 14°55.9'	78°17.5'	S 15°06.9'
15	58°53.6'		44°20.0'	N 6°13.2'	86°58.6'	S 11°03.5'	65°29.5'	S 3°57.5'	93°45.9'	S 14°55.9'	93°18.1'	S 15°06.3'
16	73°56.1'		59°20.1'	N 6°14.2'	101°58.4'	S 11°02.8'	80°31.4'	S 3°57.2'	108°48.1'	S 14°55.8'	108°18.7'	S 15°05.7'
17	88°58.5'		74°20.3'	N 6°15.1'	116°58.2'	S 11°02.0'	95°33.3'	S 3°57.0'	123°50.4'	S 14°55.8'	123°19.3'	S 15°05.1'
18	104°01.0'		89°20.5'	N 6°16.1'	131°58.1'	S 11°01.3'	110°35.3'	S 3°56.8'	138°52.6'	S 14°55.7'	138°19.9'	S 15°04.6'
19	119°03.4'		104°20.7'	N 6°17.0'	146°57.9'	S 11°00.6'	125°37.2'	S 3°56.6'	153°54.9'	S 14°55.6'	153°20.5'	S 15°04.0'
20	134°05.9'		119°20.8'	N 6°17.9'	161°57.7'	S 10°59.8'	140°39.1'	S 3°56.3'	168°57.1'	S 14°55.6'	168°21.1'	S 15°03.4'
21	149°08.4'		134°21.0'	N 6°18.9'	176°57.6'	S 10°59.1'	155°41.1'	S 3°56.1'	183°59.4'	S 14°55.5'	183°21.7'	S 15°02.8'
22	164°10.8'		149°21.2'	N 6°19.8'	191°57.4'	S 10°58.4'	170°43.0'	S 3°55.9'	199°01.6'	S 14°55.4'	198°22.3'	S 15°02.2'
23	179°13.3'		164°21.4'	N 6°20.8'	206°57.2'	S 10°57.6'	185°44.9'	S 3°55.7'	214°03.9'	S 14°55.4'	213°22.9'	S 15°01.6'
			SD 16.0'	<i>d</i> 0.9'	<i>v</i> -0.2'	<i>d</i> 0.7'	<i>v</i> 1.9'	<i>d</i> 0.2'	<i>v</i> 2.2'	<i>d</i> 0.1'	<i>v</i> 0.6'	<i>d</i> 0.6'
Mer. pass.			12 h 2 m 42 s		9 h 12 m		10 h 39 m		8 h 46 m		8 h 47 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Sun	+Achernar
0	137°11.0'	N 20°18.2'	12.6'	9.3'	54.8'	91°40.9'	59°12.0'	55°16.1'	34°26.0'	32°06.7'	13°04.0'	43°15.9'	81°47.6'
1	151°42.6'	N 20°27.6'	12.6'	9.2'	54.7'	91°10.6'	58°44.3'	54°45.8'	34°01.2'	31°43.7'	12°38.5'	43°43.7'	82°04.9'
2	166°14.2'	N 20°36.8'	12.5'	9.1'	54.7'	90°40.3'	58°16.6'	54°15.4'	33°36.6'	31°21.0'	12°13.4'	44°11.5'	82°22.1'
3	180°45.7'	N 20°45.9'	12.5'	9.0'	54.7'	90°10.1'	57°49.0'	53°45.1'	33°12.2'	30°58.4'	11°48.8'	44°39.3'	82°39.4'
4	195°17.2'	N 20°55.0'	12.5'	8.9'	54.7'	89°39.9'	57°21.5'	53°14.8'	32°47.9'	30°36.1'	11°24.6'	45°07.0'	82°56.8'
5	209°48.7'	N 21°03.9'	12.4'	8.8'	54.7'	89°09.7'	56°54.0'	52°44.6'	32°23.8'	30°14.0'	11°01.0'	45°34.8'	83°14.1'
6	224°20.1'	N 21°12.8'	12.4'	8.7'	54.7'	88°39.5'	56°26.5'	52°14.3'	31°59.9'	29°52.1'	10°37.9'	46°02.5'	83°31.4'
7	238°51.5'	N 21°21.5'	12.3'	8.6'	54.6'	88°09.3'	55°59.1'	51°44.1'	31°36.1'	29°30.5'	10°15.4'	46°30.2'	83°48.8'
8	253°22.8'	N 21°30.2'	12.3'	8.5'	54.6'	87°39.2'	55°31.8'	51°13.9'	31°12.5'	29°09.1'	9°53.7'	46°57.9'	84°06.1'
9	267°54.1'	N 21°38.7'	12.3'	8.4'	54.6'	87°09.1'	55°04.5'	50°43.7'	30°49.1'	28°47.9'		47°25.6'	84°23.5'
10	282°25.3'	N 21°47.2'	12.2'	8.3'	54.6'	86°39.0'	54°37.2'	50°13.5'	30°25.9'	28°27.1'		47°53.2'	84°40.8'
11	296°56.6'	N 21°55.5'	12.2'	8.2'	54.6'	86°08.9'	54°10.0'	49°43.4'	30°03.0'	28°06.5'		48°20.9'	84°58.2'
12	311°27.7'	N 22°03.7'	12.1'	8.1'	54.6'	85°38.8'	53°42.9'	49°13.3'	29°40.2'	27°46.1'		48°48.5'	85°15.6'
13	325°58.9'	N 22°11.9'	12.1'	8.0'	54.6'	85°08.8'	53°15.8'	48°43.2'	29°17.6'	27°26.1'		49°16.1'	85°33.0'
14	340°29.9'	N 22°19.9'	12.0'	7.9'	54.5'	84°38.7'	52°48.8'	48°13.1'	28°55.3'	27°06.4'		49°43.7'	85°50.4'
15	355°01.0'	N 22°27.8'	12.0'	7.8'	54.5'	84°08.7'	52°21.8'	47°43.0'	28°33.1'	26°47.0'		50°11.3'	86°07.8'
16	9°32.0'	N 22°35.6'	12.0'	7.7'	54.5'	83°38.7'	51°54.9'	47°12.9'	28°11.3'	26°27.9'		50°38.8'	86°25.1'
17	24°02.9'	N 22°43.3'	11.9'	7.6'	54.5'	83°08.8'	51°28.0'	46°42.9'	27°49.6'	26°09.1'		51°06.4'	86°42.5'
18	38°33.9'	N 22°50.9'	11.9'	7.5'	54.5'	82°38.8'	51°01.2'	46°12.9'	27°28.3'	25°50.6'		51°33.9'	86°59.9'
19	53°04.8'	N 22°58.4'	11.8'	7.4'	54.5'	82°08.9'	50°34.4'	45°42.9'	27°07.2'	25°32.6'		52°01.4'	87°17.3'
20	67°35.6'	N 23°05.8'	11.8'	7.3'	54.5'	81°39.0'	50°07.7'	45°12.9'	26°46.3'	25°14.8'		52°28.9'	87°34.7'
21	82°06.4'	N 23°13.1'	11.8'	7.2'	54.4'	81°09.1'	49°41.1'	44°42.9'	26°25.8'	24°57.5'		52°56.4'	87°52.1'
22	96°37.2'	N 23°20.3'	11.7'	7.1'	54.4'	80°39.2'	49°14.5'	44°13.0'	26°05.5'	24°40.5'		53°23.8'	88°09.5'
23	111°07.9'	N 23°27.3'	11.7'	6.9'	54.4'	80°09.3'	48°48.0'	43°43.1'	25°45.6'	24°24.0'		53°51.3'	88°26.9'
Mer. pass.			15 h 21 m SD 14.9'		phase 14%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.3'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.4'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.5'	N 89°21.6'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	194°15.8'	N 6°21.7'	179°21.6'	N 6°21.7'	221°57.0'	S 10°56.9'	200°46.9'	S 3°55.4'	229°06.1'	S 14°55.3'	228°23.6'	S 15°01.0'
1	209°18.2'	N 6°22.7'	194°21.7'	N 6°22.7'	236°56.9'	S 10°56.1'	215°48.8'	S 3°55.2'	244°08.4'	S 14°55.2'	243°24.2'	S 15°00.4'
2	224°20.7'	N 6°23.6'	209°21.9'	N 6°23.6'	251°56.7'	S 10°55.4'	230°50.7'	S 3°55.0'	259°10.6'	S 14°55.2'	258°24.8'	S 14°59.8'
3	239°23.2'	N 6°24.6'	224°22.1'	N 6°24.6'	266°56.5'	S 10°54.7'	245°52.6'	S 3°54.8'	274°12.9'	S 14°55.1'	273°25.4'	S 14°59.2'
4	254°25.6'	N 6°25.5'	239°22.3'	N 6°25.5'	281°56.4'	S 10°53.9'	260°54.6'	S 3°54.5'	289°15.1'	S 14°55.0'	288°26.0'	S 14°58.6'
5	269°28.1'	N 6°26.5'	254°22.4'	N 6°26.5'	296°56.2'	S 10°53.2'	275°56.5'	S 3°54.3'	304°17.4'	S 14°55.0'	303°26.6'	S 14°58.0'
6	284°30.6'	N 6°27.4'	269°22.6'	N 6°27.4'	311°56.0'	S 10°52.4'	290°58.4'	S 3°54.1'	319°19.6'	S 14°54.9'	318°27.2'	S 14°57.4'
7	299°33.0'	N 6°28.4'	284°22.8'	N 6°28.4'	326°55.9'	S 10°51.7'	306°00.4'	S 3°53.9'	334°21.9'	S 14°54.8'	333°27.8'	S 14°56.8'
8	314°35.5'	N 6°29.3'	299°23.0'	N 6°29.3'	341°55.7'	S 10°51.0'	321°02.3'	S 3°53.6'	349°24.1'	S 14°54.8'	348°28.4'	S 14°56.2'
9	329°37.9'	N 6°30.2'	314°23.1'	N 6°30.2'	356°55.5'	S 10°50.2'	336°04.2'	S 3°53.4'	4°26.4'	S 14°54.7'	3°29.0'	S 14°55.6'
10	344°40.4'	N 6°31.2'	329°23.3'	N 6°31.2'	11°55.3'	S 10°49.5'	351°06.2'	S 3°53.2'	19°28.6'	S 14°54.6'	18°29.7'	S 14°55.0'
11	359°42.9'	N 6°32.1'	344°23.5'	N 6°32.1'	26°55.2'	S 10°48.7'	6°08.1'	S 3°53.0'	34°30.9'	S 14°54.6'	33°30.3'	S 14°54.4'
12	14°45.3'	N 6°33.1'	359°23.7'	N 6°33.1'	41°55.0'	S 10°48.0'	21°10.0'	S 3°52.7'	49°33.1'	S 14°54.5'	48°30.9'	S 14°53.8'
13	29°47.8'	N 6°34.0'	14°23.9'	N 6°34.0'	56°54.8'	S 10°47.2'	36°11.9'	S 3°52.5'	64°35.4'	S 14°54.5'	63°31.5'	S 14°53.2'
14	44°50.3'	N 6°35.0'	29°24.0'	N 6°35.0'	71°54.7'	S 10°46.5'	51°13.9'	S 3°52.3'	79°37.6'	S 14°54.4'	78°32.1'	S 14°52.6'
15	59°52.7'	N 6°35.9'	44°24.2'	N 6°35.9'	86°54.5'	S 10°45.7'	66°15.8'	S 3°52.1'	94°39.9'	S 14°54.3'	93°32.7'	S 14°52.0'
16	74°55.2'	N 6°36.9'	59°24.4'	N 6°36.9'	101°54.3'	S 10°45.0'	81°17.7'	S 3°51.8'	109°42.2'	S 14°54.3'	108°33.3'	S 14°51.4'
17	89°57.7'	N 6°37.8'	74°24.6'	N 6°37.8'	116°54.2'	S 10°44.2'	96°19.7'	S 3°51.6'	124°44.4'	S 14°54.2'	123°33.9'	S 14°50.8'
18	105°00.1'	N 6°38.7'	89°24.7'	N 6°38.7'	131°54.0'	S 10°43.5'	111°21.6'	S 3°51.4'	139°46.7'	S 14°54.1'	138°34.5'	S 14°50.2'
19	120°02.6'	N 6°39.7'	104°24.9'	N 6°39.7'	146°53.8'	S 10°42.7'	126°23.5'	S 3°51.2'	154°48.9'	S 14°54.1'	153°35.2'	S 14°49.6'
20	135°05.1'	N 6°40.6'	119°25.1'	N 6°40.6'	161°53.6'	S 10°42.0'	141°25.5'	S 3°50.9'	169°51.2'	S 14°54.0'	168°35.8'	S 14°49.0'
21	150°07.5'	N 6°41.6'	134°25.3'	N 6°41.6'	176°53.5'	S 10°41.2'	156°27.4'	S 3°50.7'	184°53.4'	S 14°53.9'	183°36.4'	S 14°48.4'
22	165°10.0'	N 6°42.5'	149°25.4'	N 6°42.5'	191°53.3'	S 10°40.5'	171°29.3'	S 3°50.5'	199°55.7'	S 14°53.9'	198°37.0'	S 14°47.8'
23	180°12.4'	N 6°43.4'	164°25.6'	N 6°43.4'	206°53.1'	S 10°39.7'	186°31.3'	S 3°50.3'	214°57.9'	S 14°53.8'	213°37.6'	S 14°47.2'
			SD 16.0' d 0.9'		v -0.2' d 0.7'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'	
Mer. pass.			12 h 2 m 25 s		9 h 12 m		10 h 36 m		8 h 42 m		8 h 46 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Procyon	-Pollux	-Betelgeuse	-Capella	+Aldebaran	+Sun	+Achernar
0	125°38.6'	N 23°34.3'	11.6'	6.8'	54.4'		48°21.6'	43°13.1'	25°25.9'	24°07.8'		54°18.7'	88°44.2'
1	140°09.2'	N 23°41.1'	11.6'	6.7'	54.4'		47°55.2'	42°43.2'	25°06.6'	23°52.1'		54°46.1'	89°01.6'
2	154°39.8'	N 23°47.8'	11.6'	6.6'	54.4'		47°28.9'	42°13.4'	24°47.7'			55°13.5'	89°19.0'
3	169°10.4'	N 23°54.4'	11.5'	6.5'	54.4'		47°02.7'	41°43.5'	24°29.0'			55°40.9'	89°36.3'
4	183°40.9'	N 24°00.9'	11.5'	6.4'	54.4'		46°36.5'	41°13.6'	24°10.8'			56°08.3'	89°53.7'
5	198°11.4'	N 24°07.3'	11.4'	6.3'	54.4'		46°10.4'	40°43.8'	23°52.9'			56°35.7'	90°11.0'
6	212°41.8'	N 24°13.6'	11.4'	6.2'	54.3'		45°44.4'	40°14.0'	23°35.4'			57°03.0'	90°28.4'
7	227°12.2'	N 24°19.8'	11.4'	6.0'	54.3'		45°18.4'	39°44.2'	23°18.3'			57°30.3'	90°45.7'
8	241°42.6'	N 24°25.8'	11.3'	5.9'	54.3'		44°52.5'	39°14.4'	23°01.7'			57°57.7'	91°03.0'
9	256°12.9'	N 24°31.7'	11.3'	5.8'	54.3'		44°26.7'	38°44.6'	22°45.4'			58°25.0'	91°20.3'
10	270°43.3'	N 24°37.5'	11.3'	5.7'	54.3'		44°01.0'	38°14.8'	22°29.6'			58°52.3'	91°37.6'
11	285°13.5'	N 24°43.2'	11.2'	5.6'	54.3'		43°35.4'	37°45.1'				59°19.6'	91°54.9'
12	299°43.7'	N 24°48.8'	11.2'	5.5'	54.3'		43°09.8'	37°15.3'			9°50.8'	59°46.9'	92°12.2'
13	314°13.9'	N 24°54.3'	11.2'	5.3'	54.3'		42°44.3'	36°45.6'			10°12.1'	60°14.1'	92°29.4'
14	328°44.1'	N 24°59.6'	11.1'	5.2'	54.3'	119°57.2'	42°18.9'	36°15.9'			10°34.1'	60°41.4'	92°46.7'
15	343°14.2'	N 25°04.8'	11.1'	5.1'	54.3'	119°32.2'	41°53.6'	35°46.2'			10°56.7'	61°08.6'	93°03.9'
16	357°44.3'	N 25°09.9'	11.1'	5.0'	54.3'	119°07.1'	41°28.4'	35°16.5'			11°19.8'	61°35.9'	93°21.1'
17	12°14.4'	N 25°14.9'	11.0'	4.9'	54.2'	118°42.1'	41°03.3'	34°46.8'			11°43.4'	62°03.1'	93°38.3'
18	26°44.4'	N 25°19.8'	11.0'	4.7'	54.2'	118°17.0'	40°38.2'	34°17.2'			12°07.5'	62°30.3'	93°55.5'
19	41°14.4'	N 25°24.5'	11.0'	4.6'	54.2'	117°51.9'	40°13.3'	33°47.5'			12°31.9'	62°57.5'	94°12.7'
20	55°44.4'	N 25°29.2'	10.9'	4.5'	54.2'	117°26.7'	39°48.4'	33°17.9'			12°56.7'	63°24.7'	94°29.8'
21	70°14.3'	N 25°33.7'	10.9'	4.4'	54.2'	117°01.6'	39°23.7'	32°48.2'			13°21.8'	63°51.9'	94°46.9'
22	84°44.2'	N 25°38.1'	10.9'	4.3'	54.2'	116°36.4'	38°59.1'	32°18.6'			13°47.2'	64°19.1'	95°04.0'
23	99°14.1'	N 25°42.3'	10.8'	4.1'	54.2'	116°11.1'	38°34.5'	31°49.0'			14°12.9'	64°46.3'	95°21.1'
Mer. pass.			16 h 9 m SD 14.8'		phase 21%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.6'	N 89°21.6'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	195°14.9'		179°25.8'	N 6°44.4'	221°53.0'	S 10°39.0'	201°33.2'	S 3°50.1'	230°00.2'	S 14°53.7'	228°38.2'	S 14°46.6'
1	210°17.4'		194°26.0'	N 6°45.3'	236°52.8'	S 10°38.2'	216°35.1'	S 3°49.8'	245°02.4'	S 14°53.7'	243°38.8'	S 14°46.0'
2	225°19.8'		209°26.1'	N 6°46.3'	251°52.6'	S 10°37.5'	231°37.0'	S 3°49.6'	260°04.7'	S 14°53.6'	258°39.4'	S 14°45.4'
3	240°22.3'		224°26.3'	N 6°47.2'	266°52.4'	S 10°36.7'	246°39.0'	S 3°49.4'	275°06.9'	S 14°53.6'	273°40.1'	S 14°44.8'
4	255°24.8'		239°26.5'	N 6°48.2'	281°52.3'	S 10°35.9'	261°40.9'	S 3°49.2'	290°09.2'	S 14°53.5'	288°40.7'	S 14°44.2'
5	270°27.2'		254°26.7'	N 6°49.1'	296°52.1'	S 10°35.2'	276°42.8'	S 3°48.9'	305°11.4'	S 14°53.4'	303°41.3'	S 14°43.6'
6	285°29.7'		269°26.8'	N 6°50.0'	311°51.9'	S 10°34.4'	291°44.8'	S 3°48.7'	320°13.7'	S 14°53.4'	318°41.9'	S 14°43.0'
7	300°32.2'		284°27.0'	N 6°51.0'	326°51.7'	S 10°33.7'	306°46.7'	S 3°48.5'	335°16.0'	S 14°53.3'	333°42.5'	S 14°42.4'
8	315°34.6'		299°27.2'	N 6°51.9'	341°51.6'	S 10°32.9'	321°48.6'	S 3°48.3'	350°18.2'	S 14°53.2'	348°43.1'	S 14°41.8'
9	330°37.1'		314°27.4'	N 6°52.9'	356°51.4'	S 10°32.2'	336°50.6'	S 3°48.0'	5°20.5'	S 14°53.2'	3°43.7'	S 14°41.2'
10	345°39.6'		329°27.5'	N 6°53.8'	11°51.2'	S 10°31.4'	351°52.5'	S 3°47.8'	20°22.7'	S 14°53.1'	18°44.3'	S 14°40.6'
11	0°42.0'		344°27.7'	N 6°54.7'	26°51.1'	S 10°30.6'	6°54.4'	S 3°47.6'	35°25.0'	S 14°53.0'	33°45.0'	S 14°40.0'
12	15°44.5'		359°27.9'	N 6°55.7'	41°50.9'	S 10°29.9'	21°56.4'	S 3°47.4'	50°27.2'	S 14°53.0'	48°45.6'	S 14°39.4'
13	30°46.9'		14°28.1'	N 6°56.6'	56°50.7'	S 10°29.1'	36°58.3'	S 3°47.1'	65°29.5'	S 14°52.9'	63°46.2'	S 14°38.8'
14	45°49.4'		29°28.2'	N 6°57.6'	71°50.5'	S 10°28.3'	52°00.2'	S 3°46.9'	80°31.7'	S 14°52.9'	78°46.8'	S 14°38.2'
15	60°51.9'		44°28.4'	N 6°58.5'	86°50.4'	S 10°27.6'	67°02.2'	S 3°46.7'	95°34.0'	S 14°52.8'	93°47.4'	S 14°37.6'
16	75°54.3'		59°28.6'	N 6°59.4'	101°50.2'	S 10°26.8'	82°04.1'	S 3°46.5'	110°36.2'	S 14°52.7'	108°48.0'	S 14°37.0'
17	90°56.8'		74°28.8'	N 7°00.4'	116°50.0'	S 10°26.1'	97°06.0'	S 3°46.2'	125°38.5'	S 14°52.7'	123°48.7'	S 14°36.4'
18	105°59.3'		89°28.9'	N 7°01.3'	131°49.9'	S 10°25.3'	112°08.0'	S 3°46.0'	140°40.8'	S 14°52.6'	138°49.3'	S 14°35.8'
19	121°01.7'		104°29.1'	N 7°02.2'	146°49.7'	S 10°24.5'	127°09.9'	S 3°45.8'	155°43.0'	S 14°52.5'	153°49.9'	S 14°35.2'
20	136°04.2'		119°29.3'	N 7°03.2'	161°49.5'	S 10°23.8'	142°11.8'	S 3°45.6'	170°45.3'	S 14°52.5'	168°50.5'	S 14°34.6'
21	151°06.7'		134°29.4'	N 7°04.1'	176°49.3'	S 10°23.0'	157°13.8'	S 3°45.4'	185°47.5'	S 14°52.4'	183°51.1'	S 14°34.0'
22	166°09.1'		149°29.6'	N 7°05.1'	191°49.2'	S 10°22.2'	172°15.7'	S 3°45.1'	200°49.8'	S 14°52.3'	198°51.7'	S 14°33.4'
23	181°11.6'		164°29.8'	N 7°06.0'	206°49.0'	S 10°21.4'	187°17.6'	S 3°44.9'	215°52.0'	S 14°52.3'	213°52.3'	S 14°32.8'
			SD 16.0'	d 0.9'		v -0.2' d 0.8'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'
Mer. pass.			12 h 2 m 9 s		9 h 13 m		10 h 32 m		8 h 39 m		8 h 45 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux	+Aldebaran	+Sun	+Achernar
0	113°43.9'	N 25°46.5'	10.8'	4.0'	54.2'		115°45.9'	67°46.9'	38°10.1'	31°19.4'	14°38.8'	65°13.4'	95°38.2'
1	128°13.7'	N 25°50.5'	10.8'	3.9'	54.2'		115°20.6'	67°17.4'	37°45.8'	30°49.8'	15°04.9'	65°40.6'	95°55.2'
2	142°43.5'	N 25°54.4'	10.8'	3.8'	54.2'		114°55.2'	66°47.8'	37°21.6'	30°20.2'	15°31.3'	66°07.7'	96°12.3'
3	157°13.3'	N 25°58.2'	10.7'	3.7'	54.2'		114°29.9'	66°18.3'	36°57.6'	29°50.7'	15°57.8'	66°34.9'	96°29.3'
4	171°43.0'	N 26°01.8'	10.7'	3.5'	54.2'	119°52.6'	114°04.5'	65°48.8'	36°33.6'	29°21.1'	16°24.5'	67°02.0'	96°46.2'
5	186°12.7'	N 26°05.3'	10.7'	3.4'	54.2'	119°23.1'	113°39.1'	65°19.3'	36°09.8'	28°51.6'	16°51.3'	67°29.2'	97°03.2'
6	200°42.4'	N 26°08.7'	10.7'	3.3'	54.2'	118°53.6'	113°13.7'	64°49.7'	35°46.1'	28°22.0'	17°18.3'	67°56.3'	97°20.1'
7	215°12.0'	N 26°12.0'	10.6'	3.2'	54.2'	118°24.1'	112°48.3'	64°20.2'	35°22.5'	27°52.5'	17°45.4'	68°23.4'	97°37.0'
8	229°41.7'	N 26°15.2'	10.6'	3.0'	54.2'	117°54.6'	112°22.8'	63°50.7'	34°59.1'	27°23.0'	18°12.6'	68°50.5'	97°53.9'
9	244°11.3'	N 26°18.2'	10.6'	2.9'	54.2'	117°25.1'	111°57.3'	63°21.2'	34°35.8'	26°53.4'	18°40.0'	69°17.6'	98°10.7'
10	258°40.9'	N 26°21.1'	10.6'	2.8'	54.2'	116°55.6'	111°31.8'	62°51.8'	34°12.7'	26°23.9'	19°07.4'	69°44.7'	98°27.6'
11	273°10.4'	N 26°23.9'	10.5'	2.7'	54.2'	116°26.1'	111°06.3'	62°22.3'	33°49.7'	25°54.4'	19°35.0'	70°11.8'	98°44.4'
12	287°40.0'	N 26°26.5'	10.5'	2.5'	54.2'	115°56.6'	110°40.7'	61°52.8'	33°26.9'	25°24.9'	20°02.6'	70°38.9'	99°01.1'
13	302°09.5'	N 26°29.1'	10.5'	2.4'	54.2'	115°27.1'	110°15.2'	61°23.3'	33°04.2'	24°55.5'	20°30.3'	71°06.0'	99°17.9'
14	316°39.0'	N 26°31.5'	10.5'	2.3'	54.2'	114°57.6'	109°49.6'	60°53.9'	32°41.7'	24°26.0'	20°58.1'	71°33.1'	99°34.6'
15	331°08.5'	N 26°33.7'	10.5'	2.1'	54.2'	114°28.2'	109°23.9'	60°24.4'	32°19.4'	23°56.5'	21°26.0'	72°00.2'	99°51.2'
16	345°38.0'	N 26°35.9'	10.4'	2.0'	54.2'	113°58.7'	108°58.3'	59°55.0'	31°57.3'	23°27.1'	21°53.9'	72°27.3'	100°07.9'
17	0°07.4'	N 26°37.9'	10.4'	1.9'	54.1'	113°29.2'	108°32.6'	59°25.5'	31°35.3'	22°57.6'	22°21.9'	72°54.4'	100°24.5'
18	14°36.8'	N 26°39.8'	10.4'	1.8'	54.1'	112°59.8'	108°07.0'	58°56.1'	31°13.5'	22°28.2'	22°50.0'	73°21.5'	100°41.1'
19	29°06.3'	N 26°41.5'	10.4'	1.6'	54.1'	112°30.3'	107°41.3'	58°26.6'	30°52.0'	21°58.7'	23°18.1'	73°48.6'	100°57.6'
20	43°35.7'	N 26°43.2'	10.4'	1.5'	54.1'	112°00.8'	107°15.6'	57°57.2'	30°30.6'	21°29.3'	23°46.3'	74°15.7'	101°14.1'
21	58°05.0'	N 26°44.7'	10.4'	1.4'	54.1'	111°31.3'	106°49.8'	57°27.7'	30°09.4'	20°59.9'	24°14.5'	74°42.7'	101°30.6'
22	72°34.4'	N 26°46.1'	10.4'	1.3'	54.1'	111°01.9'	106°24.1'	56°58.3'	29°48.5'	20°30.5'	24°42.8'	75°09.8'	101°47.0'
23	87°03.8'	N 26°47.3'	10.4'	1.1'	54.2'	110°32.4'	105°58.3'	56°28.9'	29°27.8'	20°01.1'	25°11.1'	75°36.9'	102°03.4'
Mer. pass.			17 h 0 m	SD 14.8'	phase 29%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.8'	N 89°21.6'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	196°14.0'	179°30.0'	N 7°06.9'	221°48.8'	S 10°20.7'	202°19.6'	S 3°44.7'	230°54.3'	S 14°52.2'	228°53.0'	S 14°32.2'
1	211°16.5'	194°30.1'	N 7°07.9'	236°48.6'	S 10°19.9'	217°21.5'	S 3°44.5'	245°56.5'	S 14°52.2'	243°53.6'	S 14°31.6'
2	226°19.0'	209°30.3'	N 7°08.8'	251°48.5'	S 10°19.1'	232°23.4'	S 3°44.2'	260°58.8'	S 14°52.1'	258°54.2'	S 14°30.9'
3	241°21.4'	224°30.5'	N 7°09.7'	266°48.3'	S 10°18.4'	247°25.4'	S 3°44.0'	276°01.1'	S 14°52.0'	273°54.8'	S 14°30.3'
4	256°23.9'	239°30.7'	N 7°10.7'	281°48.1'	S 10°17.6'	262°27.3'	S 3°43.8'	291°03.3'	S 14°52.0'	288°55.4'	S 14°29.7'
5	271°26.4'	254°30.8'	N 7°11.6'	296°47.9'	S 10°16.8'	277°29.2'	S 3°43.6'	306°05.6'	S 14°51.9'	303°56.0'	S 14°29.1'
6	286°28.8'	269°31.0'	N 7°12.5'	311°47.8'	S 10°16.1'	292°31.2'	S 3°43.3'	321°07.8'	S 14°51.8'	318°56.7'	S 14°28.5'
7	301°31.3'	284°31.2'	N 7°13.5'	326°47.6'	S 10°15.3'	307°33.1'	S 3°43.1'	336°10.1'	S 14°51.8'	333°57.3'	S 14°27.9'
8	316°33.8'	299°31.4'	N 7°14.4'	341°47.4'	S 10°14.5'	322°35.0'	S 3°42.9'	351°12.3'	S 14°51.7'	348°57.9'	S 14°27.3'
9	331°36.2'	314°31.5'	N 7°15.3'	356°47.3'	S 10°13.7'	337°37.0'	S 3°42.7'	6°14.6'	S 14°51.6'	3°58.5'	S 14°26.7'
10	346°38.7'	329°31.7'	N 7°16.3'	11°47.1'	S 10°13.0'	352°38.9'	S 3°42.4'	21°16.9'	S 14°51.6'	18°59.1'	S 14°26.1'
11	1°41.2'	344°31.9'	N 7°17.2'	26°46.9'	S 10°12.2'	7°40.8'	S 3°42.2'	36°19.1'	S 14°51.5'	33°59.7'	S 14°25.5'
12	16°43.6'	359°32.0'	N 7°18.2'	41°46.7'	S 10°11.4'	22°42.8'	S 3°42.0'	51°21.4'	S 14°51.5'	49°00.4'	S 14°24.9'
13	31°46.1'	14°32.2'	N 7°19.1'	56°46.6'	S 10°10.6'	37°44.7'	S 3°41.8'	66°23.6'	S 14°51.4'	64°01.0'	S 14°24.3'
14	46°48.5'	29°32.4'	N 7°20.0'	71°46.4'	S 10°09.8'	52°46.6'	S 3°41.6'	81°25.9'	S 14°51.3'	79°01.6'	S 14°23.7'
15	61°51.0'	44°32.6'	N 7°21.0'	86°46.2'	S 10°09.1'	67°48.6'	S 3°41.3'	96°28.1'	S 14°51.3'	94°02.2'	S 14°23.0'
16	76°53.5'	59°32.7'	N 7°21.9'	101°46.0'	S 10°08.3'	82°50.5'	S 3°41.1'	111°30.4'	S 14°51.2'	109°02.8'	S 14°22.4'
17	91°55.9'	74°32.9'	N 7°22.8'	116°45.9'	S 10°07.5'	97°52.4'	S 3°40.9'	126°32.7'	S 14°51.1'	124°03.5'	S 14°21.8'
18	106°58.4'	89°33.1'	N 7°23.8'	131°45.7'	S 10°06.7'	112°54.4'	S 3°40.7'	141°34.9'	S 14°51.1'	139°04.1'	S 14°21.2'
19	122°00.9'	104°33.2'	N 7°24.7'	146°45.5'	S 10°05.9'	127°56.3'	S 3°40.4'	156°37.2'	S 14°51.0'	154°04.7'	S 14°20.6'
20	137°03.3'	119°33.4'	N 7°25.6'	161°45.3'	S 10°05.2'	142°58.2'	S 3°40.2'	171°39.4'	S 14°51.0'	169°05.3'	S 14°20.0'
21	152°05.8'	134°33.6'	N 7°26.5'	176°45.2'	S 10°04.4'	158°00.2'	S 3°40.0'	186°41.7'	S 14°50.9'	184°05.9'	S 14°19.4'
22	167°08.3'	149°33.8'	N 7°27.5'	191°45.0'	S 10°03.6'	173°02.1'	S 3°39.8'	201°43.9'	S 14°50.8'	199°06.6'	S 14°18.8'
23	182°10.7'	164°33.9'	N 7°28.4'	206°44.8'	S 10°02.8'	188°04.0'	S 3°39.5'	216°46.2'	S 14°50.8'	214°07.2'	S 14°18.2'
		SD 16.0' d 0.9'		v -0.2' d 0.8'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'	
Mer. pass.		12 h 1 m 52 s		9 h 13 m		10 h 29 m		8 h 35 m		8 h 44 m	

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun	
0	101°33.1'	N 26°48.5'	10.3'	1.0'	54.2'	105°32.5'	55°59.4'	29°07.3'	19°31.7'				25°39.5'	76°04.0'
1	116°02.5'	N 26°49.5'	10.3'	0.9'	54.2'	105°06.7'	55°30.0'	28°47.0'	19°02.3'				26°07.9'	76°31.1'
2	130°31.8'	N 26°50.3'	10.3'	0.7'	54.2'	104°40.9'	55°00.6'	28°27.0'	18°32.9'				26°36.4'	76°58.1'
3	145°01.1'	N 26°51.1'	10.3'	0.6'	54.2'	104°15.1'	54°31.1'	28°07.3'	18°03.5'				27°04.9'	77°25.2'
4	159°30.4'	N 26°51.7'	10.3'	0.5'	54.2'	103°49.2'	54°01.7'	27°47.8'	17°34.2'			23°34.6'	27°33.4'	77°52.3'
5	173°59.7'	N 26°52.2'	10.3'	0.4'	54.2'	103°23.4'	53°32.3'	27°28.6'	17°04.8'			23°49.6'	28°01.9'	78°19.4'
6	188°29.0'	N 26°52.5'	10.3'	0.2'	54.2'	102°57.5'	53°02.8'	27°09.6'	16°35.5'			24°05.1'	28°30.5'	78°46.5'
7	202°58.3'	N 26°52.7'	10.3'	0.1'	54.2'	102°31.6'	52°33.4'	26°51.0'	16°06.2'			24°20.9'	28°59.2'	79°13.6'
8	217°27.6'	N 26°52.8'	10.3'	-0.0'	54.2'	102°05.7'	52°04.0'	26°32.7'	15°36.8'			24°37.2'	29°27.8'	79°40.7'
9	231°56.9'	N 26°52.8'	10.3'	-0.2'	54.2'	101°39.7'	51°34.6'	26°14.7'	15°07.5'			24°53.8'	29°56.5'	80°07.8'
10	246°26.2'	N 26°52.6'	10.3'	-0.3'	54.2'	101°13.8'	51°05.1'	25°57.0'	14°38.3'	22°08.8'		25°10.9'	30°25.2'	80°34.9'
11	260°55.5'	N 26°52.3'	10.3'	-0.4'	54.2'	100°47.8'	50°35.7'	25°39.7'	14°09.0'	22°23.8'		25°28.3'	30°54.0'	81°02.0'
12	275°24.8'	N 26°51.9'	10.3'	-0.6'	54.2'	100°21.8'	50°06.2'	25°22.7'	13°39.8'	22°39.3'		25°46.0'	31°22.8'	81°29.1'
13	289°54.0'	N 26°51.4'	10.3'	-0.7'	54.2'	99°55.8'	49°36.8'	25°06.1'	13°10.5'	22°55.3'		26°04.1'	31°51.6'	81°56.2'
14	304°23.3'	N 26°50.7'	10.3'	-0.8'	54.2'	99°29.8'	49°07.4'	24°49.8'	12°41.3'	23°11.7'		26°22.5'	32°20.4'	82°23.3'
15	318°52.6'	N 26°49.9'	10.3'	-0.9'	54.2'	99°03.8'	48°37.9'	24°33.9'	12°12.2'	23°28.5'		26°41.2'	32°49.3'	82°50.5'
16	333°21.9'	N 26°48.9'	10.3'	-1.1'	54.2'	98°37.8'	48°08.5'	24°18.5'	11°43.0'	23°45.6'		27°00.2'	33°18.2'	83°17.6'
17	347°51.2'	N 26°47.9'	10.3'	-1.2'	54.2'	98°11.7'	47°39.0'		11°13.9'	24°03.2'		27°19.5'	33°47.1'	83°44.8'
18	2°20.5'	N 26°46.7'	10.3'	-1.3'	54.2'	97°45.7'	47°09.6'		10°44.9'	24°21.1'		27°39.1'	34°16.0'	84°11.9'
19	16°49.7'	N 26°45.4'	10.3'	-1.5'	54.2'	97°19.6'	46°40.1'		10°15.8'	24°39.4'		27°59.0'	34°45.0'	84°39.1'
20	31°19.0'	N 26°43.9'	10.3'	-1.6'	54.2'	96°53.5'	46°10.6'		9°46.9'	24°58.1'		28°19.1'	35°13.9'	85°06.2'
21	45°48.3'	N 26°42.3'	10.3'	-1.7'	54.2'	96°27.4'	45°41.2'		9°18.0'	25°17.1'		28°39.5'	35°42.9'	85°33.4'
22	60°17.7'	N 26°40.6'	10.3'	-1.8'	54.3'	96°01.3'	45°11.7'		8°49.2'	25°36.4'		29°00.2'	36°12.0'	86°00.6'
23	74°47.0'	N 26°38.8'	10.3'	-2.0'	54.3'	95°35.1'	44°42.2'		8°20.4'	25°56.0'		29°21.1'	36°41.0'	86°27.8'
Mer. pass.		17 h 50 m	SD 14.8'	phase 38%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°31.9'	N 89°21.6'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	197°13.2'		179°34.1'	N 7°29.3'	221°44.6'	S 10°02.0'	203°06.0'	S 3°39.3'	231°48.5'	S 14°50.7'	229°07.8'	S 14°17.5'
1	212°15.7'		194°34.3'	N 7°30.3'	236°44.5'	S 10°01.2'	218°07.9'	S 3°39.1'	246°50.7'	S 14°50.6'	244°08.4'	S 14°16.9'
2	227°18.1'		209°34.4'	N 7°31.2'	251°44.3'	S 10°00.5'	233°09.8'	S 3°38.9'	261°53.0'	S 14°50.6'	259°09.0'	S 14°16.3'
3	242°20.6'		224°34.6'	N 7°32.1'	266°44.1'	S 9°59.7'	248°11.8'	S 3°38.7'	276°55.2'	S 14°50.5'	274°09.7'	S 14°15.7'
4	257°23.0'		239°34.8'	N 7°33.1'	281°43.9'	S 9°58.9'	263°13.7'	S 3°38.4'	291°57.5'	S 14°50.5'	289°10.3'	S 14°15.1'
5	272°25.5'		254°34.9'	N 7°34.0'	296°43.8'	S 9°58.1'	278°15.6'	S 3°38.2'	306°59.8'	S 14°50.4'	304°10.9'	S 14°14.5'
6	287°28.0'		269°35.1'	N 7°34.9'	311°43.6'	S 9°57.3'	293°17.6'	S 3°38.0'	322°02.0'	S 14°50.3'	319°11.5'	S 14°13.9'
7	302°30.4'		284°35.3'	N 7°35.9'	326°43.4'	S 9°56.5'	308°19.5'	S 3°37.8'	337°04.3'	S 14°50.3'	334°12.1'	S 14°13.3'
8	317°32.9'		299°35.5'	N 7°36.8'	341°43.2'	S 9°55.7'	323°21.4'	S 3°37.5'	352°06.5'	S 14°50.2'	349°12.8'	S 14°12.6'
9	332°35.4'		314°35.6'	N 7°37.7'	356°43.1'	S 9°54.9'	338°23.4'	S 3°37.3'	7°08.8'	S 14°50.1'	4°13.4'	S 14°12.0'
10	347°37.8'		329°35.8'	N 7°38.6'	11°42.9'	S 9°54.2'	353°25.3'	S 3°37.1'	22°11.1'	S 14°50.1'	19°14.0'	S 14°11.4'
11	2°40.3'		344°36.0'	N 7°39.6'	26°42.7'	S 9°53.4'	8°27.3'	S 3°36.9'	37°13.3'	S 14°50.0'	34°14.6'	S 14°10.8'
12	17°42.8'		359°36.1'	N 7°40.5'	41°42.5'	S 9°52.6'	23°29.2'	S 3°36.7'	52°15.6'	S 14°50.0'	49°15.2'	S 14°10.2'
13	32°45.2'		14°36.3'	N 7°41.4'	56°42.4'	S 9°51.8'	38°31.1'	S 3°36.4'	67°17.8'	S 14°49.9'	64°15.9'	S 14°09.6'
14	47°47.7'		29°36.5'	N 7°42.4'	71°42.2'	S 9°51.0'	53°33.1'	S 3°36.2'	82°20.1'	S 14°49.8'	79°16.5'	S 14°09.0'
15	62°50.2'		44°36.6'	N 7°43.3'	86°42.0'	S 9°50.2'	68°35.0'	S 3°36.0'	97°22.4'	S 14°49.8'	94°17.1'	S 14°08.4'
16	77°52.6'		59°36.8'	N 7°44.2'	101°41.8'	S 9°49.4'	83°36.9'	S 3°35.8'	112°24.6'	S 14°49.7'	109°17.7'	S 14°07.7'
17	92°55.1'		74°37.0'	N 7°45.1'	116°41.7'	S 9°48.6'	98°38.9'	S 3°35.5'	127°26.9'	S 14°49.7'	124°18.4'	S 14°07.1'
18	107°57.5'		89°37.2'	N 7°46.1'	131°41.5'	S 9°47.8'	113°40.8'	S 3°35.3'	142°29.1'	S 14°49.6'	139°19.0'	S 14°06.5'
19	123°00.0'		104°37.3'	N 7°47.0'	146°41.3'	S 9°47.0'	128°42.7'	S 3°35.1'	157°31.4'	S 14°49.5'	154°19.6'	S 14°05.9'
20	138°02.5'		119°37.5'	N 7°47.9'	161°41.1'	S 9°46.2'	143°44.7'	S 3°34.9'	172°33.7'	S 14°49.5'	169°20.2'	S 14°05.3'
21	153°04.9'		134°37.7'	N 7°48.9'	176°41.0'	S 9°45.4'	158°46.6'	S 3°34.7'	187°35.9'	S 14°49.4'	184°20.9'	S 14°04.7'
22	168°07.4'		149°37.8'	N 7°49.8'	191°40.8'	S 9°44.6'	173°48.5'	S 3°34.4'	202°38.2'	S 14°49.3'	199°21.5'	S 14°04.0'
23	183°09.9'		164°38.0'	N 7°50.7'	206°40.6'	S 9°43.8'	188°50.5'	S 3°34.2'	217°40.4'	S 14°49.3'	214°22.1'	S 14°03.4'
			SD 16.0'	d 0.9'	v -0.2'	d 0.8'	v 1.9'	d 0.2'	v 2.3'	d 0.1'	v 0.6'	d 0.6'
Mer. pass.			12 h 1 m 36 s		9 h 13 m		10 h 26 m		8 h 31 m		8 h 43 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	89°16.3'	N 26°36.8'	10.3'	-2.1'	54.3'	98°14.5'	95°09.0'	44°12.8'	7°51.8'	26°15.9'	29°42.2'	37°10.1'	86°55.0'
1	103°45.6'	N 26°34.7'	10.3'	-2.2'	54.3'	97°44.9'	94°42.8'	43°43.3'	7°23.3'	26°36.1'	30°03.6'	37°39.2'	87°22.2'
2	118°15.0'	N 26°32.5'	10.4'	-2.4'	54.3'	97°15.3'	94°16.7'	43°13.8'	6°55.0'	26°56.6'	30°25.1'	38°08.3'	87°49.4'
3	132°44.4'	N 26°30.1'	10.4'	-2.5'	54.3'	96°45.7'	93°50.5'	42°44.3'	6°26.9'	27°17.3'	30°46.9'	38°37.4'	88°16.6'
4	147°13.7'	N 26°27.6'	10.4'	-2.6'	54.3'	96°16.1'	93°24.3'	42°14.8'	5°59.0'	27°38.3'	31°08.9'	39°06.6'	88°43.8'
5	161°43.1'	N 26°25.0'	10.4'	-2.7'	54.3'	95°46.4'	92°58.1'	41°45.3'	5°31.4'	27°59.6'	31°31.1'	39°35.8'	89°11.1'
6	176°12.5'	N 26°22.3'	10.4'	-2.9'	54.3'	95°16.8'	92°31.8'	41°15.7'	5°04.2'	28°21.1'	31°53.5'	40°05.0'	89°38.4'
7	190°41.9'	N 26°19.4'	10.4'	-3.0'	54.3'	94°47.1'	92°05.6'	40°46.2'	4°37.5'	28°42.8'	32°16.1'	40°34.2'	90°05.6'
8	205°11.3'	N 26°16.4'	10.4'	-3.1'	54.4'	94°17.4'	91°39.4'	40°16.7'		29°04.8'	32°38.8'	41°03.5'	90°32.9'
9	219°40.8'	N 26°13.3'	10.5'	-3.2'	54.4'	93°47.8'	91°13.1'	39°47.1'		29°26.9'	33°01.7'	41°32.8'	91°00.2'
10	234°10.2'	N 26°10.1'	10.5'	-3.4'	54.4'	93°18.1'	90°46.8'	39°17.6'		29°49.3'	33°24.8'	42°02.1'	91°27.5'
11	248°39.7'	N 26°06.7'	10.5'	-3.5'	54.4'	92°48.3'	90°20.5'	38°48.0'		30°11.9'	33°48.1'	42°31.4'	91°54.8'
12	263°09.2'	N 26°03.2'	10.5'	-3.6'	54.4'	92°18.6'	89°54.2'	38°18.5'		30°34.7'	34°11.5'	43°00.7'	92°22.2'
13	277°38.7'	N 25°59.6'	10.5'	-3.8'	54.4'	91°48.9'	89°27.9'	37°48.9'		30°57.7'	34°35.1'	43°30.1'	92°49.5'
14	292°08.2'	N 25°55.8'	10.5'	-3.9'	54.4'	91°19.1'	89°01.6'	37°19.3'		31°20.8'	34°58.8'	43°59.5'	93°16.9'
15	306°37.8'	N 25°51.9'	10.6'	-4.0'	54.4'	90°49.4'	88°35.3'	36°49.7'		31°44.2'	35°22.7'	44°28.9'	93°44.3'
16	321°07.4'	N 25°47.9'	10.6'	-4.1'	54.4'	90°19.6'	88°08.9'	36°20.2'		32°07.7'	35°46.7'	44°58.3'	94°11.7'
17	335°36.9'	N 25°43.8'	10.6'	-4.3'	54.5'	89°49.8'	87°42.6'	35°50.6'		32°31.4'	36°10.8'	45°27.8'	94°39.1'
18	350°06.6'	N 25°39.5'	10.6'	-4.4'	54.5'	89°20.0'	87°16.2'	35°20.9'		32°55.2'	36°35.1'	45°57.2'	95°06.5'
19	4°36.2'	N 25°35.2'	10.7'	-4.5'	54.5'	88°50.1'	86°49.8'	34°51.3'		33°19.2'	36°59.5'	46°26.7'	95°33.9'
20	19°05.8'	N 25°30.7'	10.7'	-4.6'	54.5'	88°20.3'	86°23.4'	34°21.7'		33°43.4'	37°24.1'	46°56.2'	96°01.4'
21	33°35.5'	N 25°26.0'	10.7'	-4.8'	54.5'	87°50.4'	85°57.0'	33°52.1'		34°07.7'	37°48.7'	47°25.8'	96°28.8'
22	48°05.2'	N 25°21.3'	10.7'	-4.9'	54.5'	87°20.5'	85°30.6'	33°22.4'		34°32.1'	38°13.5'	47°55.4'	96°56.3'
23	62°35.0'	N 25°16.4'	10.8'	-5.0'	54.5'	86°50.7'	85°04.2'	32°52.8'		34°56.7'	38°38.4'	48°24.9'	97°23.8'
Mer. pass.			18 h 41 m	SD 14.8'	phase 47%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°32.1'	N 89°21.6'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	198°12.3'	179°38.2'	N 7°51.6'	221°40.4'	S 9°43.0'	203°52.4'	S 3°34.0'	232°42.7'	S 14°49.2'	229°22.7'	S 14°02.8'							
1	213°14.8'	194°38.3'	N 7°52.6'	236°40.3'	S 9°42.2'	218°54.4'	S 3°33.8'	247°45.0'	S 14°49.2'	244°23.3'	S 14°02.2'							
2	228°17.3'	209°38.5'	N 7°53.5'	251°40.1'	S 9°41.4'	233°56.3'	S 3°33.5'	262°47.2'	S 14°49.1'	259°24.0'	S 14°01.6'							
3	243°19.7'	224°38.7'	N 7°54.4'	266°39.9'	S 9°40.6'	248°58.2'	S 3°33.3'	277°49.5'	S 14°49.0'	274°24.6'	S 14°01.0'							
4	258°22.2'	239°38.8'	N 7°55.3'	281°39.7'	S 9°39.8'	264°00.2'	S 3°33.1'	292°51.8'	S 14°49.0'	289°25.2'	S 14°00.3'							
5	273°24.6'	254°39.0'	N 7°56.3'	296°39.5'	S 9°39.0'	279°02.1'	S 3°32.9'	307°54.0'	S 14°48.9'	304°25.8'	S 13°59.7'							
6	288°27.1'	269°39.2'	N 7°57.2'	311°39.4'	S 9°38.2'	294°04.0'	S 3°32.7'	322°56.3'	S 14°48.9'	319°26.5'	S 13°59.1'							
7	303°29.6'	284°39.3'	N 7°58.1'	326°39.2'	S 9°37.4'	309°06.0'	S 3°32.4'	337°58.5'	S 14°48.8'	334°27.1'	S 13°58.5'							
8	318°32.0'	299°39.5'	N 7°59.0'	341°39.0'	S 9°36.6'	324°07.9'	S 3°32.2'	353°00.8'	S 14°48.7'	349°27.7'	S 13°57.9'							
9	333°34.5'	314°39.7'	N 7°60.0'	356°38.8'	S 9°35.8'	339°09.9'	S 3°32.0'	8°03.1'	S 14°48.7'	4°28.3'	S 13°57.2'							
10	348°37.0'	329°39.8'	N 8°00.9'	11°38.7'	S 9°35.0'	354°11.8'	S 3°31.8'	23°05.3'	S 14°48.6'	19°29.0'	S 13°56.6'							
11	3°39.4'	344°40.0'	N 8°01.8'	26°38.5'	S 9°34.2'	9°13.7'	S 3°31.5'	38°07.6'	S 14°48.5'	34°29.6'	S 13°56.0'							
12	18°41.9'	359°40.2'	N 8°02.7'	41°38.3'	S 9°33.4'	24°15.7'	S 3°31.3'	53°09.9'	S 14°48.5'	49°30.2'	S 13°55.4'							
13	33°44.4'	14°40.3'	N 8°03.6'	56°38.1'	S 9°32.6'	39°17.6'	S 3°31.1'	68°12.1'	S 14°48.4'	64°30.8'	S 13°54.8'							
14	48°46.8'	29°40.5'	N 8°04.6'	71°38.0'	S 9°31.8'	54°19.5'	S 3°30.9'	83°14.4'	S 14°48.4'	79°31.5'	S 13°54.2'							
15	63°49.3'	44°40.7'	N 8°05.5'	86°37.8'	S 9°31.0'	69°21.5'	S 3°30.7'	98°16.6'	S 14°48.3'	94°32.1'	S 13°53.5'							
16	78°51.8'	59°40.8'	N 8°06.4'	101°37.6'	S 9°30.2'	84°23.4'	S 3°30.4'	113°18.9'	S 14°48.2'	109°32.7'	S 13°52.9'							
17	93°54.2'	74°41.0'	N 8°07.3'	116°37.4'	S 9°29.4'	99°25.4'	S 3°30.2'	128°21.2'	S 14°48.2'	124°33.3'	S 13°52.3'							
18	108°56.7'	89°41.2'	N 8°08.3'	131°37.3'	S 9°28.5'	114°27.3'	S 3°30.0'	143°23.4'	S 14°48.1'	139°34.0'	S 13°51.7'							
19	123°59.1'	104°41.3'	N 8°09.2'	146°37.1'	S 9°27.7'	129°29.2'	S 3°29.8'	158°25.7'	S 14°48.1'	154°34.6'	S 13°51.1'							
20	139°01.6'	119°41.5'	N 8°10.1'	161°36.9'	S 9°26.9'	144°31.2'	S 3°29.6'	173°28.0'	S 14°48.0'	169°35.2'	S 13°50.4'							
21	154°04.1'	134°41.7'	N 8°11.0'	176°36.7'	S 9°26.1'	159°33.1'	S 3°29.3'	188°30.2'	S 14°47.9'	184°35.9'	S 13°49.8'							
22	169°06.5'	149°41.8'	N 8°11.9'	191°36.5'	S 9°25.3'	174°35.0'	S 3°29.1'	203°32.5'	S 14°47.9'	199°36.5'	S 13°49.2'							
23	184°09.0'	164°42.0'	N 8°12.9'	206°36.4'	S 9°24.5'	189°37.0'	S 3°28.9'	218°34.7'	S 14°47.8'	214°37.1'	S 13°48.6'							
		SD 16.0' d 0.9'		v -0.2' d 0.8'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'								
Mer. pass.		12 h 1 m 19 s		9 h 13 m		10 h 23 m		8 h 28 m		8 h 42 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun
0	77°04.7'	N 25°11.4'	10.8'	-5.1'	54.6'	102°18.4'	86°20.7'	84°37.8'	32°23.1'	4°51.8'		35°21.4'	97°51.4'
1	91°34.5'	N 25°06.3'	10.8'	-5.2'	54.6'	102°01.3'	85°50.8'	84°11.3'	31°53.4'	5°19.1'		35°46.3'	98°18.9'
2	106°04.3'	N 25°01.0'	10.8'	-5.4'	54.6'	101°44.2'	85°20.9'	83°44.9'	31°23.8'	5°46.8'		36°11.3'	98°46.5'
3	120°34.1'	N 24°55.7'	10.9'	-5.5'	54.6'	101°27.0'	84°50.9'	83°18.4'	30°54.1'	6°14.8'		36°36.4'	99°14.1'
4	135°04.0'	N 24°50.2'	10.9'	-5.6'	54.6'	101°09.8'	84°20.9'	82°51.9'	30°24.4'	6°43.2'		37°01.6'	99°41.7'
5	149°33.9'	N 24°44.6'	10.9'	-5.7'	54.6'	100°52.6'	83°50.9'	82°25.5'	29°54.7'	7°11.9'		37°27.0'	100°09.3'
6	164°03.8'	N 24°38.9'	10.9'	-5.9'	54.7'	100°35.3'	83°20.9'	81°59.0'	29°25.0'	7°40.7'		37°52.4'	100°36.9'
7	178°33.7'	N 24°33.0'	11.0'	-6.0'	54.7'	100°17.9'	82°50.8'	81°32.5'	28°55.3'	8°09.7'		38°18.0'	101°04.6'
8	193°03.7'	N 24°27.0'	11.0'	-6.1'	54.7'	100°00.5'	82°20.8'	81°05.9'	28°25.6'	8°38.9'		38°43.7'	101°32.2'
9	207°33.7'	N 24°20.9'	11.0'	-6.2'	54.7'	99°43.1'	81°50.7'	80°39.4'	27°55.8'	9°08.1'		39°09.5'	101°59.9'
10	222°03.7'	N 24°14.7'	11.1'	-6.3'	54.7'	99°25.6'	81°20.6'	80°12.9'	27°26.1'	9°37.5'		39°35.4'	102°27.7'
11	236°33.8'	N 24°08.4'	11.1'	-6.4'	54.8'	99°08.1'	80°50.4'	79°46.4'	26°56.4'	10°07.0'		40°01.4'	102°55.4'
12	251°03.9'	N 24°02.0'	11.1'	-6.6'	54.8'	98°50.6'	80°20.3'	79°19.8'	26°26.6'	10°36.6'		40°27.5'	103°23.2'
13	265°34.0'	N 23°55.4'	11.2'	-6.7'	54.8'	98°33.0'	79°50.1'	78°53.3'	25°56.9'	11°06.3'		40°53.7'	103°51.0'
14	280°04.2'	N 23°48.7'	11.2'	-6.8'	54.8'	98°15.3'	79°19.9'	78°26.7'	25°27.1'	11°36.0'		41°20.0'	104°18.8'
15	294°34.3'	N 23°41.9'	11.2'	-6.9'	54.8'	97°57.7'	78°49.7'	78°00.1'	24°57.4'	12°05.9'		41°46.4'	104°46.6'
16	309°04.6'	N 23°35.0'	11.2'	-7.0'	54.9'	97°40.0'	78°19.5'	77°33.6'	24°27.6'	12°35.7'		42°12.9'	105°14.5'
17	323°34.8'	N 23°27.9'	11.3'	-7.2'	54.9'	97°22.2'	77°49.2'	77°07.0'	23°57.9'	13°05.7'		42°39.5'	105°42.4'
18	338°05.1'	N 23°20.8'	11.3'	-7.3'	54.9'	97°04.4'	77°18.9'	76°40.4'	23°28.1'	13°35.6'		43°06.1'	106°10.3'
19	352°35.4'	N 23°13.5'	11.3'	-7.4'	54.9'	96°46.6'	76°48.6'	76°13.8'	22°58.4'	14°05.7'	23°55.9'	43°32.9'	106°38.2'
20	7°05.8'	N 23°06.2'	11.4'	-7.5'	54.9'	96°28.7'	76°18.3'	75°47.2'	22°28.6'	14°35.8'	24°11.1'	43°59.7'	107°06.1'
21	21°36.1'	N 22°58.7'	11.4'	-7.6'	55.0'	96°10.8'	75°47.9'	75°20.6'	21°58.9'	15°05.9'	24°26.9'	44°26.6'	107°34.1'
22	36°06.5'	N 22°51.0'	11.4'	-7.7'	55.0'	95°52.9'	75°17.5'	74°54.0'	21°29.2'	15°36.1'	24°43.0'	44°53.6'	108°02.1'
23	50°37.0'	N 22°43.3'	11.5'	-7.8'	55.0'	95°34.9'	74°47.1'	74°27.4'	20°59.5'	16°06.3'	24°59.6'	45°20.7'	108°30.2'
Mer. pass.		19 h 31 m SD 14.9'		phase 57%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°32.3'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

Monday 11 April 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	199°11.5'	179°42.2' N 8°13.8'	221°36.2'	S 9°23.7'	204°38.9'	S 3°28.7'	233°37.0'	S 14°47.8'	229°37.7'	S 13°47.9'		
1	214°13.5'	194°42.3' N 8°14.7'	236°36.0'	S 9°22.9'	219°40.9'	S 3°28.4'	248°39.3'	S 14°47.7'	244°38.4'	S 13°47.3'		
2	229°16.4'	209°42.5' N 8°15.6'	251°35.8'	S 9°22.0'	234°42.8'	S 3°28.2'	263°41.5'	S 14°47.6'	259°39.0'	S 13°46.7'		
3	244°18.9'	224°42.7' N 8°16.5'	266°35.7'	S 9°21.2'	249°44.7'	S 3°28.0'	278°43.8'	S 14°47.6'	274°39.6'	S 13°46.1'		
4	259°21.3'	239°42.8' N 8°17.5'	281°35.5'	S 9°20.4'	264°46.7'	S 3°27.8'	293°46.1'	S 14°47.5'	289°40.2'	S 13°45.5'		
5	274°23.8'	254°43.0' N 8°18.4'	296°35.3'	S 9°19.6'	279°48.6'	S 3°27.6'	308°48.3'	S 14°47.5'	304°40.9'	S 13°44.8'		
6	289°26.3'	269°43.2' N 8°19.3'	311°35.1'	S 9°18.8'	294°50.5'	S 3°27.3'	323°50.6'	S 14°47.4'	319°41.5'	S 13°44.2'		
7	304°28.7'	284°43.3' N 8°20.2'	326°35.0'	S 9°18.0'	309°52.5'	S 3°27.1'	338°52.9'	S 14°47.3'	334°42.1'	S 13°43.6'		
8	319°31.2'	299°43.5' N 8°21.1'	341°34.8'	S 9°17.1'	324°54.4'	S 3°26.9'	353°55.1'	S 14°47.3'	349°42.8'	S 13°43.0'		
9	334°33.6'	314°43.7' N 8°22.1'	356°34.6'	S 9°16.3'	339°56.4'	S 3°26.7'	8°57.4'	S 14°47.2'	4°43.4'	S 13°42.3'		
10	349°36.1'	329°43.8' N 8°23.0'	11°34.4'	S 9°15.5'	354°58.3'	S 3°26.5'	23°59.7'	S 14°47.2'	19°44.0'	S 13°41.7'		
11	4°38.6'	344°44.0' N 8°23.9'	26°34.2'	S 9°14.7'	10°00.2'	S 3°26.2'	39°01.9'	S 14°47.1'	34°44.6'	S 13°41.1'		
12	19°41.0'	359°44.2' N 8°24.8'	41°34.1'	S 9°13.9'	25°02.2'	S 3°26.0'	54°04.2'	S 14°47.0'	49°45.3'	S 13°40.5'		
13	34°43.5'	14°44.3' N 8°25.7'	56°33.9'	S 9°13.0'	40°04.1'	S 3°25.8'	69°06.5'	S 14°47.0'	64°45.9'	S 13°39.8'		
14	49°46.0'	29°44.5' N 8°26.6'	71°33.7'	S 9°12.2'	55°06.1'	S 3°25.6'	84°08.7'	S 14°46.9'	79°46.5'	S 13°39.2'		
15	64°48.4'	44°44.6' N 8°27.6'	86°33.5'	S 9°11.4'	70°08.0'	S 3°25.4'	99°11.0'	S 14°46.9'	94°47.2'	S 13°38.6'		
16	79°50.9'	59°44.8' N 8°28.5'	101°33.4'	S 9°10.6'	85°09.9'	S 3°25.1'	114°13.3'	S 14°46.8'	109°47.8'	S 13°38.0'		
17	94°53.4'	74°45.0' N 8°29.4'	116°33.2'	S 9°09.8'	100°11.9'	S 3°24.9'	129°15.5'	S 14°46.7'	124°48.4'	S 13°37.3'		
18	109°55.8'	89°45.1' N 8°30.3'	131°33.0'	S 9°08.9'	115°13.8'	S 3°24.7'	144°17.8'	S 14°46.7'	139°49.1'	S 13°36.7'		
19	124°58.3'	104°45.3' N 8°31.2'	146°32.8'	S 9°08.1'	130°15.8'	S 3°24.5'	159°20.1'	S 14°46.6'	154°49.7'	S 13°36.1'		
20	140°00.7'	119°45.5' N 8°32.1'	161°32.6'	S 9°07.3'	145°17.7'	S 3°24.3'	174°22.3'	S 14°46.6'	169°50.3'	S 13°35.5'		
21	155°03.2'	134°45.6' N 8°33.1'	176°32.5'	S 9°06.5'	160°19.6'	S 3°24.0'	189°24.6'	S 14°46.5'	184°50.9'	S 13°34.8'		
22	170°05.7'	149°45.8' N 8°34.0'	191°32.3'	S 9°05.6'	175°21.6'	S 3°23.8'	204°26.9'	S 14°46.4'	199°51.6'	S 13°34.2'		
23	185°08.1'	164°46.0' N 8°34.9'	206°32.1'	S 9°04.8'	190°23.5'	S 3°23.6'	219°29.1'	S 14°46.4'	214°52.2'	S 13°33.6'		
		SD 16.0' d 0.9'	v -0.2' d 0.8'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'			
Mer. pass.		12 h 1 m 4 s	9 h 14 m		10 h 20 m		8 h 24 m		8 h 41 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun
0	65°07.5'	N 22°35.5'	11.5'	-7.9'	55.0'	95°17.0'	74°16.7'	74°00.7'	20°29.7'	16°36.6'	25°16.6'	45°47.9'	108°58.2'
1	79°38.0'	N 22°27.5'	11.5'	-8.1'	55.0'	94°58.9'	73°46.2'	73°34.1'	20°00.1'	17°06.9'	25°34.0'	46°15.1'	109°26.3'
2	94°08.5'	N 22°19.5'	11.6'	-8.2'	55.1'	94°40.9'	73°15.7'	73°07.5'	19°30.4'	17°37.2'	25°51.8'	46°42.5'	109°54.4'
3	108°39.1'	N 22°11.3'	11.6'	-8.3'	55.1'	94°22.8'	72°45.2'	72°40.8'	19°00.7'	18°07.6'	26°10.0'	47°09.9'	110°22.6'
4	123°09.7'	N 22°03.0'	11.6'	-8.4'	55.1'	94°04.7'	72°14.7'	72°14.2'	18°31.1'	18°38.1'	26°28.6'	47°37.3'	110°50.7'
5	137°40.4'	N 21°54.6'	11.7'	-8.5'	55.1'	93°46.5'	71°44.1'	71°47.6'	18°01.5'	19°08.5'	26°47.5'	48°04.9'	111°18.9'
6	152°11.0'	N 21°46.1'	11.7'	-8.6'	55.2'	93°28.3'	71°13.5'	71°20.9'	17°31.9'	19°39.0'	27°06.8'	48°32.5'	111°47.1'
7	166°41.8'	N 21°37.5'	11.7'	-8.7'	55.2'	93°10.1'	70°42.9'	70°54.3'	17°02.4'	20°09.6'	27°26.4'	49°00.2'	112°15.4'
8	181°12.5'	N 21°28.8'	11.8'	-8.8'	55.2'	92°51.9'	70°12.2'	70°27.6'	16°32.9'	20°40.2'	27°46.3'	49°27.9'	112°43.7'
9	195°43.3'	N 21°20.0'	11.8'	-8.9'	55.2'	92°33.6'	69°41.6'	70°01.0'	16°03.4'	21°10.8'	28°06.6'	49°55.8'	113°12.0'
10	210°14.1'	N 21°11.1'	11.8'	-9.0'	55.3'	92°15.4'	69°10.9'	69°34.3'	15°34.0'	21°41.5'	28°27.2'	50°23.7'	113°40.3'
11	224°44.9'	N 21°02.0'	11.9'	-9.1'	55.3'	91°57.1'	68°40.1'	69°07.7'	15°04.7'	22°12.1'	28°48.0'	50°51.6'	114°08.7'
12	239°15.8'	N 20°52.9'	11.9'	-9.3'	55.3'	91°38.7'	68°09.4'	68°41.1'	14°35.5'	22°42.9'	29°09.2'	51°19.6'	114°37.1'
13	253°46.7'	N 20°43.6'	12.0'	-9.4'	55.3'	91°20.4'	67°38.6'	68°14.4'	14°06.3'	23°13.6'	29°30.6'	51°47.7'	115°05.5'
14	268°17.7'	N 20°34.3'	12.0'	-9.5'	55.4'	91°02.0'	67°07.7'	67°47.8'	13°37.2'	23°44.4'	29°52.3'	52°15.9'	115°33.9'
15	282°48.7'	N 20°24.8'	12.0'	-9.6'	55.4'	90°43.6'	66°36.9'	67°21.1'	13°08.3'	24°15.3'	30°14.3'	52°44.1'	116°02.4'
16	297°19.7'	N 20°15.2'	12.1'	-9.7'	55.4'	90°25.2'	66°06.0'	66°54.5'	12°39.4'	24°46.2'	30°36.6'	53°12.4'	116°30.9'
17	311°50.8'	N 20°05.6'	12.1'	-9.8'	55.4'	90°06.7'	65°35.1'	66°27.9'	12°10.8'	25°17.1'	30°59.0'	53°40.8'	116°59.5'
18	326°21.8'	N 19°55.8'	12.1'	-9.9'	55.5'	89°48.3'	65°04.1'	66°01.3'	11°42.2'	25°48.0'	31°21.8'	54°09.2'	117°28.1'
19	340°53.0'	N 19°45.9'	12.1'	-10.0'	55.5'	89°29.8'	64°33.2'	65°34.6'	11°13.9'	26°19.0'	31°44.7'	54°37.7'	117°56.7'
20	355°24.1'	N 19°35.9'	12.2'	-10.1'	55.5'	89°11.3'	64°02.2'	65°08.0'	10°45.8'	26°50.0'	32°07.9'	55°06.2'	118°25.3'
21	9°55.3'	N 19°25.9'	12.2'	-10.2'	55.5'	88°52.8'	63°31.1'	64°41.4'	10°18.0'	27°21.1'	32°31.3'	55°34.8'	118°54.0'
22	24°26.5'	N 19°15.7'	12.2'	-10.3'	55.6'	88°34.3'	63°00.1'	64°14.8'	9°50.4'	27°52.2'	32°55.0'	56°03.5'	119°22.7'
23	38°57.7'	N 19°05.4'	12.3'	-10.4'	55.6'	88°15.7'	62°29.0'	63°48.3'	9°23.2'	28°23.3'	33°18.8'	56°32.2'	119°51.4'
Mer. pass.		20 h 19 m SD 15.0'	phase 66%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°32.4'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.5'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	200°10.6'	179°46.1'	N 8°35.8'	221°31.9'	S 9°04.0'	205°25.5'	S 3°23.4'	234°31.4'	S 14°46.3'	229°52.8'	S 13°33.0'							
1	215°13.1'	194°46.3'	N 8°36.7'	236°31.8'	S 9°03.2'	220°27.4'	S 3°23.1'	249°33.7'	S 14°46.3'	244°53.5'	S 13°32.3'							
2	230°15.5'	209°46.4'	N 8°37.6'	251°31.6'	S 9°02.3'	235°29.3'	S 3°22.9'	264°35.9'	S 14°46.2'	259°54.1'	S 13°31.7'							
3	245°18.0'	224°46.6'	N 8°38.5'	266°31.4'	S 9°01.5'	250°31.3'	S 3°22.7'	279°38.2'	S 14°46.1'	274°54.7'	S 13°31.1'							
4	260°20.5'	239°46.8'	N 8°39.5'	281°31.2'	S 9°00.7'	265°33.2'	S 3°22.5'	294°40.5'	S 14°46.1'	289°55.4'	S 13°30.4'							
5	275°22.9'	254°46.9'	N 8°40.4'	296°31.0'	S 8°59.8'	280°35.2'	S 3°22.3'	309°42.7'	S 14°46.0'	304°56.0'	S 13°29.8'							
6	290°25.4'	269°47.1'	N 8°41.3'	311°30.9'	S 8°59.0'	295°37.1'	S 3°22.0'	324°45.0'	S 14°46.0'	319°56.6'	S 13°29.2'							
7	305°27.9'	284°47.2'	N 8°42.2'	326°30.7'	S 8°58.2'	310°39.0'	S 3°21.8'	339°47.3'	S 14°45.9'	334°57.3'	S 13°28.6'							
8	320°30.3'	299°47.4'	N 8°43.1'	341°30.5'	S 8°57.3'	325°41.0'	S 3°21.6'	354°49.5'	S 14°45.8'	349°57.9'	S 13°27.9'							
9	335°32.8'	314°47.6'	N 8°44.0'	356°30.3'	S 8°56.5'	340°42.9'	S 3°21.4'	9°51.8'	S 14°45.8'	4°58.5'	S 13°27.3'							
10	350°35.2'	329°47.7'	N 8°44.9'	11°30.2'	S 8°55.7'	355°44.9'	S 3°21.2'	24°54.1'	S 14°45.7'	19°59.2'	S 13°26.7'							
11	5°37.7'	344°47.9'	N 8°45.8'	26°30.0'	S 8°54.8'	10°46.8'	S 3°20.9'	39°56.3'	S 14°45.7'	34°59.8'	S 13°26.0'							
12	20°40.2'	359°48.1'	N 8°46.8'	41°29.8'	S 8°54.0'	25°48.7'	S 3°20.7'	54°58.6'	S 14°45.6'	50°00.4'	S 13°25.4'							
13	35°42.6'	14°48.2'	N 8°47.7'	56°29.6'	S 8°53.2'	40°50.7'	S 3°20.5'	70°00.9'	S 14°45.5'	65°01.1'	S 13°24.8'							
14	50°45.1'	29°48.4'	N 8°48.6'	71°29.4'	S 8°52.3'	55°52.6'	S 3°20.3'	85°03.1'	S 14°45.5'	80°01.7'	S 13°24.2'							
15	65°47.6'	44°48.5'	N 8°49.5'	86°29.3'	S 8°51.5'	70°54.6'	S 3°20.1'	100°05.4'	S 14°45.4'	95°02.3'	S 13°23.5'							
16	80°50.0'	59°48.7'	N 8°50.4'	101°29.1'	S 8°50.7'	85°56.5'	S 3°19.8'	115°07.7'	S 14°45.4'	110°03.0'	S 13°22.9'							
17	95°52.5'	74°48.9'	N 8°51.3'	116°28.9'	S 8°49.8'	100°58.5'	S 3°19.6'	130°10.0'	S 14°45.3'	125°03.6'	S 13°22.3'							
18	110°55.0'	89°49.0'	N 8°52.2'	131°28.7'	S 8°49.0'	116°00.4'	S 3°19.4'	145°12.2'	S 14°45.3'	140°04.2'	S 13°21.6'							
19	125°57.4'	104°49.2'	N 8°53.1'	146°28.5'	S 8°48.2'	131°02.3'	S 3°19.2'	160°14.5'	S 14°45.2'	155°04.9'	S 13°21.0'							
20	140°59.9'	119°49.3'	N 8°54.0'	161°28.4'	S 8°47.3'	146°04.3'	S 3°19.0'	175°16.8'	S 14°45.1'	170°05.5'	S 13°20.4'							
21	156°02.4'	134°49.5'	N 8°54.9'	176°28.2'	S 8°46.5'	161°06.2'	S 3°18.7'	190°19.0'	S 14°45.1'	185°06.1'	S 13°19.7'							
22	171°04.8'	149°49.7'	N 8°55.8'	191°28.0'	S 8°45.6'	176°08.2'	S 3°18.5'	205°21.3'	S 14°45.0'	200°06.8'	S 13°19.1'							
23	186°07.3'	164°49.8'	N 8°56.8'	206°27.8'	S 8°44.8'	191°10.1'	S 3°18.3'	220°23.6'	S 14°45.0'	215°07.4'	S 13°18.5'							
		SD 16.0' <i>d</i> 0.9'		<i>v</i> -0.2' <i>d</i> 0.8'		<i>v</i> 1.9' <i>d</i> 0.2'		<i>v</i> 2.3' <i>d</i> 0.1'		<i>v</i> 0.6' <i>d</i> 0.6'								
Mer. pass.		12 h 0 m 48 s		9 h 14 m		10 h 17 m		8 h 21 m		8 h 40 m								

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse
0	53°29.0'	N 18°55.0'	12.3'	-10.5'	55.6'	87°57.2'	63°21.7'	61°57.8'	8°56.4'	28°54.5'	33°42.9'	56°57.5'	57°01.0'
1	68°00.3'	N 18°44.6'	12.3'	-10.6'	55.7'	87°38.6'	62°55.1'	61°26.7'	8°30.1'	29°25.7'	34°07.1'	57°15.3'	57°29.8'
2	82°31.7'	N 18°34.0'	12.4'	-10.7'	55.7'	87°20.0'	62°28.6'	60°55.5'	8°04.4'	29°56.9'	34°31.5'	57°33.3'	57°58.7'
3	97°03.0'	N 18°23.3'	12.4'	-10.8'	55.7'	87°01.4'	62°02.0'	60°24.2'	7°39.3'	30°28.2'	34°56.2'	57°51.5'	58°27.7'
4	111°34.4'	N 18°12.6'	12.4'	-10.9'	55.7'	86°42.8'	61°35.5'	59°53.0'		30°59.5'	35°21.0'	58°09.7'	58°56.7'
5	126°05.9'	N 18°01.7'	12.5'	-11.0'	55.8'	86°24.2'	61°09.0'	59°21.7'		31°30.8'	35°45.9'	58°28.1'	59°25.8'
6	140°37.3'	N 17°50.8'	12.5'	-11.0'	55.8'	86°05.6'	60°42.5'	58°50.3'		32°02.2'	36°11.1'	58°46.7'	59°54.9'
7	155°08.8'	N 17°39.7'	12.5'	-11.1'	55.8'	85°47.0'	60°16.1'	58°19.0'		32°33.6'	36°36.4'	59°05.4'	60°24.1'
8	169°40.3'	N 17°28.6'	12.5'	-11.2'	55.9'	85°28.3'	59°49.6'	57°47.6'		33°05.1'	37°01.9'	59°24.2'	60°53.3'
9	184°11.9'	N 17°17.4'	12.6'	-11.3'	55.9'	85°09.7'	59°23.2'	57°16.2'		33°36.6'	37°27.6'	59°43.1'	61°22.6'
10	198°43.5'	N 17°06.0'	12.6'	-11.4'	55.9'	84°51.0'	58°56.8'	56°44.7'		34°08.1'	37°53.4'	60°02.2'	61°52.0'
11	213°15.1'	N 16°54.6'	12.6'	-11.5'	55.9'	84°32.4'	58°30.4'	56°13.2'		34°39.7'	38°19.3'	60°21.4'	62°21.4'
12	227°46.7'	N 16°43.1'	12.7'	-11.6'	56.0'	84°13.7'	58°04.0'	55°41.7'		35°11.3'	38°45.4'	60°40.7'	62°50.8'
13	242°18.3'	N 16°31.5'	12.7'	-11.7'	56.0'	83°55.1'	57°37.7'	55°10.1'		35°42.9'	39°11.7'	61°00.2'	63°20.3'
14	256°50.0'	N 16°19.8'	12.7'	-11.8'	56.0'	83°36.4'	57°11.4'	54°38.5'		36°14.6'	39°38.1'	61°19.7'	63°49.9'
15	271°21.7'	N 16°08.1'	12.7'	-11.9'	56.1'	83°17.7'	56°45.1'	54°06.9'		36°46.4'	40°04.6'	61°39.4'	64°19.5'
16	285°53.5'	N 15°56.2'	12.8'	-11.9'	56.1'	82°59.1'	56°18.8'	53°35.2'		37°18.1'	40°31.3'	61°59.3'	64°49.2'
17	300°25.2'	N 15°44.3'	12.8'	-12.0'	56.1'	82°40.4'	55°52.6'	53°03.5'		37°49.9'	40°58.1'	62°19.2'	65°18.9'
18	314°57.0'	N 15°32.3'	12.8'	-12.1'	56.2'	82°21.8'	55°26.4'	52°31.7'		38°21.8'	41°25.0'	62°39.2'	65°48.7'
19	329°28.8'	N 15°20.1'	12.8'	-12.2'	56.2'	82°03.1'	55°00.3'	51°60.0'		38°53.6'	41°52.1'	62°59.4'	66°18.5'
20	344°00.7'	N 15°07.9'	12.9'	-12.3'	56.2'	81°44.5'	54°34.2'	51°28.2'		39°25.6'	42°19.3'	63°19.7'	66°48.4'
21	358°32.5'	N 14°55.7'	12.9'	-12.4'	56.3'	81°25.8'	54°08.1'	50°56.3'		39°57.5'	42°46.6'	63°40.1'	67°18.3'
22	13°04.4'	N 14°43.3'	12.9'	-12.4'	56.3'	81°07.2'	53°42.1'	50°24.4'		40°29.5'	43°14.0'	64°00.6'	67°48.3'
23	27°36.3'	N 14°30.8'	12.9'	-12.5'	56.3'	80°48.6'	53°16.1'	49°52.5'		41°01.6'	43°41.6'	64°21.2'	68°18.4'
Mer. pass.		21 h 6 m SD 15.2'		phase 75%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°32.6'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.7'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	201°09.7'	179°50.0'	N 8°57.7'	221°27.7'	S 8°44.0'	206°12.0'	S 3°18.1'	235°25.8'	S 14°44.9'	230°08.0'	S 13°17.8'							
1	216°12.2'	194°50.1'	N 8°58.6'	236°27.5'	S 8°43.1'	221°14.0'	S 3°17.9'	250°28.1'	S 14°44.8'	245°08.7'	S 13°17.2'							
2	231°14.7'	209°50.3'	N 8°59.5'	251°27.3'	S 8°42.3'	236°15.9'	S 3°17.6'	265°30.4'	S 14°44.8'	260°09.3'	S 13°16.6'							
3	246°17.1'	224°50.5'	N 9°00.4'	266°27.1'	S 8°41.4'	251°17.9'	S 3°17.4'	280°32.7'	S 14°44.7'	275°09.9'	S 13°15.9'							
4	261°19.6'	239°50.6'	N 9°01.3'	281°26.9'	S 8°40.6'	266°19.8'	S 3°17.2'	295°34.9'	S 14°44.7'	290°10.6'	S 13°15.3'							
5	276°22.1'	254°50.8'	N 9°02.2'	296°26.8'	S 8°39.7'	281°21.8'	S 3°17.0'	310°37.2'	S 14°44.6'	305°11.2'	S 13°14.7'							
6	291°24.5'	269°50.9'	N 9°03.1'	311°26.6'	S 8°38.9'	296°23.7'	S 3°16.8'	325°39.5'	S 14°44.5'	320°11.8'	S 13°14.1'							
7	306°27.0'	284°51.1'	N 9°04.0'	326°26.4'	S 8°38.1'	311°25.6'	S 3°16.6'	340°41.7'	S 14°44.5'	335°12.5'	S 13°13.4'							
8	321°29.5'	299°51.3'	N 9°04.9'	341°26.2'	S 8°37.2'	326°27.6'	S 3°16.3'	355°44.0'	S 14°44.4'	350°13.1'	S 13°12.8'							
9	336°31.9'	314°51.4'	N 9°05.8'	356°26.0'	S 8°36.4'	341°29.5'	S 3°16.1'	10°46.3'	S 14°44.4'	5°13.7'	S 13°12.2'							
10	351°34.4'	329°51.6'	N 9°06.7'	11°25.9'	S 8°35.5'	356°31.5'	S 3°15.9'	25°48.6'	S 14°44.3'	20°14.4'	S 13°11.5'							
11	6°36.8'	344°51.7'	N 9°07.6'	26°25.7'	S 8°34.7'	11°33.4'	S 3°15.7'	40°50.8'	S 14°44.3'	35°15.0'	S 13°10.9'							
12	21°39.3'	359°51.9'	N 9°08.5'	41°25.5'	S 8°33.8'	26°35.4'	S 3°15.5'	55°53.1'	S 14°44.2'	50°15.6'	S 13°10.2'							
13	36°41.8'	14°52.0'	N 9°09.4'	56°25.3'	S 8°33.0'	41°37.3'	S 3°15.2'	70°55.4'	S 14°44.1'	65°16.3'	S 13°09.6'							
14	51°44.2'	29°52.2'	N 9°10.4'	71°25.1'	S 8°32.1'	56°39.2'	S 3°15.0'	85°57.6'	S 14°44.1'	80°16.9'	S 13°09.0'							
15	66°46.7'	44°52.4'	N 9°11.3'	86°25.0'	S 8°31.3'	71°41.2'	S 3°14.8'	100°59.9'	S 14°44.0'	95°17.6'	S 13°08.3'							
16	81°49.2'	59°52.5'	N 9°12.2'	101°24.8'	S 8°30.4'	86°43.1'	S 3°14.6'	116°02.2'	S 14°44.0'	110°18.2'	S 13°07.7'							
17	96°51.6'	74°52.7'	N 9°13.1'	116°24.6'	S 8°29.6'	101°45.1'	S 3°14.4'	131°04.5'	S 14°43.9'	125°18.8'	S 13°07.1'							
18	111°54.1'	89°52.8'	N 9°14.0'	131°24.4'	S 8°28.7'	116°47.0'	S 3°14.1'	146°06.7'	S 14°43.9'	140°19.5'	S 13°06.4'							
19	126°56.6'	104°53.0'	N 9°14.9'	146°24.3'	S 8°27.9'	131°49.0'	S 3°13.9'	161°09.0'	S 14°43.8'	155°20.1'	S 13°05.8'							
20	141°59.0'	119°53.1'	N 9°15.8'	161°24.1'	S 8°27.0'	146°50.9'	S 3°13.7'	176°11.3'	S 14°43.7'	170°20.7'	S 13°05.2'							
21	157°01.5'	134°53.3'	N 9°16.7'	176°23.9'	S 8°26.2'	161°52.8'	S 3°13.5'	191°13.5'	S 14°43.7'	185°21.4'	S 13°04.5'							
22	172°04.0'	149°53.5'	N 9°17.6'	191°23.7'	S 8°25.3'	176°54.8'	S 3°13.3'	206°15.8'	S 14°43.6'	200°22.0'	S 13°03.9'							
23	187°06.4'	164°53.6'	N 9°18.5'	206°23.5'	S 8°24.5'	191°56.7'	S 3°13.0'	221°18.1'	S 14°43.6'	215°22.7'	S 13°03.3'							
		SD 15.9' d 0.9'		v -0.2' d 0.8'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'								
Mer. pass.		12 h 0 m 33 s		9 h 14 m		10 h 14 m		8 h 17 m		8 h 39 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	42°08.2'	N 14°18.3'	12.9'	-12.6'	56.3'	85°35.9'	80°30.0'	52°50.2'	49°20.6'		41°33.6'	44°09.2'	64°41.9'
1	56°40.1'	N 14°05.7'	13.0'	-12.7'	56.4'	85°12.7'	80°11.4'	52°24.3'	48°48.6'		42°05.7'	44°37.0'	65°02.8'
2	71°12.1'	N 13°53.0'	13.0'	-12.8'	56.4'	84°49.5'	79°52.8'	51°58.5'	48°16.5'		42°37.9'	45°04.9'	65°23.7'
3	85°44.1'	N 13°40.3'	13.0'	-12.8'	56.4'	84°26.4'	79°34.2'	51°32.7'	47°44.5'	8°09.8'	43°10.1'	45°32.9'	65°44.8'
4	100°16.1'	N 13°27.4'	13.0'	-12.9'	56.5'	84°03.2'	79°15.6'	51°06.9'	47°12.4'	8°36.5'	43°42.3'	46°01.0'	66°05.9'
5	114°48.1'	N 13°14.5'	13.0'	-13.0'	56.5'	83°40.0'	78°57.1'	50°41.3'	46°40.3'	9°03.8'	44°14.6'	46°29.2'	66°27.2'
6	129°20.1'	N 13°01.5'	13.0'	-13.1'	56.5'	83°16.7'	78°38.5'	50°15.7'	46°08.1'	9°31.7'	44°46.9'	46°57.5'	66°48.5'
7	143°52.2'	N 12°48.4'	13.1'	-13.1'	56.6'	82°53.5'	78°20.0'	49°50.1'	45°35.9'	10°00.0'	45°19.3'	47°25.9'	67°10.0'
8	158°24.2'	N 12°35.3'	13.1'	-13.2'	56.6'	82°30.3'	78°01.5'	49°24.7'	45°03.7'	10°28.8'	45°51.7'	47°54.4'	67°31.5'
9	172°56.3'	N 12°22.1'	13.1'	-13.3'	56.6'	82°07.0'	77°43.1'	48°59.3'	44°31.4'	10°58.0'	46°24.1'	48°23.0'	67°53.2'
10	187°28.4'	N 12°08.8'	13.1'	-13.4'	56.7'	81°43.8'	77°24.6'	48°33.9'	43°59.1'	11°27.5'	46°56.6'	48°51.7'	68°14.9'
11	202°00.5'	N 11°55.4'	13.1'	-13.4'	56.7'	81°20.5'	77°06.2'	48°08.7'	43°26.7'	11°57.2'	47°29.1'	49°20.5'	68°36.8'
12	216°32.6'	N 11°42.0'	13.1'	-13.5'	56.7'	80°57.2'	76°47.8'	47°43.5'	42°54.3'	12°27.3'	48°01.7'	49°49.4'	68°58.7'
13	231°04.7'	N 11°28.5'	13.1'	-13.6'	56.8'	80°34.0'	76°29.4'	47°18.4'	42°21.9'	12°57.6'	48°34.3'	50°18.3'	69°20.7'
14	245°36.9'	N 11°14.9'	13.2'	-13.6'	56.8'	80°10.7'	76°11.1'	46°53.4'	41°49.5'	13°28.1'	49°06.9'	50°47.4'	69°42.8'
15	260°09.0'	N 11°01.3'	13.2'	-13.7'	56.8'	79°47.4'	75°52.8'	46°28.5'	41°17.0'	13°58.8'	49°39.6'	51°16.6'	70°05.0'
16	274°41.2'	N 10°47.6'	13.2'	-13.8'	56.9'	79°24.1'	75°34.5'	46°03.7'	40°44.5'	14°29.7'	50°12.3'	51°45.8'	70°27.3'
17	289°13.4'	N 10°33.8'	13.2'	-13.8'	56.9'	79°00.8'	75°16.2'	45°39.0'	40°11.9'	15°00.7'	50°45.1'	52°15.1'	70°49.7'
18	303°45.5'	N 10°19.9'	13.2'	-13.9'	56.9'	78°37.6'	74°58.0'	45°14.3'	39°39.3'	15°31.9'	51°17.9'	52°44.6'	71°12.2'
19	318°17.7'	N 10°06.0'	13.2'	-14.0'	57.0'	78°14.3'	74°39.8'	44°49.8'	39°06.7'	16°03.3'	51°50.7'	53°14.1'	71°34.7'
20	332°49.9'	N 9°52.1'	13.2'	-14.0'	57.0'	77°51.0'	74°21.7'	44°25.4'	38°34.0'	16°34.8'	52°23.6'	53°43.6'	71°57.4'
21	347°22.1'	N 9°38.0'	13.2'	-14.1'	57.0'	77°27.8'	74°03.6'	44°01.2'	38°01.3'	17°06.4'	52°56.6'	54°13.3'	72°20.1'
22	1°54.3'	N 9°23.9'	13.2'	-14.2'	57.1'	77°04.5'	73°45.5'	43°37.0'	37°28.6'	17°38.1'	53°29.5'	54°43.0'	72°42.9'
23	16°26.5'	N 9°09.8'	13.2'	-14.2'	57.1'	76°41.2'	73°27.5'	43°13.0'	36°55.8'	18°10.0'	54°02.6'	55°12.9'	73°05.7'
Mer. pass.		21 h 52 m SD 15.4'		phase 83%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°01.9'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°32.9'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	202°08.9'	179°53.8'	N 9°19.4'	221°23.4'	S 8°23.6'	206°58.7'	S 3°12.8'	236°20.4'	S 14°43.5'	230°23.3'	S 13°02.6'			
1	217°11.3'	194°53.9'	N 9°20.3'	236°23.2'	S 8°22.8'	222°00.6'	S 3°12.6'	251°22.6'	S 14°43.4'	245°23.9'	S 13°02.0'			
2	232°13.8'	209°54.1'	N 9°21.2'	251°23.0'	S 8°21.9'	237°02.6'	S 3°12.4'	266°24.9'	S 14°43.4'	260°24.6'	S 13°01.3'			
3	247°16.3'	224°54.2'	N 9°22.1'	266°22.8'	S 8°21.1'	252°04.5'	S 3°12.2'	281°27.2'	S 14°43.3'	275°25.2'	S 13°00.7'			
4	262°18.7'	239°54.4'	N 9°23.0'	281°22.6'	S 8°20.2'	267°06.5'	S 3°12.0'	296°29.5'	S 14°43.3'	290°25.8'	S 13°00.1'			
5	277°21.2'	254°54.6'	N 9°23.9'	296°22.5'	S 8°19.3'	282°08.4'	S 3°11.7'	311°31.7'	S 14°43.2'	305°26.5'	S 12°59.4'			
6	292°23.7'	269°54.7'	N 9°24.8'	311°22.3'	S 8°18.5'	297°10.3'	S 3°11.5'	326°34.0'	S 14°43.2'	320°27.1'	S 12°58.8'			
7	307°26.1'	284°54.9'	N 9°25.7'	326°22.1'	S 8°17.6'	312°12.3'	S 3°11.3'	341°36.3'	S 14°43.1'	335°27.8'	S 12°58.2'			
8	322°28.6'	299°55.0'	N 9°26.6'	341°21.9'	S 8°16.8'	327°14.2'	S 3°11.1'	356°38.6'	S 14°43.0'	350°28.4'	S 12°57.5'			
9	337°31.1'	314°55.2'	N 9°27.5'	356°21.7'	S 8°15.9'	342°16.2'	S 3°10.9'	11°40.8'	S 14°43.0'	5°29.0'	S 12°56.9'			
10	352°33.5'	329°55.3'	N 9°28.4'	11°21.6'	S 8°15.0'	357°18.1'	S 3°10.6'	26°43.1'	S 14°42.9'	20°29.7'	S 12°56.2'			
11	7°36.0'	344°55.5'	N 9°29.3'	26°21.4'	S 8°14.2'	12°20.1'	S 3°10.4'	41°45.4'	S 14°42.9'	35°30.3'	S 12°55.6'			
12	22°38.4'	359°55.6'	N 9°30.2'	41°21.2'	S 8°13.3'	27°22.0'	S 3°10.2'	56°47.6'	S 14°42.8'	50°31.0'	S 12°55.0'			
13	37°40.9'	14°55.8'	N 9°31.1'	56°21.0'	S 8°12.5'	42°24.0'	S 3°10.0'	71°49.9'	S 14°42.8'	65°31.6'	S 12°54.3'			
14	52°43.4'	29°55.9'	N 9°32.0'	71°20.8'	S 8°11.6'	57°25.9'	S 3°09.8'	86°52.2'	S 14°42.7'	80°32.2'	S 12°53.7'			
15	67°45.8'	44°56.1'	N 9°32.9'	86°20.7'	S 8°10.7'	72°27.8'	S 3°09.5'	101°54.5'	S 14°42.6'	95°32.9'	S 12°53.0'			
16	82°48.3'	59°56.3'	N 9°33.8'	101°20.5'	S 8°09.9'	87°29.8'	S 3°09.3'	116°56.7'	S 14°42.6'	110°33.5'	S 12°52.4'			
17	97°50.8'	74°56.4'	N 9°34.7'	116°20.3'	S 8°09.0'	102°31.7'	S 3°09.1'	131°59.0'	S 14°42.5'	125°34.2'	S 12°51.8'			
18	112°53.2'	89°56.6'	N 9°35.6'	131°20.1'	S 8°08.2'	117°33.7'	S 3°08.9'	147°01.3'	S 14°42.5'	140°34.8'	S 12°51.1'			
19	127°55.7'	104°56.7'	N 9°36.5'	146°19.9'	S 8°07.3'	132°35.6'	S 3°08.7'	162°03.6'	S 14°42.4'	155°35.4'	S 12°50.5'			
20	142°58.2'	119°56.9'	N 9°37.4'	161°19.8'	S 8°06.4'	147°37.6'	S 3°08.5'	177°05.8'	S 14°42.4'	170°36.1'	S 12°49.8'			
21	158°00.6'	134°57.0'	N 9°38.3'	176°19.6'	S 8°05.6'	162°39.5'	S 3°08.2'	192°08.1'	S 14°42.3'	185°36.7'	S 12°49.2'			
22	173°03.1'	149°57.2'	N 9°39.2'	191°19.4'	S 8°04.7'	177°41.5'	S 3°08.0'	207°10.4'	S 14°42.2'	200°37.4'	S 12°48.6'			
23	188°05.6'	164°57.3'	N 9°40.0'	206°19.2'	S 8°03.8'	192°43.4'	S 3°07.8'	222°12.7'	S 14°42.2'	215°38.0'	S 12°47.9'			
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'				
Mer. pass.		12 h 0 m 18 s		9 h 15 m		10 h 11 m		8 h 13 m		8 h 38 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	30°58.7'	N 8°55.6'	13.2'	-14.3'	57.1'	76°18.0'	73°09.5'	42°49.1'	36°23.0'	18°41.9'	54°35.6'	55°42.8'	73°28.7'
1	45°30.9'	N 8°41.3'	13.2'	-14.3'	57.2'	75°54.8'	72°51.6'	42°25.3'	35°50.2'	19°14.0'	55°08.7'	56°12.7'	73°51.7'
2	60°03.1'	N 8°27.0'	13.2'	-14.4'	57.2'	75°31.5'	72°33.7'	42°01.7'	35°17.3'	19°46.1'	55°41.8'	56°42.8'	74°14.8'
3	74°35.3'	N 8°12.6'	13.2'	-14.4'	57.2'	75°08.3'	72°15.9'	41°38.2'	34°44.5'	20°18.4'	56°15.0'	57°12.9'	74°38.0'
4	89°07.6'	N 7°58.2'	13.2'	-14.5'	57.3'	74°45.1'	71°58.1'	41°14.9'	34°11.5'	20°50.7'	56°48.2'	57°43.1'	75°01.3'
5	103°39.8'	N 7°43.7'	13.2'	-14.5'	57.3'	74°22.0'	71°40.4'	40°51.7'	33°38.6'	21°23.1'	57°21.5'	58°13.4'	75°24.6'
6	118°12.0'	N 7°29.1'	13.2'	-14.6'	57.3'	73°58.8'	71°22.7'	40°28.7'	33°05.6'	21°55.6'	57°54.8'	58°43.7'	75°48.0'
7	132°44.2'	N 7°14.5'	13.2'	-14.7'	57.4'	73°35.7'	71°05.1'	40°05.9'	32°32.6'	22°28.2'	58°28.1'	59°14.1'	76°11.5'
8	147°16.4'	N 6°59.9'	13.2'	-14.7'	57.4'	73°12.5'	70°47.5'	39°43.3'	31°59.5'	23°00.9'	59°01.5'	59°44.6'	76°35.0'
9	161°48.6'	N 6°45.2'	13.2'	-14.8'	57.4'	72°49.4'	70°30.0'	39°20.8'	31°26.4'	23°33.6'	59°35.0'	60°15.2'	76°58.6'
10	176°20.7'	N 6°30.4'	13.2'	-14.8'	57.5'	72°26.4'	70°12.6'	38°58.5'	30°53.3'	24°06.4'	60°08.4'	60°45.8'	77°22.3'
11	190°52.9'	N 6°15.6'	13.2'	-14.8'	57.5'	72°03.3'	69°55.2'	38°36.5'	30°20.2'	24°39.3'	60°41.9'	61°16.5'	77°46.0'
12	205°25.1'	N 6°00.8'	13.2'	-14.9'	57.5'	71°40.3'	69°37.9'	38°14.6'	29°47.1'	25°12.2'	61°15.5'	61°47.2'	78°09.8'
13	219°57.3'	N 5°45.9'	13.2'	-14.9'	57.6'	71°17.3'	69°20.7'	37°53.0'	29°13.9'	25°45.2'	61°49.1'	62°18.0'	78°33.7'
14	234°29.4'	N 5°30.9'	13.1'	-15.0'	57.6'	70°54.4'	69°03.5'	37°31.5'	28°40.7'	26°18.3'	62°22.7'	62°48.9'	78°57.6'
15	249°01.5'	N 5°15.9'	13.1'	-15.0'	57.6'	70°31.4'	68°46.4'	37°10.4'	28°07.4'	26°51.4'	62°56.4'	63°19.9'	79°21.6'
16	263°33.7'	N 5°00.9'	13.1'	-15.1'	57.7'	70°08.6'	68°29.4'	36°49.4'	27°34.2'	27°24.6'	63°30.1'	63°50.9'	79°45.7'
17	278°05.8'	N 4°45.8'	13.1'	-15.1'	57.7'	69°45.7'	68°12.4'	36°28.7'	27°00.9'	27°57.9'	64°03.9'	64°22.0'	80°09.8'
18	292°37.9'	N 4°30.7'	13.1'	-15.1'	57.7'	69°22.9'	67°55.6'	36°08.3'	26°27.6'	28°31.2'	64°37.7'	64°53.1'	80°33.9'
19	307°10.0'	N 4°15.6'	13.1'	-15.2'	57.8'	69°00.1'	67°38.8'	35°48.1'	25°54.3'	29°04.6'	65°11.5'	65°24.3'	80°58.1'
20	321°42.0'	N 4°00.4'	13.1'	-15.2'	57.8'	68°37.4'	67°22.1'	35°28.2'	25°20.9'	29°38.0'	65°45.4'	65°55.6'	81°22.4'
21	336°14.1'	N 3°45.2'	13.0'	-15.3'	57.8'	68°14.7'	67°05.5'	35°08.6'	24°47.6'	30°11.5'	66°19.3'	66°26.9'	81°46.8'
22	350°46.1'	N 3°29.9'	13.0'	-15.3'	57.9'	67°52.1'	66°48.9'	34°49.3'	24°14.2'	30°45.0'	66°53.3'	66°58.3'	82°11.1'
23	5°18.1'	N 3°14.6'	13.0'	-15.3'	57.9'	67°29.5'	66°32.5'	34°30.3'	23°40.9'	31°18.6'	67°27.3'	67°29.7'	82°35.6'
Mer. pass.		22 h 38 m SD 15.6'		phase 90%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.2'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.1'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	203°08.0'	179°57.5'	N 9°40.9'	221°19.0'	S 8°03.0'	207°45.4'	S 3°07.6'	237°15.0'	S 14°42.1'	230°38.7'	S 12°47.3'			
1	218°10.5'	194°57.6'	N 9°41.8'	236°18.9'	S 8°02.1'	222°47.3'	S 3°07.4'	252°17.2'	S 14°42.1'	245°39.3'	S 12°46.6'			
2	233°12.9'	209°57.8'	N 9°42.7'	251°18.7'	S 8°01.2'	237°49.2'	S 3°07.2'	267°19.5'	S 14°42.0'	260°39.9'	S 12°46.0'			
3	248°15.4'	224°57.9'	N 9°43.6'	266°18.5'	S 8°00.4'	252°51.2'	S 3°06.9'	282°21.8'	S 14°42.0'	275°40.6'	S 12°45.4'			
4	263°17.9'	239°58.1'	N 9°44.5'	281°18.3'	S 7°59.5'	267°53.1'	S 3°06.7'	297°24.1'	S 14°41.9'	290°41.2'	S 12°44.7'			
5	278°20.3'	254°58.2'	N 9°45.4'	296°18.1'	S 7°58.6'	282°55.1'	S 3°06.5'	312°26.3'	S 14°41.8'	305°41.9'	S 12°44.1'			
6	293°22.8'	269°58.4'	N 9°46.3'	311°18.0'	S 7°57.7'	297°57.0'	S 3°06.3'	327°28.6'	S 14°41.8'	320°42.5'	S 12°43.4'			
7	308°25.3'	284°58.6'	N 9°47.2'	326°17.8'	S 7°56.9'	312°59.0'	S 3°06.1'	342°30.9'	S 14°41.7'	335°43.1'	S 12°42.8'			
8	323°27.7'	299°58.7'	N 9°48.1'	341°17.6'	S 7°56.0'	328°00.9'	S 3°05.8'	357°33.2'	S 14°41.7'	350°43.8'	S 12°42.1'			
9	338°30.2'	314°58.9'	N 9°49.0'	356°17.4'	S 7°55.1'	343°02.9'	S 3°05.6'	12°35.4'	S 14°41.6'	5°44.4'	S 12°41.5'			
10	353°32.7'	329°59.0'	N 9°49.9'	11°17.2'	S 7°54.3'	358°04.8'	S 3°05.4'	27°37.7'	S 14°41.6'	20°45.1'	S 12°40.9'			
11	8°35.1'	344°59.2'	N 9°50.8'	26°17.1'	S 7°53.4'	13°06.8'	S 3°05.2'	42°40.0'	S 14°41.5'	35°45.7'	S 12°40.2'			
12	23°37.6'	359°59.3'	N 9°51.7'	41°16.9'	S 7°52.5'	28°08.7'	S 3°05.0'	57°42.3'	S 14°41.5'	50°46.4'	S 12°39.6'			
13	38°40.1'	14°59.5'	N 9°52.6'	56°16.7'	S 7°51.6'	43°10.7'	S 3°04.8'	72°44.6'	S 14°41.4'	65°47.0'	S 12°38.9'			
14	53°42.5'	29°59.6'	N 9°53.4'	71°16.5'	S 7°50.8'	58°12.6'	S 3°04.5'	87°46.8'	S 14°41.3'	80°47.6'	S 12°38.3'			
15	68°45.0'	44°59.8'	N 9°54.3'	86°16.3'	S 7°49.9'	73°14.6'	S 3°04.3'	102°49.1'	S 14°41.3'	95°48.3'	S 12°37.6'			
16	83°47.4'	59°59.9'	N 9°55.2'	101°16.2'	S 7°49.0'	88°16.5'	S 3°04.1'	117°51.4'	S 14°41.2'	110°48.9'	S 12°37.0'			
17	98°49.9'	75°00.1'	N 9°56.1'	116°16.0'	S 7°48.1'	103°18.4'	S 3°03.9'	132°53.7'	S 14°41.2'	125°49.6'	S 12°36.3'			
18	113°52.4'	90°00.2'	N 9°57.0'	131°15.8'	S 7°47.3'	118°20.4'	S 3°03.7'	147°55.9'	S 14°41.1'	140°50.2'	S 12°35.7'			
19	128°54.8'	105°00.4'	N 9°57.9'	146°15.6'	S 7°46.4'	133°22.3'	S 3°03.5'	162°58.2'	S 14°41.1'	155°50.9'	S 12°35.1'			
20	143°57.3'	120°00.5'	N 9°58.8'	161°15.4'	S 7°45.5'	148°24.3'	S 3°03.2'	178°00.5'	S 14°41.0'	170°51.5'	S 12°34.4'			
21	158°59.8'	135°00.7'	N 9°59.7'	176°15.3'	S 7°44.6'	163°26.2'	S 3°03.0'	193°02.8'	S 14°41.0'	185°52.2'	S 12°33.8'			
22	174°02.2'	150°00.8'	N 10°00.6'	191°15.1'	S 7°43.8'	178°28.2'	S 3°02.8'	208°05.1'	S 14°40.9'	200°52.8'	S 12°33.1'			
23	189°04.7'	165°01.0'	N 10°01.4'	206°14.9'	S 7°42.9'	193°30.1'	S 3°02.6'	223°07.3'	S 14°40.8'	215°53.4'	S 12°32.5'			
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'				
Mer. pass.		12 h 0 m 3 s		9 h 15 m		10 h 8 m		8 h 10 m		8 h 37 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	19°50.1'	N 2°59.3'	13.0'	-15.4'	57.9'	67°07.0'	66°16.2'	34°11.6'	23°07.5'	31°52.2'	68°01.2'	68°01.3'	81°22.6'
1	34°22.1'	N 2°43.9'	13.0'	-15.4'	58.0'	66°44.5'	65°59.9'	33°53.3'	22°34.1'	32°25.9'	68°32.7'	68°35.4'	81°41.4'
2	48°54.1'	N 2°28.6'	12.9'	-15.4'	58.0'	66°22.1'	65°43.8'	33°35.3'	22°00.7'	32°59.7'	69°04.3'	69°09.5'	82°00.2'
3	63°26.0'	N 2°13.1'	12.9'	-15.4'	58.0'	65°59.7'	65°27.7'	33°17.6'	21°27.3'	33°33.5'	69°36.0'	69°43.7'	82°19.0'
4	77°57.9'	N 1°57.7'	12.9'	-15.5'	58.1'	65°37.4'	65°11.8'	33°00.3'	20°53.9'	34°07.3'	70°07.7'	70°17.8'	82°37.9'
5	92°29.8'	N 1°42.2'	12.9'	-15.5'	58.1'	65°15.2'	64°56.0'	32°43.4'	20°20.5'	34°41.2'	70°39.5'	70°52.1'	82°56.9'
6	107°01.6'	N 1°26.7'	12.8'	-15.5'	58.1'	64°53.0'	64°40.2'	32°26.8'	19°47.1'	35°15.2'	71°11.3'	71°26.4'	83°15.9'
7	121°33.4'	N 1°11.2'	12.8'	-15.5'	58.1'	64°30.9'	64°24.6'	32°10.7'	19°13.8'	35°49.2'	71°43.2'	72°00.7'	83°35.0'
8	136°05.2'	N 0°55.6'	12.8'	-15.6'	58.2'	64°08.9'	64°09.1'	31°55.0'	18°40.4'	36°23.2'	72°15.1'	72°35.0'	83°54.1'
9	150°37.0'	N 0°40.1'	12.7'	-15.6'	58.2'	63°46.9'	63°53.7'		18°07.1'	36°57.3'	72°47.1'	73°09.4'	84°13.3'
10	165°08.7'	N 0°24.5'	12.7'	-15.6'	58.2'	63°25.0'	63°38.4'		17°33.8'	37°31.5'	73°19.1'	73°43.9'	84°32.5'
11	179°40.4'	N 0°08.9'	12.7'	-15.6'	58.3'	63°03.2'	63°23.3'		17°00.6'	38°05.7'	73°51.2'	74°18.3'	84°51.7'
12	194°12.1'	S 0°06.8'	12.6'	-15.6'	58.3'	62°41.5'			16°27.4'	38°39.9'	74°23.3'	74°52.8'	85°11.0'
13	208°43.7'	S 0°22.4'	12.6'	-15.7'	58.3'	62°19.8'			15°54.2'	39°14.2'	74°55.4'	75°27.4'	85°30.4'
14	223°15.3'	S 0°38.1'	12.6'	-15.7'	58.4'	61°58.3'			15°21.2'	39°48.5'	75°27.7'	76°02.0'	85°49.7'
15	237°46.9'	S 0°53.7'	12.5'	-15.7'	58.4'	61°36.8'			14°48.1'	40°22.8'	75°59.9'	76°36.6'	86°09.1'
16	252°18.4'	S 1°09.4'	12.5'	-15.7'	58.4'	61°15.5'			14°15.2'	40°57.3'	76°32.2'	77°11.3'	86°28.6'
17	266°49.9'	S 1°25.1'	12.4'	-15.7'	58.5'	60°54.2'			13°42.4'	41°31.7'	77°04.6'	77°46.0'	86°48.1'
18	281°21.4'	S 1°40.8'	12.4'	-15.7'	58.5'	60°33.0'			13°09.8'	42°06.2'	77°37.0'	78°20.7'	87°07.6'
19	295°52.8'	S 1°56.5'	12.4'	-15.7'	58.5'	60°12.0'			12°37.2'	42°40.7'	78°09.4'	78°55.5'	87°27.1'
20	310°24.1'	S 2°12.3'	12.3'	-15.7'	58.5'	59°51.0'			12°04.9'	43°15.3'	78°41.9'	79°30.3'	87°46.7'
21	324°55.4'	S 2°28.0'	12.3'	-15.7'	58.6'	59°30.2'			11°32.7'	43°49.9'	79°14.5'	80°05.1'	88°06.3'
22	339°26.7'	S 2°43.7'	12.2'	-15.7'	58.6'	59°09.4'			11°00.8'	44°24.6'	79°47.0'	80°40.0'	88°26.0'
23	353°58.0'	S 2°59.5'	12.2'	-15.7'	58.6'	58°48.8'			10°29.2'	44°59.3'	80°19.7'	81°14.9'	88°45.6'
Mer. pass.		23 h 25 m SD 15.8'		phase 96%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.3'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	204°07.2'	180°01.1' N	10°02.3'	221°14.7' S	7°42.0'	208°32.1' S	3°02.4'	238°09.6' S	14°40.8'	230°54.1' S	12°31.8'	
1	219°09.6'	195°01.3' N	10°03.2'	236°14.5' S	7°41.1'	223°34.0' S	3°02.2'	253°11.9' S	14°40.7'	245°54.7' S	12°31.2'	
2	234°12.1'	210°01.4' N	10°04.1'	251°14.3' S	7°40.2'	238°36.0' S	3°01.9'	268°14.2' S	14°40.7'	260°55.4' S	12°30.5'	
3	249°14.5'	225°01.6' N	10°05.0'	266°14.2' S	7°39.4'	253°37.9' S	3°01.7'	283°16.5' S	14°40.6'	275°56.0' S	12°29.9'	
4	264°17.0'	240°01.7' N	10°05.9'	281°14.0' S	7°38.5'	268°39.9' S	3°01.5'	298°18.7' S	14°40.6'	290°56.7' S	12°29.2'	
5	279°19.5'	255°01.9' N	10°06.8'	296°13.8' S	7°37.6'	283°41.8' S	3°01.3'	313°21.0' S	14°40.5'	305°57.3' S	12°28.6'	
6	294°21.9'	270°02.0' N	10°07.7'	311°13.6' S	7°36.7'	298°43.8' S	3°01.1'	328°23.3' S	14°40.5'	320°58.0' S	12°27.9'	
7	309°24.4'	285°02.2' N	10°08.5'	326°13.4' S	7°35.8'	313°45.7' S	3°00.8'	343°25.6' S	14°40.4'	335°58.6' S	12°27.3'	
8	324°26.9'	300°02.3' N	10°09.4'	341°13.3' S	7°34.9'	328°47.7' S	3°00.6'	358°27.9' S	14°40.3'	350°59.3' S	12°26.7'	
9	339°29.3'	315°02.4' N	10°10.3'	356°13.1' S	7°34.1'	343°49.6' S	3°00.4'	13°30.1' S	14°40.3'	5°59.9' S	12°26.0'	
10	354°31.8'	330°02.6' N	10°11.2'	11°12.9' S	7°33.2'	358°51.6' S	3°00.2'	28°32.4' S	14°40.2'	21°00.5' S	12°25.4'	
11	9°34.3'	345°02.7' N	10°12.1'	26°12.7' S	7°32.3'	13°53.5' S	2°60.0'	43°34.7' S	14°40.2'	36°01.2' S	12°24.7'	
12	24°36.7'	0°02.9' N	10°13.0'	41°12.5' S	7°31.4'	28°55.5' S	2°59.8'	58°37.0' S	14°40.1'	51°01.8' S	12°24.1'	
13	39°39.2'	15°03.0' N	10°13.9'	56°12.4' S	7°30.5'	43°57.4' S	2°59.5'	73°39.3' S	14°40.1'	66°02.5' S	12°23.4'	
14	54°41.7'	30°03.2' N	10°14.7'	71°12.2' S	7°29.6'	58°59.4' S	2°59.3'	88°41.5' S	14°40.0'	81°03.1' S	12°22.8'	
15	69°44.1'	45°03.3' N	10°15.6'	86°12.0' S	7°28.7'	74°01.3' S	2°59.1'	103°43.8' S	14°40.0'	96°03.8' S	12°22.1'	
16	84°46.6'	60°03.5' N	10°16.5'	101°11.8' S	7°27.9'	89°03.3' S	2°58.9'	118°46.1' S	14°39.9'	111°04.4' S	12°21.5'	
17	99°49.0'	75°03.6' N	10°17.4'	116°11.6' S	7°27.0'	104°05.2' S	2°58.7'	133°48.4' S	14°39.8'	126°05.1' S	12°20.8'	
18	114°51.5'	90°03.8' N	10°18.3'	131°11.5' S	7°26.1'	119°07.2' S	2°58.5'	148°50.7' S	14°39.8'	141°05.7' S	12°20.2'	
19	129°54.0'	105°03.9' N	10°19.2'	146°11.3' S	7°25.2'	134°09.1' S	2°58.2'	163°52.9' S	14°39.7'	156°06.4' S	12°19.5'	
20	144°56.4'	120°04.1' N	10°20.0'	161°11.1' S	7°24.3'	149°11.1' S	2°58.0'	178°55.2' S	14°39.7'	171°07.0' S	12°18.9'	
21	159°58.9'	135°04.2' N	10°20.9'	176°10.9' S	7°23.4'	164°13.0' S	2°57.8'	193°57.5' S	14°39.6'	186°07.7' S	12°18.2'	
22	175°01.4'	150°04.4' N	10°21.8'	191°10.7' S	7°22.5'	179°15.0' S	2°57.6'	208°59.8' S	14°39.6'	201°08.3' S	12°17.6'	
23	190°03.8'	165°04.5' N	10°22.7'	206°10.5' S	7°21.6'	194°16.9' S	2°57.4'	224°02.1' S	14°39.5'	216°09.0' S	12°16.9'	
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 1.9' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.6'		
Mer. pass.		11 h 59 m 49 s		9 h 15 m		10 h 5 m		8 h 6 m		8 h 36 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Antares	+Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	8°29.1' S	3°15.2' N	12.1'	-15.7'	58.7'	60°37.5'	58°28.3'	54°55.1'	9°57.9'	45°34.0'	80°52.3'	81°49.8'	89°05.3'
1	23°00.3' S	3°30.9' N	12.1'	-15.7'	58.7'	60°14.9'	58°07.9'	54°20.2'	9°27.0'	46°08.8'	81°25.0'	82°24.8'	89°25.0'
2	37°31.4' S	3°46.7' N	12.0'	-15.7'	58.7'	59°52.5'	57°47.7'	53°45.2'	8°56.5'	46°43.6'	81°57.7'	82°59.8'	89°44.8'
3	52°02.4' S	4°02.4' N	12.0'	-15.7'	58.7'	59°30.2'	57°27.6'	53°10.2'	8°26.7'	47°18.5'	82°30.5'	83°34.9'	90°04.5'
4	66°33.4' S	4°18.1' N	11.9'	-15.7'	58.8'	59°07.9'	57°07.6'	52°35.2'		47°53.4'	83°03.3'	84°10.0'	90°24.3'
5	81°04.3' S	4°33.9' N	11.9'	-15.7'	58.8'	58°45.8'	56°47.7'	52°00.1'		48°28.3'	83°36.2'	84°45.1'	90°44.1'
6	95°35.2' S	4°49.6' N	11.8'	-15.7'	58.8'	58°23.8'	56°28.0'	51°25.0'		49°03.3'	84°09.0'	85°20.3'	91°03.9'
7	110°06.1' S	5°05.3' N	11.8'	-15.7'	58.9'	58°01.9'	56°08.5'	50°49.9'		49°38.3'	84°42.0'	85°55.4'	91°23.7'
8	124°36.8' S	5°21.0' N	11.7'	-15.7'	58.9'	57°40.2'	55°49.1'	50°14.7'		50°13.3'	85°14.9'	86°30.7'	91°43.6'
9	139°07.6' S	5°36.6' N	11.7'	-15.7'	58.9'	57°18.5'	55°29.8'	49°39.5'		50°48.4'	85°47.9'	87°05.9'	92°03.4'
10	153°38.2' S	5°52.3' N	11.6'	-15.7'	58.9'	56°57.0'	55°10.7'	49°04.3'		51°23.5'	86°20.9'	87°41.2'	92°23.3'
11	168°08.8' S	6°08.0' N	11.5'	-15.6'	59.0'	56°35.6'	54°51.8'	48°29.0'		51°58.6'	86°54.0'	88°16.5'	92°43.1'
12	182°39.4' S	6°23.6' N	11.5'	-15.6'	59.0'	56°14.3'	54°33.0'	47°53.8'		52°33.8'	87°27.1'	88°51.9'	93°03.0'
13	197°09.8' S	6°39.2' N	11.4'	-15.6'	59.0'	55°53.2'	54°14.4'	47°18.4'		53°09.0'	88°00.2'	89°27.2'	93°22.9'
14	211°40.3' S	6°54.8' N	11.4'	-15.6'	59.0'	55°32.2'	53°56.0'	46°43.1'		53°44.3'	88°33.3'	90°02.6'	93°42.7'
15	226°10.6' S	7°10.4' N	11.3'	-15.5'	59.1'	55°11.4'	53°37.7'	46°07.7'		54°19.5'	89°06.5'	90°38.1'	94°02.6'
16	240°40.9' S	7°25.9' N	11.2'	-15.5'	59.1'	54°50.7'	53°19.7'	45°32.3'		54°54.9'	89°39.7'	91°13.6'	94°22.5'
17	255°11.2' S	7°41.4' N	11.2'	-15.5'	59.1'	54°30.2'	53°01.8'	44°56.9'		55°30.2'	90°12.9'	91°49.1'	94°42.3'
18	269°41.3' S	7°56.9' N	11.1'	-15.5'	59.1'	54°09.8'	52°44.1'	44°21.4'		56°05.6'	90°46.2'	92°24.6'	95°02.2'
19	284°11.4' S	8°12.4' N	11.0'	-15.4'	59.2'	53°49.6'	52°26.6'	43°46.0'		56°41.0'	91°19.5'	93°00.1'	95°22.1'
20	298°41.5' S	8°27.8' N	11.0'	-15.4'	59.2'	53°29.5'	52°09.4'	43°10.5'		57°16.4'	91°52.8'	93°35.7'	95°41.9'
21	313°11.4' S	8°43.2' N	10.9'	-15.4'	59.2'	53°09.6'	51°52.3'	42°34.9'		57°51.9'	92°26.1'	94°11.3'	96°01.7'
22	327°41.3' S	8°58.6' N	10.8'	-15.3'	59.2'	52°49.9'	51°35.4'	41°59.4'		58°27.4'	92°59.5'	94°47.0'	96°21.6'
23	342°11.1' S	9°13.9' N	10.8'	-15.3'	59.2'	52°30.4'	51°18.8'	41°23.8'		59°02.9'	93°32.9'	95°22.6'	96°41.4'
Mer. pass.		0 h 14 m SD 16.0' phase 99%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.4'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.4'	N 89°21.5'
Rigel Kent	-0.0	139°42.8'	S 60°55.5'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.6'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	205°06.3'	180°04.6'	N 10°23.6'	221°10.4'	S 7°20.7'	209°18.9'	S 2°57.2'	239°04.3'	S 14°39.5'	231°09.6'	S 12°16.3'	
1	220°08.8'	195°04.8'	N 10°24.4'	236°10.2'	S 7°19.9'	224°20.8'	S 2°57.0'	254°06.6'	S 14°39.4'	246°10.3'	S 12°15.6'	
2	235°11.2'	210°04.9'	N 10°25.3'	251°10.0'	S 7°19.0'	239°22.8'	S 2°56.7'	269°08.9'	S 14°39.3'	261°10.9'	S 12°15.0'	
3	250°13.7'	225°05.1'	N 10°26.2'	266°09.8'	S 7°18.1'	254°24.7'	S 2°56.5'	284°11.2'	S 14°39.3'	276°11.6'	S 12°14.3'	
4	265°16.1'	240°05.2'	N 10°27.1'	281°09.6'	S 7°17.2'	269°26.7'	S 2°56.3'	299°13.5'	S 14°39.2'	291°12.2'	S 12°13.7'	
5	280°18.6'	255°05.4'	N 10°28.0'	296°09.5'	S 7°16.3'	284°28.6'	S 2°56.1'	314°15.8'	S 14°39.2'	306°12.9'	S 12°13.0'	
6	295°21.1'	270°05.5'	N 10°28.8'	311°09.3'	S 7°15.4'	299°30.6'	S 2°55.9'	329°18.0'	S 14°39.1'	321°13.5'	S 12°12.4'	
7	310°23.5'	285°05.7'	N 10°29.7'	326°09.1'	S 7°14.5'	314°32.5'	S 2°55.7'	344°20.3'	S 14°39.1'	336°14.1'	S 12°11.7'	
8	325°26.0'	300°05.8'	N 10°30.6'	341°08.9'	S 7°13.6'	329°34.5'	S 2°55.4'	359°22.6'	S 14°39.0'	351°14.8'	S 12°11.1'	
9	340°28.5'	315°05.9'	N 10°31.5'	356°08.7'	S 7°12.7'	344°36.4'	S 2°55.2'	14°24.9'	S 14°39.0'	6°15.4'	S 12°10.4'	
10	355°30.9'	330°06.1'	N 10°32.4'	11°08.6'	S 7°11.8'	359°38.4'	S 2°55.0'	29°27.2'	S 14°38.9'	21°16.1'	S 12°09.7'	
11	10°33.4'	345°06.2'	N 10°33.2'	26°08.4'	S 7°10.9'	14°40.3'	S 2°54.8'	44°29.5'	S 14°38.9'	36°16.7'	S 12°09.1'	
12	25°35.9'	0°06.4'	N 10°34.1'	41°08.2'	S 7°10.0'	29°42.3'	S 2°54.6'	59°31.7'	S 14°38.8'	51°17.4'	S 12°08.4'	
13	40°38.3'	15°06.5'	N 10°35.0'	56°08.0'	S 7°09.1'	44°44.2'	S 2°54.4'	74°34.0'	S 14°38.8'	66°18.0'	S 12°07.8'	
14	55°40.8'	30°06.7'	N 10°35.9'	71°07.8'	S 7°08.2'	59°46.2'	S 2°54.1'	89°36.3'	S 14°38.7'	81°18.7'	S 12°07.1'	
15	70°43.3'	45°06.8'	N 10°36.8'	86°07.6'	S 7°07.3'	74°48.1'	S 2°53.9'	104°38.6'	S 14°38.6'	96°19.3'	S 12°06.5'	
16	85°45.7'	60°07.0'	N 10°37.6'	101°07.5'	S 7°06.4'	89°50.1'	S 2°53.7'	119°40.9'	S 14°38.6'	111°20.0'	S 12°05.8'	
17	100°48.2'	75°07.1'	N 10°38.5'	116°07.3'	S 7°05.5'	104°52.0'	S 2°53.5'	134°43.2'	S 14°38.5'	126°20.6'	S 12°05.2'	
18	115°50.6'	90°07.2'	N 10°39.4'	131°07.1'	S 7°04.6'	119°54.0'	S 2°53.3'	149°45.4'	S 14°38.5'	141°21.3'	S 12°04.5'	
19	130°53.1'	105°07.4'	N 10°40.3'	146°06.9'	S 7°03.7'	134°55.9'	S 2°53.1'	164°47.7'	S 14°38.4'	156°22.0'	S 12°03.9'	
20	145°55.6'	120°07.5'	N 10°41.1'	161°06.7'	S 7°02.8'	149°57.9'	S 2°52.9'	179°50.0'	S 14°38.4'	171°22.6'	S 12°03.2'	
21	160°58.0'	135°07.7'	N 10°42.0'	176°06.6'	S 7°01.9'	164°59.8'	S 2°52.6'	194°52.3'	S 14°38.3'	186°23.3'	S 12°02.6'	
22	176°00.5'	150°07.8'	N 10°42.9'	191°06.4'	S 7°01.0'	180°01.8'	S 2°52.4'	209°54.6'	S 14°38.3'	201°23.9'	S 12°01.9'	
23	191°03.0'	165°07.9'	N 10°43.8'	206°06.2'	S 7°00.1'	195°03.7'	S 2°52.2'	224°56.9'	S 14°38.2'	216°24.6'	S 12°01.3'	
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 2.0' d 0.2'		v 2.3' d 0.1'		v 0.6' d 0.7'		
Mer. pass.		11 h 59 m 35 s		9 h 15 m		10 h 1 m		8 h 2 m		8 h 35 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Altair	-Rigil Kent	-Hadar	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	356°40.9'	S 9°29.2'	10.7'	-15.3'	59.3'	91°01.0'	52°11.1'	51°02.3'	40°48.2'			59°38.5'	94°06.3'
1	11°10.6'	S 9°44.5'	10.6'	-15.2'	59.3'	90°31.5'	51°52.0'	50°46.1'	40°12.6'			60°14.1'	94°39.7'
2	25°40.2'	S 9°59.7'	10.5'	-15.2'	59.3'	90°01.9'	51°33.0'	50°30.2'	39°36.9'			60°49.7'	95°13.1'
3	40°09.7'	S 10°14.9'	10.5'	-15.1'	59.3'	89°32.3'	51°14.3'	50°14.4'	39°01.2'	8°23.2'		61°25.3'	95°46.6'
4	54°39.2'	S 10°30.0'	10.4'	-15.1'	59.4'	89°02.6'	50°55.7'	49°58.9'	38°25.5'	8°53.6'		62°01.0'	96°20.1'
5	69°08.5'	S 10°45.1'	10.3'	-15.0'	59.4'	88°33.0'	50°37.4'	49°43.7'	37°49.8'	9°24.7'		62°36.7'	96°53.6'
6	83°37.8'	S 11°00.1'	10.2'	-15.0'	59.4'	88°03.3'	50°19.3'		37°14.1'	9°56.4'		63°12.4'	97°27.1'
7	98°07.0'	S 11°15.1'	10.1'	-14.9'	59.4'	87°33.6'	50°01.4'		36°38.3'	10°28.5'		63°48.1'	98°00.6'
8	112°36.2'	S 11°30.0'	10.1'	-14.9'	59.4'	87°03.9'	49°43.7'		36°02.5'	11°01.0'		64°23.9'	98°34.2'
9	127°05.3'	S 11°44.9'	10.0'	-14.8'	59.5'	86°34.2'	49°26.3'		35°26.7'	11°33.9'		64°59.7'	99°07.8'
10	141°34.2'	S 11°59.7'	9.9'	-14.8'	59.5'	86°04.5'	49°09.1'		34°50.9'	12°07.1'		65°35.5'	99°41.3'
11	156°03.1'	S 12°14.5'	9.8'	-14.7'	59.5'	85°34.8'	48°52.1'		34°15.1'	12°40.5'	31°18.5'	66°11.3'	100°14.9'
12	170°31.9'	S 12°29.2'	9.7'	-14.6'	59.5'	85°05.0'	48°35.4'		33°39.2'	13°14.2'	31°33.9'	66°47.2'	100°48.5'
13	185°00.7'	S 12°43.9'	9.6'	-14.6'	59.5'	84°35.3'	48°18.9'		33°03.4'	13°48.1'	31°49.7'	67°23.1'	101°22.1'
14	199°29.3'	S 12°58.4'	9.6'	-14.5'	59.5'	84°05.5'	48°02.7'		32°27.5'	14°22.2'	32°06.1'	67°59.0'	101°55.8'
15	213°57.9'	S 13°13.0'	9.5'	-14.5'	59.6'	83°35.8'	47°46.8'		31°51.6'	14°56.4'	32°22.9'	68°34.9'	102°29.4'
16	228°26.4'	S 13°27.4'	9.4'	-14.4'	59.6'	83°06.0'	47°31.1'		31°15.7'	15°30.9'	32°40.2'	69°10.9'	103°03.0'
17	242°54.8'	S 13°41.8'	9.3'	-14.3'	59.6'	82°36.2'	47°15.7'		30°39.7'	16°05.4'	32°58.0'	69°46.8'	103°36.7'
18	257°23.1'	S 13°56.1'	9.2'	-14.2'	59.6'	82°06.5'			30°03.8'	16°40.1'	33°16.2'	70°22.8'	104°10.3'
19	271°51.3'	S 14°10.4'	9.1'	-14.2'	59.6'	81°36.7'			29°27.9'	17°14.9'	33°34.9'	70°58.8'	104°44.0'
20	286°19.4'	S 14°24.5'	9.0'	-14.1'	59.6'	81°07.0'			28°51.9'	17°49.8'	33°53.9'	71°34.9'	105°17.6'
21	300°47.4'	S 14°38.6'	8.9'	-14.0'	59.7'	80°37.2'			28°15.9'	18°24.8'	34°13.4'	72°10.9'	105°51.3'
22	315°15.4'	S 14°52.6'	8.9'	-13.9'	59.7'	80°07.5'			27°40.0'	18°59.8'	34°33.3'	72°47.0'	106°25.0'
23	329°43.2'	S 15°06.6'	8.8'	-13.9'	59.7'	79°37.7'			27°04.0'	19°35.0'	34°53.6'	73°23.1'	106°58.6'
Mer. pass.		0 h 14 m SD 16.2'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.5'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.6'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.3'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

Monday 18 April 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	206°05.4'		180°08.1'	N 10°44.6'	221°06.0'	S 6°59.2'	210°05.7'	S 2°52.0'	239°59.2'	S 14°38.2'	231°25.2'	S 12°00.6'
1	221°07.9'		195°08.2'	N 10°45.5'	236°05.8'	S 6°58.3'	225°07.6'	S 2°51.8'	255°01.4'	S 14°38.1'	246°25.9'	S 11°59.9'
2	236°10.4'		210°08.4'	N 10°46.4'	251°05.6'	S 6°57.4'	240°09.6'	S 2°51.6'	270°03.7'	S 14°38.1'	261°26.5'	S 11°59.3'
3	251°12.8'		225°08.5'	N 10°47.2'	266°05.5'	S 6°56.5'	255°11.5'	S 2°51.3'	285°06.0'	S 14°38.0'	276°27.2'	S 11°58.6'
4	266°15.3'		240°08.7'	N 10°48.1'	281°05.3'	S 6°55.6'	270°13.5'	S 2°51.1'	300°08.3'	S 14°37.9'	291°27.8'	S 11°58.0'
5	281°17.8'		255°08.8'	N 10°49.0'	296°05.1'	S 6°54.7'	285°15.4'	S 2°50.9'	315°10.6'	S 14°37.9'	306°28.5'	S 11°57.3'
6	296°20.2'		270°08.9'	N 10°49.9'	311°04.9'	S 6°53.8'	300°17.4'	S 2°50.7'	330°12.9'	S 14°37.8'	321°29.1'	S 11°56.7'
7	311°22.7'		285°09.1'	N 10°50.7'	326°04.7'	S 6°52.9'	315°19.4'	S 2°50.5'	345°15.2'	S 14°37.8'	336°29.8'	S 11°56.0'
8	326°25.1'		300°09.2'	N 10°51.6'	341°04.6'	S 6°52.0'	330°21.3'	S 2°50.3'	0°17.4'	S 14°37.7'	351°30.4'	S 11°55.3'
9	341°27.6'		315°09.4'	N 10°52.5'	356°04.4'	S 6°51.0'	345°23.3'	S 2°50.1'	15°19.7'	S 14°37.7'	6°31.1'	S 11°54.7'
10	356°30.1'		330°09.5'	N 10°53.4'	11°04.2'	S 6°50.1'	0°25.2'	S 2°49.8'	30°22.0'	S 14°37.6'	21°31.7'	S 11°54.0'
11	11°32.5'		345°09.6'	N 10°54.2'	26°04.0'	S 6°49.2'	15°27.2'	S 2°49.6'	45°24.3'	S 14°37.6'	36°32.4'	S 11°53.4'
12	26°35.0'		0°09.8'	N 10°55.1'	41°03.8'	S 6°48.3'	30°29.1'	S 2°49.4'	60°26.6'	S 14°37.5'	51°33.0'	S 11°52.7'
13	41°37.5'		15°09.9'	N 10°56.0'	56°03.6'	S 6°47.4'	45°31.1'	S 2°49.2'	75°28.9'	S 14°37.5'	66°33.7'	S 11°52.1'
14	56°39.9'		30°10.0'	N 10°56.8'	71°03.5'	S 6°46.5'	60°33.0'	S 2°49.0'	90°31.2'	S 14°37.4'	81°34.3'	S 11°51.4'
15	71°42.4'		45°10.2'	N 10°57.7'	86°03.3'	S 6°45.6'	75°35.0'	S 2°48.8'	105°33.4'	S 14°37.4'	96°35.0'	S 11°50.7'
16	86°44.9'		60°10.3'	N 10°58.6'	101°03.1'	S 6°44.7'	90°36.9'	S 2°48.6'	120°35.7'	S 14°37.3'	111°35.7'	S 11°50.1'
17	101°47.3'		75°10.5'	N 10°59.4'	116°02.9'	S 6°43.8'	105°38.9'	S 2°48.3'	135°38.0'	S 14°37.3'	126°36.3'	S 11°49.4'
18	116°49.8'		90°10.6'	N 11°00.3'	131°02.7'	S 6°42.9'	120°40.8'	S 2°48.1'	150°40.3'	S 14°37.2'	141°37.0'	S 11°48.8'
19	131°52.2'		105°10.7'	N 11°01.2'	146°02.5'	S 6°41.9'	135°42.8'	S 2°47.9'	165°42.6'	S 14°37.1'	156°37.6'	S 11°48.1'
20	146°54.7'		120°10.9'	N 11°02.0'	161°02.4'	S 6°41.0'	150°44.7'	S 2°47.7'	180°44.9'	S 14°37.1'	171°38.3'	S 11°47.5'
21	161°57.2'		135°11.0'	N 11°02.9'	176°02.2'	S 6°40.1'	165°46.7'	S 2°47.5'	195°47.2'	S 14°37.0'	186°38.9'	S 11°46.8'
22	176°59.6'		150°11.2'	N 11°03.8'	191°02.0'	S 6°39.2'	180°48.7'	S 2°47.3'	210°49.5'	S 14°37.0'	201°39.6'	S 11°46.1'
23	192°02.1'		165°11.3'	N 11°04.6'	206°01.8'	S 6°38.3'	195°50.6'	S 2°47.0'	225°51.7'	S 14°36.9'	216°40.2'	S 11°45.5'
			SD 15.9'	d 0.9'	v -0.2'	d 0.9'	v 2.0'	d 0.2'	v 2.3'	d 0.1'	v 0.7'	d 0.7'
Mer. pass.			11 h 59 m 21 s		9 h 16 m		9 h 58 m		7 h 59 m		8 h 34 m	

h	Moon				Lunar distance										
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara		
0	344°11.0'	S 15°20.4'	8.7'	-13.8'	59.7'				99°19.4'	79°08.0'	26°28.0'	20°10.2'	35°14.3'	73°59.2'	104°46.7'
1	358°38.7'	S 15°34.2'	8.6'	-13.7'	59.7'				98°43.4'	78°38.3'	25°52.0'	20°45.6'	35°35.3'	74°35.3'	105°05.5'
2	13°06.3'	S 15°47.9'	8.5'	-13.6'	59.7'				98°07.4'	78°08.6'	25°16.0'	21°20.9'	35°56.7'	75°11.4'	105°24.2'
3	27°33.7'	S 16°01.5'	8.4'	-13.5'	59.7'				97°31.4'	77°38.9'	24°40.0'	21°56.4'	36°18.5'	75°47.6'	105°42.9'
4	42°01.1'	S 16°15.0'	8.3'	-13.4'	59.8'				96°55.4'	77°09.2'	24°04.0'	22°31.8'	36°40.6'	76°23.7'	106°01.4'
5	56°28.4'	S 16°28.4'	8.2'	-13.3'	59.8'				96°19.4'	76°39.6'	23°28.0'	23°07.4'	37°03.0'	76°59.9'	106°19.9'
6	70°55.6'	S 16°41.7'	8.1'	-13.2'	59.8'				95°43.4'	76°09.9'	22°52.0'	23°43.0'	37°25.8'	77°36.1'	106°38.4'
7	85°22.8'	S 16°55.0'	8.0'	-13.1'	59.8'				95°07.3'	75°40.3'	22°16.0'	24°18.6'	37°48.8'	78°12.3'	106°56.7'
8	99°49.8'	S 17°08.1'	7.9'	-13.0'	59.8'				94°31.2'	75°10.7'	21°40.0'	24°54.3'	38°12.2'	78°48.5'	107°15.0'
9	114°16.7'	S 17°21.1'	7.8'	-12.9'	59.8'				93°55.2'	74°41.2'	21°04.0'	25°30.0'	38°35.8'	79°24.8'	107°33.1'
10	128°43.5'	S 17°34.1'	7.7'	-12.8'	59.8'				93°19.1'	74°11.6'	20°28.0'	26°05.8'	38°59.7'	80°01.0'	107°51.2'
11	143°10.3'	S 17°46.9'	7.6'	-12.7'	59.8'				92°43.0'	73°42.1'	19°52.0'	26°41.6'	39°23.9'	80°37.3'	108°09.2'
12	157°36.9'	S 17°59.6'	7.5'	-12.6'	59.9'				92°06.9'	73°12.6'	19°16.1'	27°17.4'	39°48.4'	81°13.5'	108°27.1'
13	172°03.4'	S 18°12.2'	7.4'	-12.5'	59.9'				91°30.7'	72°43.2'	18°40.2'	27°53.3'	40°13.1'	81°49.8'	108°44.9'
14	186°29.9'	S 18°24.7'	7.4'	-12.4'	59.9'				90°54.6'	72°13.8'	18°04.2'	28°29.2'	40°38.1'	82°26.1'	109°02.7'
15	200°56.2'	S 18°37.2'	7.3'	-12.3'	59.9'				90°18.5'	71°44.4'	17°28.4'	29°05.1'	41°03.3'	83°02.4'	109°20.3'
16	215°22.5'	S 18°49.4'	7.2'	-12.2'	59.9'	96°00.2'			89°42.3'	71°15.0'	16°52.5'	29°41.1'	41°28.8'	83°38.7'	109°37.8'
17	229°48.7'	S 19°01.6'	7.1'	-12.1'	59.9'	95°45.2'			89°06.2'	70°45.7'	16°16.7'	30°17.0'	41°54.5'	84°15.0'	109°55.2'
18	244°14.7'	S 19°13.7'	7.0'	-11.9'	59.9'	95°30.1'			88°30.0'	70°16.5'	15°40.9'	30°53.0'	42°20.4'	84°51.3'	110°12.6'
19	258°40.7'	S 19°25.6'	6.9'	-11.8'	59.9'	95°15.0'			87°53.8'	69°47.3'	15°05.1'	31°29.1'	42°46.5'	85°27.6'	110°29.8'
20	273°06.6'	S 19°37.4'	6.8'	-11.7'	59.9'	94°59.9'			87°17.6'	69°18.1'	14°29.4'	32°05.1'	43°12.8'	86°04.0'	110°46.9'
21	287°32.3'	S 19°49.1'	6.7'	-11.6'	59.9'	94°44.7'			86°41.5'	68°49.0'	13°53.8'	32°41.2'	43°39.4'	86°40.3'	111°03.9'
22	301°58.0'	S 20°00.7'	6.6'	-11.5'	59.9'	94°29.5'			86°05.3'	68°19.9'	13°18.2'	33°17.3'	44°06.1'	87°16.7'	111°20.7'
23	316°23.6'	S 20°12.2'	6.5'	-11.3'	59.9'	94°14.3'			85°29.1'	67°50.9'	12°42.8'	33°53.4'	44°33.0'	87°53.0'	111°37.5'
Mer. pass.			1 h 6 m SD 16.3'	phase 98%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.2'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.6'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.6'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	207°04.6'	180°11.4'	N 11°05.5'	221°01.6'	S 6°37.4'	210°52.6'	S 2°46.8'	240°54.0'	S 14°36.9'	231°40.9'	S 11°44.8'	
1	222°07.0'	195°11.6'	N 11°06.4'	236°01.5'	S 6°36.5'	225°54.5'	S 2°46.6'	255°56.3'	S 14°36.8'	246°41.5'	S 11°44.2'	
2	237°09.5'	210°11.7'	N 11°07.2'	251°01.3'	S 6°35.5'	240°56.5'	S 2°46.4'	270°58.6'	S 14°36.8'	261°42.2'	S 11°43.5'	
3	252°12.0'	225°11.8'	N 11°08.1'	266°01.1'	S 6°34.6'	255°58.4'	S 2°46.2'	286°00.9'	S 14°36.7'	276°42.9'	S 11°42.8'	
4	267°14.4'	240°12.0'	N 11°09.0'	281°00.9'	S 6°33.7'	271°00.4'	S 2°46.0'	301°03.2'	S 14°36.7'	291°43.5'	S 11°42.2'	
5	282°16.9'	255°12.1'	N 11°09.8'	296°00.7'	S 6°32.8'	286°02.3'	S 2°45.8'	316°05.5'	S 14°36.6'	306°44.2'	S 11°41.5'	
6	297°19.4'	270°12.2'	N 11°10.7'	311°00.5'	S 6°31.9'	301°04.3'	S 2°45.5'	331°07.8'	S 14°36.6'	321°44.8'	S 11°40.9'	
7	312°21.8'	285°12.4'	N 11°11.6'	326°00.4'	S 6°31.0'	316°06.2'	S 2°45.3'	346°10.1'	S 14°36.5'	336°45.5'	S 11°40.2'	
8	327°24.3'	300°12.5'	N 11°12.4'	341°00.2'	S 6°30.0'	331°08.2'	S 2°45.1'	1°12.3'	S 14°36.5'	351°46.1'	S 11°39.5'	
9	342°26.7'	315°12.7'	N 11°13.3'	355°60.0'	S 6°29.1'	346°10.2'	S 2°44.9'	16°14.6'	S 14°36.4'	6°46.8'	S 11°38.9'	
10	357°29.2'	330°12.8'	N 11°14.2'	10°59.8'	S 6°28.2'	1°12.1'	S 2°44.7'	31°16.9'	S 14°36.4'	21°47.4'	S 11°38.2'	
11	12°31.7'	345°12.9'	N 11°15.0'	25°59.6'	S 6°27.3'	16°14.1'	S 2°44.5'	46°19.2'	S 14°36.3'	36°48.1'	S 11°37.6'	
12	27°34.1'	0°13.1'	N 11°15.9'	40°59.4'	S 6°26.4'	31°16.0'	S 2°44.3'	61°21.5'	S 14°36.3'	51°48.8'	S 11°36.9'	
13	42°36.6'	15°13.2'	N 11°16.7'	55°59.3'	S 6°25.4'	46°18.0'	S 2°44.1'	76°23.8'	S 14°36.2'	66°49.4'	S 11°36.2'	
14	57°39.1'	30°13.3'	N 11°17.6'	70°59.1'	S 6°24.5'	61°19.9'	S 2°43.8'	91°26.1'	S 14°36.1'	81°50.1'	S 11°35.6'	
15	72°41.5'	45°13.5'	N 11°18.5'	85°58.9'	S 6°23.6'	76°21.9'	S 2°43.6'	106°28.4'	S 14°36.1'	96°50.7'	S 11°34.9'	
16	87°44.0'	60°13.6'	N 11°19.3'	100°58.7'	S 6°22.7'	91°23.8'	S 2°43.4'	121°30.7'	S 14°36.0'	111°51.4'	S 11°34.2'	
17	102°46.5'	75°13.7'	N 11°20.2'	115°58.5'	S 6°21.7'	106°25.8'	S 2°43.2'	136°33.0'	S 14°36.0'	126°52.0'	S 11°33.6'	
18	117°48.9'	90°13.9'	N 11°21.1'	130°58.3'	S 6°20.8'	121°27.8'	S 2°43.0'	151°35.2'	S 14°35.9'	141°52.7'	S 11°32.9'	
19	132°51.4'	105°14.0'	N 11°21.9'	145°58.2'	S 6°19.9'	136°29.7'	S 2°42.8'	166°37.5'	S 14°35.9'	156°53.4'	S 11°32.3'	
20	147°53.9'	120°14.1'	N 11°22.8'	160°58.0'	S 6°19.0'	151°31.7'	S 2°42.6'	181°39.8'	S 14°35.8'	171°54.0'	S 11°31.6'	
21	162°56.3'	135°14.3'	N 11°23.6'	175°57.8'	S 6°18.1'	166°33.6'	S 2°42.3'	196°42.1'	S 14°35.8'	186°54.7'	S 11°30.9'	
22	177°58.8'	150°14.4'	N 11°24.5'	190°57.6'	S 6°17.1'	181°35.6'	S 2°42.1'	211°44.4'	S 14°35.7'	201°55.3'	S 11°30.3'	
23	193°01.2'	165°14.5'	N 11°25.4'	205°57.4'	S 6°16.2'	196°37.5'	S 2°41.9'	226°46.7'	S 14°35.7'	216°56.0'	S 11°29.6'	
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 2.0' d 0.2'		v 2.3' d 0.1'		v 0.7' d 0.7'		
Mer. pass.		11 h 59 m 8 s		9 h 16 m		9 h 55 m		7 h 55 m		8 h 33 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	330°49.1'	S 20°23.5'	6.4'	-11.2'	59.9'	93°59.1'	84°52.9'	67°21.9'	12°07.4'	34°29.5'	45°00.1'	88°29.4'	111°54.1'
1	345°14.5'	S 20°34.7'	6.3'	-11.1'	59.9'	93°43.8'	84°16.7'	66°53.0'	11°32.1'	35°05.6'	45°27.3'	89°05.7'	112°10.6'
2	359°39.8'	S 20°45.8'	6.2'	-10.9'	60.0'	93°28.5'	83°40.5'	66°24.1'	10°56.9'	35°41.8'	45°54.8'	89°42.1'	112°27.0'
3	14°05.0'	S 20°56.7'	6.1'	-10.8'	60.0'	93°13.2'	83°04.2'	65°55.3'	10°21.9'	36°17.9'	46°22.4'	90°18.5'	112°43.3'
4	28°30.1'	S 21°07.5'	6.0'	-10.7'	60.0'	92°57.9'	82°28.0'	65°26.6'	9°47.0'	36°54.1'	46°50.1'	90°54.8'	112°59.4'
5	42°55.1'	S 21°18.2'	5.9'	-10.5'	60.0'	92°42.6'	81°51.8'	64°58.0'	9°12.4'	37°30.3'	47°18.0'	91°31.2'	113°15.4'
6	57°20.1'	S 21°28.7'	5.8'	-10.4'	60.0'	92°27.2'	81°15.6'	64°29.4'	8°38.0'	38°06.5'	47°46.1'	92°07.6'	113°31.3'
7	71°44.9'	S 21°39.1'	5.7'	-10.2'	60.0'	92°11.8'	80°39.4'	64°00.8'	8°03.9'	38°42.7'	48°14.3'	92°44.0'	113°47.0'
8	86°09.6'	S 21°49.3'	5.7'	-10.1'	60.0'	91°56.4'	80°03.1'	63°32.4'	7°30.2'	39°18.9'	48°42.6'	93°20.3'	114°02.6'
9	100°34.3'	S 21°59.4'	5.6'	-10.0'	60.0'	91°41.0'	79°26.9'	63°04.0'	6°57.0'	39°55.1'	49°11.1'	93°56.7'	114°18.1'
10	114°58.9'	S 22°09.4'	5.5'	-9.8'	60.0'	91°25.6'	78°50.7'	62°35.7'	6°24.4'	40°31.3'	49°39.7'	94°33.1'	114°33.4'
11	129°23.4'	S 22°19.2'	5.4'	-9.7'	60.0'	91°10.2'	78°14.5'	62°07.5'		41°07.6'	50°08.5'	95°09.5'	114°48.6'
12	143°47.7'	S 22°28.9'	5.3'	-9.5'	60.0'	90°54.8'	77°38.3'	61°39.4'		41°43.8'	50°37.3'	95°45.8'	
13	158°12.1'	S 22°38.4'	5.2'	-9.4'	60.0'	90°39.4'	77°02.0'	61°11.3'		42°20.0'	51°06.3'	96°22.2'	
14	172°36.3'	S 22°47.8'	5.1'	-9.2'	60.0'	90°23.9'	76°25.8'	60°43.4'		42°56.3'	51°35.4'	96°58.6'	
15	187°00.4'	S 22°57.0'	5.1'	-9.1'	60.0'	90°08.5'	75°49.6'	60°15.5'		43°32.5'	52°04.6'	97°35.0'	
16	201°24.5'	S 23°06.0'	5.0'	-8.9'	60.0'	89°53.1'	75°13.4'	59°47.7'		44°08.8'	52°33.9'	98°11.3'	
17	215°48.4'	S 23°14.9'	4.9'	-8.7'	60.0'	89°37.7'	74°37.2'	59°20.1'		44°45.1'	53°03.3'	98°47.7'	
18	230°12.3'	S 23°23.7'	4.8'	-8.6'	60.0'	89°22.2'	74°01.0'	58°52.5'		45°21.3'	53°32.8'	99°24.1'	
19	244°36.1'	S 23°32.3'	4.7'	-8.4'	60.0'	89°06.8'	73°24.8'	58°25.0'		45°57.6'	54°02.4'	100°00.4'	
20	258°59.8'	S 23°40.7'	4.6'	-8.3'	60.0'	88°51.4'	72°48.6'	57°57.7'		46°33.8'	54°32.1'	100°36.8'	
21	273°23.5'	S 23°49.0'	4.6'	-8.1'	60.0'	88°36.0'	72°12.4'	57°30.4'		47°10.1'	55°01.9'	101°13.1'	
22	287°47.1'	S 23°57.1'	4.5'	-7.9'	60.0'	88°20.6'	71°36.2'	57°03.3'		47°46.4'	55°31.7'	101°49.5'	
23	302°10.6'	S 24°05.0'	4.4'	-7.8'	60.0'	88°05.2'	71°00.0'	56°36.3'		48°22.6'	56°01.7'	102°25.8'	
Mer. pass.		2 h 1 m SD 16.3'		phase 93%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.2'	N 5°10.0'	Polaris	+2.0	315°33.6'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.6'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	208°03.7'	180°14.7'	N 11°26.2'	220°57.2'	S 6°15.3'	211°39.5'	S 2°41.7'	241°49.0'	S 14°35.6'	231°56.6'	S 11°28.9'
1	223°06.2'	195°14.8'	N 11°27.1'	235°57.1'	S 6°14.3'	226°41.4'	S 2°41.5'	256°51.3'	S 14°35.6'	246°57.3'	S 11°28.3'
2	238°08.6'	210°14.9'	N 11°27.9'	250°56.9'	S 6°13.4'	241°43.4'	S 2°41.3'	271°53.6'	S 14°35.5'	261°58.0'	S 11°27.6'
3	253°11.1'	225°15.1'	N 11°28.8'	265°56.7'	S 6°12.5'	256°45.4'	S 2°41.1'	286°55.9'	S 14°35.5'	276°58.6'	S 11°27.0'
4	268°13.6'	240°15.2'	N 11°29.6'	280°56.5'	S 6°11.6'	271°47.3'	S 2°40.8'	301°58.2'	S 14°35.4'	291°59.3'	S 11°26.3'
5	283°16.0'	255°15.3'	N 11°30.5'	295°56.3'	S 6°10.6'	286°49.3'	S 2°40.6'	317°00.4'	S 14°35.4'	306°59.9'	S 11°25.6'
6	298°18.5'	270°15.5'	N 11°31.4'	310°56.1'	S 6°09.7'	301°51.2'	S 2°40.4'	332°02.7'	S 14°35.3'	322°00.6'	S 11°25.0'
7	313°21.0'	285°15.6'	N 11°32.2'	325°56.0'	S 6°08.8'	316°53.2'	S 2°40.2'	347°05.0'	S 14°35.3'	337°01.3'	S 11°24.3'
8	328°23.4'	300°15.7'	N 11°33.1'	340°55.8'	S 6°07.9'	331°55.1'	S 2°40.0'	2°07.3'	S 14°35.2'	352°01.9'	S 11°23.6'
9	343°25.9'	315°15.9'	N 11°33.9'	355°55.6'	S 6°06.9'	346°57.1'	S 2°39.8'	17°09.6'	S 14°35.2'	7°02.6'	S 11°23.0'
10	358°28.4'	330°16.0'	N 11°34.8'	10°55.4'	S 6°06.0'	1°59.1'	S 2°39.6'	32°11.9'	S 14°35.1'	22°03.2'	S 11°22.3'
11	13°30.8'	345°16.1'	N 11°35.6'	25°55.2'	S 6°05.1'	17°01.0'	S 2°39.4'	47°14.2'	S 14°35.1'	37°03.9'	S 11°21.6'
12	28°33.3'	0°16.2'	N 11°36.5'	40°55.0'	S 6°04.1'	32°03.0'	S 2°39.1'	62°16.5'	S 14°35.0'	52°04.6'	S 11°21.0'
13	43°35.7'	15°16.4'	N 11°37.3'	55°54.9'	S 6°03.2'	47°04.9'	S 2°38.9'	77°18.8'	S 14°35.0'	67°05.2'	S 11°20.3'
14	58°38.2'	30°16.5'	N 11°38.2'	70°54.7'	S 6°02.3'	62°06.9'	S 2°38.7'	92°21.1'	S 14°34.9'	82°05.9'	S 11°19.6'
15	73°40.7'	45°16.6'	N 11°39.1'	85°54.5'	S 6°01.3'	77°08.8'	S 2°38.5'	107°23.4'	S 14°34.9'	97°06.5'	S 11°19.0'
16	88°43.1'	60°16.8'	N 11°39.9'	100°54.3'	S 6°00.4'	92°10.8'	S 2°38.3'	122°25.7'	S 14°34.8'	112°07.2'	S 11°18.3'
17	103°45.6'	75°16.9'	N 11°40.8'	115°54.1'	S 5°59.5'	107°12.8'	S 2°38.1'	137°28.0'	S 14°34.8'	127°07.9'	S 11°17.6'
18	118°48.1'	90°17.0'	N 11°41.6'	130°53.9'	S 5°58.5'	122°14.7'	S 2°37.9'	152°30.3'	S 14°34.7'	142°08.5'	S 11°17.0'
19	133°50.5'	105°17.2'	N 11°42.5'	145°53.8'	S 5°57.6'	137°16.7'	S 2°37.7'	167°32.5'	S 14°34.7'	157°09.2'	S 11°16.3'
20	148°53.0'	120°17.3'	N 11°43.3'	160°53.6'	S 5°56.7'	152°18.6'	S 2°37.4'	182°34.8'	S 14°34.6'	172°09.8'	S 11°15.6'
21	163°55.5'	135°17.4'	N 11°44.2'	175°53.4'	S 5°55.7'	167°20.6'	S 2°37.2'	197°37.1'	S 14°34.6'	187°10.5'	S 11°15.0'
22	178°57.9'	150°17.5'	N 11°45.0'	190°53.2'	S 5°54.8'	182°22.5'	S 2°37.0'	212°39.4'	S 14°34.5'	202°11.2'	S 11°14.3'
23	194°00.4'	165°17.7'	N 11°45.9'	205°53.0'	S 5°53.9'	197°24.5'	S 2°36.8'	227°41.7'	S 14°34.5'	217°11.8'	S 11°13.6'
		SD 15.9' d 0.9'		v -0.2' d 0.9'		v 2.0' d 0.2'		v 2.3' d 0.1'		v 0.7' d 0.7'	
Mer. pass.		11 h 58 m 55 s		9 h 16 m		9 h 52 m		7 h 52 m		8 h 32 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Mars	-Saturn	-Altair	+Antares	+Hadar	+Spica	+Arcturus
0	316°34.0'	S 24°12.8'	4.4'	-7.6'	60.0'	80°56.5'	80°28.8'	70°23.9'	56°09.4'			48°58.9'	56°31.7'
1	330°57.3'	S 24°20.4'	4.3'	-7.4'	60.0'	80°21.5'	79°54.3'	69°47.7'	55°42.6'			49°35.1'	57°01.8'
2	345°20.6'	S 24°27.8'	4.2'	-7.3'	60.0'	79°46.5'	79°19.8'	69°11.5'	55°15.9'			50°11.4'	57°32.0'
3	359°43.8'	S 24°35.1'	4.1'	-7.1'	60.0'	79°11.5'	78°45.3'	68°35.4'	54°49.4'			50°47.6'	58°02.3'
4	14°07.0'	S 24°42.2'	4.1'	-6.9'	60.0'	78°36.5'	78°10.8'	67°59.2'	54°23.0'			51°23.9'	58°32.6'
5	28°30.1'	S 24°49.1'	4.0'	-6.7'	60.0'	78°01.6'	77°36.4'	67°23.1'	53°56.8'	6°35.2'		52°00.1'	59°03.0'
6	42°53.1'	S 24°55.8'	4.0'	-6.6'	59.9'	77°26.6'	77°01.9'	66°47.0'	53°30.7'	7°08.0'		52°36.3'	59°33.4'
7	57°16.0'	S 25°02.4'	3.9'	-6.4'	59.9'	76°51.7'	76°27.5'	66°10.9'	53°04.7'	7°41.3'		53°12.6'	60°03.9'
8	71°38.9'	S 25°08.8'	3.8'	-6.2'	59.9'	76°16.8'	75°53.1'	65°34.8'	52°38.9'	8°15.0'		53°48.8'	60°34.5'
9	86°01.8'	S 25°15.0'	3.8'	-6.0'	59.9'	75°41.9'	75°18.6'	64°58.7'	52°13.2'	8°49.1'		54°25.0'	61°05.1'
10	100°24.6'	S 25°21.1'	3.7'	-5.9'	59.9'	75°07.0'	74°44.2'	64°22.6'	51°47.7'	9°23.5'		55°01.2'	61°35.8'
11	114°47.3'	S 25°26.9'	3.7'	-5.7'	59.9'	74°32.2'	74°09.8'	63°46.5'	51°22.4'	9°58.1'		55°37.4'	62°06.5'
12	129°10.0'	S 25°32.6'	3.6'	-5.5'	59.9'	73°57.3'	73°35.4'	63°10.4'	50°57.2'	10°32.9'		56°13.6'	62°37.3'
13	143°32.6'	S 25°38.1'	3.6'	-5.3'	59.9'	73°22.5'	73°01.1'	62°34.4'	50°32.2'	11°07.8'		56°49.8'	63°08.1'
14	157°55.2'	S 25°43.4'	3.5'	-5.1'	59.9'	72°47.7'	72°26.7'	61°58.3'	50°07.4'	11°42.8'		57°26.0'	63°39.0'
15	172°17.7'	S 25°48.6'	3.5'	-5.0'	59.9'	72°12.9'	71°52.3'	61°22.3'	49°42.8'	12°18.0'		58°02.1'	64°09.9'
16	186°40.2'	S 25°53.5'	3.4'	-4.8'	59.9'	71°38.2'	71°18.0'	60°46.3'	49°18.3'	12°53.3'		58°38.3'	64°40.9'
17	201°02.6'	S 25°58.3'	3.4'	-4.6'	59.9'	71°03.4'	70°43.7'	60°10.3'	48°54.0'	13°28.6'		59°14.5'	65°11.9'
18	215°25.0'	S 26°02.9'	3.4'	-4.4'	59.9'	70°28.7'	70°09.3'	59°34.3'	48°29.9'	14°04.1'		59°50.6'	65°42.9'
19	229°47.4'	S 26°07.3'	3.3'	-4.2'	59.9'	69°54.0'	69°35.0'	58°58.4'	48°06.1'	14°39.5'	49°21.9'	60°26.7'	66°14.0'
20	244°09.7'	S 26°11.5'	3.3'	-4.0'	59.9'	69°19.3'	69°00.7'	58°22.4'	47°42.4'	15°15.1'	49°36.9'	61°02.8'	66°45.1'
21	258°32.0'	S 26°15.5'	3.3'	-3.8'	59.8'	68°44.7'	68°26.5'	57°46.5'	47°18.9'	15°50.6'	49°52.2'	61°38.9'	67°16.2'
22	272°54.3'	S 26°19.3'	3.2'	-3.6'	59.8'	68°10.1'	67°52.2'	57°10.5'	46°55.7'	16°26.2'	50°07.8'	62°15.0'	67°47.4'
23	287°16.5'	S 26°23.0'	3.2'	-3.5'	59.8'	67°35.5'	67°18.0'	56°34.6'	46°32.7'	17°01.8'	50°23.6'	62°51.1'	68°18.6'
Mer. pass.		3 h 1 m SD 16.4'		phase 86%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°47.9'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.6'	N 89°21.5'
Rigil Kent	-0.0	139°42.8'	S 60°55.6'	Adhara	+1.5	255°07.7'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.6'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	209°02.8'	180°17.8'	N 11°46.7'	220°52.8'	S 5°52.9'	212°26.5'	S 2°36.6'	242°44.0'	S 14°34.4'	232°12.5'	S 11°13.0'	
1	224°05.3'	195°17.9'	N 11°47.6'	235°52.7'	S 5°52.0'	227°28.4'	S 2°36.4'	257°46.3'	S 14°34.4'	247°13.1'	S 11°12.3'	
2	239°07.8'	210°18.1'	N 11°48.4'	250°52.5'	S 5°51.0'	242°30.4'	S 2°36.2'	272°48.6'	S 14°34.3'	262°13.8'	S 11°11.6'	
3	254°10.2'	225°18.2'	N 11°49.3'	265°52.3'	S 5°50.1'	257°32.3'	S 2°36.0'	287°50.9'	S 14°34.3'	277°14.5'	S 11°11.0'	
4	269°12.7'	240°18.3'	N 11°50.1'	280°52.1'	S 5°49.2'	272°34.3'	S 2°35.7'	302°53.2'	S 14°34.2'	292°15.1'	S 11°10.3'	
5	284°15.2'	255°18.4'	N 11°51.0'	295°51.9'	S 5°48.2'	287°36.3'	S 2°35.5'	317°55.5'	S 14°34.2'	307°15.8'	S 11°09.6'	
6	299°17.6'	270°18.6'	N 11°51.8'	310°51.7'	S 5°47.3'	302°38.2'	S 2°35.3'	332°57.8'	S 14°34.1'	322°16.4'	S 11°09.0'	
7	314°20.1'	285°18.7'	N 11°52.7'	325°51.6'	S 5°46.4'	317°40.2'	S 2°35.1'	348°00.1'	S 14°34.0'	337°17.1'	S 11°08.3'	
8	329°22.6'	300°18.8'	N 11°53.5'	340°51.4'	S 5°45.4'	332°42.1'	S 2°34.9'	3°02.4'	S 14°34.0'	352°17.8'	S 11°07.6'	
9	344°25.0'	315°18.9'	N 11°54.4'	355°51.2'	S 5°44.5'	347°44.1'	S 2°34.7'	18°04.7'	S 14°33.9'	7°18.4'	S 11°07.0'	
10	359°27.5'	330°19.1'	N 11°55.2'	10°51.0'	S 5°43.5'	2°46.1'	S 2°34.5'	33°07.0'	S 14°33.9'	22°19.1'	S 11°06.3'	
11	14°30.0'	345°19.2'	N 11°56.1'	25°50.8'	S 5°42.6'	17°48.0'	S 2°34.3'	48°09.3'	S 14°33.8'	37°19.8'	S 11°05.6'	
12	29°32.4'	0°19.3'	N 11°56.9'	40°50.6'	S 5°41.6'	32°50.0'	S 2°34.0'	63°11.6'	S 14°33.8'	52°20.4'	S 11°05.0'	
13	44°34.9'	15°19.4'	N 11°57.8'	55°50.5'	S 5°40.7'	47°51.9'	S 2°33.8'	78°13.9'	S 14°33.7'	67°21.1'	S 11°04.3'	
14	59°37.3'	30°19.6'	N 11°58.6'	70°50.3'	S 5°39.8'	62°53.9'	S 2°33.6'	93°16.2'	S 14°33.7'	82°21.7'	S 11°03.6'	
15	74°39.8'	45°19.7'	N 11°59.5'	85°50.1'	S 5°38.8'	77°55.9'	S 2°33.4'	108°18.5'	S 14°33.6'	97°22.4'	S 11°02.9'	
16	89°42.3'	60°19.8'	N 12°00.3'	100°49.9'	S 5°37.9'	92°57.8'	S 2°33.2'	123°20.7'	S 14°33.6'	112°23.1'	S 11°02.3'	
17	104°44.7'	75°19.9'	N 12°01.1'	115°49.7'	S 5°36.9'	107°59.8'	S 2°33.0'	138°23.0'	S 14°33.5'	127°23.7'	S 11°01.6'	
18	119°47.2'	90°20.1'	N 12°02.0'	130°49.5'	S 5°36.0'	123°01.7'	S 2°32.8'	153°25.3'	S 14°33.5'	142°24.4'	S 11°00.9'	
19	134°49.7'	105°20.2'	N 12°02.8'	145°49.4'	S 5°35.0'	138°03.7'	S 2°32.6'	168°27.6'	S 14°33.4'	157°25.1'	S 11°00.3'	
20	149°52.1'	120°20.3'	N 12°03.7'	160°49.2'	S 5°34.1'	153°05.7'	S 2°32.3'	183°29.9'	S 14°33.4'	172°25.7'	S 10°59.6'	
21	164°54.6'	135°20.4'	N 12°04.5'	175°49.0'	S 5°33.2'	168°07.6'	S 2°32.1'	198°32.2'	S 14°33.4'	187°26.4'	S 10°58.9'	
22	179°57.1'	150°20.6'	N 12°05.4'	190°48.8'	S 5°32.2'	183°09.6'	S 2°31.9'	213°34.5'	S 14°33.3'	202°27.1'	S 10°58.2'	
23	194°59.5'	165°20.7'	N 12°06.2'	205°48.6'	S 5°31.3'	198°11.5'	S 2°31.7'	228°36.8'	S 14°33.3'	217°27.7'	S 10°57.6'	
		SD 15.9' d 0.8'		v -0.2' d 0.9'		v 2.0' d 0.2'		v 2.3' d 0.1'		v 0.7' d 0.7'		
Mer. pass.		11 h 58 m 43 s		9 h 17 m		9 h 49 m		7 h 48 m		8 h 31 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Mars	-Saturn	-Altair	+Antares	+Rigil Kent	+Hadar	+Acrux
0	301°38.7'	S 26°26.5'	3.2'	-3.3'	59.8'		66°43.7'	55°58.7'	46°09.8'	17°37.5'		50°39.7'	62°19.1'
1	316°00.9'	S 26°29.7'	3.2'	-3.1'	59.8'		66°09.5'	55°22.8'	45°47.3'	18°13.2'	46°59.4'	50°56.0'	62°34.3'
2	330°23.1'	S 26°32.8'	3.2'	-2.9'	59.8'		65°35.3'	54°47.0'	45°24.9'	18°48.9'	47°14.5'	51°12.6'	62°49.7'
3	344°45.3'	S 26°35.7'	3.1'	-2.7'	59.8'		65°01.1'	54°11.1'	45°02.9'	19°24.6'	47°29.9'	51°29.4'	63°05.3'
4	359°07.4'	S 26°38.4'	3.1'	-2.5'	59.8'		64°26.9'	53°35.3'	44°41.0'	20°00.3'	47°45.6'	51°46.4'	63°21.0'
5	13°29.5'	S 26°40.9'	3.1'	-2.3'	59.8'		63°52.8'	52°59.5'	44°19.4'	20°36.0'	48°01.6'	52°03.6'	63°36.9'
6	27°51.6'	S 26°43.2'	3.1'	-2.1'	59.8'	119°47.2'	63°18.6'	52°23.7'	43°58.1'	21°11.8'	48°17.8'	52°21.1'	63°52.9'
7	42°13.8'	S 26°45.4'	3.1'	-1.9'	59.7'	119°13.5'	62°44.5'	51°47.9'	43°37.0'	21°47.5'	48°34.3'	52°38.7'	64°09.0'
8	56°35.9'	S 26°47.3'	3.1'	-1.7'	59.7'	118°39.9'	62°10.4'	51°12.2'	43°16.3'	22°23.2'	48°51.0'	52°56.6'	64°25.3'
9	70°58.0'	S 26°49.0'	3.1'	-1.6'	59.7'	118°06.3'	61°36.3'	50°36.4'	42°55.8'	22°59.0'	49°08.0'	53°14.7'	64°41.7'
10	85°20.0'	S 26°50.6'	3.1'	-1.4'	59.7'	117°32.7'	61°02.2'	50°00.7'	42°35.5'	23°34.7'	49°25.2'	53°33.0'	64°58.3'
11	99°42.1'	S 26°52.0'	3.1'	-1.2'	59.7'	116°59.1'	60°28.2'	49°25.0'	42°15.6'	24°10.5'	49°42.7'	53°51.5'	65°15.0'
12	114°04.3'	S 26°53.1'	3.1'	-1.0'	59.7'	116°25.5'	59°54.1'	48°49.3'	41°56.0'	24°46.2'	50°00.4'	54°10.2'	65°31.8'
13	128°26.4'	S 26°54.1'	3.1'	-0.8'	59.7'	115°52.0'	59°20.1'	48°13.7'	41°36.7'	25°21.9'	50°18.4'	54°29.1'	65°48.7'
14	142°48.5'	S 26°54.9'	3.1'	-0.6'	59.7'	115°18.5'	58°46.1'	47°38.0'	41°17.7'	25°57.7'	50°36.5'	54°48.1'	66°05.8'
15	157°10.6'	S 26°55.5'	3.1'	-0.4'	59.6'	114°45.0'	58°12.2'	47°02.4'	40°59.0'	26°33.4'	50°54.9'	55°07.4'	66°23.0'
16	171°32.8'	S 26°55.9'	3.2'	-0.2'	59.6'	114°11.5'	57°38.2'	46°26.8'	40°40.6'	27°09.1'	51°13.5'	55°26.8'	66°40.3'
17	185°54.9'	S 26°56.1'	3.2'	-0.0'	59.6'	113°38.0'	57°04.2'	45°51.3'	40°22.6'	27°44.8'	51°32.3'	55°46.4'	66°57.7'
18	200°17.1'	S 26°56.1'	3.2'	0.2'	59.6'	113°04.5'	56°30.3'	45°15.7'	40°04.9'	28°20.5'	51°51.3'	56°06.1'	67°15.2'
19	214°39.3'	S 26°56.0'	3.2'	0.4'	59.6'	112°31.1'	55°56.4'	44°40.2'	39°47.6'	28°56.2'	52°10.5'	56°26.0'	67°32.8'
20	229°01.5'	S 26°55.6'	3.3'	0.5'	59.6'	111°57.7'	55°22.5'	44°04.7'	39°30.6'	29°31.8'	52°30.0'	56°46.1'	67°50.6'
21	243°23.8'	S 26°55.1'	3.3'	0.7'	59.6'	111°24.3'	54°48.7'	43°29.2'	39°14.0'	30°07.5'	52°49.6'	57°06.4'	68°08.4'
22	257°46.1'	S 26°54.3'	3.3'	0.9'	59.5'	110°50.9'	54°14.8'	42°53.7'	38°57.8'	30°43.1'	53°09.4'	57°26.8'	68°26.4'
23	272°08.4'	S 26°53.4'	3.4'	1.1'	59.5'	110°17.5'	53°41.0'	42°18.3'	38°41.9'	31°18.8'	53°29.3'	57°47.3'	68°44.4'
Mer. pass.		4 h 4 m SD 16.3'		phase 77%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.6'	N 89°21.5'
Rigil Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	210°02.0'	180°20.8'	N 12°07.1'	220°48.4'	S 5°30.3'	213°13.5'	S 2°31.5'	243°39.1'	S 14°33.2'	232°28.4'	S 10°56.9'	
1	225°04.5'	195°20.9'	N 12°07.9'	235°48.2'	S 5°29.4'	228°15.5'	S 2°31.3'	258°41.4'	S 14°33.2'	247°29.1'	S 10°56.2'	
2	240°06.9'	210°21.1'	N 12°08.7'	250°48.1'	S 5°28.4'	243°17.4'	S 2°31.1'	273°43.7'	S 14°33.1'	262°29.7'	S 10°55.6'	
3	255°09.4'	225°21.2'	N 12°09.6'	265°47.9'	S 5°27.5'	258°19.4'	S 2°30.9'	288°46.0'	S 14°33.1'	277°30.4'	S 10°54.9'	
4	270°11.8'	240°21.3'	N 12°10.4'	280°47.7'	S 5°26.5'	273°21.4'	S 2°30.7'	303°48.3'	S 14°33.0'	292°31.0'	S 10°54.2'	
5	285°14.3'	255°21.4'	N 12°11.3'	295°47.5'	S 5°25.6'	288°23.3'	S 2°30.4'	318°50.6'	S 14°33.0'	307°31.7'	S 10°53.5'	
6	300°16.8'	270°21.5'	N 12°12.1'	310°47.3'	S 5°24.6'	303°25.3'	S 2°30.2'	333°52.9'	S 14°32.9'	322°32.4'	S 10°52.9'	
7	315°19.2'	285°21.7'	N 12°12.9'	325°47.1'	S 5°23.7'	318°27.2'	S 2°30.0'	348°55.2'	S 14°32.9'	337°33.0'	S 10°52.2'	
8	330°21.7'	300°21.8'	N 12°13.8'	340°47.0'	S 5°22.7'	333°29.2'	S 2°29.8'	3°57.5'	S 14°32.8'	352°33.7'	S 10°51.5'	
9	345°24.2'	315°21.9'	N 12°14.6'	355°46.8'	S 5°21.8'	348°31.2'	S 2°29.6'	18°59.8'	S 14°32.8'	7°34.4'	S 10°50.9'	
10	0°26.6'	330°22.0'	N 12°15.5'	10°46.6'	S 5°20.8'	3°33.1'	S 2°29.4'	34°02.1'	S 14°32.7'	22°35.0'	S 10°50.2'	
11	15°29.1'	345°22.2'	N 12°16.3'	25°46.4'	S 5°19.9'	18°35.1'	S 2°29.2'	49°04.4'	S 14°32.7'	37°35.7'	S 10°49.5'	
12	30°31.6'	0°22.3'	N 12°17.1'	40°46.2'	S 5°18.9'	33°37.0'	S 2°29.0'	64°06.7'	S 14°32.6'	52°36.4'	S 10°48.8'	
13	45°34.0'	15°22.4'	N 12°18.0'	55°46.0'	S 5°18.0'	48°39.0'	S 2°28.8'	79°09.0'	S 14°32.6'	67°37.0'	S 10°48.2'	
14	60°36.5'	30°22.5'	N 12°18.8'	70°45.8'	S 5°17.0'	63°41.0'	S 2°28.5'	94°11.3'	S 14°32.5'	82°37.7'	S 10°47.5'	
15	75°39.0'	45°22.6'	N 12°19.7'	85°45.7'	S 5°16.1'	78°42.9'	S 2°28.3'	109°13.6'	S 14°32.5'	97°38.4'	S 10°46.8'	
16	90°41.4'	60°22.8'	N 12°20.5'	100°45.5'	S 5°15.1'	93°44.9'	S 2°28.1'	124°15.9'	S 14°32.4'	112°39.0'	S 10°46.1'	
17	105°43.9'	75°22.9'	N 12°21.3'	115°45.3'	S 5°14.2'	108°46.9'	S 2°27.9'	139°18.2'	S 14°32.4'	127°39.7'	S 10°45.5'	
18	120°46.3'	90°23.0'	N 12°22.2'	130°45.1'	S 5°13.2'	123°48.8'	S 2°27.7'	154°20.5'	S 14°32.3'	142°40.4'	S 10°44.8'	
19	135°48.8'	105°23.1'	N 12°23.0'	145°44.9'	S 5°12.3'	138°50.8'	S 2°27.5'	169°22.8'	S 14°32.3'	157°41.0'	S 10°44.1'	
20	150°51.3'	120°23.2'	N 12°23.8'	160°44.7'	S 5°11.3'	153°52.7'	S 2°27.3'	184°25.1'	S 14°32.2'	172°41.7'	S 10°43.4'	
21	165°53.7'	135°23.4'	N 12°24.7'	175°44.6'	S 5°10.3'	168°54.7'	S 2°27.1'	199°27.4'	S 14°32.2'	187°42.4'	S 10°42.8'	
22	180°56.2'	150°23.5'	N 12°25.5'	190°44.4'	S 5°09.4'	183°56.7'	S 2°26.9'	214°29.7'	S 14°32.1'	202°43.0'	S 10°42.1'	
23	195°58.7'	165°23.6'	N 12°26.3'	205°44.2'	S 5°08.4'	198°58.6'	S 2°26.7'	229°32.0'	S 14°32.1'	217°43.7'	S 10°41.4'	
		SD 15.9'	d 0.8'		v -0.2' d 1.0'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.7' d 0.7'	
Mer. pass.		11 h 58 m 31 s		9 h 17 m		9 h 46 m		7 h 44 m		8 h 30 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Mars	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Acrux
0	286°30.7'	S 26°52.3'	3.4'	1.3'	59.5'	109°44.2'	53°07.2'	41°42.9'	38°26.4'	31°54.4'	53°49.5'	58°08.0'	69°02.6'
1	300°53.1'	S 26°51.0'	3.4'	1.5'	59.5'	109°10.9'	52°33.5'	41°07.5'		32°30.0'	54°09.8'	58°28.8'	69°20.8'
2	315°15.6'	S 26°49.5'	3.5'	1.7'	59.5'	108°37.6'	51°59.7'	40°32.2'		33°05.6'	54°30.3'	58°49.8'	69°39.2'
3	329°38.0'	S 26°47.8'	3.5'	1.9'	59.5'	108°04.3'	51°26.0'	39°56.8'		33°41.2'	54°51.0'	59°10.9'	69°57.6'
4	344°00.5'	S 26°46.0'	3.6'	2.0'	59.4'	107°31.0'	50°52.3'	39°21.5'		34°16.7'	55°11.8'	59°32.1'	70°16.1'
5	358°23.1'	S 26°43.9'	3.6'	2.2'	59.4'	106°57.8'	50°18.6'	38°46.2'		34°52.3'	55°32.8'	59°53.5'	70°34.7'
6	12°45.7'	S 26°41.7'	3.7'	2.4'	59.4'	106°24.6'	49°44.9'	38°11.0'		35°27.8'	55°53.9'	60°15.0'	70°53.4'
7	27°08.4'	S 26°39.3'	3.7'	2.6'	59.4'	105°51.4'	49°11.3'	37°35.8'		36°03.3'	56°15.2'	60°36.6'	71°12.2'
8	41°31.1'	S 26°36.7'	3.8'	2.8'	59.4'	105°18.2'	48°37.6'	37°00.6'		36°38.8'	56°36.6'	60°58.3'	71°31.1'
9	55°53.8'	S 26°33.9'	3.8'	3.0'	59.4'	104°45.0'	48°04.0'	36°25.4'		37°14.3'	56°58.2'	61°20.2'	71°50.0'
10	70°16.6'	S 26°30.9'	3.9'	3.1'	59.3'	104°11.9'	47°30.5'	35°50.3'		37°49.7'	57°19.9'	61°42.1'	72°09.0'
11	84°39.5'	S 26°27.8'	3.9'	3.3'	59.3'	103°38.8'	46°56.9'	35°15.2'		38°25.2'	57°41.8'	62°04.2'	72°28.1'
12	99°02.5'	S 26°24.5'	4.0'	3.5'	59.3'	103°05.7'	46°23.4'	34°40.1'		39°00.6'	58°03.7'	62°26.3'	72°47.2'
13	113°25.5'	S 26°21.0'	4.1'	3.7'	59.3'	102°32.6'	45°49.9'	34°05.0'		39°36.0'	58°25.8'	62°48.6'	73°06.4'
14	127°48.5'	S 26°17.3'	4.1'	3.9'	59.3'	101°59.5'	45°16.4'	33°30.0'		40°11.4'	58°48.1'	63°11.0'	73°25.7'
15	142°11.7'	S 26°13.5'	4.2'	4.0'	59.3'	101°26.5'	44°43.0'	32°55.0'		40°46.8'	59°10.4'	63°33.5'	73°45.1'
16	156°34.9'	S 26°09.4'	4.3'	4.2'	59.2'	100°53.5'	44°09.5'	32°20.1'		41°22.1'	59°32.9'	63°56.0'	74°04.5'
17	170°58.2'	S 26°05.2'	4.3'	4.4'	59.2'	100°20.5'	43°36.1'	31°45.1'		41°57.4'	59°55.4'	64°18.7'	74°23.9'
18	185°21.5'	S 26°00.8'	4.4'	4.5'	59.2'	99°47.5'	43°02.7'	31°10.2'		42°32.7'	60°18.1'	64°41.4'	74°43.5'
19	199°44.9'	S 25°56.3'	4.5'	4.7'	59.2'	99°14.6'	42°29.4'	30°35.4'		43°08.0'	60°40.9'	65°04.3'	75°03.1'
20	214°08.4'	S 25°51.6'	4.6'	4.9'	59.2'	98°41.7'	41°56.1'	30°00.6'		43°43.3'	61°03.8'	65°27.2'	75°22.7'
21	228°32.0'	S 25°46.7'	4.7'	5.1'	59.2'	98°08.8'	41°22.8'	29°25.8'		44°18.5'	61°26.8'	65°50.2'	75°42.4'
22	242°55.6'	S 25°41.6'	4.7'	5.2'	59.1'	97°35.9'	40°49.5'	28°51.0'		44°53.8'	61°49.9'	66°13.3'	76°02.2'
23	257°19.4'	S 25°36.4'	4.8'	5.4'	59.1'	97°03.0'	40°16.2'	28°16.3'		45°29.0'	62°13.1'	66°36.4'	76°22.0'
Mer. pass.		5 h 7 m SD 16.2'		phase 67%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.8'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.6'	N 89°21.5'
Rigel Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.7'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	211°01.1'		180°23.7'	N 12°27.2'	220°44.0'	S 5°07.5'	214°00.6'	S 2°26.4'	244°34.3'	S 14°32.0'	232°44.4'	S 10°40.7'
1	226°03.6'		195°23.8'	N 12°28.0'	235°43.8'	S 5°06.5'	229°02.6'	S 2°26.2'	259°36.6'	S 14°32.0'	247°45.0'	S 10°40.1'
2	241°06.1'		210°23.9'	N 12°28.8'	250°43.6'	S 5°05.6'	244°04.5'	S 2°26.0'	274°38.9'	S 14°31.9'	262°45.7'	S 10°39.4'
3	256°08.5'		225°24.1'	N 12°29.7'	265°43.4'	S 5°04.6'	259°06.5'	S 2°25.8'	289°41.2'	S 14°31.9'	277°46.4'	S 10°38.7'
4	271°11.0'		240°24.2'	N 12°30.5'	280°43.3'	S 5°03.6'	274°08.5'	S 2°25.6'	304°43.5'	S 14°31.8'	292°47.0'	S 10°38.0'
5	286°13.5'		255°24.3'	N 12°31.3'	295°43.1'	S 5°02.7'	289°10.4'	S 2°25.4'	319°45.8'	S 14°31.8'	307°47.7'	S 10°37.4'
6	301°15.9'		270°24.4'	N 12°32.2'	310°42.9'	S 5°01.7'	304°12.4'	S 2°25.2'	334°48.1'	S 14°31.7'	322°48.4'	S 10°36.7'
7	316°18.4'		285°24.5'	N 12°33.0'	325°42.7'	S 5°00.8'	319°14.3'	S 2°25.0'	349°50.4'	S 14°31.7'	337°49.1'	S 10°36.0'
8	331°20.8'		300°24.7'	N 12°33.8'	340°42.5'	S 4°59.8'	334°16.3'	S 2°24.8'	4°52.7'	S 14°31.6'	352°49.7'	S 10°35.3'
9	346°23.3'		315°24.8'	N 12°34.7'	355°42.3'	S 4°58.8'	349°18.3'	S 2°24.5'	19°55.0'	S 14°31.6'	7°50.4'	S 10°34.7'
10	1°25.8'		330°24.9'	N 12°35.5'	10°42.2'	S 4°57.9'	4°20.2'	S 2°24.3'	34°57.3'	S 14°31.5'	22°51.1'	S 10°34.0'
11	16°28.2'		345°25.0'	N 12°36.3'	25°42.0'	S 4°56.9'	19°22.2'	S 2°24.1'	49°59.6'	S 14°31.5'	37°51.7'	S 10°33.3'
12	31°30.7'		0°25.1'	N 12°37.2'	40°41.8'	S 4°56.0'	34°24.2'	S 2°23.9'	65°01.9'	S 14°31.5'	52°52.4'	S 10°32.6'
13	46°33.2'		15°25.2'	N 12°38.0'	55°41.6'	S 4°55.0'	49°26.1'	S 2°23.7'	80°04.2'	S 14°31.4'	67°53.1'	S 10°32.0'
14	61°35.6'		30°25.3'	N 12°38.8'	70°41.4'	S 4°54.0'	64°28.1'	S 2°23.5'	95°06.5'	S 14°31.4'	82°53.7'	S 10°31.3'
15	76°38.1'		45°25.5'	N 12°39.7'	85°41.2'	S 4°53.1'	79°30.1'	S 2°23.3'	110°08.8'	S 14°31.3'	97°54.4'	S 10°30.6'
16	91°40.6'		60°25.6'	N 12°40.5'	100°41.0'	S 4°52.1'	94°32.0'	S 2°23.1'	125°11.1'	S 14°31.3'	112°55.1'	S 10°29.9'
17	106°43.0'		75°25.7'	N 12°41.3'	115°40.9'	S 4°51.2'	109°34.0'	S 2°22.9'	140°13.4'	S 14°31.2'	127°55.7'	S 10°29.2'
18	121°45.5'		90°25.8'	N 12°42.1'	130°40.7'	S 4°50.2'	124°36.0'	S 2°22.7'	155°15.7'	S 14°31.2'	142°56.4'	S 10°28.6'
19	136°48.0'		105°25.9'	N 12°43.0'	145°40.5'	S 4°49.2'	139°37.9'	S 2°22.5'	170°18.1'	S 14°31.1'	157°57.1'	S 10°27.9'
20	151°50.4'		120°26.0'	N 12°43.8'	160°40.3'	S 4°48.3'	154°39.9'	S 2°22.2'	185°20.4'	S 14°31.1'	172°57.8'	S 10°27.2'
21	166°52.9'		135°26.2'	N 12°44.6'	175°40.1'	S 4°47.3'	169°41.8'	S 2°22.0'	200°22.7'	S 14°31.0'	187°58.4'	S 10°26.5'
22	181°55.3'		150°26.3'	N 12°45.4'	190°39.9'	S 4°46.3'	184°43.8'	S 2°21.8'	215°25.0'	S 14°31.0'	202°59.1'	S 10°25.9'
23	196°57.8'		165°26.4'	N 12°46.3'	205°39.7'	S 4°45.4'	199°45.8'	S 2°21.6'	230°27.3'	S 14°30.9'	217°59.8'	S 10°25.2'
			SD 15.9'	d 0.8'	v -0.2'	d 1.0'	v 2.0'	d 0.2'	v 2.3'	d 0.0'	v 0.7'	d 0.7'
Mer. pass.			11 h 58 m 20 s		9 h 17 m		9 h 43 m		7 h 41 m		8 h 29 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Mars	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	271°43.2'	S 25°31.0'	4.9'	5.6'	59.1'	96°30.2'	40°13.5'	39°43.0'	27°41.6'	46°04.2'	62°36.4'	66°59.6'	76°41.8'
1	286°07.1'	S 25°25.5'	5.0'	5.7'	59.1'	95°57.4'	39°41.7'	39°09.8'	27°07.0'	46°39.3'	62°59.8'	67°22.9'	77°01.7'
2	300°31.1'	S 25°19.7'	5.1'	5.9'	59.1'	95°24.6'	39°09.9'	38°36.6'	26°32.4'	47°14.5'	63°23.3'	67°46.3'	77°21.6'
3	314°55.2'	S 25°13.8'	5.2'	6.0'	59.0'	94°51.9'	38°38.3'	38°03.5'	25°57.9'	47°49.6'	63°46.8'	68°09.7'	77°41.6'
4	329°19.3'	S 25°07.8'	5.2'	6.2'	59.0'	94°19.1'	38°06.7'	37°30.4'	25°23.4'	48°24.7'	64°10.5'	68°33.2'	78°01.6'
5	343°43.6'	S 25°01.6'	5.3'	6.4'	59.0'	93°46.4'	37°35.3'	36°57.3'	24°48.9'	48°59.8'	64°34.2'	68°56.8'	78°21.7'
6	358°07.9'	S 24°55.2'	5.4'	6.5'	59.0'	93°13.7'	37°04.0'	36°24.2'	24°14.5'	49°34.8'	64°58.0'	69°20.4'	78°41.7'
7	12°32.3'	S 24°48.7'	5.5'	6.7'	59.0'	92°41.0'	36°32.8'	35°51.2'	23°40.1'	50°09.9'	65°21.8'	69°44.1'	79°01.9'
8	26°56.9'	S 24°42.0'	5.6'	6.8'	58.9'	92°08.4'	36°01.8'	35°18.2'	23°05.8'	50°44.9'	65°45.8'	70°07.8'	79°22.0'
9	41°21.5'	S 24°35.2'	5.7'	7.0'	58.9'	91°35.8'	35°30.8'	34°45.2'	22°31.6'	51°19.9'	66°09.8'	70°31.6'	79°42.2'
10	55°46.2'	S 24°28.2'	5.8'	7.1'	58.9'	91°03.2'	35°00.0'	34°12.2'	21°57.4'	51°54.8'	66°33.9'	70°55.5'	80°02.4'
11	70°11.0'	S 24°21.1'	5.9'	7.3'	58.9'	90°30.6'	34°29.3'	33°39.3'	21°23.2'	52°29.8'	66°58.0'	71°19.4'	80°22.7'
12	84°35.9'	S 24°13.8'	6.0'	7.4'	58.9'	89°58.0'	33°58.8'	33°06.4'	20°49.1'	53°04.7'	67°22.2'	71°43.3'	80°43.0'
13	99°00.9'	S 24°06.4'	6.1'	7.6'	58.8'	89°25.5'	33°28.4'	32°33.6'	20°15.1'	53°39.6'	67°46.5'	72°07.3'	81°03.3'
14	113°26.0'	S 23°58.8'	6.2'	7.7'	58.8'	88°53.0'	32°58.2'	32°00.7'	19°41.1'	54°14.5'	68°10.8'	72°31.3'	81°23.6'
15	127°51.2'	S 23°51.1'	6.3'	7.9'	58.8'	88°20.5'	32°28.2'	31°27.9'	19°07.2'	54°49.3'	68°35.2'	72°55.4'	81°43.9'
16	142°16.5'	S 23°43.2'	6.4'	8.0'	58.8'	87°48.0'	31°58.3'	30°55.2'	18°33.4'	55°24.2'	68°59.6'	73°19.5'	82°04.3'
17	156°41.9'	S 23°35.2'	6.5'	8.1'	58.8'	87°15.6'	31°28.6'	30°22.4'	17°59.7'	55°59.0'	69°24.1'	73°43.7'	82°24.7'
18	171°07.4'	S 23°27.1'	6.6'	8.3'	58.7'	86°43.2'	30°59.0'	29°49.7'	17°26.0'	56°33.8'	69°48.6'	74°07.9'	82°45.1'
19	185°33.0'	S 23°18.8'	6.7'	8.4'	58.7'	86°10.8'	30°29.7'	29°17.0'	16°52.5'	57°08.6'	70°13.2'	74°32.1'	83°05.5'
20	199°58.7'	S 23°10.3'	6.8'	8.6'	58.7'	85°38.4'	30°00.5'	28°44.4'	16°19.0'	57°43.3'	70°37.9'	74°56.4'	83°25.9'
21	214°24.5'	S 23°01.8'	6.9'	8.7'	58.7'	85°06.1'	29°31.6'	28°11.8'	15°45.7'	58°18.0'	71°02.5'	75°20.7'	83°46.4'
22	228°50.4'	S 22°53.1'	7.0'	8.8'	58.7'	84°33.7'	29°02.8'	27°39.2'	15°12.4'	58°52.7'	71°27.3'	75°45.0'	84°06.8'
23	243°16.4'	S 22°44.3'	7.1'	9.0'	58.6'	84°01.4'	28°34.3'	27°06.7'	14°39.3'	59°27.4'	71°52.0'	76°09.3'	84°27.3'
Mer. pass.			6 h 8 m SD 16.1'		phase 56%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.4'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.7'	N 89°21.5'
Rigel Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.6'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	212°00.3'	180°26.5'	N 12°47.1'	220°39.6'	S 4°44.4'	214°47.7'	S 2°21.4'	245°29.6'	S 14°30.9'	233°00.4'	S 10°24.5'	
1	227°02.7'	195°26.6'	N 12°47.9'	235°39.4'	S 4°43.4'	229°49.7'	S 2°21.2'	260°31.9'	S 14°30.8'	248°01.1'	S 10°23.8'	
2	242°05.2'	210°26.7'	N 12°48.8'	250°39.2'	S 4°42.5'	244°51.7'	S 2°21.0'	275°34.2'	S 14°30.8'	263°01.8'	S 10°23.1'	
3	257°07.7'	225°26.8'	N 12°49.6'	265°39.0'	S 4°41.5'	259°53.6'	S 2°20.8'	290°36.5'	S 14°30.7'	278°02.4'	S 10°22.5'	
4	272°10.1'	240°26.9'	N 12°50.4'	280°38.8'	S 4°40.5'	274°55.6'	S 2°20.6'	305°38.8'	S 14°30.7'	293°03.1'	S 10°21.8'	
5	287°12.6'	255°27.1'	N 12°51.2'	295°38.6'	S 4°39.6'	289°57.6'	S 2°20.4'	320°41.1'	S 14°30.6'	308°03.8'	S 10°21.1'	
6	302°15.1'	270°27.2'	N 12°52.0'	310°38.4'	S 4°38.6'	304°59.5'	S 2°20.1'	335°43.4'	S 14°30.6'	323°04.5'	S 10°20.4'	
7	317°17.5'	285°27.3'	N 12°52.9'	325°38.3'	S 4°37.6'	320°01.5'	S 2°19.9'	350°45.7'	S 14°30.5'	338°05.1'	S 10°19.7'	
8	332°20.0'	300°27.4'	N 12°53.7'	340°38.1'	S 4°36.7'	335°03.5'	S 2°19.7'	5°48.0'	S 14°30.5'	353°05.8'	S 10°19.1'	
9	347°22.4'	315°27.5'	N 12°54.5'	355°37.9'	S 4°35.7'	350°05.4'	S 2°19.5'	20°50.3'	S 14°30.5'	8°06.5'	S 10°18.4'	
10	2°24.9'	330°27.6'	N 12°55.3'	10°37.7'	S 4°34.7'	5°07.4'	S 2°19.3'	35°52.6'	S 14°30.4'	23°07.2'	S 10°17.7'	
11	17°27.4'	345°27.7'	N 12°56.2'	25°37.5'	S 4°33.7'	20°09.4'	S 2°19.1'	50°54.9'	S 14°30.4'	38°07.8'	S 10°17.0'	
12	32°29.8'	0°27.8'	N 12°57.0'	40°37.3'	S 4°32.8'	35°11.3'	S 2°18.9'	65°57.2'	S 14°30.3'	53°08.5'	S 10°16.3'	
13	47°32.3'	15°27.9'	N 12°57.8'	55°37.1'	S 4°31.8'	50°13.3'	S 2°18.7'	80°59.5'	S 14°30.3'	68°09.2'	S 10°15.7'	
14	62°34.8'	30°28.1'	N 12°58.6'	70°37.0'	S 4°30.8'	65°15.3'	S 2°18.5'	96°01.8'	S 14°30.2'	83°09.8'	S 10°15.0'	
15	77°37.2'	45°28.2'	N 12°59.4'	85°36.8'	S 4°29.9'	80°17.2'	S 2°18.3'	111°04.1'	S 14°30.2'	98°10.5'	S 10°14.3'	
16	92°39.7'	60°28.3'	N 13°00.3'	100°36.6'	S 4°28.9'	95°19.2'	S 2°18.1'	126°06.5'	S 14°30.1'	113°11.2'	S 10°13.6'	
17	107°42.2'	75°28.4'	N 13°01.1'	115°36.4'	S 4°27.9'	110°21.2'	S 2°17.9'	141°08.8'	S 14°30.1'	128°11.9'	S 10°12.9'	
18	122°44.6'	90°28.5'	N 13°01.9'	130°36.2'	S 4°26.9'	125°23.1'	S 2°17.6'	156°11.1'	S 14°30.0'	143°12.5'	S 10°12.3'	
19	137°47.1'	105°28.6'	N 13°02.7'	145°36.0'	S 4°26.0'	140°25.1'	S 2°17.4'	171°13.4'	S 14°30.0'	158°13.2'	S 10°11.6'	
20	152°49.6'	120°28.7'	N 13°03.5'	160°35.8'	S 4°25.0'	155°27.1'	S 2°17.2'	186°15.7'	S 14°29.9'	173°13.9'	S 10°10.9'	
21	167°52.0'	135°28.8'	N 13°04.4'	175°35.7'	S 4°24.0'	170°29.0'	S 2°17.0'	201°18.0'	S 14°29.9'	188°14.6'	S 10°10.2'	
22	182°54.5'	150°28.9'	N 13°05.2'	190°35.5'	S 4°23.1'	185°31.0'	S 2°16.8'	216°20.3'	S 14°29.9'	203°15.2'	S 10°09.5'	
23	197°56.9'	165°29.0'	N 13°06.0'	205°35.3'	S 4°22.1'	200°33.0'	S 2°16.6'	231°22.6'	S 14°29.8'	218°15.9'	S 10°08.8'	
		SD 15.9'	d 0.8'		v -0.2' d 1.0'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.7' d 0.7'	
Mer. pass.		11 h 58 m 9 s		9 h 17 m		9 h 40 m		7 h 37 m		8 h 28 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Mars	-Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	257°42.6'	S 22°35.3'	7.2'	9.1'	58.6'	83°29.2'	28°06.1'	26°34.2'	14°06.3'		60°02.0'	72°16.8'	76°33.7'
1	272°08.8'	S 22°26.2'	7.3'	9.2'	58.6'	82°56.9'	27°38.0'	26°01.7'	13°33.5'		60°36.7'	72°41.7'	76°58.1'
2	286°35.1'	S 22°17.0'	7.4'	9.3'	58.6'	82°24.7'	27°10.2'	25°29.3'	13°00.9'		61°11.3'	73°06.6'	77°22.6'
3	301°01.5'	S 22°07.6'	7.5'	9.5'	58.6'	81°52.5'	26°42.7'	24°56.9'	12°28.4'		61°45.9'	73°31.5'	77°47.0'
4	315°28.1'	S 21°58.2'	7.6'	9.6'	58.5'	81°20.3'	26°15.5'	24°24.5'	11°56.1'		62°20.4'	73°56.4'	78°11.5'
5	329°54.7'	S 21°48.6'	7.7'	9.7'	58.5'	80°48.2'	25°48.5'	23°52.2'	11°24.1'		62°55.0'	74°21.4'	78°36.0'
6	344°21.5'	S 21°38.9'	7.9'	9.8'	58.5'	80°16.0'	25°21.9'	23°19.9'	10°52.3'		63°29.5'	74°46.4'	79°00.5'
7	358°48.3'	S 21°29.0'	8.0'	10.0'	58.5'	79°43.9'	24°55.6'	22°47.7'	10°20.8'		64°04.0'	75°11.4'	79°25.0'
8	13°15.3'	S 21°19.1'	8.1'	10.1'	58.5'	79°11.8'	24°29.6'	22°15.5'	9°49.7'		64°38.4'	75°36.5'	79°49.6'
9	27°42.3'	S 21°09.0'	8.2'	10.2'	58.4'	78°39.8'	24°04.0'	21°43.3'	9°19.0'		65°12.9'	76°01.6'	80°14.1'
10	42°09.5'	S 20°58.8'	8.3'	10.3'	58.4'	78°07.7'	23°38.7'	21°11.2'	8°48.7'		65°47.3'	76°26.7'	80°38.7'
11	56°36.8'	S 20°48.5'	8.4'	10.4'	58.4'	77°35.7'	23°13.9'	20°39.2'	8°19.0'		66°21.7'	76°51.8'	81°03.3'
12	71°04.1'	S 20°38.1'	8.5'	10.5'	58.4'	77°03.7'	22°49.4'	20°07.2'	7°49.9'		66°56.1'	77°16.9'	81°27.9'
13	85°31.6'	S 20°27.6'	8.6'	10.6'	58.4'	76°31.8'	22°25.4'	19°35.2'			67°30.4'	77°42.1'	81°52.5'
14	99°59.2'	S 20°16.9'	8.7'	10.7'	58.3'	75°59.8'	22°01.8'	19°03.3'			68°04.8'	78°07.3'	82°17.1'
15	114°26.9'	S 20°06.2'	8.8'	10.8'	58.3'	75°27.9'	21°38.7'	18°31.4'			68°39.1'	78°32.5'	82°41.7'
16	128°54.7'	S 19°55.4'	8.9'	10.9'	58.3'	74°56.0'	21°16.1'	17°59.7'			69°13.3'	78°57.7'	83°06.3'
17	143°22.6'	S 19°44.4'	9.0'	11.1'	58.3'	74°24.1'	20°54.0'	17°27.9'		38°40.2'	69°47.6'	79°22.9'	83°30.9'
18	157°50.6'	S 19°33.4'	9.1'	11.2'	58.2'	73°52.3'	20°32.5'	16°56.3'		38°55.4'	70°21.8'	79°48.2'	83°55.5'
19	172°18.7'	S 19°22.2'	9.2'	11.3'	58.2'	73°20.5'	20°11.5'	16°24.7'		39°10.8'	70°56.1'	80°13.4'	84°20.2'
20	186°46.9'	S 19°11.0'	9.3'	11.4'	58.2'	72°48.7'	19°51.2'	15°53.1'		39°26.6'	71°30.2'	80°38.7'	84°44.8'
21	201°15.2'	S 18°59.6'	9.4'	11.4'	58.2'	72°16.9'	19°31.5'	15°21.7'		39°42.7'	72°04.4'	81°04.0'	85°09.4'
22	215°43.6'	S 18°48.2'	9.5'	11.5'	58.2'	71°45.1'	19°12.4'	14°50.3'		39°59.1'	72°38.6'	81°29.2'	85°34.0'
23	230°12.1'	S 18°36.6'	9.6'	11.6'	58.1'	71°13.4'	18°54.0'	14°19.1'		40°15.8'	73°12.7'	81°54.5'	85°58.6'
Mer. pass.		7 h 5 m SD 16.0'	phase 44%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.5'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.6'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.7'	N 89°21.5'
Rigel Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	212°59.4'	180°29.2'	N 13°06.8'	220°35.1'	S 4°21.1'		215°34.9'	S 2°16.4'		246°24.9'	S 14°29.8'		233°16.6'	S 10°08.2'				
1	228°01.9'	195°29.3'	N 13°07.6'	235°34.9'	S 4°20.1'		230°36.9'	S 2°16.2'		261°27.2'	S 14°29.7'		248°17.2'	S 10°07.5'				
2	243°04.3'	210°29.4'	N 13°08.4'	250°34.7'	S 4°19.2'		245°38.9'	S 2°16.0'		276°29.5'	S 14°29.7'		263°17.9'	S 10°06.8'				
3	258°06.8'	225°29.5'	N 13°09.3'	265°34.5'	S 4°18.2'		260°40.9'	S 2°15.8'		291°31.8'	S 14°29.6'		278°18.6'	S 10°06.1'				
4	273°09.3'	240°29.6'	N 13°10.1'	280°34.4'	S 4°17.2'		275°42.8'	S 2°15.6'		306°34.1'	S 14°29.6'		293°19.3'	S 10°05.4'				
5	288°11.7'	255°29.7'	N 13°10.9'	295°34.2'	S 4°16.2'		290°44.8'	S 2°15.4'		321°36.4'	S 14°29.5'		308°19.9'	S 10°04.7'				
6	303°14.2'	270°29.8'	N 13°11.7'	310°34.0'	S 4°15.2'		305°46.8'	S 2°15.1'		336°38.8'	S 14°29.5'		323°20.6'	S 10°04.1'				
7	318°16.7'	285°29.9'	N 13°12.5'	325°33.8'	S 4°14.3'		320°48.7'	S 2°14.9'		351°41.1'	S 14°29.4'		338°21.3'	S 10°03.4'				
8	333°19.1'	300°30.0'	N 13°13.3'	340°33.6'	S 4°13.3'		335°50.7'	S 2°14.7'		6°43.4'	S 14°29.4'		353°22.0'	S 10°02.7'				
9	348°21.6'	315°30.1'	N 13°14.2'	355°33.4'	S 4°12.3'		350°52.7'	S 2°14.5'		21°45.7'	S 14°29.3'		8°22.6'	S 10°02.0'				
10	3°24.1'	330°30.2'	N 13°15.0'	10°33.2'	S 4°11.3'		5°54.6'	S 2°14.3'		36°48.0'	S 14°29.3'		23°23.3'	S 10°01.3'				
11	18°26.5'	345°30.3'	N 13°15.8'	25°33.0'	S 4°10.4'		20°56.6'	S 2°14.1'		51°50.3'	S 14°29.3'		38°24.0'	S 10°00.6'				
12	33°29.0'	0°30.4'	N 13°16.6'	40°32.9'	S 4°09.4'		35°58.6'	S 2°13.9'		66°52.6'	S 14°29.2'		53°24.7'	S 9°60.0'				
13	48°31.4'	15°30.5'	N 13°17.4'	55°32.7'	S 4°08.4'		51°00.5'	S 2°13.7'		81°54.9'	S 14°29.2'		68°25.3'	S 9°59.3'				
14	63°33.9'	30°30.6'	N 13°18.2'	70°32.5'	S 4°07.4'		66°02.5'	S 2°13.5'		96°57.2'	S 14°29.1'		83°26.0'	S 9°58.6'				
15	78°36.4'	45°30.8'	N 13°19.0'	85°32.3'	S 4°06.4'		81°04.5'	S 2°13.3'		111°59.5'	S 14°29.1'		98°26.7'	S 9°57.9'				
16	93°38.8'	60°30.9'	N 13°19.8'	100°32.1'	S 4°05.5'		96°06.4'	S 2°13.1'		127°01.8'	S 14°29.0'		113°27.4'	S 9°57.2'				
17	108°41.3'	75°31.0'	N 13°20.7'	115°31.9'	S 4°04.5'		111°08.4'	S 2°12.9'		142°04.2'	S 14°29.0'		128°28.1'	S 9°56.5'				
18	123°43.8'	90°31.1'	N 13°21.5'	130°31.7'	S 4°03.5'		126°10.4'	S 2°12.7'		157°06.5'	S 14°28.9'		143°28.7'	S 9°55.9'				
19	138°46.2'	105°31.2'	N 13°22.3'	145°31.6'	S 4°02.5'		141°12.4'	S 2°12.4'		172°08.8'	S 14°28.9'		158°29.4'	S 9°55.2'				
20	153°48.7'	120°31.3'	N 13°23.1'	160°31.4'	S 4°01.5'		156°14.3'	S 2°12.2'		187°11.1'	S 14°28.8'		173°30.1'	S 9°54.5'				
21	168°51.2'	135°31.4'	N 13°23.9'	175°31.2'	S 4°00.6'		171°16.3'	S 2°12.0'		202°13.4'	S 14°28.8'		188°30.8'	S 9°53.8'				
22	183°53.6'	150°31.5'	N 13°24.7'	190°31.0'	S 3°59.6'		186°18.3'	S 2°11.8'		217°15.7'	S 14°28.8'		203°31.4'	S 9°53.1'				
23	198°56.1'	165°31.6'	N 13°25.5'	205°30.8'	S 3°58.6'		201°20.2'	S 2°11.6'		232°18.0'	S 14°28.7'		218°32.1'	S 9°52.4'				
		SD 15.9'	d 0.8'		v -0.2' d 1.0'			v 2.0' d 0.2'			v 2.3' d 0.0'			v 0.7' d 0.7'				
Mer. pass.		11 h 57 m 59 s		9 h 18 m			9 h 36 m			7 h 33 m			8 h 27 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Fomalhaut	-Mars	+Saturn	+Altair	+Antares	+Rigel Kent
0	244°40.7'	S 18°25.0'	9.7'	11.7'	58.1'	70°41.7'	27°25.6'	18°36.4'	13°47.9'		40°32.8'	73°46.8'	82°19.8'
1	259°09.4'	S 18°13.3'	9.8'	11.8'	58.1'	70°10.0'	26°54.6'	18°19.6'	13°16.8'		40°50.1'	74°20.8'	82°45.1'
2	273°38.2'	S 18°01.4'	9.9'	11.9'	58.1'	69°38.3'	26°23.5'		12°45.9'		41°07.7'	74°54.9'	83°10.4'
3	288°07.1'	S 17°49.5'	10.0'	12.0'	58.1'	69°06.7'	25°52.6'		12°15.1'		41°25.5'	75°28.9'	83°35.7'
4	302°36.1'	S 17°37.5'	10.1'	12.1'	58.0'	68°35.1'	25°21.6'		11°44.4'		41°43.6'	76°02.9'	84°01.0'
5	317°05.2'	S 17°25.5'	10.2'	12.2'	58.0'	68°03.5'	24°50.7'		11°13.9'		42°01.9'	76°36.9'	84°26.3'
6	331°34.4'	S 17°13.3'	10.3'	12.2'	58.0'	67°31.9'	24°19.8'		10°43.6'		42°20.5'	77°10.9'	84°51.6'
7	346°03.7'	S 17°01.1'	10.4'	12.3'	58.0'	67°00.4'	23°49.0'		10°13.4'		42°39.4'	77°44.8'	85°16.8'
8	0°33.1'	S 16°48.7'	10.5'	12.4'	57.9'	66°28.9'	23°18.2'		9°43.5'		42°58.5'	78°18.7'	85°42.1'
9	15°02.6'	S 16°36.3'	10.6'	12.5'	57.9'	65°57.4'	22°47.4'		9°13.9'		43°17.8'	78°52.6'	86°07.4'
10	29°32.2'	S 16°23.8'	10.7'	12.6'	57.9'	65°25.9'	22°16.7'		8°44.5'		43°37.3'	79°26.5'	86°32.7'
11	44°01.9'	S 16°11.3'	10.8'	12.6'	57.9'	64°54.4'	21°46.0'		8°15.5'	7°43.1'	43°57.1'	80°00.3'	86°57.9'
12	58°31.6'	S 15°58.7'	10.9'	12.7'	57.9'	64°23.0'	21°15.4'		7°46.9'	8°11.6'	44°17.1'	80°34.1'	87°23.2'
13	73°01.5'	S 15°45.9'	10.9'	12.8'	57.8'	63°51.6'	20°44.8'		7°18.8'	8°40.6'	44°37.3'	81°07.9'	87°48.4'
14	87°31.4'	S 15°33.2'	11.0'	12.8'	57.8'	63°20.2'	20°14.2'		6°51.3'	9°10.2'	44°57.6'	81°41.7'	88°13.6'
15	102°01.4'	S 15°20.3'	11.1'	12.9'	57.8'	62°48.9'	19°43.7'			9°40.2'	45°18.2'	82°15.5'	88°38.8'
16	116°31.6'	S 15°07.4'	11.2'	13.0'	57.8'	62°17.5'	19°13.2'			10°10.5'	45°39.0'	82°49.2'	89°04.0'
17	131°01.8'	S 14°54.4'	11.3'	13.1'	57.8'	61°46.2'	18°42.8'			10°41.2'	45°59.9'	83°22.9'	89°29.2'
18	145°32.1'	S 14°41.4'	11.4'	13.1'	57.7'	61°14.9'	18°12.4'			11°12.1'	46°21.1'	83°56.6'	89°54.4'
19	160°02.5'	S 14°28.2'	11.5'	13.2'	57.7'	60°43.7'	17°42.1'			11°43.2'	46°42.4'	84°30.2'	90°19.6'
20	174°32.9'	S 14°15.1'	11.6'	13.2'	57.7'	60°12.4'	17°11.8'			12°14.5'	47°03.9'	85°03.9'	90°44.7'
21	189°03.5'	S 14°01.8'	11.6'	13.3'	57.7'	59°41.2'	16°41.6'			12°46.0'	47°25.5'	85°37.5'	91°09.8'
22	203°34.1'	S 13°48.5'	11.7'	13.4'	57.6'	59°10.0'	16°11.5'			13°17.6'	47°47.4'	86°11.1'	91°34.9'
23	218°04.8'	S 13°35.2'	11.8'	13.4'	57.6'	58°38.8'	15°41.4'			13°49.3'	48°09.3'	86°44.6'	91°60.0'
Mer. pass.		7 h 58 m SD 15.8'	phase 33%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.3'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.8'	N 89°21.5'
Rigel Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.4'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°03.9'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	213°58.5'	180°31.7'	N 13°26.3'	220°30.6'	S 3°57.6'		216°22.2'	S 2°11.4'		247°20.3'	S 14°28.7'		233°32.8'	S 9°51.7'				
1	229°01.0'	195°31.8'	N 13°27.1'	235°30.4'	S 3°56.6'		231°24.2'	S 2°11.2'		262°22.6'	S 14°28.6'		248°33.5'	S 9°51.1'				
2	244°03.5'	210°31.9'	N 13°27.9'	250°30.2'	S 3°55.6'		246°26.2'	S 2°11.0'		277°25.0'	S 14°28.6'		263°34.1'	S 9°50.4'				
3	259°05.9'	225°32.0'	N 13°28.7'	265°30.1'	S 3°54.7'		261°28.1'	S 2°10.8'		292°27.3'	S 14°28.5'		278°34.8'	S 9°49.7'				
4	274°08.4'	240°32.1'	N 13°29.5'	280°29.9'	S 3°53.7'		276°30.1'	S 2°10.6'		307°29.6'	S 14°28.5'		293°35.5'	S 9°49.0'				
5	289°10.9'	255°32.2'	N 13°30.4'	295°29.7'	S 3°52.7'		291°32.1'	S 2°10.4'		322°31.9'	S 14°28.4'		308°36.2'	S 9°48.3'				
6	304°13.3'	270°32.3'	N 13°31.2'	310°29.5'	S 3°51.7'		306°34.0'	S 2°10.2'		337°34.2'	S 14°28.4'		323°36.9'	S 9°47.6'				
7	319°15.8'	285°32.4'	N 13°32.0'	325°29.3'	S 3°50.7'		321°36.0'	S 2°10.0'		352°36.5'	S 14°28.4'		338°37.5'	S 9°46.9'				
8	334°18.3'	300°32.5'	N 13°32.8'	340°29.1'	S 3°49.7'		336°38.0'	S 2°09.8'		7°38.8'	S 14°28.3'		353°38.2'	S 9°46.3'				
9	349°20.7'	315°32.6'	N 13°33.6'	355°28.9'	S 3°48.7'		351°39.9'	S 2°09.5'		22°41.1'	S 14°28.3'		8°38.9'	S 9°45.6'				
10	4°23.2'	330°32.7'	N 13°34.4'	10°28.8'	S 3°47.8'		6°41.9'	S 2°09.3'		37°43.4'	S 14°28.2'		23°39.6'	S 9°44.9'				
11	19°25.7'	345°32.8'	N 13°35.2'	25°28.6'	S 3°46.8'		21°43.9'	S 2°09.1'		52°45.8'	S 14°28.2'		38°40.2'	S 9°44.2'				
12	34°28.1'	0°32.9'	N 13°36.0'	40°28.4'	S 3°45.8'		36°45.9'	S 2°08.9'		67°48.1'	S 14°28.1'		53°40.9'	S 9°43.5'				
13	49°30.6'	15°33.0'	N 13°36.8'	55°28.2'	S 3°44.8'		51°47.8'	S 2°08.7'		82°50.4'	S 14°28.1'		68°41.6'	S 9°42.8'				
14	64°33.0'	30°33.1'	N 13°37.6'	70°28.0'	S 3°43.8'		66°49.8'	S 2°08.5'		97°52.7'	S 14°28.0'		83°42.3'	S 9°42.1'				
15	79°35.5'	45°33.2'	N 13°38.4'	85°27.8'	S 3°42.8'		81°51.8'	S 2°08.3'		112°55.0'	S 14°28.0'		98°43.0'	S 9°41.4'				
16	94°38.0'	60°33.3'	N 13°39.2'	100°27.6'	S 3°41.8'		96°53.8'	S 2°08.1'		127°57.3'	S 14°28.0'		113°43.6'	S 9°40.8'				
17	109°40.4'	75°33.4'	N 13°40.0'	115°27.4'	S 3°40.8'		111°55.7'	S 2°07.9'		142°59.6'	S 14°27.9'		128°44.3'	S 9°40.1'				
18	124°42.9'	90°33.5'	N 13°40.8'	130°27.3'	S 3°39.8'		126°57.7'	S 2°07.7'		158°01.9'	S 14°27.9'		143°45.0'	S 9°39.4'				
19	139°45.4'	105°33.6'	N 13°41.6'	145°27.1'	S 3°38.9'		141°59.7'	S 2°07.5'		173°04.3'	S 14°27.8'		158°45.7'	S 9°38.7'				
20	154°47.8'	120°33.7'	N 13°42.4'	160°26.9'	S 3°37.9'		157°01.6'	S 2°07.3'		188°06.6'	S 14°27.8'		173°46.4'	S 9°38.0'				
21	169°50.3'	135°33.8'	N 13°43.2'	175°26.7'	S 3°36.9'		172°03.6'	S 2°07.1'		203°08.9'	S 14°27.7'		188°47.0'	S 9°37.3'				
22	184°52.8'	150°33.9'	N 13°44.0'	190°26.5'	S 3°35.9'		187°05.6'	S 2°06.9'		218°11.2'	S 14°27.7'		203°47.7'	S 9°36.6'				
23	199°55.2'	165°34.0'	N 13°44.8'	205°26.3'	S 3°34.9'		202°07.6'	S 2°06.7'		233°13.5'	S 14°27.6'		218°48.4'	S 9°35.9'				
		SD 15.9'	d 0.8'		v -0.2' d 1.0'			v 2.0' d 0.2'			v 2.3' d 0.0'			v 0.7' d 0.7'				
Mer. pass.		11 h 57 m 49 s		9 h 18 m			9 h 33 m			7 h 30 m			8 h 25 m					

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Venus	-Mars	+Saturn	+Fomalhaut	+Altair	+Antares
0	232°35.6'	S 13°21.7'	11.9'	13.5'	57.6'	58°07.7'	19°33.2'	15°11.4'		14°21.2'		48°31.4'	87°18.2'
1	247°06.5'	S 13°08.3'	12.0'	13.5'	57.6'	57°36.5'	19°00.6'	14°41.5'		14°53.1'		48°53.7'	87°51.7'
2	261°37.5'	S 12°54.7'	12.0'	13.6'	57.6'	57°05.4'	18°28.1'	14°11.6'		15°25.1'		49°16.1'	88°25.2'
3	276°08.5'	S 12°41.1'	12.1'	13.6'	57.5'	56°34.3'	17°55.7'	13°41.9'		15°57.2'		49°38.7'	88°58.7'
4	290°39.6'	S 12°27.5'	12.2'	13.7'	57.5'	56°03.3'	17°23.3'	13°12.2'		16°29.4'		50°01.4'	89°32.1'
5	305°10.8'	S 12°13.8'	12.3'	13.7'	57.5'	55°32.2'	16°51.0'	12°42.6'		17°01.6'		50°24.2'	90°05.6'
6	319°42.1'	S 12°00.1'	12.3'	13.8'	57.5'	55°01.2'	16°18.7'	12°13.1'		17°33.8'		50°47.2'	90°39.0'
7	334°13.4'	S 11°46.3'	12.4'	13.8'	57.5'	54°30.2'	15°46.5'	11°43.8'		18°06.1'		51°10.2'	91°12.4'
8	348°44.8'	S 11°32.5'	12.5'	13.9'	57.4'	53°59.2'	15°14.4'	11°14.6'		18°38.4'	17°58.9'	51°33.4'	91°45.7'
9	3°16.3'	S 11°18.6'	12.6'	13.9'	57.4'	53°28.3'	14°42.4'	10°45.5'		19°10.8'	18°14.4'	51°56.7'	92°19.1'
10	17°47.8'	S 11°04.7'	12.6'	14.0'	57.4'	52°57.4'	14°10.4'	10°16.6'		19°43.2'	18°30.6'	52°20.2'	92°52.4'
11	32°19.5'	S 10°50.7'	12.7'	14.0'	57.4'	52°26.5'	13°38.5'	9°47.9'		20°15.6'	18°47.6'	52°43.7'	93°25.7'
12	46°51.2'	S 10°36.7'	12.8'	14.0'	57.3'	51°55.6'	13°06.8'	9°19.4'	6°46.8'	20°48.0'	19°05.2'	53°07.3'	93°59.0'
13	61°22.9'	S 10°22.6'	12.8'	14.1'	57.3'	51°24.7'	12°35.1'	8°51.1'	7°13.8'	21°20.4'	19°23.5'	53°31.1'	94°32.2'
14	75°54.8'	S 10°08.5'	12.9'	14.1'	57.3'	50°53.9'	12°03.5'	8°23.1'	7°41.3'	21°52.9'	19°42.4'	53°54.9'	95°05.5'
15	90°26.6'	S 9°54.4'	13.0'	14.2'	57.3'	50°23.1'	11°32.1'	7°55.4'	8°09.2'	22°25.3'	20°01.9'	54°18.9'	95°38.7'
16	104°58.6'	S 9°40.3'	13.0'	14.2'	57.3'	49°52.3'	11°00.8'	7°28.1'	8°37.6'	22°57.8'	20°22.0'	54°42.9'	96°11.9'
17	119°30.6'	S 9°26.1'	13.1'	14.2'	57.2'	49°21.5'	10°29.7'	7°01.3'	9°06.2'	23°30.2'	20°42.5'	55°07.1'	96°45.0'
18	134°02.7'	S 9°11.8'	13.1'	14.3'	57.2'	48°50.7'	9°58.8'	6°35.0'	9°35.1'	24°02.7'	21°03.6'	55°31.3'	97°18.2'
19	148°34.8'	S 8°57.6'	13.2'	14.3'	57.2'	48°20.0'	9°28.1'	6°09.3'	10°04.2'	24°35.2'	21°25.2'	55°55.6'	97°51.3'
20	163°07.0'	S 8°43.3'	13.3'	14.3'	57.2'	47°49.3'	8°57.6'		10°33.5'	25°07.7'	21°47.2'	56°20.0'	98°24.4'
21	177°39.3'	S 8°28.9'	13.3'	14.4'	57.2'	47°18.6'	8°27.4'		11°02.9'	25°40.1'	22°09.6'	56°44.4'	98°57.5'
22	192°11.6'	S 8°14.6'	13.4'	14.4'	57.1'	46°48.0'	7°57.5'		11°32.5'	26°12.6'	22°32.4'	57°09.0'	99°30.5'
23	206°44.0'	S 8°00.2'	13.4'	14.4'	57.1'	46°17.3'	7°28.1'		12°02.2'	26°45.1'	22°55.6'	57°33.6'	100°03.5'
Mer. pass.		8 h 46 m SD 15.7'	phase 24%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.9'	N 89°21.5'
Rigil Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

Wednesday 27 April 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	214°57.7'	180°34.1' N 13°45.6'	220°26.1' S 3°33.9'	217°09.5' S 2°06.5'	248°15.8' S 14°27.6'	233°49.1' S 9°35.3'						
1	230°00.1'	195°34.2' N 13°46.4'	235°25.9' S 3°32.9'	232°11.5' S 2°06.2'	263°18.1' S 14°27.6'	248°49.8' S 9°34.6'						
2	245°02.6'	210°34.3' N 13°47.2'	250°25.8' S 3°31.9'	247°13.5' S 2°06.0'	278°20.5' S 14°27.5'	263°50.4' S 9°33.9'						
3	260°05.1'	225°34.4' N 13°48.0'	265°25.6' S 3°30.9'	262°15.5' S 2°05.8'	293°22.8' S 14°27.5'	278°51.1' S 9°33.2'						
4	275°07.5'	240°34.5' N 13°48.8'	280°25.4' S 3°29.9'	277°17.4' S 2°05.6'	308°25.1' S 14°27.4'	293°51.8' S 9°32.5'						
5	290°10.0'	255°34.6' N 13°49.6'	295°25.2' S 3°28.9'	292°19.4' S 2°05.4'	323°27.4' S 14°27.4'	308°52.5' S 9°31.8'						
6	305°12.5'	270°34.7' N 13°50.4'	310°25.0' S 3°27.9'	307°21.4' S 2°05.2'	338°29.7' S 14°27.3'	323°53.2' S 9°31.1'						
7	320°14.9'	285°34.8' N 13°51.2'	325°24.8' S 3°27.0'	322°23.3' S 2°05.0'	353°32.0' S 14°27.3'	338°53.8' S 9°30.4'						
8	335°17.4'	300°34.9' N 13°52.0'	340°24.6' S 3°26.0'	337°25.3' S 2°04.8'	8°34.3' S 14°27.3'	353°54.5' S 9°29.7'						
9	350°19.9'	315°35.0' N 13°52.8'	355°24.4' S 3°25.0'	352°27.3' S 2°04.6'	23°36.7' S 14°27.2'	8°55.2' S 9°29.0'						
10	5°22.3'	330°35.1' N 13°53.6'	10°24.3' S 3°24.0'	7°29.3' S 2°04.4'	38°39.0' S 14°27.2'	23°55.9' S 9°28.4'						
11	20°24.8'	345°35.2' N 13°54.4'	25°24.1' S 3°23.0'	22°31.2' S 2°04.2'	53°41.3' S 14°27.1'	38°56.6' S 9°27.7'						
12	35°27.3'	0°35.2' N 13°55.2'	40°23.9' S 3°22.0'	37°33.2' S 2°04.0'	68°43.6' S 14°27.1'	53°57.2' S 9°27.0'						
13	50°29.7'	15°35.3' N 13°55.9'	55°23.7' S 3°21.0'	52°35.2' S 2°03.8'	83°45.9' S 14°27.0'	68°57.9' S 9°26.3'						
14	65°32.2'	30°35.4' N 13°56.7'	70°23.5' S 3°20.0'	67°37.2' S 2°03.6'	98°48.2' S 14°27.0'	83°58.6' S 9°25.6'						
15	80°34.6'	45°35.5' N 13°57.5'	85°23.3' S 3°19.0'	82°39.1' S 2°03.4'	113°50.6' S 14°26.9'	98°59.3' S 9°24.9'						
16	95°37.1'	60°35.6' N 13°58.3'	100°23.1' S 3°18.0'	97°41.1' S 2°03.2'	128°52.9' S 14°26.9'	113°60.0' S 9°24.2'						
17	110°39.6'	75°35.7' N 13°59.1'	115°22.9' S 3°17.0'	112°43.1' S 2°03.0'	143°55.2' S 14°26.9'	129°00.7' S 9°23.5'						
18	125°42.0'	90°35.8' N 13°59.9'	130°22.7' S 3°16.0'	127°45.1' S 2°02.8'	158°57.5' S 14°26.8'	144°01.3' S 9°22.8'						
19	140°44.5'	105°35.9' N 14°00.7'	145°22.6' S 3°15.0'	142°47.0' S 2°02.5'	173°59.8' S 14°26.8'	159°02.0' S 9°22.1'						
20	155°47.0'	120°36.0' N 14°01.5'	160°22.4' S 3°14.0'	157°49.0' S 2°02.3'	189°02.1' S 14°26.7'	174°02.7' S 9°21.4'						
21	170°49.4'	135°36.1' N 14°02.3'	175°22.2' S 3°13.0'	172°51.0' S 2°02.1'	204°04.5' S 14°26.7'	189°03.4' S 9°20.8'						
22	185°51.9'	150°36.2' N 14°03.1'	190°22.0' S 3°12.0'	187°53.0' S 2°01.9'	219°06.8' S 14°26.6'	204°04.1' S 9°20.1'						
23	200°54.4'	165°36.3' N 14°03.9'	205°21.8' S 3°11.0'	202°54.9' S 2°01.7'	234°09.1' S 14°26.6'	219°04.8' S 9°19.4'						
		SD 15.9' d 0.8'	v -0.2' d 1.0'	v 2.0' d 0.2'	v 2.3' d 0.0'	v 0.7' d 0.7'						
Mer. pass.		11 h 57 m 39 s	9 h 18 m	9 h 30 m	7 h 26 m	8 h 24 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Venus	+Mars	+Fomalhaut	+Saturn	+Altair	+Antares
0	221°16.4'	S 7°45.8'	13.5'	14.4'	57.1'	45°46.7'	6°59.1'		12°32.0'	23°19.2'	27°17.5'	57°58.3'	100°36.5'
1	235°48.9'	S 7°31.4'	13.5'	14.5'	57.1'	45°16.1'	6°30.6'		13°01.8'	23°43.1'	27°50.0'	58°23.1'	101°09.5'
2	250°21.5'	S 7°16.9'	13.6'	14.5'	57.0'	44°45.5'			13°31.8'	24°07.4'	28°22.4'	58°47.9'	101°42.5'
3	264°54.1'	S 7°02.4'	13.6'	14.5'	57.0'	44°15.0'			14°01.8'	24°31.9'	28°54.9'	59°12.8'	102°15.4'
4	279°26.7'	S 6°47.9'	13.7'	14.5'	57.0'	43°44.5'			14°31.9'	24°56.7'	29°27.3'	59°37.8'	102°48.4'
5	293°59.4'	S 6°33.4'	13.7'	14.5'	57.0'	43°14.0'			15°02.0'	25°21.8'	29°59.7'	60°02.8'	103°21.3'
6	308°32.1'	S 6°18.8'	13.8'	14.6'	57.0'	42°43.5'			15°32.1'	25°47.2'	30°32.1'	60°27.9'	103°54.1'
7	323°04.9'	S 6°04.3'	13.8'	14.6'	56.9'	42°13.0'			16°02.3'	26°12.8'	31°04.5'	60°53.0'	104°27.0'
8	337°37.8'	S 5°49.7'	13.9'	14.6'	56.9'	41°42.6'			16°32.5'	26°38.6'	31°36.9'	61°18.2'	104°59.8'
9	352°10.6'	S 5°35.1'	13.9'	14.6'	56.9'	41°12.1'			17°02.7'	27°04.7'	32°09.3'	61°43.5'	105°32.6'
10	6°43.6'	S 5°20.5'	14.0'	14.6'	56.9'	40°41.8'			17°33.0'	27°30.9'	32°41.7'	62°08.8'	106°05.4'
11	21°16.5'	S 5°05.9'	14.0'	14.6'	56.9'	40°11.4'			18°03.3'	27°57.4'	33°14.1'	62°34.2'	106°38.2'
12	35°49.5'	S 4°51.2'	14.1'	14.7'	56.8'				18°33.6'	28°24.0'	33°46.4'	62°59.6'	107°10.9'
13	50°22.6'	S 4°36.6'	14.1'	14.7'	56.8'				19°03.8'	28°50.8'	34°18.7'	63°25.0'	107°43.6'
14	64°55.7'	S 4°21.9'	14.1'	14.7'	56.8'				19°34.2'	29°17.8'	34°51.0'	63°50.5'	108°16.3'
15	79°28.8'	S 4°07.2'	14.2'	14.7'	56.8'			5°57.0'	20°04.5'	29°45.0'	35°23.4'	64°16.1'	108°49.0'
16	94°02.0'	S 3°52.6'	14.2'	14.7'	56.8'			6°22.0'	20°34.8'	30°12.3'	35°55.6'	64°41.6'	109°21.7'
17	108°35.2'	S 3°37.9'	14.2'	14.7'	56.7'			6°47.5'	21°05.1'	30°39.7'	36°27.9'	65°07.3'	109°54.3'
18	123°08.4'	S 3°23.2'	14.3'	14.7'	56.7'			7°13.7'	21°35.4'	31°07.3'	37°00.2'	65°32.9'	110°26.9'
19	137°41.7'	S 3°08.5'	14.3'	14.7'	56.7'			7°40.2'	22°05.7'	31°35.0'	37°32.4'	65°58.6'	110°59.5'
20	152°15.0'	S 2°53.8'	14.3'	14.7'	56.7'			8°07.1'	22°36.0'	32°02.8'	38°04.7'	66°24.4'	111°32.1'
21	166°48.3'	S 2°39.1'	14.4'	14.7'	56.6'			8°34.3'	23°06.3'	32°30.7'	38°36.9'	66°50.1'	112°04.6'
22	181°21.7'	S 2°24.4'	14.4'	14.7'	56.6'		6°31.6'	9°01.7'	23°36.6'	32°58.8'	39°09.1'	67°15.9'	112°37.1'
23	195°55.1'	S 2°09.7'	14.4'	14.7'	56.6'		6°59.6'	9°29.4'	24°06.9'	33°26.9'	39°41.3'	67°41.7'	113°09.6'
Mer. pass.			9 h 32 m	SD 15.6'	phase 15%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°34.0'	N 89°21.5'
Rigil Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	215°56.8'	180°36.4'	N 14°04.7'	220°21.6'	S 3°10.0'		217°56.9'	S 2°01.5'		249°11.4'	S 14°26.6'		234°05.4'	S 9°18.7'				
1	230°59.3'	195°36.5'	N 14°05.4'	235°21.4'	S 3°09.0'		232°58.9'	S 2°01.3'		264°13.7'	S 14°26.5'		249°06.1'	S 9°18.0'				
2	246°01.8'	210°36.6'	N 14°06.2'	250°21.2'	S 3°08.0'		248°00.9'	S 2°01.1'		279°16.0'	S 14°26.5'		264°06.8'	S 9°17.3'				
3	261°04.2'	225°36.6'	N 14°07.0'	265°21.1'	S 3°07.0'		263°02.8'	S 2°00.9'		294°18.4'	S 14°26.4'		279°07.5'	S 9°16.6'				
4	276°06.7'	240°36.7'	N 14°07.8'	280°20.9'	S 3°06.0'		278°04.8'	S 2°00.7'		309°20.7'	S 14°26.4'		294°08.2'	S 9°15.9'				
5	291°09.1'	255°36.8'	N 14°08.6'	295°20.7'	S 3°05.0'		293°06.8'	S 2°00.5'		324°23.0'	S 14°26.3'		309°08.9'	S 9°15.2'				
6	306°11.6'	270°36.9'	N 14°09.4'	310°20.5'	S 3°04.0'		308°08.8'	S 2°00.3'		339°25.3'	S 14°26.3'		324°09.5'	S 9°14.5'				
7	321°14.1'	285°37.0'	N 14°10.2'	325°20.3'	S 3°03.0'		323°10.8'	S 2°00.1'		354°27.6'	S 14°26.3'		339°10.2'	S 9°13.8'				
8	336°16.5'	300°37.1'	N 14°11.0'	340°20.1'	S 3°02.0'		338°12.7'	S 1°59.9'		9°30.0'	S 14°26.2'		354°10.9'	S 9°13.1'				
9	351°19.0'	315°37.2'	N 14°11.7'	355°19.9'	S 3°01.0'		353°14.7'	S 1°59.7'		24°32.3'	S 14°26.2'		9°11.6'	S 9°12.4'				
10	6°21.5'	330°37.3'	N 14°12.5'	10°19.7'	S 3°00.0'		8°16.7'	S 1°59.5'		39°34.6'	S 14°26.1'		24°12.3'	S 9°11.8'				
11	21°23.9'	345°37.4'	N 14°13.3'	25°19.5'	S 2°59.0'		23°18.7'	S 1°59.3'		54°36.9'	S 14°26.1'		39°13.0'	S 9°11.1'				
12	36°26.4'	0°37.5'	N 14°14.1'	40°19.4'	S 2°58.0'		38°20.6'	S 1°59.1'		69°39.2'	S 14°26.1'		54°13.6'	S 9°10.4'				
13	51°28.9'	15°37.6'	N 14°14.9'	55°19.2'	S 2°57.0'		53°22.6'	S 1°58.9'		84°41.6'	S 14°26.0'		69°14.3'	S 9°09.7'				
14	66°31.3'	30°37.6'	N 14°15.7'	70°19.0'	S 2°56.0'		68°24.6'	S 1°58.7'		99°43.9'	S 14°26.0'		84°15.0'	S 9°09.0'				
15	81°33.8'	45°37.7'	N 14°16.4'	85°18.8'	S 2°55.0'		83°26.6'	S 1°58.5'		114°46.2'	S 14°25.9'		99°15.7'	S 9°08.3'				
16	96°36.2'	60°37.8'	N 14°17.2'	100°18.6'	S 2°54.0'		98°28.5'	S 1°58.3'		129°48.5'	S 14°25.9'		114°16.4'	S 9°07.6'				
17	111°38.7'	75°37.9'	N 14°18.0'	115°18.4'	S 2°53.0'		113°30.5'	S 1°58.1'		144°50.8'	S 14°25.8'		129°17.1'	S 9°06.9'				
18	126°41.2'	90°38.0'	N 14°18.8'	130°18.2'	S 2°52.0'		128°32.5'	S 1°57.8'		159°53.2'	S 14°25.8'		144°17.8'	S 9°06.2'				
19	141°43.6'	105°38.1'	N 14°19.6'	145°18.0'	S 2°51.0'		143°34.5'	S 1°57.6'		174°55.5'	S 14°25.8'		159°18.4'	S 9°05.5'				
20	156°46.1'	120°38.2'	N 14°20.4'	160°17.8'	S 2°50.0'		158°36.5'	S 1°57.4'		189°57.8'	S 14°25.7'		174°19.1'	S 9°04.8'				
21	171°48.6'	135°38.3'	N 14°21.1'	175°17.6'	S 2°49.0'		173°38.4'	S 1°57.2'		205°00.1'	S 14°25.7'		189°19.8'	S 9°04.1'				
22	186°51.0'	150°38.3'	N 14°21.9'	190°17.5'	S 2°48.0'		188°40.4'	S 1°57.0'		220°02.4'	S 14°25.6'		204°20.5'	S 9°03.4'				
23	201°53.5'	165°38.4'	N 14°22.7'	205°17.3'	S 2°47.0'		203°42.4'	S 1°56.8'		235°04.8'	S 14°25.6'		219°21.2'	S 9°02.7'				
		SD 15.9'	d 0.8'		v -0.2' d 1.0'			v 2.0' d 0.2'			v 2.3' d 0.0'			v 0.7' d 0.7'				
Mer. pass.		11 h 57 m 30 s		9 h 19 m			9 h 27 m			7 h 22 m			8 h 23 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Jupiter	+Venus	+Mars	+Fomalhaut	+Saturn	+Altair	+Rigel Kent	+Antares
0	210°28.5'	S 1°55.0'	14.5'	14.7'	56.6'	7°28.2'	9°57.2'	24°37.2'	33°55.1'	40°13.4'	68°07.6'	111°41.1'	113°42.1'
1	225°02.0'	S 1°40.3'	14.5'	14.7'	56.6'	7°57.1'	10°25.2'	25°07.5'	34°23.5'	40°45.6'	68°33.5'	112°03.7'	114°14.6'
2	239°35.5'	S 1°25.6'	14.5'	14.7'	56.5'	8°26.4'	10°53.3'	25°37.8'	34°51.9'	41°17.7'	68°59.4'	112°26.3'	114°47.0'
3	254°09.0'	S 1°10.9'	14.5'	14.7'	56.5'	8°56.0'	11°21.5'	26°08.0'	35°20.4'	41°49.8'	69°25.3'	112°48.8'	115°19.4'
4	268°42.5'	S 0°56.2'	14.6'	14.7'	56.5'	9°25.8'	11°49.9'	26°38.3'	35°49.0'	42°21.9'	69°51.3'	113°11.2'	115°51.8'
5	283°16.1'	S 0°41.5'	14.6'	14.7'	56.5'	9°55.8'	12°18.3'	27°08.5'	36°17.6'	42°54.0'	70°17.3'	113°33.5'	116°24.2'
6	297°49.6'	S 0°26.8'	14.6'	14.7'	56.5'	10°26.0'	12°46.7'	27°38.8'	36°46.4'	43°26.1'	70°43.3'	113°55.8'	116°56.5'
7	312°23.2'	S 0°12.1'	14.6'	14.7'	56.4'	10°56.3'	13°15.3'	28°09.0'	37°15.2'	43°58.1'	71°09.3'	114°17.9'	117°28.9'
8	326°56.8'	N 0°02.5'	14.6'	14.7'	56.4'	11°26.7'	13°43.8'	28°39.2'	37°44.0'	44°30.2'	71°35.4'	114°40.0'	118°01.2'
9	341°30.5'	N 0°17.2'	14.7'	14.6'	56.4'	11°57.3'	14°12.4'	29°09.4'	38°13.0'	45°02.2'	72°01.4'	115°02.0'	118°33.5'
10	356°04.1'	N 0°31.8'	14.7'	14.6'	56.4'	12°27.9'	14°41.1'	29°39.6'	38°41.9'	45°34.2'	72°27.5'	115°23.9'	119°05.7'
11	10°37.8'	N 0°46.5'	14.7'	14.6'	56.4'	12°58.6'	15°09.8'	30°09.7'	39°11.0'	46°06.1'	72°53.6'	115°45.7'	119°38.0'
12	25°11.5'	N 1°01.1'	14.7'	14.6'	56.3'	13°29.3'	15°38.5'	30°39.9'	39°40.1'	46°38.1'	73°19.7'	116°07.4'	
13	39°45.2'	N 1°15.7'	14.7'	14.6'	56.3'	14°00.1'	16°07.2'	31°10.0'	40°09.2'	47°10.0'	73°45.9'	116°29.0'	
14	54°18.9'	N 1°30.3'	14.7'	14.6'	56.3'	14°31.0'	16°36.0'	31°40.1'	40°38.4'	47°42.0'	74°12.0'	116°50.5'	
15	68°52.6'	N 1°44.9'	14.7'	14.6'	56.3'	15°01.9'	17°04.8'	32°10.3'	41°07.6'	48°13.9'	74°38.2'	117°11.9'	
16	83°26.4'	N 1°59.4'	14.8'	14.5'	56.3'	15°32.8'	17°33.6'	32°40.4'	41°36.9'	48°45.8'	75°04.3'	117°33.2'	
17	98°00.1'	N 2°14.0'	14.8'	14.5'	56.2'	16°03.7'	18°02.4'	33°10.4'	42°06.2'	49°17.6'	75°30.5'	117°54.4'	
18	112°33.9'	N 2°28.5'	14.8'	14.5'	56.2'	16°34.7'	18°31.2'	33°40.5'	42°35.5'	49°49.5'	75°56.7'	118°15.5'	
19	127°07.7'	N 2°43.0'	14.8'	14.5'	56.2'	17°05.7'	18°60.0'	34°10.5'	43°04.9'	50°21.3'	76°22.9'	118°36.5'	
20	141°41.4'	N 2°57.5'	14.8'	14.5'	56.2'	17°36.7'	19°28.8'	34°40.6'	43°34.3'	50°53.1'	76°49.1'	118°57.4'	
21	156°15.2'	N 3°11.9'	14.8'	14.4'	56.2'	18°07.7'	19°57.6'	35°10.6'	44°03.7'	51°24.9'	77°15.3'	119°18.2'	
22	170°49.0'	N 3°26.4'	14.8'	14.4'	56.1'	18°38.7'	20°26.4'	35°40.6'	44°33.2'	51°56.7'	77°41.5'	119°38.9'	
23	185°22.8'	N 3°40.8'	14.8'	14.4'	56.1'	19°09.7'	20°55.2'	36°10.6'	45°02.7'	52°28.4'	78°07.7'	119°59.4'	
Mer. pass.		10 h 16 m SD 15.4'			phase 8%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°34.1'	N 89°21.5'
Rigel Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

Friday 29 April 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	216°56.0'	180°38.5'	N 14°23.5'	220°17.1'	S 2°46.0'		218°44.4'	S 1°56.6'		250°07.1'	S 14°25.6'		234°21.9'	S 9°02.0'				
1	231°58.4'	195°38.6'	N 14°24.3'	235°16.9'	S 2°44.9'		233°46.3'	S 1°56.4'		265°09.4'	S 14°25.5'		249°22.6'	S 9°01.3'				
2	247°00.9'	210°38.7'	N 14°25.0'	250°16.7'	S 2°43.9'		248°48.3'	S 1°56.2'		280°11.7'	S 14°25.5'		264°23.2'	S 9°00.6'				
3	262°03.4'	225°38.8'	N 14°25.8'	265°16.5'	S 2°42.9'		263°50.3'	S 1°56.0'		295°14.0'	S 14°25.4'		279°23.9'	S 8°60.0'				
4	277°05.8'	240°38.9'	N 14°26.6'	280°16.3'	S 2°41.9'		278°52.3'	S 1°55.8'		310°16.4'	S 14°25.4'		294°24.6'	S 8°59.3'				
5	292°08.3'	255°39.0'	N 14°27.4'	295°16.1'	S 2°40.9'		293°54.3'	S 1°55.6'		325°18.7'	S 14°25.3'		309°25.3'	S 8°58.6'				
6	307°10.7'	270°39.0'	N 14°28.1'	310°15.9'	S 2°39.9'		308°56.2'	S 1°55.4'		340°21.0'	S 14°25.3'		324°26.0'	S 8°57.9'				
7	322°13.2'	285°39.1'	N 14°28.9'	325°15.8'	S 2°38.9'		323°58.2'	S 1°55.2'		355°23.3'	S 14°25.3'		339°26.7'	S 8°57.2'				
8	337°15.7'	300°39.2'	N 14°29.7'	340°15.6'	S 2°37.9'		339°00.2'	S 1°55.0'		10°25.6'	S 14°25.2'		354°27.4'	S 8°56.5'				
9	352°18.1'	315°39.3'	N 14°30.5'	355°15.4'	S 2°36.9'		354°02.2'	S 1°54.8'		25°28.0'	S 14°25.2'		9°28.1'	S 8°55.8'				
10	7°20.6'	330°39.4'	N 14°31.2'	10°15.2'	S 2°35.9'		9°04.2'	S 1°54.6'		40°30.3'	S 14°25.1'		24°28.7'	S 8°55.1'				
11	22°23.1'	345°39.5'	N 14°32.0'	25°15.0'	S 2°34.9'		24°06.1'	S 1°54.4'		55°32.6'	S 14°25.1'		39°29.4'	S 8°54.4'				
12	37°25.5'	0°39.5'	N 14°32.8'	40°14.8'	S 2°33.9'		39°08.1'	S 1°54.2'		70°34.9'	S 14°25.1'		54°30.1'	S 8°53.7'				
13	52°28.0'	15°39.6'	N 14°33.6'	55°14.6'	S 2°32.8'		54°10.1'	S 1°54.0'		85°37.3'	S 14°25.0'		69°30.8'	S 8°53.0'				
14	67°30.5'	30°39.7'	N 14°34.3'	70°14.4'	S 2°31.8'		69°12.1'	S 1°53.8'		100°39.6'	S 14°25.0'		84°31.5'	S 8°52.3'				
15	82°32.9'	45°39.8'	N 14°35.1'	85°14.2'	S 2°30.8'		84°14.1'	S 1°53.6'		115°41.9'	S 14°24.9'		99°32.2'	S 8°51.6'				
16	97°35.4'	60°39.9'	N 14°35.9'	100°14.0'	S 2°29.8'		99°16.0'	S 1°53.4'		130°44.2'	S 14°24.9'		114°32.9'	S 8°50.9'				
17	112°37.8'	75°40.0'	N 14°36.7'	115°13.9'	S 2°28.8'		114°18.0'	S 1°53.2'		145°46.6'	S 14°24.9'		129°33.6'	S 8°50.2'				
18	127°40.3'	90°40.0'	N 14°37.4'	130°13.7'	S 2°27.8'		129°20.0'	S 1°53.0'		160°48.9'	S 14°24.8'		144°34.2'	S 8°49.5'				
19	142°42.8'	105°40.1'	N 14°38.2'	145°13.5'	S 2°26.8'		144°22.0'	S 1°52.8'		175°51.2'	S 14°24.8'		159°34.9'	S 8°48.8'				
20	157°45.2'	120°40.2'	N 14°39.0'	160°13.3'	S 2°25.8'		159°24.0'	S 1°52.6'		190°53.5'	S 14°24.7'		174°35.6'	S 8°48.1'				
21	172°47.7'	135°40.3'	N 14°39.8'	175°13.1'	S 2°24.8'		174°25.9'	S 1°52.4'		205°55.8'	S 14°24.7'		189°36.3'	S 8°47.4'				
22	187°50.2'	150°40.4'	N 14°40.5'	190°12.9'	S 2°23.7'		189°27.9'	S 1°52.2'		220°58.2'	S 14°24.6'		204°37.0'	S 8°46.7'				
23	202°52.6'	165°40.5'	N 14°41.3'	205°12.7'	S 2°22.7'		204°29.9'	S 1°52.0'		236°00.5'	S 14°24.6'		219°37.7'	S 8°46.0'				
		SD 15.9'	d 0.8'	v -0.2'	d 1.0'		v 2.0'	d 0.2'		v 2.3'	d 0.0'		v 0.7'	d 0.7'				
Mer. pass.		11 h 57 m 22 s		9 h 19 m			9 h 24 m			7 h 18 m			8 h 22 m					

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	+Jupiter	+Venus	+Mars	+Fomalhaut	+Saturn	+Altair
0	199°56.6'	N 3°55.1'	14.8'	14.4'	56.1'	19°40.7'	21°24.0'	36°40.5'		45°32.2'	78°33.9'
1	214°30.4'	N 4°09.5'	14.8'	14.3'	56.1'	20°11.8'	21°52.8'	37°10.5'		46°01.7'	79°00.1'
2	229°04.2'	N 4°23.8'	14.8'	14.3'	56.1'	20°42.8'	22°21.6'	37°40.4'		46°31.3'	79°26.3'
3	243°38.0'	N 4°38.2'	14.8'	14.3'	56.0'	21°13.8'	22°50.4'	38°10.3'		47°00.9'	79°52.6'
4	258°11.8'	N 4°52.4'	14.8'	14.2'	56.0'	21°44.9'	23°19.2'	38°40.2'		47°30.5'	80°18.8'
5	272°45.6'	N 5°06.7'	14.8'	14.2'	56.0'	22°15.9'	23°47.9'	39°10.1'		48°00.1'	80°45.0'
6	287°19.4'	N 5°20.9'	14.8'	14.2'	56.0'	22°46.9'	24°16.7'	39°39.9'		48°29.8'	81°11.2'
7	301°53.2'	N 5°35.1'	14.8'	14.2'	55.9'	23°17.9'	24°45.4'	40°09.8'		48°59.4'	81°37.4'
8	316°27.0'	N 5°49.2'	14.8'	14.1'	55.9'	23°48.9'	25°14.2'	40°39.6'		49°29.1'	82°03.6'
9	331°00.8'	N 6°03.4'	14.8'	14.1'	55.9'	24°19.9'	25°42.9'	41°09.4'		49°58.8'	82°29.8'
10	345°34.5'	N 6°17.4'	14.8'	14.1'	55.9'	24°50.9'	26°11.6'	41°39.2'		50°28.5'	82°56.0'
11	0°08.3'	N 6°31.5'	14.8'	14.0'	55.9'	25°21.9'	26°40.3'	42°09.0'		50°58.2'	83°22.2'
12	14°42.1'	N 6°45.5'	14.8'	14.0'	55.9'	25°52.8'	27°09.0'	42°38.7'		51°27.9'	83°48.4'
13	29°15.8'	N 6°59.5'	14.7'	13.9'	55.8'	26°23.8'	27°37.7'	43°08.4'		51°57.6'	84°14.6'
14	43°49.6'	N 7°13.4'	14.7'	13.9'	55.8'	26°54.7'	28°06.4'	43°38.1'		52°27.4'	84°40.8'
15	58°23.3'	N 7°27.3'	14.7'	13.9'	55.8'	27°25.7'	28°35.0'	44°07.8'		52°57.1'	85°07.0'
16	72°57.0'	N 7°41.2'	14.7'	13.8'	55.8'	27°56.6'	29°03.7'	44°37.5'		53°26.9'	85°33.1'
17	87°30.8'	N 7°55.0'	14.7'	13.8'	55.8'	28°27.5'	29°32.3'	45°07.2'		53°56.6'	85°59.3'
18	102°04.5'	N 8°08.8'	14.7'	13.7'	55.7'	28°58.4'	30°00.9'	45°36.8'		54°26.4'	86°25.4'
19	116°38.1'	N 8°22.5'	14.7'	13.7'	55.7'	29°29.3'	30°29.5'	46°06.4'		54°56.2'	86°51.5'
20	131°11.8'	N 8°36.2'	14.7'	13.6'	55.7'	30°00.2'	30°58.1'	46°36.0'		55°25.9'	87°17.6'
21	145°45.5'	N 8°49.9'	14.6'	13.6'	55.7'	30°31.0'	31°26.6'	47°05.6'		55°55.7'	87°43.7'
22	160°19.1'	N 9°03.5'	14.6'	13.6'	55.7'	31°01.9'	31°55.2'	47°35.2'		56°25.5'	88°09.8'
23	174°52.7'	N 9°17.0'	14.6'	13.5'	55.6'	31°32.7'	32°23.7'	48°04.7'		56°55.2'	88°35.9'
Mer. pass.		10 h 59 m SD 15.3'		phase 4%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°34.2'	N 89°21.5'
Rigil Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				

Saturday 30 April 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	217°55.1'		180°40.5'	N 14°42.1'	220°12.5'	S 2°21.7'	219°31.9'	S 1°51.8'	251°02.8'	S 14°24.6'	234°38.4'	S 8°45.3'
1	232°57.6'		195°40.6'	N 14°42.8'	235°12.3'	S 2°20.7'	234°33.9'	S 1°51.6'	266°05.1'	S 14°24.5'	249°39.1'	S 8°44.6'
2	248°00.0'		210°40.7'	N 14°43.6'	250°12.1'	S 2°19.7'	249°35.8'	S 1°51.3'	281°07.5'	S 14°24.5'	264°39.8'	S 8°43.9'
3	263°02.5'		225°40.8'	N 14°44.4'	265°11.9'	S 2°18.7'	264°37.8'	S 1°51.1'	296°09.8'	S 14°24.4'	279°40.5'	S 8°43.2'
4	278°05.0'		240°40.9'	N 14°45.1'	280°11.8'	S 2°17.7'	279°39.8'	S 1°50.9'	311°12.1'	S 14°24.4'	294°41.1'	S 8°42.5'
5	293°07.4'		255°40.9'	N 14°45.9'	295°11.6'	S 2°16.7'	294°41.8'	S 1°50.7'	326°14.4'	S 14°24.4'	309°41.8'	S 8°41.8'
6	308°09.9'		270°41.0'	N 14°46.7'	310°11.4'	S 2°15.6'	309°43.8'	S 1°50.5'	341°16.8'	S 14°24.3'	324°42.5'	S 8°41.1'
7	323°12.3'		285°41.1'	N 14°47.4'	325°11.2'	S 2°14.6'	324°45.7'	S 1°50.3'	356°19.1'	S 14°24.3'	339°43.2'	S 8°40.4'
8	338°14.8'		300°41.2'	N 14°48.2'	340°11.0'	S 2°13.6'	339°47.7'	S 1°50.1'	11°21.4'	S 14°24.2'	354°43.9'	S 8°39.7'
9	353°17.3'		315°41.3'	N 14°49.0'	355°10.8'	S 2°12.6'	354°49.7'	S 1°49.9'	26°23.7'	S 14°24.2'	9°44.6'	S 8°39.0'
10	8°19.7'		330°41.3'	N 14°49.7'	10°10.6'	S 2°11.6'	9°51.7'	S 1°49.7'	41°26.1'	S 14°24.2'	24°45.3'	S 8°38.3'
11	23°22.2'		345°41.4'	N 14°50.5'	25°10.4'	S 2°10.6'	24°53.7'	S 1°49.5'	56°28.4'	S 14°24.1'	39°46.0'	S 8°37.6'
12	38°24.7'		0°41.5'	N 14°51.3'	40°10.2'	S 2°09.5'	39°55.7'	S 1°49.3'	71°30.7'	S 14°24.1'	54°46.7'	S 8°36.9'
13	53°27.1'		15°41.6'	N 14°52.0'	55°10.0'	S 2°08.5'	54°57.6'	S 1°49.1'	86°33.1'	S 14°24.0'	69°47.4'	S 8°36.2'
14	68°29.6'		30°41.7'	N 14°52.8'	70°09.8'	S 2°07.5'	69°59.6'	S 1°48.9'	101°35.4'	S 14°24.0'	84°48.0'	S 8°35.5'
15	83°32.1'		45°41.7'	N 14°53.6'	85°09.7'	S 2°06.5'	85°01.6'	S 1°48.7'	116°37.7'	S 14°24.0'	99°48.7'	S 8°34.8'
16	98°34.5'		60°41.8'	N 14°54.3'	100°09.5'	S 2°05.5'	100°03.6'	S 1°48.5'	131°40.0'	S 14°23.9'	114°49.4'	S 8°34.1'
17	113°37.0'		75°41.9'	N 14°55.1'	115°09.3'	S 2°04.5'	115°05.6'	S 1°48.3'	146°42.4'	S 14°23.9'	129°50.1'	S 8°33.4'
18	128°39.5'		90°42.0'	N 14°55.8'	130°09.1'	S 2°03.4'	130°07.6'	S 1°48.1'	161°44.7'	S 14°23.8'	144°50.8'	S 8°32.7'
19	143°41.9'		105°42.0'	N 14°56.6'	145°08.9'	S 2°02.4'	145°09.5'	S 1°47.9'	176°47.0'	S 14°23.8'	159°51.5'	S 8°32.0'
20	158°44.4'		120°42.1'	N 14°57.4'	160°08.7'	S 2°01.4'	160°11.5'	S 1°47.7'	191°49.3'	S 14°23.8'	174°52.2'	S 8°31.3'
21	173°46.8'		135°42.2'	N 14°58.1'	175°08.5'	S 2°00.4'	175°13.5'	S 1°47.5'	206°51.7'	S 14°23.7'	189°52.9'	S 8°30.6'
22	188°49.3'		150°42.3'	N 14°58.9'	190°08.3'	S 1°59.4'	190°15.5'	S 1°47.3'	221°54.0'	S 14°23.7'	204°53.6'	S 8°29.9'
23	203°51.8'		165°42.3'	N 14°59.6'	205°08.1'	S 1°58.4'	205°17.5'	S 1°47.1'	236°56.3'	S 14°23.7'	219°54.3'	S 8°29.2'
			SD 15.9'	<i>d</i> 0.8'	<i>v</i> -0.2'	<i>d</i> 1.0'	<i>v</i> 2.0'	<i>d</i> 0.2'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 0.7'	<i>d</i> 0.7'
Mer. pass.			11 h 57 m 14 s		9 h 19 m		9 h 21 m		7 h 15 m		8 h 21 m	

h	Moon				Lunar distance						
	GHA	dec	<i>v</i>	<i>d</i>	HP	+Jupiter	+Venus	+Mars	+Fomalhaut	+Saturn	+Altair
0	189°26.3'	N 9°30.5'	14.6'	13.5'	55.6'	32°03.5'	32°52.2'	48°34.2'	57°25.0'	65°36.0'	89°01.9'
1	203°59.9'	N 9°44.0'	14.6'	13.4'	55.6'						
2	218°33.5'	N 9°57.4'	14.5'	13.4'	55.6'						
3	233°07.0'	N 10°10.7'	14.5'	13.3'	55.6'						
4	247°40.6'	N 10°24.1'	14.5'	13.3'	55.5'						
5	262°14.1'	N 10°37.3'	14.5'	13.2'	55.5'						
6	276°47.5'	N 10°50.5'	14.5'	13.1'	55.5'						
7	291°21.0'	N 11°03.7'	14.4'	13.1'	55.5'						
8	305°54.4'	N 11°16.8'	14.4'	13.0'	55.5'						
9	320°27.8'	N 11°29.8'	14.4'	13.0'	55.4'						
10	335°01.2'	N 11°42.8'	14.4'	12.9'	55.4'						
11	349°34.6'	N 11°55.7'	14.3'	12.9'	55.4'						
12	4°07.9'	N 12°08.6'	14.3'	12.8'	55.4'						
13	18°41.2'	N 12°21.4'	14.3'	12.7'	55.4'						
14	33°14.5'	N 12°34.1'	14.2'	12.7'	55.4'						
15	47°47.7'	N 12°46.8'	14.2'	12.6'	55.3'						
16	62°20.9'	N 12°59.4'	14.2'	12.6'	55.3'						
17	76°54.1'	N 13°12.0'	14.2'	12.5'	55.3'						
18	91°27.3'	N 13°24.5'	14.1'	12.4'	55.3'						
19	106°00.4'	N 13°36.9'	14.1'	12.4'	55.3'						
20	120°33.5'	N 13°49.3'	14.1'	12.3'	55.2'						
21	135°06.5'	N 14°01.6'	14.0'	12.2'	55.2'						
22	149°39.6'	N 14°13.8'	14.0'	12.2'	55.2'						
23	164°12.6'	N 14°26.0'	14.0'	12.1'	55.2'						
Mer. pass.	11 h 43 m	SD 15.2'	phase 1%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.3'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.7'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°02.0'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.1'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.5'	N 38°48.0'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.3'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°34.2'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.6'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°45.0'				
Hadar	+0.6	148°38.5'	S 60°28.8'	Canopus	-0.6	263°53.7'	S 52°42.7'				