

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	218°54.2'		180°42.4'	N 15°00.4'	220°07.9'	S 1°57.3'	220°19.5'	S 1°46.9'	251°58.7'	S 14°23.6'	234°55.0'	S 8°28.5'
1	233°56.7'		195°42.5'	N 15°01.2'	235°07.7'	S 1°56.3'	235°21.4'	S 1°46.7'	267°01.0'	S 14°23.6'	249°55.7'	S 8°27.8'
2	248°59.2'		210°42.6'	N 15°01.9'	250°07.6'	S 1°55.3'	250°23.4'	S 1°46.5'	282°03.3'	S 14°23.5'	264°56.4'	S 8°27.1'
3	264°01.6'		225°42.7'	N 15°02.7'	265°07.4'	S 1°54.3'	265°25.4'	S 1°46.3'	297°05.6'	S 14°23.5'	279°57.0'	S 8°26.4'
4	279°04.1'		240°42.7'	N 15°03.4'	280°07.2'	S 1°53.3'	280°27.4'	S 1°46.1'	312°08.0'	S 14°23.5'	294°57.7'	S 8°25.7'
5	294°06.6'		255°42.8'	N 15°04.2'	295°07.0'	S 1°52.2'	295°29.4'	S 1°45.9'	327°10.3'	S 14°23.4'	309°58.4'	S 8°25.0'
6	309°09.0'		270°42.9'	N 15°05.0'	310°06.8'	S 1°51.2'	310°31.4'	S 1°45.7'	342°12.6'	S 14°23.4'	324°59.1'	S 8°24.3'
7	324°11.5'		285°42.9'	N 15°05.7'	325°06.6'	S 1°50.2'	325°33.3'	S 1°45.5'	357°14.9'	S 14°23.3'	339°59.8'	S 8°23.6'
8	339°13.9'		300°43.0'	N 15°06.5'	340°06.4'	S 1°49.2'	340°35.3'	S 1°45.3'	12°17.3'	S 14°23.3'	355°00.5'	S 8°22.9'
9	354°16.4'		315°43.1'	N 15°07.2'	355°06.2'	S 1°48.2'	355°37.3'	S 1°45.1'	27°19.6'	S 14°23.3'	10°01.2'	S 8°22.2'
10	9°18.9'		330°43.2'	N 15°08.0'	10°06.0'	S 1°47.1'	10°39.3'	S 1°44.9'	42°21.9'	S 14°23.2'	25°01.9'	S 8°21.5'
11	24°21.3'		345°43.2'	N 15°08.7'	25°05.8'	S 1°46.1'	25°41.3'	S 1°44.7'	57°24.3'	S 14°23.2'	40°02.6'	S 8°20.8'
12	39°23.8'		0°43.3'	N 15°09.5'	40°05.6'	S 1°45.1'	40°43.3'	S 1°44.5'	72°26.6'	S 14°23.1'	55°03.3'	S 8°20.1'
13	54°26.3'		15°43.4'	N 15°10.2'	55°05.4'	S 1°44.1'	55°45.3'	S 1°44.3'	87°28.9'	S 14°23.1'	70°04.0'	S 8°19.4'
14	69°28.7'		30°43.5'	N 15°11.0'	70°05.2'	S 1°43.0'	70°47.2'	S 1°44.1'	102°31.3'	S 14°23.1'	85°04.7'	S 8°18.7'
15	84°31.2'		45°43.5'	N 15°11.7'	85°05.1'	S 1°42.0'	85°49.2'	S 1°43.9'	117°33.6'	S 14°23.0'	100°05.4'	S 8°18.0'
16	99°33.7'		60°43.6'	N 15°12.5'	100°04.9'	S 1°41.0'	100°51.2'	S 1°43.7'	132°35.9'	S 14°23.0'	115°06.1'	S 8°17.3'
17	114°36.1'		75°43.7'	N 15°13.3'	115°04.7'	S 1°40.0'	115°53.2'	S 1°43.5'	147°38.2'	S 14°23.0'	130°06.8'	S 8°16.6'
18	129°38.6'		90°43.8'	N 15°14.0'	130°04.5'	S 1°39.0'	130°55.2'	S 1°43.3'	162°40.6'	S 14°22.9'	145°07.4'	S 8°15.9'
19	144°41.1'		105°43.8'	N 15°14.8'	145°04.3'	S 1°37.9'	145°57.2'	S 1°43.1'	177°42.9'	S 14°22.9'	160°08.1'	S 8°15.2'
20	159°43.5'		120°43.9'	N 15°15.5'	160°04.1'	S 1°36.9'	160°59.2'	S 1°42.9'	192°45.2'	S 14°22.8'	175°08.8'	S 8°14.5'
21	174°46.0'		135°44.0'	N 15°16.3'	175°03.9'	S 1°35.9'	176°01.1'	S 1°42.7'	207°47.6'	S 14°22.8'	190°09.5'	S 8°13.8'
22	189°48.4'		150°44.0'	N 15°17.0'	190°03.7'	S 1°34.9'	191°03.1'	S 1°42.5'	222°49.9'	S 14°22.8'	205°10.2'	S 8°13.1'
23	204°50.9'		165°44.1'	N 15°17.8'	205°03.5'	S 1°33.8'	206°05.1'	S 1°42.3'	237°52.2'	S 14°22.7'	220°10.9'	S 8°12.4'
			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 7 s		9 h 20 m		9 h 17 m		7 h 11 m		8 h 20 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Capella	-Rigel	-Aldebaran
0	178°45.5'	N 14°38.1'	13.9'	12.0'	55.2'								
1	193°18.4'	N 14°50.1'	13.9'	12.0'	55.2'								
2	207°51.3'	N 15°02.1'	13.8'	11.9'	55.1'								
3	222°24.2'	N 15°14.0'	13.8'	11.8'	55.1'								
4	236°57.0'	N 15°25.8'	13.8'	11.7'	55.1'								
5	251°29.7'	N 15°37.5'	13.7'	11.7'	55.1'								
6	266°02.5'	N 15°49.2'	13.7'	11.6'	55.1'								
7	280°35.2'	N 16°00.8'	13.7'	11.5'	55.1'								
8	295°07.8'	N 16°12.3'	13.6'	11.4'	55.0'								
9	309°40.5'	N 16°23.8'	13.6'	11.4'	55.0'								
10	324°13.0'	N 16°35.1'	13.5'	11.3'	55.0'								
11	338°45.6'	N 16°46.4'	13.5'	11.2'	55.0'								
12	353°18.1'	N 16°57.6'	13.5'	11.1'	55.0'								
13	7°50.5'	N 17°08.8'	13.4'	11.0'	54.9'								
14	22°23.0'	N 17°19.8'	13.4'	11.0'	54.9'								
15	36°55.3'	N 17°30.8'	13.3'	10.9'	54.9'								
16	51°27.7'	N 17°41.6'	13.3'	10.8'	54.9'								
17	65°60.0'	N 17°52.4'	13.3'	10.7'	54.9'								
18	80°32.2'	N 18°03.2'	13.2'	10.6'	54.9'	98°37.9'	65°36.5'	62°13.8'	62°13.8'	40°19.4'	37°37.4'	39°24.4'	19°19.3'
19	95°04.4'	N 18°13.8'	13.2'	10.5'	54.9'	98°07.4'	65°08.3'	61°43.2'	61°54.6'	39°53.0'	37°12.1'	39°09.0'	18°50.8'
20	109°36.6'	N 18°24.3'	13.1'	10.5'	54.8'	97°36.8'	64°40.1'	61°12.6'	61°35.6'	39°26.7'	36°47.0'		18°22.5'
21	124°08.7'	N 18°34.8'	13.1'	10.4'	54.8'	97°06.3'	64°11.9'	60°42.0'	61°16.7'	39°00.5'	36°22.1'		17°54.4'
22	138°40.8'	N 18°45.2'	13.0'	10.3'	54.8'	96°35.8'	63°43.8'	60°11.5'	60°57.9'	38°34.4'	35°57.3'		17°26.4'
23	153°12.8'	N 18°55.4'	13.0'	10.2'	54.8'	96°05.4'	63°15.7'	59°40.9'	60°39.2'	38°08.4'	35°32.6'		16°58.6'
Mer. pass.			12 h 28 m	SD 15.0'	phase 0%								

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°34.1'	N 89°21.4'
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'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	219°53.4'	180°44.2'	N 15°18.5'	220°03.3'	S 1°32.8'		221°07.1'	S 1°42.1'		252°54.6'	S 14°22.7'		235°11.6'	S 8°11.7'				
1	234°55.8'	195°44.2'	N 15°19.3'	235°03.1'	S 1°31.8'		236°09.1'	S 1°41.9'		267°56.9'	S 14°22.7'		250°12.3'	S 8°11.0'				
2	249°58.3'	210°44.3'	N 15°20.0'	250°02.9'	S 1°30.8'		251°11.1'	S 1°41.7'		282°59.2'	S 14°22.6'		265°13.0'	S 8°10.3'				
3	265°00.8'	225°44.4'	N 15°20.7'	265°02.7'	S 1°29.7'		266°13.1'	S 1°41.5'		298°01.6'	S 14°22.6'		280°13.7'	S 8°09.6'				
4	280°03.2'	240°44.5'	N 15°21.5'	280°02.5'	S 1°28.7'		281°15.1'	S 1°41.3'		313°03.9'	S 14°22.5'		295°14.4'	S 8°08.9'				
5	295°05.7'	255°44.5'	N 15°22.2'	295°02.4'	S 1°27.7'		296°17.0'	S 1°41.1'		328°06.2'	S 14°22.5'		310°15.1'	S 8°08.2'				
6	310°08.2'	270°44.6'	N 15°23.0'	310°02.2'	S 1°26.7'		311°19.0'	S 1°40.9'		343°08.6'	S 14°22.5'		325°15.8'	S 8°07.5'				
7	325°10.6'	285°44.7'	N 15°23.7'	325°02.0'	S 1°25.6'		326°21.0'	S 1°40.7'		358°10.9'	S 14°22.4'		340°16.5'	S 8°06.8'				
8	340°13.1'	300°44.7'	N 15°24.5'	340°01.8'	S 1°24.6'		341°23.0'	S 1°40.5'		13°13.2'	S 14°22.4'		355°17.2'	S 8°06.1'				
9	355°15.6'	315°44.8'	N 15°25.2'	355°01.6'	S 1°23.6'		356°25.0'	S 1°40.3'		28°15.6'	S 14°22.3'		10°17.9'	S 8°05.4'				
10	10°18.0'	330°44.9'	N 15°26.0'	10°01.4'	S 1°22.5'		11°27.0'	S 1°40.1'		43°17.9'	S 14°22.3'		25°18.6'	S 8°04.7'				
11	25°20.5'	345°44.9'	N 15°26.7'	25°01.2'	S 1°21.5'		26°29.0'	S 1°39.9'		58°20.2'	S 14°22.3'		40°19.3'	S 8°04.0'				
12	40°22.9'	0°45.0'	N 15°27.5'	40°01.0'	S 1°20.5'		41°31.0'	S 1°39.7'		73°22.6'	S 14°22.2'		55°20.0'	S 8°03.3'				
13	55°25.4'	15°45.1'	N 15°28.2'	55°00.8'	S 1°19.5'		56°32.9'	S 1°39.5'		88°24.9'	S 14°22.2'		70°20.7'	S 8°02.6'				
14	70°27.9'	30°45.1'	N 15°28.9'	70°00.6'	S 1°18.4'		71°34.9'	S 1°39.3'		103°27.2'	S 14°22.2'		85°21.4'	S 8°01.9'				
15	85°30.3'	45°45.2'	N 15°29.7'	85°00.4'	S 1°17.4'		86°36.9'	S 1°39.1'		118°29.6'	S 14°22.1'		100°22.1'	S 8°01.1'				
16	100°32.8'	60°45.3'	N 15°30.4'	100°00.2'	S 1°16.4'		101°38.9'	S 1°38.9'		133°31.9'	S 14°22.1'		115°22.8'	S 8°00.4'				
17	115°35.3'	75°45.3'	N 15°31.2'	115°00.0'	S 1°15.3'		116°40.9'	S 1°38.7'		148°34.2'	S 14°22.1'		130°23.5'	S 7°59.7'				
18	130°37.7'	90°45.4'	N 15°31.9'	129°59.8'	S 1°14.3'		131°42.9'	S 1°38.5'		163°36.6'	S 14°22.0'		145°24.2'	S 7°59.0'				
19	145°40.2'	105°45.5'	N 15°32.6'	144°59.6'	S 1°13.3'		146°44.9'	S 1°38.3'		178°38.9'	S 14°22.0'		160°24.9'	S 7°58.3'				
20	160°42.7'	120°45.5'	N 15°33.4'	159°59.4'	S 1°12.3'		161°46.9'	S 1°38.1'		193°41.2'	S 14°21.9'		175°25.6'	S 7°57.6'				
21	175°45.1'	135°45.6'	N 15°34.1'	174°59.2'	S 1°11.2'		176°48.8'	S 1°37.9'		208°43.6'	S 14°21.9'		190°26.2'	S 7°56.9'				
22	190°47.6'	150°45.7'	N 15°34.9'	189°59.1'	S 1°10.2'		191°50.8'	S 1°37.7'		223°45.9'	S 14°21.9'		205°26.9'	S 7°56.2'				
23	205°50.0'	165°45.7'	N 15°35.6'	204°58.9'	S 1°09.2'		206°52.8'	S 1°37.5'		238°48.2'	S 14°21.8'		220°27.6'	S 7°55.5'				
		SD 15.9'	d 0.7'	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 0 s		9 h 20 m			9 h 14 m			7 h 7 m			8 h 19 m					

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Sirius	-Pollux	-Betelgeuse	-Capella	-Aldebaran
0	167°44.8'	N 19°05.6'	12.9'	10.1'	54.8'	95°34.9'	62°47.7'	60°20.6'	59°10.4'	37°42.6'	35°08.0'	16°30.9'
1	182°16.8'	N 19°15.7'	12.9'	10.0'	54.8'	95°04.5'	62°19.7'	60°02.1'	58°39.8'	37°16.8'	34°43.7'	16°03.5'
2	196°48.7'	N 19°25.8'	12.9'	9.9'	54.7'	94°34.1'	61°51.7'	59°43.8'	58°09.4'	36°51.2'	34°19.4'	15°36.2'
3	211°20.5'	N 19°35.7'	12.8'	9.8'	54.7'	94°03.7'	61°23.8'	59°25.5'	57°38.9'	36°25.7'	33°55.4'	15°09.1'
4	225°52.4'	N 19°45.5'	12.8'	9.7'	54.7'	93°33.3'	60°55.9'	59°07.3'	57°08.4'	36°00.3'	33°31.5'	14°42.3'
5	240°24.1'	N 19°55.3'	12.7'	9.6'	54.7'	93°02.9'	60°28.1'	58°49.3'	56°38.0'	35°35.1'	33°07.8'	14°15.8'
6	254°55.9'	N 20°04.9'	12.7'	9.6'	54.7'	92°32.6'	60°00.3'	58°31.4'	56°07.5'	35°10.0'	32°44.2'	13°49.5'
7	269°27.5'	N 20°14.4'	12.6'	9.5'	54.7'	92°02.2'	59°32.5'	58°13.6'	55°37.1'	34°45.0'	32°20.9'	13°23.5'
8	283°59.2'	N 20°23.9'	12.6'	9.4'	54.7'	91°31.9'	59°04.8'	57°55.9'	55°06.8'	34°20.2'	31°57.7'	12°57.9'
9	298°30.8'	N 20°33.3'	12.5'	9.3'	54.6'	91°01.6'	58°37.1'	57°38.4'	54°36.4'	33°55.5'	31°34.8'	12°32.6'
10	313°02.3'	N 20°42.5'	12.5'	9.2'	54.6'	90°31.4'	58°09.5'	57°20.9'	54°06.0'	33°31.0'	31°12.0'	12°07.7'
11	327°33.8'	N 20°51.7'	12.5'	9.1'	54.6'	90°01.1'	57°41.9'	57°03.6'	53°35.7'	33°06.6'	30°49.4'	11°43.3'
12	342°05.3'	N 21°00.8'	12.4'	9.0'	54.6'	89°30.9'	57°14.3'	56°46.4'	53°05.4'	32°42.4'	30°27.1'	11°19.3'
13	356°36.7'	N 21°09.7'	12.4'	8.9'	54.6'	89°00.6'	56°46.9'	56°29.4'	52°35.1'	32°18.4'	30°05.0'	10°55.9'
14	11°08.0'	N 21°18.6'	12.3'	8.8'	54.6'	88°30.4'	56°19.4'	56°12.5'	52°04.8'	31°54.5'	29°43.1'	10°33.1'
15	25°39.4'	N 21°27.4'	12.3'	8.7'	54.6'	88°00.2'	55°52.0'	55°55.7'	51°34.5'	31°30.8'	29°21.5'	10°10.9'
16	40°10.6'	N 21°36.0'	12.2'	8.6'	54.5'	87°30.1'	55°24.7'	55°39.0'	51°04.3'	31°07.3'	29°00.1'	
17	54°41.9'	N 21°44.6'	12.2'	8.5'	54.5'	86°59.9'	54°57.3'	55°22.5'	50°34.1'	30°44.0'	28°38.9'	
18	69°13.1'	N 21°53.1'	12.1'	8.4'	54.5'	86°29.8'	54°30.1'	55°06.1'	50°03.8'	30°20.9'	28°18.0'	
19	83°44.2'	N 22°01.4'	12.1'	8.3'	54.5'	85°59.6'	54°02.9'	54°49.9'	49°33.6'	29°57.9'	27°57.4'	
20	98°15.3'	N 22°09.7'	12.1'	8.2'	54.5'	85°29.5'	53°35.7'	54°33.8'	49°03.5'	29°35.2'	27°37.1'	
21	112°46.3'	N 22°17.8'	12.0'	8.0'	54.5'	84°59.4'	53°08.6'	54°17.9'	48°33.3'	29°12.8'	27°17.1'	
22	127°17.4'	N 22°25.9'	12.0'	7.9'	54.5'	84°29.3'	52°41.6'	54°02.0'	48°03.2'	28°50.5'	26°57.3'	
23	141°48.3'	N 22°33.8'	11.9'	7.8'	54.5'	83°59.3'	52°14.6'	53°46.4'	47°33.0'	28°28.5'	26°37.9'	
Mer. pass.		13 h 14 m SD 14.9'		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°02.0'	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°34.1'	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'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	220°52.5'		180°45.8'	N 15°36.3'	219°58.7'	S 1°08.1'	221°54.8'	S 1°37.3'	253°50.6'	S 14°21.8'	235°28.3'	S 7°54.8'
1	235°55.0'		195°45.9'	N 15°37.1'	234°58.5'	S 1°07.1'	236°56.8'	S 1°37.1'	268°52.9'	S 14°21.8'	250°29.0'	S 7°54.1'
2	250°57.4'		210°45.9'	N 15°37.8'	249°58.3'	S 1°06.1'	251°58.8'	S 1°36.9'	283°55.2'	S 14°21.7'	265°29.7'	S 7°53.4'
3	265°59.9'		225°46.0'	N 15°38.6'	264°58.1'	S 1°05.0'	267°00.8'	S 1°36.7'	298°57.6'	S 14°21.7'	280°30.4'	S 7°52.7'
4	281°02.4'		240°46.0'	N 15°39.3'	279°57.9'	S 1°04.0'	282°02.8'	S 1°36.5'	313°59.9'	S 14°21.6'	295°31.1'	S 7°52.0'
5	296°04.8'		255°46.1'	N 15°40.0'	294°57.7'	S 1°03.0'	297°04.8'	S 1°36.3'	329°02.2'	S 14°21.6'	310°31.8'	S 7°51.3'
6	311°07.3'		270°46.2'	N 15°40.8'	309°57.5'	S 1°02.0'	312°06.8'	S 1°36.1'	344°04.6'	S 14°21.6'	325°32.5'	S 7°50.6'
7	326°09.8'		285°46.2'	N 15°41.5'	324°57.3'	S 1°00.9'	327°08.7'	S 1°35.9'	359°06.9'	S 14°21.5'	340°33.2'	S 7°49.9'
8	341°12.2'		300°46.3'	N 15°42.2'	339°57.1'	S 0°59.9'	342°10.7'	S 1°35.7'	14°09.2'	S 14°21.5'	355°33.9'	S 7°49.2'
9	356°14.7'		315°46.4'	N 15°43.0'	354°56.9'	S 0°58.9'	357°12.7'	S 1°35.5'	29°11.6'	S 14°21.5'	10°34.6'	S 7°48.5'
10	11°17.2'		330°46.4'	N 15°43.7'	9°56.7'	S 0°57.8'	12°14.7'	S 1°35.3'	44°13.9'	S 14°21.4'	25°35.3'	S 7°47.7'
11	26°19.6'		345°46.5'	N 15°44.4'	24°56.5'	S 0°56.8'	27°16.7'	S 1°35.1'	59°16.3'	S 14°21.4'	40°36.0'	S 7°47.0'
12	41°22.1'		0°46.6'	N 15°45.2'	39°56.3'	S 0°55.8'	42°18.7'	S 1°34.9'	74°18.6'	S 14°21.4'	55°36.7'	S 7°46.3'
13	56°24.5'		15°46.6'	N 15°45.9'	54°56.1'	S 0°54.7'	57°20.7'	S 1°34.7'	89°20.9'	S 14°21.3'	70°37.4'	S 7°45.6'
14	71°27.0'		30°46.7'	N 15°46.6'	69°55.9'	S 0°53.7'	72°22.7'	S 1°34.6'	104°23.3'	S 14°21.3'	85°38.1'	S 7°44.9'
15	86°29.5'		45°46.7'	N 15°47.4'	84°55.7'	S 0°52.7'	87°24.7'	S 1°34.4'	119°25.6'	S 14°21.2'	100°38.8'	S 7°44.2'
16	101°31.9'		60°46.8'	N 15°48.1'	99°55.5'	S 0°51.6'	102°26.7'	S 1°34.2'	134°27.9'	S 14°21.2'	115°39.5'	S 7°43.5'
17	116°34.4'		75°46.9'	N 15°48.8'	114°55.3'	S 0°50.6'	117°28.7'	S 1°34.0'	149°30.3'	S 14°21.2'	130°40.2'	S 7°42.8'
18	131°36.9'		90°46.9'	N 15°49.6'	129°55.2'	S 0°49.6'	132°30.6'	S 1°33.8'	164°32.6'	S 14°21.1'	145°40.9'	S 7°42.1'
19	146°39.3'		105°47.0'	N 15°50.3'	144°55.0'	S 0°48.5'	147°32.6'	S 1°33.6'	179°35.0'	S 14°21.1'	160°41.6'	S 7°41.4'
20	161°41.8'		120°47.0'	N 15°51.0'	159°54.8'	S 0°47.5'	162°34.6'	S 1°33.4'	194°37.3'	S 14°21.1'	175°42.3'	S 7°40.7'
21	176°44.3'		135°47.1'	N 15°51.7'	174°54.6'	S 0°46.5'	177°36.6'	S 1°33.2'	209°39.6'	S 14°21.0'	190°43.0'	S 7°40.0'
22	191°46.7'		150°47.2'	N 15°52.5'	189°54.4'	S 0°45.4'	192°38.6'	S 1°33.0'	224°42.0'	S 14°21.0'	205°43.7'	S 7°39.3'
23	206°49.2'		165°47.2'	N 15°53.2'	204°54.2'	S 0°44.4'	207°40.6'	S 1°32.8'	239°44.3'	S 14°21.0'	220°44.4'	S 7°38.6'
			SD 15.9'	d 0.7'	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 56 m 54 s		9 h 20 m		9 h 11 m		7 h 4 m		8 h 18 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Sirius	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran
0	156°19.2'	N 22°41.7'	11.9'	7.7'	54.4'		83°29.2'	53°30.9'	51°47.7'	47°02.9'	28°06.7'	26°18.8'	
1	170°50.1'	N 22°49.4'	11.8'	7.6'	54.4'		82°59.2'	53°15.5'	51°20.8'	46°32.8'	27°45.1'	26°00.0'	
2	185°21.0'	N 22°57.0'	11.8'	7.5'	54.4'		82°29.2'	53°00.3'	50°54.0'	46°02.7'	27°23.9'	25°41.6'	
3	199°51.7'	N 23°04.5'	11.7'	7.4'	54.4'		81°59.2'		50°27.2'	45°32.7'	27°02.8'	25°23.6'	
4	214°22.5'	N 23°11.9'	11.7'	7.3'	54.4'		81°29.2'		50°00.5'	45°02.6'	26°42.1'	25°05.9'	
5	228°53.2'	N 23°19.2'	11.7'	7.2'	54.4'		80°59.2'		49°33.8'	44°32.6'	26°21.7'	24°48.5'	
6	243°23.9'	N 23°26.4'	11.6'	7.1'	54.4'		80°29.3'		49°07.3'	44°02.5'	26°01.5'	24°31.6'	
7	257°54.5'	N 23°33.5'	11.6'	7.0'	54.4'		79°59.4'		48°40.7'	43°32.5'	25°41.7'	24°15.1'	
8	272°25.1'	N 23°40.5'	11.5'	6.8'	54.3'		79°29.4'		48°14.3'	43°02.5'	25°22.2'	23°59.0'	
9	286°55.6'	N 23°47.3'	11.5'	6.7'	54.3'		78°59.5'		47°47.9'	42°32.6'	25°03.0'	23°43.3'	
10	301°26.1'	N 23°54.0'	11.5'	6.6'	54.3'		78°29.6'		47°21.6'	42°02.6'	24°44.2'		
11	315°56.6'	N 24°00.7'	11.4'	6.5'	54.3'		77°59.7'		46°55.3'	41°32.7'	24°25.7'		
12	330°27.0'	N 24°07.2'	11.4'	6.4'	54.3'		77°29.9'		46°29.1'	41°02.7'	24°07.6'		
13	344°57.4'	N 24°13.6'	11.3'	6.3'	54.3'		77°00.0'		46°03.0'	40°32.8'	23°49.8'		
14	359°27.7'	N 24°19.8'	11.3'	6.2'	54.3'		76°30.2'		45°37.0'	40°02.9'	23°32.5'		
15	13°58.0'	N 24°26.0'	11.3'	6.0'	54.3'		76°00.4'		45°11.0'	39°33.0'	23°15.6'		
16	28°28.3'	N 24°32.1'	11.2'	5.9'	54.3'		75°30.5'		44°45.1'	39°03.2'	22°59.1'		
17	42°58.5'	N 24°38.0'	11.2'	5.8'	54.3'		75°00.7'		44°19.3'	38°33.3'	22°43.1'		
18	57°28.7'	N 24°43.8'	11.2'	5.7'	54.2'		74°31.0'		43°53.6'	38°03.4'	22°27.4'		
19	71°58.8'	N 24°49.5'	11.1'	5.6'	54.2'		74°01.2'		43°27.9'	37°33.6'			
20	86°28.9'	N 24°55.1'	11.1'	5.5'	54.2'		73°31.4'		43°02.3'	37°03.8'			10°01.8'
21	100°59.0'	N 25°00.6'	11.0'	5.3'	54.2'		73°01.7'		42°36.8'	36°34.0'			10°23.3'
22	115°29.1'	N 25°05.9'	11.0'	5.2'	54.2'	119°45.3'	72°31.9'		42°11.4'	36°04.2'			10°45.5'
23	129°59.1'	N 25°11.1'	11.0'	5.1'	54.2'	119°20.2'	72°02.2'		41°46.1'	35°34.4'			11°08.3'
Mer. pass.			14 h 2 m SD 14.8'	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°02.0'	N 8°55.5'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°34.0'	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°07.4'
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°28.9'	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
0	221°51.7'	180°47.3'	N 15°53.9'	219°54.0'	S 0°43.4'	222°42.6'	S 1°32.6'	254°46.6'	S 14°20.9'	235°45.1'	S 7°37.8'	
1	236°54.1'	195°47.3'	N 15°54.7'	234°53.8'	S 0°42.3'	237°44.6'	S 1°32.4'	269°49.0'	S 14°20.9'	250°45.8'	S 7°37.1'	
2	251°56.6'	210°47.4'	N 15°55.4'	249°53.6'	S 0°41.3'	252°46.6'	S 1°32.2'	284°51.3'	S 14°20.9'	265°46.5'	S 7°36.4'	
3	266°59.0'	225°47.5'	N 15°56.1'	264°53.4'	S 0°40.2'	267°48.6'	S 1°32.0'	299°53.7'	S 14°20.8'	280°47.2'	S 7°35.7'	
4	282°01.5'	240°47.5'	N 15°56.8'	279°53.2'	S 0°39.2'	282°50.6'	S 1°31.8'	314°56.0'	S 14°20.8'	295°47.9'	S 7°35.0'	
5	297°04.0'	255°47.6'	N 15°57.6'	294°53.0'	S 0°38.2'	297°52.6'	S 1°31.6'	329°58.3'	S 14°20.7'	310°48.6'	S 7°34.3'	
6	312°06.4'	270°47.6'	N 15°58.3'	309°52.8'	S 0°37.1'	312°54.6'	S 1°31.4'	345°00.7'	S 14°20.7'	325°49.3'	S 7°33.6'	
7	327°08.9'	285°47.7'	N 15°59.0'	324°52.6'	S 0°36.1'	327°56.6'	S 1°31.2'	0°03.0'	S 14°20.7'	340°50.1'	S 7°32.9'	
8	342°11.4'	300°47.7'	N 15°59.7'	339°52.4'	S 0°35.1'	342°58.5'	S 1°31.0'	15°05.4'	S 14°20.6'	355°50.8'	S 7°32.2'	
9	357°13.8'	315°47.8'	N 16°00.5'	354°52.2'	S 0°34.0'	358°00.5'	S 1°30.8'	30°07.7'	S 14°20.6'	10°51.5'	S 7°31.5'	
10	12°16.3'	330°47.9'	N 16°01.2'	9°52.0'	S 0°33.0'	13°02.5'	S 1°30.6'	45°10.0'	S 14°20.6'	25°52.2'	S 7°30.8'	
11	27°18.8'	345°47.9'	N 16°01.9'	24°51.8'	S 0°32.0'	28°04.5'	S 1°30.4'	60°12.4'	S 14°20.5'	40°52.9'	S 7°30.1'	
12	42°21.2'	0°48.0'	N 16°02.6'	39°51.6'	S 0°30.9'	43°06.5'	S 1°30.2'	75°14.7'	S 14°20.5'	55°53.6'	S 7°29.3'	
13	57°23.7'	15°48.0'	N 16°03.3'	54°51.4'	S 0°29.9'	58°08.5'	S 1°30.0'	90°17.1'	S 14°20.5'	70°54.3'	S 7°28.6'	
14	72°26.2'	30°48.1'	N 16°04.1'	69°51.2'	S 0°28.8'	73°10.5'	S 1°29.8'	105°19.4'	S 14°20.4'	85°55.0'	S 7°27.9'	
15	87°28.6'	45°48.1'	N 16°04.8'	84°51.0'	S 0°27.8'	88°12.5'	S 1°29.6'	120°21.7'	S 14°20.4'	100°55.7'	S 7°27.2'	
16	102°31.1'	60°48.2'	N 16°05.5'	99°50.8'	S 0°26.8'	103°14.5'	S 1°29.4'	135°24.1'	S 14°20.4'	115°56.4'	S 7°26.5'	
17	117°33.5'	75°48.2'	N 16°06.2'	114°50.6'	S 0°25.7'	118°16.5'	S 1°29.2'	150°26.4'	S 14°20.3'	130°57.1'	S 7°25.8'	
18	132°36.0'	90°48.3'	N 16°06.9'	129°50.4'	S 0°24.7'	133°18.5'	S 1°29.0'	165°28.8'	S 14°20.3'	145°57.8'	S 7°25.1'	
19	147°38.5'	105°48.4'	N 16°07.7'	144°50.2'	S 0°23.6'	148°20.5'	S 1°28.8'	180°31.1'	S 14°20.3'	160°58.5'	S 7°24.4'	
20	162°40.9'	120°48.4'	N 16°08.4'	159°50.0'	S 0°22.6'	163°22.5'	S 1°28.6'	195°33.5'	S 14°20.2'	175°59.2'	S 7°23.7'	
21	177°43.4'	135°48.5'	N 16°09.1'	174°49.8'	S 0°21.6'	178°24.5'	S 1°28.4'	210°35.8'	S 14°20.2'	190°59.9'	S 7°23.0'	
22	192°45.9'	150°48.5'	N 16°09.8'	189°49.6'	S 0°20.5'	193°26.5'	S 1°28.3'	225°38.1'	S 14°20.2'	206°00.6'	S 7°22.3'	
23	207°48.3'	165°48.6'	N 16°10.5'	204°49.4'	S 0°19.5'	208°28.5'	S 1°28.1'	240°40.5'	S 14°20.1'	221°01.3'	S 7°21.5'	
		SD 15.9'	d 0.7'	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 56 m 48 s		9 h 21 m		9 h 8 m		7 h 0 m		8 h 17 m		

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux	+Aldebaran	+Sun
0	144°29.1'	N 25°16.2'	10.9'	5.0'	54.2'		118°55.1'	71°32.5'	41°20.9'	35°04.6'	11°31.6'	
1	158°59.0'	N 25°21.2'	10.9'	4.9'	54.2'		118°30.0'	71°02.8'	40°55.8'	34°34.9'	11°55.4'	
2	173°28.9'	N 25°26.1'	10.9'	4.7'	54.2'		118°04.8'	70°33.1'	40°30.8'	34°05.1'	12°19.6'	
3	187°58.8'	N 25°30.8'	10.9'	4.6'	54.2'		117°39.6'	70°03.5'	40°05.8'	33°35.4'	12°44.2'	
4	202°28.7'	N 25°35.4'	10.8'	4.5'	54.2'		117°14.4'	69°33.8'	39°41.0'	33°05.7'	13°09.1'	
5	216°58.5'	N 25°39.9'	10.8'	4.4'	54.2'		116°49.1'	69°04.1'	39°16.3'	32°36.0'	13°34.3'	
6	231°28.3'	N 25°44.3'	10.8'	4.3'	54.1'		116°23.8'	68°34.5'	38°51.7'	32°06.3'	13°59.8'	
7	245°58.1'	N 25°48.5'	10.7'	4.1'	54.1'		115°58.5'	68°04.9'	38°27.2'	31°36.6'	14°25.6'	
8	260°27.8'	N 25°52.7'	10.7'	4.0'	54.1'		115°33.2'	67°35.2'	38°02.8'	31°07.0'	14°51.6'	
9	274°57.5'	N 25°56.7'	10.7'	3.9'	54.1'		115°07.8'	67°05.6'	37°38.5'	30°37.3'	15°17.8'	
10	289°27.2'	N 26°00.5'	10.7'	3.8'	54.1'		114°42.4'	66°36.0'	37°14.3'	30°07.7'	15°44.3'	
11	303°56.9'	N 26°04.3'	10.6'	3.6'	54.1'		114°17.0'	66°06.4'	36°50.3'	29°38.0'	16°10.9'	40°08.6'
12	318°26.5'	N 26°07.9'	10.6'	3.5'	54.1'	119°40.8'	113°51.6'	65°36.9'	36°26.4'	29°08.4'	16°37.6'	40°35.8'
13	332°56.1'	N 26°11.4'	10.6'	3.4'	54.1'	119°11.3'	113°26.1'	65°07.3'	36°02.6'	28°38.8'	17°04.5'	41°03.1'
14	347°25.7'	N 26°14.8'	10.6'	3.3'	54.1'	118°41.7'	113°00.7'	64°37.7'	35°39.0'	28°09.2'	17°31.6'	41°30.4'
15	1°55.3'	N 26°18.1'	10.5'	3.1'	54.1'	118°12.1'	112°35.2'	64°08.2'	35°15.5'	27°39.6'	17°58.7'	41°57.6'
16	16°24.8'	N 26°21.2'	10.5'	3.0'	54.1'	117°42.6'	112°09.6'	63°38.7'	34°52.1'	27°10.0'	18°26.0'	42°24.9'
17	30°54.3'	N 26°24.2'	10.5'	2.9'	54.1'	117°13.0'	111°44.1'	63°09.1'	34°28.9'	26°40.4'	18°53.4'	42°52.1'
18	45°23.8'	N 26°27.1'	10.5'	2.7'	54.1'	116°43.5'	111°18.5'	62°39.6'	34°05.9'	26°10.9'	19°20.9'	43°19.3'
19	59°53.3'	N 26°29.8'	10.5'	2.6'	54.1'	116°14.0'	110°53.0'	62°10.1'	33°43.0'	25°41.3'	19°48.5'	43°46.6'
20	74°22.8'	N 26°32.4'	10.5'	2.5'	54.1'	115°44.5'	110°27.4'	61°40.6'	33°20.2'	25°11.8'	20°16.2'	44°13.8'
21	88°52.3'	N 26°34.9'	10.4'	2.4'	54.1'	115°14.9'	110°01.7'	61°11.1'	32°57.6'	24°42.3'	20°43.9'	44°41.0'
22	103°21.7'	N 26°37.3'	10.4'	2.2'	54.1'	114°45.4'	109°36.1'	60°41.6'	32°35.2'	24°12.8'	21°11.8'	45°08.2'
23	117°51.1'	N 26°39.5'	10.4'	2.1'	54.1'	114°15.9'	109°10.5'	60°12.1'	32°13.0'	23°43.3'	21°39.7'	45°35.4'
Mer. pass.		14 h 52 m SD 14.8'		phase 9%								

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°02.0'	N 8°55.5'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.9'	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°07.4'
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°28.9'	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	222°50.8'	180°48.6'	N 16°11.2'	219°49.2'	S 0°18.5'	223°30.5'	S 1°27.9'	255°42.8'	S 14°20.1'	236°02.0'	S 7°20.8'			
1	237°53.3'	195°48.7'	N 16°12.0'	234°49.0'	S 0°17.4'	238°32.5'	S 1°27.7'	270°45.2'	S 14°20.1'	251°02.7'	S 7°20.1'			
2	252°55.7'	210°48.7'	N 16°12.7'	249°48.8'	S 0°16.4'	253°34.4'	S 1°27.5'	285°47.5'	S 14°20.0'	266°03.4'	S 7°19.4'			
3	267°58.2'	225°48.8'	N 16°13.4'	264°48.6'	S 0°15.3'	268°36.4'	S 1°27.3'	300°49.8'	S 14°20.0'	281°04.1'	S 7°18.7'			
4	283°00.6'	240°48.8'	N 16°14.1'	279°48.4'	S 0°14.3'	283°38.4'	S 1°27.1'	315°52.2'	S 14°20.0'	296°04.8'	S 7°18.0'			
5	298°03.1'	255°48.9'	N 16°14.8'	294°48.3'	S 0°13.3'	298°40.4'	S 1°26.9'	330°54.5'	S 14°19.9'	311°05.5'	S 7°17.3'			
6	313°05.6'	270°48.9'	N 16°15.5'	309°48.1'	S 0°12.2'	313°42.4'	S 1°26.7'	345°56.9'	S 14°19.9'	326°06.2'	S 7°16.6'			
7	328°08.0'	285°49.0'	N 16°16.2'	324°47.9'	S 0°11.2'	328°44.4'	S 1°26.5'	0°59.2'	S 14°19.8'	341°06.9'	S 7°15.9'			
8	343°10.5'	300°49.0'	N 16°17.0'	339°47.7'	S 0°10.1'	343°46.4'	S 1°26.3'	16°01.6'	S 14°19.8'	356°07.6'	S 7°15.2'			
9	358°13.0'	315°49.1'	N 16°17.7'	354°47.5'	S 0°09.1'	358°48.4'	S 1°26.1'	31°03.9'	S 14°19.8'	11°08.3'	S 7°14.4'			
10	13°15.4'	330°49.1'	N 16°18.4'	9°47.3'	S 0°08.0'	13°50.4'	S 1°25.9'	46°06.2'	S 14°19.7'	26°09.0'	S 7°13.7'			
11	28°17.9'	345°49.2'	N 16°19.1'	24°47.1'	S 0°07.0'	28°52.4'	S 1°25.7'	61°08.6'	S 14°19.7'	41°09.8'	S 7°13.0'			
12	43°20.4'	0°49.2'	N 16°19.8'	39°46.9'	S 0°06.0'	43°54.4'	S 1°25.5'	76°10.9'	S 14°19.7'	56°10.5'	S 7°12.3'			
13	58°22.8'	15°49.3'	N 16°20.5'	54°46.7'	S 0°04.9'	58°56.4'	S 1°25.3'	91°13.3'	S 14°19.6'	71°11.2'	S 7°11.6'			
14	73°25.3'	30°49.3'	N 16°21.2'	69°46.5'	S 0°03.9'	73°58.4'	S 1°25.1'	106°15.6'	S 14°19.6'	86°11.9'	S 7°10.9'			
15	88°27.8'	45°49.4'	N 16°21.9'	84°46.3'	S 0°02.8'	89°00.4'	S 1°24.9'	121°18.0'	S 14°19.6'	101°12.6'	S 7°10.2'			
16	103°30.2'	60°49.4'	N 16°22.6'	99°46.1'	S 0°01.8'	104°02.4'	S 1°24.7'	136°20.3'	S 14°19.5'	116°13.3'	S 7°09.5'			
17	118°32.7'	75°49.5'	N 16°23.4'	114°45.9'	S 0°00.8'	119°04.4'	S 1°24.5'	151°22.7'	S 14°19.5'	131°14.0'	S 7°08.8'			
18	133°35.1'	90°49.5'	N 16°24.1'	129°45.7'	N 0°00.3'	134°06.4'	S 1°24.3'	166°25.0'	S 14°19.5'	146°14.7'	S 7°08.0'			
19	148°37.6'	105°49.6'	N 16°24.8'	144°45.5'	N 0°01.3'	149°08.4'	S 1°24.2'	181°27.3'	S 14°19.4'	161°15.4'	S 7°07.3'			
20	163°40.1'	120°49.6'	N 16°25.5'	159°45.3'	N 0°02.4'	164°10.4'	S 1°24.0'	196°29.7'	S 14°19.4'	176°16.1'	S 7°06.6'			
21	178°42.5'	135°49.7'	N 16°26.2'	174°45.1'	N 0°03.4'	179°12.4'	S 1°23.8'	211°32.0'	S 14°19.4'	191°16.8'	S 7°05.9'			
22	193°45.0'	150°49.7'	N 16°26.9'	189°44.9'	N 0°04.5'	194°14.4'	S 1°23.6'	226°34.4'	S 14°19.3'	206°17.5'	S 7°05.2'			
23	208°47.5'	165°49.8'	N 16°27.6'	204°44.7'	N 0°05.5'	209°16.4'	S 1°23.4'	241°36.7'	S 14°19.3'	221°18.2'	S 7°04.5'			
		SD 15.9'	d 0.7'	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 56 m 43 s		9 h 21 m		9 h 5 m		6 h 56 m		8 h 15 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	132°20.5'	N 26°41.7'	10.4'	2.0'	54.1'	108°44.8'	59°42.6'	31°51.0'	23°13.8'			22°07.6'	46°02.6'
1	146°49.9'	N 26°43.6'	10.4'	1.9'	54.1'	108°19.1'	59°13.2'	31°29.1'	22°44.3'			22°35.7'	46°29.8'
2	161°19.3'	N 26°45.5'	10.4'	1.7'	54.1'	107°53.4'	58°43.7'	31°07.5'	22°14.8'			23°03.8'	46°56.9'
3	175°48.7'	N 26°47.2'	10.4'	1.6'	54.0'	107°27.7'	58°14.2'	30°46.0'	21°45.4'			23°31.9'	47°24.1'
4	190°18.0'	N 26°48.8'	10.4'	1.5'	54.0'	107°02.0'	57°44.8'	30°24.8'	21°15.9'			24°00.1'	47°51.3'
5	204°47.4'	N 26°50.3'	10.3'	1.3'	54.0'	106°36.2'	57°15.4'	30°03.7'	20°46.5'			24°28.3'	48°18.4'
6	219°16.7'	N 26°51.6'	10.3'	1.2'	54.0'	106°10.4'	56°45.9'	29°42.9'	20°17.1'			24°56.6'	48°45.6'
7	233°46.1'	N 26°52.8'	10.3'	1.1'	54.0'	105°44.7'	56°16.5'	29°22.4'	19°47.6'			25°24.9'	49°12.8'
8	248°15.4'	N 26°53.9'	10.3'	1.0'	54.0'	105°18.9'	55°47.1'	29°02.0'	19°18.2'			25°53.3'	49°39.9'
9	262°44.7'	N 26°54.9'	10.3'	0.8'	54.0'	104°53.1'	55°17.7'	28°41.9'	18°48.9'			26°21.7'	50°07.1'
10	277°14.0'	N 26°55.7'	10.3'	0.7'	54.0'	104°27.3'	54°48.2'	28°22.1'	18°19.5'			26°50.1'	50°34.2'
11	291°43.4'	N 26°56.4'	10.3'	0.6'	54.0'	104°01.4'	54°18.8'	28°02.5'	17°50.1'			27°18.6'	51°01.4'
12	306°12.7'	N 26°57.0'	10.3'	0.4'	54.0'	103°35.6'	53°49.4'	27°43.2'	17°20.8'		23°36.6'	27°47.1'	51°28.5'
13	320°42.0'	N 26°57.4'	10.3'	0.3'	54.0'	103°09.7'	53°20.0'	27°24.2'	16°51.4'		23°51.9'	28°15.6'	51°55.6'
14	335°11.3'	N 26°57.7'	10.3'	0.2'	54.0'	102°43.9'	52°50.6'	27°05.5'	16°22.1'		24°07.5'	28°44.2'	52°22.8'
15	349°40.6'	N 26°57.9'	10.3'	0.1'	54.0'	102°18.0'	52°21.3'	26°47.1'	15°52.8'		24°23.6'	29°12.8'	52°49.9'
16	4°09.9'	N 26°58.0'	10.3'	-0.1'	54.0'	101°52.1'	51°51.9'	26°29.0'	15°23.5'		24°40.0'	29°41.4'	53°17.0'
17	18°39.2'	N 26°57.9'	10.3'	-0.2'	54.0'	101°26.2'	51°22.5'	26°11.2'	14°54.3'		24°56.9'	30°10.0'	53°44.2'
18	33°08.5'	N 26°57.7'	10.3'	-0.3'	54.0'	101°00.3'	50°53.1'	25°53.7'	14°25.0'	22°19.5'	25°14.0'	30°38.7'	54°11.3'
19	47°37.9'	N 26°57.3'	10.3'	-0.5'	54.0'	100°34.4'	50°23.7'	25°36.6'	13°55.8'	22°34.7'	25°31.6'	31°07.4'	54°38.4'
20	62°07.2'	N 26°56.9'	10.3'	-0.6'	54.0'	100°08.5'	49°54.4'	25°19.9'	13°26.6'	22°50.4'	25°49.5'	31°36.1'	55°05.5'
21	76°36.5'	N 26°56.3'	10.3'	-0.7'	54.0'	99°42.5'	49°25.0'	25°03.5'	12°57.4'	23°06.4'	26°07.7'	32°04.8'	55°32.7'
22	91°05.9'	N 26°55.5'	10.3'	-0.9'	54.0'	99°16.6'	48°55.6'	24°47.5'	12°28.3'	23°22.9'	26°26.2'	32°33.6'	55°59.8'
23	105°35.2'	N 26°54.7'	10.4'	-1.0'	54.0'	98°50.6'	48°26.3'	24°31.9'	11°59.1'	23°39.7'	26°45.0'	33°02.4'	56°26.9'
Mer. pass.		15 h 43 m SD 14.7'		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°02.0'	N 8°55.5'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.8'	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°22.4'	S 57°07.4'
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°28.9'	Canopus	-0.6	263°53.7'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	223°49.9'	180°49.8' N 16°28.3'	219°44.5' N 0°06.5'	224°18.4' S 1°23.2'	256°39.1' S 14°19.3'	236°18.9' S 7°03.8'						
1	238°52.4'	195°49.9' N 16°29.0'	234°44.3' N 0°07.6'	239°20.4' S 1°23.0'	271°41.4' S 14°19.2'	251°19.6' S 7°03.1'						
2	253°54.9'	210°49.9' N 16°29.7'	249°44.1' N 0°08.6'	254°22.4' S 1°22.8'	286°43.8' S 14°19.2'	266°20.3' S 7°02.4'						
3	268°57.3'	225°50.0' N 16°30.4'	264°43.9' N 0°09.7'	269°24.4' S 1°22.6'	301°46.1' S 14°19.2'	281°21.1' S 7°01.6'						
4	283°59.8'	240°50.0' N 16°31.1'	279°43.7' N 0°10.7'	284°26.4' S 1°22.4'	316°48.5' S 14°19.1'	296°21.8' S 7°00.9'						
5	299°02.3'	255°50.1' N 16°31.8'	294°43.5' N 0°11.8'	299°28.4' S 1°22.2'	331°50.8' S 14°19.1'	311°22.5' S 7°00.2'						
6	314°04.7'	270°50.1' N 16°32.5'	309°43.3' N 0°12.8'	314°30.4' S 1°22.0'	346°53.2' S 14°19.1'	326°23.2' S 6°59.5'						
7	329°07.2'	285°50.2' N 16°33.2'	324°43.1' N 0°13.9'	329°32.4' S 1°21.8'	1°55.5' S 14°19.1'	341°23.9' S 6°58.8'						
8	344°09.6'	300°50.2' N 16°33.9'	339°42.9' N 0°14.9'	344°34.4' S 1°21.6'	16°57.8' S 14°19.0'	356°24.6' S 6°58.1'						
9	359°12.1'	315°50.2' N 16°34.6'	354°42.7' N 0°15.9'	359°36.4' S 1°21.4'	32°00.2' S 14°19.0'	11°25.3' S 6°57.4'						
10	14°14.6'	330°50.3' N 16°35.3'	9°42.5' N 0°17.0'	14°38.4' S 1°21.2'	47°02.5' S 14°19.0'	26°26.0' S 6°56.7'						
11	29°17.0'	345°50.3' N 16°36.0'	24°42.3' N 0°18.0'	29°40.4' S 1°21.0'	62°04.9' S 14°18.9'	41°26.7' S 6°55.9'						
12	44°19.5'	0°50.4' N 16°36.7'	39°42.1' N 0°19.1'	44°42.4' S 1°20.9'	77°07.2' S 14°18.9'	56°27.4' S 6°55.2'						
13	59°22.0'	15°50.4' N 16°37.4'	54°41.9' N 0°20.1'	59°44.4' S 1°20.7'	92°09.6' S 14°18.9'	71°28.1' S 6°54.5'						
14	74°24.4'	30°50.5' N 16°38.1'	69°41.6' N 0°21.2'	74°46.4' S 1°20.5'	107°11.9' S 14°18.8'	86°28.8' S 6°53.8'						
15	89°26.9'	45°50.5' N 16°38.8'	84°41.4' N 0°22.2'	89°48.4' S 1°20.3'	122°14.3' S 14°18.8'	101°29.5' S 6°53.1'						
16	104°29.4'	60°50.6' N 16°39.5'	99°41.2' N 0°23.3'	104°50.4' S 1°20.1'	137°16.6' S 14°18.8'	116°30.3' S 6°52.4'						
17	119°31.8'	75°50.6' N 16°40.2'	114°41.0' N 0°24.3'	119°52.4' S 1°19.9'	152°19.0' S 14°18.7'	131°31.0' S 6°51.7'						
18	134°34.3'	90°50.6' N 16°40.9'	129°40.8' N 0°25.4'	134°54.4' S 1°19.7'	167°21.3' S 14°18.7'	146°31.7' S 6°50.9'						
19	149°36.8'	105°50.7' N 16°41.6'	144°40.6' N 0°26.4'	149°56.4' S 1°19.5'	182°23.7' S 14°18.7'	161°32.4' S 6°50.2'						
20	164°39.2'	120°50.7' N 16°42.3'	159°40.4' N 0°27.5'	164°58.4' S 1°19.3'	197°26.0' S 14°18.6'	176°33.1' S 6°49.5'						
21	179°41.7'	135°50.8' N 16°43.0'	174°40.2' N 0°28.5'	180°00.4' S 1°19.1'	212°28.4' S 14°18.6'	191°33.8' S 6°48.8'						
22	194°44.1'	150°50.8' N 16°43.7'	189°40.0' N 0°29.5'	195°02.4' S 1°18.9'	227°30.7' S 14°18.6'	206°34.5' S 6°48.1'						
23	209°46.6'	165°50.9' N 16°44.4'	204°39.8' N 0°30.6'	210°04.4' S 1°18.7'	242°33.1' S 14°18.5'	221°35.2' S 6°47.4'						
		SD 15.8' d 0.7'	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 56 m 39 s	9 h 21 m	9 h 2 m	6 h 52 m	8 h 14 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	120°04.6'	N 26°53.7'	10.4'	-1.1'	54.1'	101°59.4'	98°24.7'	47°56.9'	11°30.1'	23°57.0'	27°04.2'	33°31.2'	56°54.1'
1	134°33.9'	N 26°52.6'	10.4'	-1.2'	54.1'	101°29.9'	97°58.7'	47°27.6'	11°01.0'	24°14.6'	27°23.6'	33°60.0'	57°21.2'
2	149°03.3'	N 26°51.4'	10.4'	-1.4'	54.1'	101°00.5'	97°32.7'	46°58.2'	10°32.0'	24°32.6'	27°43.3'	34°28.8'	57°48.3'
3	163°32.7'	N 26°50.0'	10.4'	-1.5'	54.1'	100°31.0'	97°06.7'	46°28.9'	10°03.1'	24°50.9'	28°03.2'	34°57.7'	58°15.4'
4	178°02.1'	N 26°48.5'	10.4'	-1.6'	54.1'	100°01.6'	96°40.7'	45°59.5'	9°34.2'	25°09.6'	28°23.4'	35°26.5'	58°42.6'
5	192°31.5'	N 26°46.9'	10.4'	-1.8'	54.1'	99°32.1'	96°14.7'	45°30.1'	9°05.4'	25°28.6'	28°43.9'	35°55.4'	59°09.7'
6	207°00.9'	N 26°45.1'	10.4'	-1.9'	54.1'	99°02.7'	95°48.7'	45°00.8'	8°36.6'	25°47.9'	29°04.6'	36°24.3'	59°36.9'
7	221°30.3'	N 26°43.2'	10.5'	-2.0'	54.1'	98°33.2'	95°22.6'	44°31.5'	8°08.0'	26°07.5'	29°25.5'	36°53.3'	60°04.0'
8	235°59.8'	N 26°41.2'	10.5'	-2.1'	54.1'	98°03.8'	94°56.6'	44°02.1'	7°39.5'	26°27.4'	29°46.7'	37°22.2'	60°31.1'
9	250°29.3'	N 26°39.1'	10.5'	-2.3'	54.1'	97°34.3'	94°30.6'	43°32.8'	7°11.1'	26°47.6'	30°08.1'	37°51.2'	60°58.3'
10	264°58.7'	N 26°36.8'	10.5'	-2.4'	54.1'	97°04.8'	94°04.5'	43°03.4'	6°42.8'	27°08.0'	30°29.6'	38°20.2'	61°25.4'
11	279°28.2'	N 26°34.5'	10.5'	-2.5'	54.1'	96°35.3'	93°38.4'	42°34.1'	6°14.8'	27°28.7'	30°51.4'	38°49.1'	61°52.6'
12	293°57.8'	N 26°31.9'	10.5'	-2.6'	54.1'	96°05.9'	93°12.4'	42°04.7'	5°47.0'	27°49.7'	31°13.4'	39°18.2'	62°19.8'
13	308°27.3'	N 26°29.3'	10.6'	-2.8'	54.1'	95°36.4'	92°46.3'	41°35.4'	5°19.5'	28°10.8'	31°35.6'	39°47.2'	62°46.9'
14	322°56.9'	N 26°26.5'	10.6'	-2.9'	54.1'	95°06.9'	92°20.2'	41°06.0'	4°52.5'	28°32.3'	31°57.9'	40°16.2'	63°14.1'
15	337°26.5'	N 26°23.6'	10.6'	-3.0'	54.1'	94°37.4'	91°54.1'	40°36.7'	4°25.9'	28°53.9'	32°20.5'	40°45.3'	63°41.3'
16	351°56.1'	N 26°20.6'	10.6'	-3.1'	54.1'	94°07.9'	91°28.0'	40°07.3'		29°15.8'	32°43.2'	41°14.4'	64°08.4'
17	6°25.7'	N 26°17.5'	10.7'	-3.3'	54.1'	93°38.4'	91°01.9'	39°38.0'		29°37.8'	33°06.1'	41°43.4'	64°35.6'
18	20°55.3'	N 26°14.2'	10.7'	-3.4'	54.1'	93°08.9'	90°35.8'	39°08.6'		30°00.1'	33°29.1'	42°12.5'	65°02.8'
19	35°25.0'	N 26°10.8'	10.7'	-3.5'	54.2'	92°39.4'	90°09.7'	38°39.3'		30°22.6'	33°52.3'	42°41.7'	65°30.0'
20	49°54.7'	N 26°07.3'	10.7'	-3.6'	54.2'	92°09.8'	89°43.6'	38°09.9'		30°45.2'	34°15.6'	43°10.8'	65°57.2'
21	64°24.4'	N 26°03.7'	10.8'	-3.8'	54.2'	91°40.3'	89°17.5'	37°40.6'		31°08.0'	34°39.1'	43°40.0'	66°24.4'
22	78°54.2'	N 25°59.9'	10.8'	-3.9'	54.2'	91°10.8'	88°51.4'	37°11.2'		31°31.1'	35°02.7'	44°09.1'	66°51.7'
23	93°24.0'	N 25°56.0'	10.8'	-4.0'	54.2'	90°41.2'	88°25.2'	36°41.9'		31°54.2'	35°26.5'	44°38.3'	67°18.9'
Mer. pass.													

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°27.2'	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°02.0'	N 8°55.5'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.7'	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°22.4'	S 57°07.4'
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°28.9'	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	224°49.1'	180°50.9'	N 16°45.1'	219°39.6'	N 0°31.6'	225°06.4'	S 1°18.5'	257°35.4'	S 14°18.5'	236°35.9'	S 6°46.7'			
1	239°51.5'	195°50.9'	N 16°45.8'	234°39.4'	N 0°32.7'	240°08.4'	S 1°18.3'	272°37.8'	S 14°18.5'	251°36.6'	S 6°46.0'			
2	254°54.0'	210°51.0'	N 16°46.5'	249°39.2'	N 0°33.7'	255°10.4'	S 1°18.1'	287°40.1'	S 14°18.4'	266°37.4'	S 6°45.2'			
3	269°56.5'	225°51.0'	N 16°47.1'	264°39.0'	N 0°34.8'	270°12.4'	S 1°18.0'	302°42.5'	S 14°18.4'	281°38.1'	S 6°44.5'			
4	284°58.9'	240°51.1'	N 16°47.8'	279°38.8'	N 0°35.8'	285°14.4'	S 1°17.8'	317°44.8'	S 14°18.4'	296°38.8'	S 6°43.8'			
5	300°01.4'	255°51.1'	N 16°48.5'	294°38.6'	N 0°36.9'	300°16.4'	S 1°17.6'	332°47.2'	S 14°18.3'	311°39.5'	S 6°43.1'			
6	315°03.9'	270°51.1'	N 16°49.2'	309°38.4'	N 0°37.9'	315°18.4'	S 1°17.4'	347°49.5'	S 14°18.3'	326°40.2'	S 6°42.4'			
7	330°06.3'	285°51.2'	N 16°49.9'	324°38.2'	N 0°39.0'	330°20.4'	S 1°17.2'	2°51.9'	S 14°18.3'	341°40.9'	S 6°41.7'			
8	345°08.8'	300°51.2'	N 16°50.6'	339°38.0'	N 0°40.0'	345°22.4'	S 1°17.0'	17°54.2'	S 14°18.3'	356°41.6'	S 6°41.0'			
9	0°11.3'	315°51.3'	N 16°51.3'	354°37.8'	N 0°41.1'	0°24.4'	S 1°16.8'	32°56.6'	S 14°18.2'	11°42.3'	S 6°40.2'			
10	15°13.7'	330°51.3'	N 16°52.0'	9°37.6'	N 0°42.1'	15°26.4'	S 1°16.6'	47°58.9'	S 14°18.2'	26°43.0'	S 6°39.5'			
11	30°16.2'	345°51.3'	N 16°52.7'	24°37.4'	N 0°43.2'	30°28.4'	S 1°16.4'	63°01.3'	S 14°18.2'	41°43.7'	S 6°38.8'			
12	45°18.6'	0°51.4'	N 16°53.4'	39°37.2'	N 0°44.2'	45°30.4'	S 1°16.2'	78°03.6'	S 14°18.1'	56°44.5'	S 6°38.1'			
13	60°21.1'	15°51.4'	N 16°54.0'	54°37.0'	N 0°45.3'	60°32.4'	S 1°16.0'	93°06.0'	S 14°18.1'	71°45.2'	S 6°37.4'			
14	75°23.6'	30°51.5'	N 16°54.7'	69°36.8'	N 0°46.3'	75°34.4'	S 1°15.8'	108°08.3'	S 14°18.1'	86°45.9'	S 6°36.7'			
15	90°26.0'	45°51.5'	N 16°55.4'	84°36.6'	N 0°47.4'	90°36.4'	S 1°15.6'	123°10.7'	S 14°18.0'	101°46.6'	S 6°36.0'			
16	105°28.5'	60°51.5'	N 16°56.1'	99°36.4'	N 0°48.4'	105°38.4'	S 1°15.5'	138°13.0'	S 14°18.0'	116°47.3'	S 6°35.2'			
17	120°31.0'	75°51.6'	N 16°56.8'	114°36.2'	N 0°49.5'	120°40.4'	S 1°15.3'	153°15.4'	S 14°18.0'	131°48.0'	S 6°34.5'			
18	135°33.4'	90°51.6'	N 16°57.5'	129°36.0'	N 0°50.5'	135°42.4'	S 1°15.1'	168°17.7'	S 14°17.9'	146°48.7'	S 6°33.8'			
19	150°35.9'	105°51.7'	N 16°58.2'	144°35.8'	N 0°51.6'	150°44.4'	S 1°14.9'	183°20.1'	S 14°17.9'	161°49.4'	S 6°33.1'			
20	165°38.4'	120°51.7'	N 16°58.8'	159°35.6'	N 0°52.6'	165°46.4'	S 1°14.7'	198°22.4'	S 14°17.9'	176°50.1'	S 6°32.4'			
21	180°40.8'	135°51.7'	N 16°59.5'	174°35.4'	N 0°53.7'	180°48.4'	S 1°14.5'	213°24.8'	S 14°17.8'	191°50.9'	S 6°31.7'			
22	195°43.3'	150°51.8'	N 17°00.2'	189°35.1'	N 0°54.7'	195°50.5'	S 1°14.3'	228°27.1'	S 14°17.8'	206°51.6'	S 6°30.9'			
23	210°45.7'	165°51.8'	N 17°00.9'	204°34.9'	N 0°55.8'	210°52.5'	S 1°14.1'	243°29.5'	S 14°17.8'	221°52.3'	S 6°30.2'			
		SD 15.8'	d 0.7'	v -0.2'	d 1.0'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 35 s		9 h 21 m		8 h 58 m		6 h 49 m		8 h 13 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Betelgeuse	+Capella	+Sun
0	107°53.8'	N 25°52.0'	10.8'	-4.1'	54.2'	104°32.8'	90°11.7'	87°59.1'	36°12.5'		32°17.6'	35°50.4'	67°46.1'
1	122°23.6'	N 25°47.9'	10.9'	-4.3'	54.2'	104°16.2'	89°42.1'	87°32.9'	35°43.1'		32°41.1'	36°14.4'	68°13.4'
2	136°53.5'	N 25°43.6'	10.9'	-4.4'	54.2'	103°59.6'	89°12.5'	87°06.8'	35°13.8'		33°04.7'	36°38.6'	68°40.6'
3	151°23.4'	N 25°39.2'	10.9'	-4.5'	54.2'	103°43.0'	88°42.9'	86°40.6'	34°44.4'		33°28.5'	37°02.8'	69°07.9'
4	165°53.3'	N 25°34.7'	11.0'	-4.6'	54.2'	103°26.3'	88°13.4'	86°14.4'	34°15.1'		33°52.5'	37°27.2'	69°35.1'
5	180°23.3'	N 25°30.1'	11.0'	-4.7'	54.2'	103°09.6'	87°43.8'	85°48.3'	33°45.7'		34°16.6'	37°51.7'	70°02.4'
6	194°53.2'	N 25°25.3'	11.0'	-4.9'	54.3'	102°52.8'	87°14.1'	85°22.1'	33°16.3'		34°40.8'	38°16.4'	70°29.7'
7	209°23.3'	N 25°20.5'	11.0'	-5.0'	54.3'	102°36.0'	86°44.5'	84°55.9'	32°47.0'	4°28.7'	35°05.2'	38°41.1'	70°57.0'
8	223°53.3'	N 25°15.5'	11.1'	-5.1'	54.3'	102°19.1'	86°14.9'	84°29.7'	32°17.6'	4°55.4'	35°29.6'	39°05.9'	71°24.3'
9	238°23.4'	N 25°10.4'	11.1'	-5.2'	54.3'	102°02.2'	85°45.2'	84°03.6'	31°48.2'	5°22.6'	35°54.2'	39°30.9'	71°51.7'
10	252°53.5'	N 25°05.2'	11.1'	-5.3'	54.3'	101°45.2'	85°15.6'	83°37.4'	31°18.9'	5°50.3'	36°19.0'	39°55.9'	72°19.0'
11	267°23.7'	N 24°59.8'	11.2'	-5.5'	54.3'	101°28.2'	84°45.9'	83°11.2'	30°49.5'	6°18.3'	36°43.8'	40°21.1'	72°46.4'
12	281°53.8'	N 24°54.4'	11.2'	-5.6'	54.3'	101°11.2'	84°16.2'	82°45.0'	30°20.1'	6°46.6'	37°08.8'	40°46.3'	73°13.7'
13	296°24.0'	N 24°48.8'	11.3'	-5.7'	54.3'	100°54.1'	83°46.6'	82°18.8'	29°50.7'	7°15.0'	37°33.9'	41°11.6'	73°41.1'
14	310°54.3'	N 24°43.1'	11.3'	-5.8'	54.4'	100°37.0'	83°16.9'	81°52.6'	29°21.4'	7°43.7'	37°59.0'	41°37.1'	74°08.5'
15	325°24.6'	N 24°37.3'	11.3'	-5.9'	54.4'	100°19.8'	82°47.1'	81°26.4'	28°52.0'	8°12.5'	38°24.3'	42°02.6'	74°35.9'
16	339°54.9'	N 24°31.3'	11.4'	-6.0'	54.4'	100°02.6'	82°17.4'	81°00.1'	28°22.6'	8°41.4'	38°49.7'	42°28.2'	75°03.3'
17	354°25.3'	N 24°25.3'	11.4'	-6.2'	54.4'	99°45.4'	81°47.7'	80°33.9'	27°53.2'	9°10.4'	39°15.2'	42°53.9'	75°30.7'
18	8°55.7'	N 24°19.1'	11.4'	-6.3'	54.4'	99°28.1'	81°17.9'	80°07.7'	27°23.9'	9°39.6'	39°40.8'	43°19.6'	75°58.2'
19	23°26.1'	N 24°12.9'	11.5'	-6.4'	54.4'	99°10.8'	80°48.1'	79°41.5'	26°54.5'	10°08.8'	40°06.5'	43°45.5'	76°25.6'
20	37°56.6'	N 24°06.5'	11.5'	-6.5'	54.4'	98°53.4'	80°18.3'	79°15.3'	26°25.1'	10°38.1'	40°32.2'	44°11.4'	76°53.1'
21	52°27.1'	N 23°60.0'	11.5'	-6.6'	54.5'	98°36.0'	79°48.5'	78°49.0'	25°55.8'	11°07.4'	40°58.1'	44°37.4'	77°20.6'
22	66°57.6'	N 23°53.3'	11.6'	-6.7'	54.5'	98°18.6'	79°18.7'	78°22.8'	25°26.4'	11°36.8'	41°24.0'	45°03.5'	77°48.1'
23	81°28.2'	N 23°46.6'	11.6'	-6.8'	54.5'	98°01.1'	78°48.9'	77°56.6'	24°57.1'	12°06.3'	41°50.1'	45°29.7'	78°15.6'
Mer. pass.		17 h 23 m SD 14.8'		phase 31%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	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°27.2'	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°02.0'	N 8°55.5'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.6'	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°22.4'	S 57°07.4'
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°28.9'	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	225°48.2'	180°51.8'	N 17°01.6'	219°34.7'	N 0°56.8'	225°54.5'	S 1°13.9'	258°31.9'	S 14°17.8'	236°53.0'	S 6°29.5'			
1	240°50.7'	195°51.9'	N 17°02.2'	234°34.5'	N 0°57.9'	240°56.5'	S 1°13.7'	273°34.2'	S 14°17.7'	251°53.7'	S 6°28.8'			
2	255°53.1'	210°51.9'	N 17°02.9'	249°34.3'	N 0°58.9'	255°58.5'	S 1°13.5'	288°36.6'	S 14°17.7'	266°54.4'	S 6°28.1'			
3	270°55.6'	225°51.9'	N 17°03.6'	264°34.1'	N 0°60.0'	271°00.5'	S 1°13.3'	303°38.9'	S 14°17.7'	281°55.1'	S 6°27.4'			
4	285°58.1'	240°52.0'	N 17°04.3'	279°33.9'	N 1°01.0'	286°02.5'	S 1°13.2'	318°41.3'	S 14°17.6'	296°55.8'	S 6°26.7'			
5	301°00.5'	255°52.0'	N 17°05.0'	294°33.7'	N 1°02.1'	301°04.5'	S 1°13.0'	333°43.6'	S 14°17.6'	311°56.6'	S 6°25.9'			
6	316°03.0'	270°52.0'	N 17°05.6'	309°33.5'	N 1°03.1'	316°06.5'	S 1°12.8'	348°46.0'	S 14°17.6'	326°57.3'	S 6°25.2'			
7	331°05.5'	285°52.1'	N 17°06.3'	324°33.3'	N 1°04.2'	331°08.5'	S 1°12.6'	3°48.3'	S 14°17.5'	341°58.0'	S 6°24.5'			
8	346°07.9'	300°52.1'	N 17°07.0'	339°33.1'	N 1°05.2'	346°10.5'	S 1°12.4'	18°50.7'	S 14°17.5'	356°58.7'	S 6°23.8'			
9	1°10.4'	315°52.2'	N 17°07.7'	354°32.9'	N 1°06.3'	1°12.5'	S 1°12.2'	33°53.0'	S 14°17.5'	11°59.4'	S 6°23.1'			
10	16°12.9'	330°52.2'	N 17°08.4'	9°32.7'	N 1°07.3'	16°14.5'	S 1°12.0'	48°55.4'	S 14°17.5'	27°00.1'	S 6°22.4'			
11	31°15.3'	345°52.2'	N 17°09.0'	24°32.5'	N 1°08.4'	31°16.5'	S 1°11.8'	63°57.7'	S 14°17.4'	42°00.8'	S 6°21.6'			
12	46°17.8'	0°52.3'	N 17°09.7'	39°32.3'	N 1°09.4'	46°18.5'	S 1°11.6'	79°00.1'	S 14°17.4'	57°01.5'	S 6°20.9'			
13	61°20.2'	15°52.3'	N 17°10.4'	54°32.1'	N 1°10.5'	61°20.5'	S 1°11.4'	94°02.5'	S 14°17.4'	72°02.3'	S 6°20.2'			
14	76°22.7'	30°52.3'	N 17°11.1'	69°31.9'	N 1°11.5'	76°22.5'	S 1°11.2'	109°04.8'	S 14°17.3'	87°03.0'	S 6°19.5'			
15	91°25.2'	45°52.3'	N 17°11.7'	84°31.6'	N 1°12.6'	91°24.5'	S 1°11.1'	124°07.2'	S 14°17.3'	102°03.7'	S 6°18.8'			
16	106°27.6'	60°52.4'	N 17°12.4'	99°31.4'	N 1°13.6'	106°26.6'	S 1°10.9'	139°09.5'	S 14°17.3'	117°04.4'	S 6°18.1'			
17	121°30.1'	75°52.4'	N 17°13.1'	114°31.2'	N 1°14.7'	121°28.6'	S 1°10.7'	154°11.9'	S 14°17.2'	132°05.1'	S 6°17.3'			
18	136°32.6'	90°52.4'	N 17°13.7'	129°31.0'	N 1°15.7'	136°30.6'	S 1°10.5'	169°14.2'	S 14°17.2'	147°05.8'	S 6°16.6'			
19	151°35.0'	105°52.5'	N 17°14.4'	144°30.8'	N 1°16.8'	151°32.6'	S 1°10.3'	184°16.6'	S 14°17.2'	162°06.5'	S 6°15.9'			
20	166°37.5'	120°52.5'	N 17°15.1'	159°30.6'	N 1°17.8'	166°34.6'	S 1°10.1'	199°18.9'	S 14°17.2'	177°07.3'	S 6°15.2'			
21	181°40.0'	135°52.5'	N 17°15.8'	174°30.4'	N 1°18.9'	181°36.6'	S 1°09.9'	214°21.3'	S 14°17.1'	192°08.0'	S 6°14.5'			
22	196°42.4'	150°52.6'	N 17°16.4'	189°30.2'	N 1°20.0'	196°38.6'	S 1°09.7'	229°23.7'	S 14°17.1'	207°08.7'	S 6°13.8'			
23	211°44.9'	165°52.6'	N 17°17.1'	204°30.0'	N 1°21.0'	211°40.6'	S 1°09.5'	244°26.0'	S 14°17.1'	222°09.4'	S 6°13.0'			
		SD 15.8' d 0.7'		v -0.2' d 1.1'		v 2.0' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'				
Mer. pass.		11 h 56 m 31 s		9 h 22 m		8 h 55 m		6 h 45 m		8 h 12 m				

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun	
0	95°58.8'	N 23°39.8'	11.7'	-7.0'	54.5'	97°43.6'	78°19.0'	77°30.3'	24°27.7'	12°35.8'			42°16.2'	78°43.2'
1	110°29.5'	N 23°32.8'	11.7'	-7.1'	54.5'	97°26.1'	77°49.2'	77°04.1'	23°58.4'	13°05.4'			42°42.4'	79°10.7'
2	125°00.2'	N 23°25.7'	11.7'	-7.2'	54.5'	97°08.6'	77°19.3'	76°37.9'	23°29.0'	13°35.0'			43°08.7'	79°38.3'
3	139°30.9'	N 23°18.5'	11.8'	-7.3'	54.6'	96°51.0'	76°49.4'	76°11.6'	22°59.7'	14°04.7'			43°35.0'	80°05.9'
4	154°01.7'	N 23°11.3'	11.8'	-7.4'	54.6'	96°33.3'	76°19.5'	75°45.4'	22°30.4'	14°34.4'	24°15.2'		44°01.5'	80°33.5'
5	168°32.5'	N 23°03.9'	11.8'	-7.5'	54.6'	96°15.7'	75°49.5'	75°19.2'	22°01.1'	15°04.1'	24°30.6'		44°28.0'	81°01.1'
6	183°03.3'	N 22°56.3'	11.9'	-7.6'	54.6'	95°58.0'	75°19.6'	74°52.9'	21°31.8'	15°33.9'	24°46.5'		44°54.6'	81°28.7'
7	197°34.2'	N 22°48.7'	11.9'	-7.7'	54.6'	95°40.3'	74°49.6'	74°26.7'	21°02.5'	16°03.7'	25°02.7'		45°21.3'	81°56.4'
8	212°05.1'	N 22°41.0'	12.0'	-7.8'	54.6'	95°22.5'	74°19.6'	74°00.5'	20°33.3'	16°33.6'	25°19.4'		45°48.0'	82°24.1'
9	226°36.1'	N 22°33.2'	12.0'	-7.9'	54.7'	95°04.8'	73°49.6'	73°34.2'	20°04.1'	17°03.4'	25°36.5'		46°14.8'	82°51.8'
10	241°07.1'	N 22°25.2'	12.0'	-8.1'	54.7'	94°47.0'	73°19.6'	73°08.0'	19°34.8'	17°33.3'	25°53.9'		46°41.7'	83°19.5'
11	255°38.2'	N 22°17.2'	12.1'	-8.2'	54.7'	94°29.2'	72°49.5'	72°41.8'	19°05.7'	18°03.3'	26°11.7'		47°08.7'	83°47.3'
12	270°09.2'	N 22°09.0'	12.1'	-8.3'	54.7'	94°11.3'	72°19.5'	72°15.5'	18°36.5'	18°33.3'	26°29.9'		47°35.7'	84°15.0'
13	284°40.4'	N 22°00.7'	12.2'	-8.4'	54.7'	93°53.4'	71°49.4'	71°49.3'	18°07.4'	19°03.3'	26°48.4'		48°02.8'	84°42.8'
14	299°11.5'	N 21°52.4'	12.2'	-8.5'	54.8'	93°35.5'	71°19.3'	71°23.1'	17°38.3'	19°33.3'	27°07.3'		48°29.9'	85°10.6'
15	313°42.7'	N 21°43.9'	12.2'	-8.6'	54.8'	93°17.6'	70°49.1'	70°56.9'	17°09.2'	20°03.4'	27°26.5'		48°57.1'	85°38.5'
16	328°13.9'	N 21°35.3'	12.3'	-8.7'	54.8'	92°59.7'	70°19.0'	70°30.7'	16°40.2'	20°33.5'	27°46.0'		49°24.4'	86°06.3'
17	342°45.2'	N 21°26.6'	12.3'	-8.8'	54.8'	92°41.7'	69°48.8'	70°04.4'	16°11.3'	21°03.6'	28°05.8'		49°51.8'	86°34.2'
18	357°16.5'	N 21°17.9'	12.4'	-8.9'	54.8'	92°23.7'	69°18.6'	69°38.2'	15°42.4'	21°33.8'	28°25.9'		50°19.2'	87°02.1'
19	11°47.9'	N 21°09.0'	12.4'	-9.0'	54.9'	92°05.7'	68°48.4'	69°12.0'	15°13.6'	22°04.0'	28°46.3'		50°46.6'	87°30.0'
20	26°19.3'	N 20°60.0'	12.4'	-9.1'	54.9'	91°47.7'	68°18.1'	68°45.8'	14°44.9'	22°34.2'	29°07.0'		51°14.2'	87°58.0'
21	40°50.7'	N 20°50.9'	12.5'	-9.2'	54.9'	91°29.6'	67°47.9'	68°19.6'	14°16.2'	23°04.4'	29°28.0'		51°41.7'	88°25.9'
22	55°22.2'	N 20°41.7'	12.5'	-9.3'	54.9'	91°11.5'	67°17.6'	67°53.5'	13°47.7'	23°34.7'	29°49.2'		52°09.4'	88°53.9'
23	69°53.7'	N 20°32.4'	12.5'	-9.4'	55.0'	90°53.5'	66°47.2'	67°27.3'	13°19.2'	24°05.0'	30°10.7'		52°37.1'	89°21.9'
Mer. pass.		18 h 11 m SD 14.9'		phase 40%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	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°27.2'	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°02.0'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.5'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
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°28.9'	Canopus	-0.6	263°53.8'	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	226°47.4'	180°52.6'	N 17°17.8'	219°29.8'	N 1°22.1'	226°42.6'	S 1°09.3'	259°28.4'	S 14°17.0'	237°10.1'	S 6°12.3'			
1	241°49.8'	195°52.7'	N 17°18.4'	234°29.6'	N 1°23.1'	241°44.6'	S 1°09.2'	274°30.7'	S 14°17.0'	252°10.8'	S 6°11.6'			
2	256°52.3'	210°52.7'	N 17°19.1'	249°29.4'	N 1°24.2'	256°46.6'	S 1°09.0'	289°33.1'	S 14°17.0'	267°11.5'	S 6°10.9'			
3	271°54.7'	225°52.7'	N 17°19.8'	264°29.2'	N 1°25.2'	271°48.6'	S 1°08.8'	304°35.4'	S 14°17.0'	282°12.3'	S 6°10.2'			
4	286°57.2'	240°52.8'	N 17°20.4'	279°28.9'	N 1°26.3'	286°50.6'	S 1°08.6'	319°37.8'	S 14°16.9'	297°13.0'	S 6°09.5'			
5	301°59.7'	255°52.8'	N 17°21.1'	294°28.7'	N 1°27.3'	301°52.7'	S 1°08.4'	334°40.2'	S 14°16.9'	312°13.7'	S 6°08.7'			
6	317°02.1'	270°52.8'	N 17°21.8'	309°28.5'	N 1°28.4'	316°54.7'	S 1°08.2'	349°42.5'	S 14°16.9'	327°14.4'	S 6°08.0'			
7	332°04.6'	285°52.8'	N 17°22.4'	324°28.3'	N 1°29.4'	331°56.7'	S 1°08.0'	4°44.9'	S 14°16.8'	342°15.1'	S 6°07.3'			
8	347°07.1'	300°52.9'	N 17°23.1'	339°28.1'	N 1°30.5'	346°58.7'	S 1°07.8'	19°47.2'	S 14°16.8'	357°15.8'	S 6°06.6'			
9	2°09.5'	315°52.9'	N 17°23.8'	354°27.9'	N 1°31.5'	2°00.7'	S 1°07.6'	34°49.6'	S 14°16.8'	12°16.6'	S 6°05.9'			
10	17°12.0'	330°52.9'	N 17°24.4'	9°27.7'	N 1°32.6'	17°02.7'	S 1°07.4'	49°51.9'	S 14°16.8'	27°17.3'	S 6°05.1'			
11	32°14.5'	345°53.0'	N 17°25.1'	24°27.5'	N 1°33.6'	32°04.7'	S 1°07.3'	64°54.3'	S 14°16.7'	42°18.0'	S 6°04.4'			
12	47°16.9'	0°53.0'	N 17°25.8'	39°27.3'	N 1°34.7'	47°06.7'	S 1°07.1'	79°56.7'	S 14°16.7'	57°18.7'	S 6°03.7'			
13	62°19.4'	15°53.0'	N 17°26.4'	54°27.1'	N 1°35.8'	62°08.7'	S 1°06.9'	94°59.0'	S 14°16.7'	72°19.4'	S 6°03.0'			
14	77°21.8'	30°53.0'	N 17°27.1'	69°26.9'	N 1°36.8'	77°10.7'	S 1°06.7'	110°01.4'	S 14°16.6'	87°20.1'	S 6°02.3'			
15	92°24.3'	45°53.1'	N 17°27.8'	84°26.6'	N 1°37.9'	92°12.7'	S 1°06.5'	125°03.7'	S 14°16.6'	102°20.9'	S 6°01.6'			
16	107°26.8'	60°53.1'	N 17°28.4'	99°26.4'	N 1°38.9'	107°14.8'	S 1°06.3'	140°06.1'	S 14°16.6'	117°21.6'	S 6°00.8'			
17	122°29.2'	75°53.1'	N 17°29.1'	114°26.2'	N 1°40.0'	122°16.8'	S 1°06.1'	155°08.5'	S 14°16.6'	132°22.3'	S 6°00.1'			
18	137°31.7'	90°53.1'	N 17°29.7'	129°26.0'	N 1°41.0'	137°18.8'	S 1°05.9'	170°10.8'	S 14°16.5'	147°23.0'	S 5°59.4'			
19	152°34.2'	105°53.2'	N 17°30.4'	144°25.8'	N 1°42.1'	152°20.8'	S 1°05.7'	185°13.2'	S 14°16.5'	162°23.7'	S 5°58.7'			
20	167°36.6'	120°53.2'	N 17°31.1'	159°25.6'	N 1°43.1'	167°22.8'	S 1°05.6'	200°15.5'	S 14°16.5'	177°24.4'	S 5°58.0'			
21	182°39.1'	135°53.2'	N 17°31.7'	174°25.4'	N 1°44.2'	182°24.8'	S 1°05.4'	215°17.9'	S 14°16.4'	192°25.2'	S 5°57.2'			
22	197°41.6'	150°53.2'	N 17°32.4'	189°25.2'	N 1°45.3'	197°26.8'	S 1°05.2'	230°20.3'	S 14°16.4'	207°25.9'	S 5°56.5'			
23	212°44.0'	165°53.3'	N 17°33.0'	204°25.0'	N 1°46.3'	212°28.8'	S 1°05.0'	245°22.6'	S 14°16.4'	222°26.6'	S 5°55.8'			
		SD 15.8' d 0.7'		v -0.2' d 1.1'		v 2.0' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'				
Mer. pass.		11 h 56 m 28 s		9 h 22 m		8 h 52 m		6 h 41 m		8 h 11 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun
0	84°25.2'	N 20°23.0'	12.6'	-9.5'	55.0'	90°35.3'	67°01.1'	66°16.9'	12°50.9'	24°35.4'	30°32.4'	53°04.9'	89°50.0'
1	98°56.8'	N 20°13.5'	12.6'	-9.6'	55.0'	90°17.2'	66°34.9'	65°46.5'	12°22.7'	25°05.7'	30°54.4'	53°32.7'	90°18.1'
2	113°28.4'	N 20°04.0'	12.7'	-9.7'	55.0'	89°59.1'	66°08.8'	65°16.1'	11°54.7'	25°36.1'	31°16.6'	54°00.6'	90°46.2'
3	128°00.1'	N 19°54.3'	12.7'	-9.8'	55.0'	89°40.9'	65°42.6'	64°45.7'	11°26.9'	26°06.6'	31°39.0'	54°28.5'	91°14.3'
4	142°31.8'	N 19°44.5'	12.7'	-9.9'	55.1'	89°22.8'	65°16.5'	64°15.3'	10°59.3'	26°37.0'	32°01.6'	54°56.5'	91°42.4'
5	157°03.5'	N 19°34.6'	12.8'	-10.0'	55.1'	89°04.6'	64°50.4'	63°44.8'	10°31.9'	27°07.5'	32°24.5'	55°24.5'	92°10.6'
6	171°35.2'	N 19°24.7'	12.8'	-10.1'	55.1'	88°46.4'	64°24.3'	63°14.3'	10°04.8'	27°38.0'	32°47.6'	55°52.6'	92°38.8'
7	186°07.0'	N 19°14.6'	12.8'	-10.2'	55.1'	88°28.2'	63°58.2'	62°43.8'	9°38.0'	28°08.6'	33°10.8'	56°20.8'	93°07.1'
8	200°38.9'	N 19°04.4'	12.9'	-10.3'	55.2'	88°09.9'	63°32.1'	62°13.3'	9°11.6'	28°39.2'	33°34.3'	56°49.0'	93°35.3'
9	215°10.7'	N 18°54.2'	12.9'	-10.3'	55.2'	87°51.7'	63°06.0'	61°42.7'	8°45.7'	29°09.8'	33°57.9'	57°17.2'	94°03.6'
10	229°42.6'	N 18°43.8'	12.9'	-10.4'	55.2'	87°33.5'	62°39.9'	61°12.1'	8°20.2'	29°40.4'	34°21.8'	57°45.6'	94°31.9'
11	244°14.6'	N 18°33.4'	13.0'	-10.5'	55.2'	87°15.2'	62°13.9'	60°41.5'	7°55.4'	30°11.1'	34°45.8'	58°13.9'	95°00.3'
12	258°46.5'	N 18°22.9'	13.0'	-10.6'	55.3'	86°56.9'	61°47.9'	60°10.8'		30°41.8'	35°10.0'	58°42.4'	95°28.7'
13	273°18.5'	N 18°12.2'	13.0'	-10.7'	55.3'	86°38.7'	61°21.8'	59°40.1'		31°12.6'	35°34.4'	59°10.8'	95°57.1'
14	287°50.5'	N 18°01.5'	13.1'	-10.8'	55.3'	86°20.4'	60°55.9'	59°09.4'		31°43.3'	35°58.9'	59°39.3'	96°25.5'
15	302°22.6'	N 17°50.7'	13.1'	-10.9'	55.4'	86°02.1'	60°29.9'	58°38.7'		32°14.1'	36°23.6'	60°07.9'	96°54.0'
16	316°54.7'	N 17°39.8'	13.1'	-11.0'	55.4'	85°43.8'	60°03.9'	58°07.9'		32°45.0'	36°48.5'	60°36.6'	97°22.5'
17	331°26.8'	N 17°28.9'	13.2'	-11.1'	55.4'	85°25.5'	59°38.0'	57°37.1'		33°15.8'	37°13.5'	61°05.2'	97°51.0'
18	345°59.0'	N 17°17.8'	13.2'	-11.2'	55.4'	85°07.2'	59°12.1'	57°06.3'		33°46.8'	37°38.7'	61°34.0'	98°19.6'
19	0°31.2'	N 17°06.6'	13.2'	-11.2'	55.5'	84°48.9'	58°46.2'	56°35.4'		34°17.7'	38°04.0'	62°02.7'	98°48.2'
20	15°03.4'	N 16°55.4'	13.2'	-11.3'	55.5'	84°30.6'	58°20.3'	56°04.5'		34°48.7'	38°29.5'	62°31.6'	99°16.8'
21	29°35.6'	N 16°44.1'	13.3'	-11.4'	55.5'	84°12.3'	57°54.5'	55°33.6'		35°19.7'	38°55.1'	63°00.5'	99°45.4'
22	44°07.9'	N 16°32.7'	13.3'	-11.5'	55.6'	83°54.0'	57°28.7'	55°02.6'		35°50.7'	39°20.8'	63°29.4'	100°14.1'
23	58°40.2'	N 16°21.2'	13.3'	-11.6'	55.6'	83°35.7'	57°02.9'	54°31.6'		36°21.8'	39°46.7'	63°58.4'	100°42.9'
Mer. pass.		18 h 58 m SD 15.0'		phase 50%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	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°02.0'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.5'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	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	227°46.5'	180°53.3'	N 17°33.7'	219°24.8'	N 1°47.4'	227°30.8'	S 1°04.8'	260°25.0'	S 14°16.4'	237°27.3'	S 5°55.1'			
1	242°49.0'	195°53.3'	N 17°34.3'	234°24.5'	N 1°48.4'	242°32.9'	S 1°04.6'	275°27.3'	S 14°16.3'	252°28.0'	S 5°54.4'			
2	257°51.4'	210°53.3'	N 17°35.0'	249°24.3'	N 1°49.5'	257°34.9'	S 1°04.4'	290°29.7'	S 14°16.3'	267°28.7'	S 5°53.7'			
3	272°53.9'	225°53.4'	N 17°35.7'	264°24.1'	N 1°50.5'	272°36.9'	S 1°04.2'	305°32.1'	S 14°16.3'	282°29.5'	S 5°52.9'			
4	287°56.3'	240°53.4'	N 17°36.3'	279°23.9'	N 1°51.6'	287°38.9'	S 1°04.0'	320°34.4'	S 14°16.2'	297°30.2'	S 5°52.2'			
5	302°58.8'	255°53.4'	N 17°37.0'	294°23.7'	N 1°52.6'	302°40.9'	S 1°03.9'	335°36.8'	S 14°16.2'	312°30.9'	S 5°51.5'			
6	318°01.3'	270°53.4'	N 17°37.6'	309°23.5'	N 1°53.7'	317°42.9'	S 1°03.7'	350°39.1'	S 14°16.2'	327°31.6'	S 5°50.8'			
7	333°03.7'	285°53.5'	N 17°38.3'	324°23.3'	N 1°54.8'	332°44.9'	S 1°03.5'	5°41.5'	S 14°16.2'	342°32.3'	S 5°50.1'			
8	348°06.2'	300°53.5'	N 17°38.9'	339°23.1'	N 1°55.8'	347°46.9'	S 1°03.3'	20°43.9'	S 14°16.1'	357°33.0'	S 5°49.3'			
9	3°08.7'	315°53.5'	N 17°39.6'	354°22.8'	N 1°56.9'	2°48.9'	S 1°03.1'	35°46.2'	S 14°16.1'	12°33.8'	S 5°48.6'			
10	18°11.1'	330°53.5'	N 17°40.2'	9°22.6'	N 1°57.9'	17°51.0'	S 1°02.9'	50°48.6'	S 14°16.1'	27°34.5'	S 5°47.9'			
11	33°13.6'	345°53.5'	N 17°40.9'	24°22.4'	N 1°59.0'	32°53.0'	S 1°02.7'	65°51.0'	S 14°16.1'	42°35.2'	S 5°47.2'			
12	48°16.1'	0°53.6'	N 17°41.5'	39°22.2'	N 2°00.0'	47°55.0'	S 1°02.5'	80°53.3'	S 14°16.0'	57°35.9'	S 5°46.5'			
13	63°18.5'	15°53.6'	N 17°42.2'	54°22.0'	N 2°01.1'	62°57.0'	S 1°02.4'	95°55.7'	S 14°16.0'	72°36.6'	S 5°45.7'			
14	78°21.0'	30°53.6'	N 17°42.8'	69°21.8'	N 2°02.1'	77°59.0'	S 1°02.2'	110°58.0'	S 14°16.0'	87°37.4'	S 5°45.0'			
15	93°23.5'	45°53.6'	N 17°43.5'	84°21.6'	N 2°03.2'	93°01.0'	S 1°02.0'	126°00.4'	S 14°15.9'	102°38.1'	S 5°44.3'			
16	108°25.9'	60°53.7'	N 17°44.1'	99°21.4'	N 2°04.3'	108°03.0'	S 1°01.8'	141°02.8'	S 14°15.9'	117°38.8'	S 5°43.6'			
17	123°28.4'	75°53.7'	N 17°44.8'	114°21.1'	N 2°05.3'	123°05.1'	S 1°01.6'	156°05.1'	S 14°15.9'	132°39.5'	S 5°42.9'			
18	138°30.8'	90°53.7'	N 17°45.4'	129°20.9'	N 2°06.4'	138°07.1'	S 1°01.4'	171°07.5'	S 14°15.9'	147°40.2'	S 5°42.1'			
19	153°33.3'	105°53.7'	N 17°46.1'	144°20.7'	N 2°07.4'	153°09.1'	S 1°01.2'	186°09.9'	S 14°15.8'	162°41.0'	S 5°41.4'			
20	168°35.8'	120°53.7'	N 17°46.7'	159°20.5'	N 2°08.5'	168°11.1'	S 1°01.0'	201°12.2'	S 14°15.8'	177°41.7'	S 5°40.7'			
21	183°38.2'	135°53.8'	N 17°47.4'	174°20.3'	N 2°09.5'	183°13.1'	S 1°00.9'	216°14.6'	S 14°15.8'	192°42.4'	S 5°40.0'			
22	198°40.7'	150°53.8'	N 17°48.0'	189°20.1'	N 2°10.6'	198°15.1'	S 1°00.7'	231°16.9'	S 14°15.8'	207°43.1'	S 5°39.3'			
23	213°43.2'	165°53.8'	N 17°48.7'	204°19.9'	N 2°11.7'	213°17.1'	S 1°00.5'	246°19.3'	S 14°15.7'	222°43.8'	S 5°38.5'			
		SD 15.8'	d 0.7'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 26 s		9 h 22 m		8 h 49 m		6 h 37 m		8 h 10 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	73°12.5'	N 16°09.6'	13.4'	-11.7'	55.6'	89°01.6'	83°17.4'	56°37.1'	54°00.6'		36°52.9'	40°12.7'	101°11.6'
1	87°44.9'	N 15°57.9'	13.4'	-11.7'	55.6'	88°39.0'	82°59.1'	56°11.4'	53°29.6'		37°24.0'	40°38.8'	101°40.4'
2	102°17.2'	N 15°46.2'	13.4'	-11.8'	55.7'	88°16.5'	82°40.8'	55°45.7'	52°58.5'		37°55.2'	41°05.1'	102°09.2'
3	116°49.6'	N 15°34.3'	13.4'	-11.9'	55.7'	87°53.9'	82°22.5'	55°20.1'	52°27.4'		38°26.4'	41°31.5'	102°38.1'
4	131°22.1'	N 15°22.4'	13.4'	-12.0'	55.7'	87°31.3'	82°04.2'	54°54.5'	51°56.2'		38°57.7'	41°58.0'	103°07.0'
5	145°54.5'	N 15°10.4'	13.5'	-12.1'	55.8'	87°08.7'	81°45.9'	54°28.9'	51°25.1'		39°29.0'	42°24.6'	103°35.9'
6	160°27.0'	N 14°58.4'	13.5'	-12.1'	55.8'	86°46.1'	81°27.6'	54°03.3'	50°53.8'		40°00.3'	42°51.3'	104°04.9'
7	174°59.5'	N 14°46.2'	13.5'	-12.2'	55.8'	86°23.4'	81°09.3'	53°37.8'	50°22.6'		40°31.7'	43°18.2'	104°33.9'
8	189°32.0'	N 14°34.0'	13.5'	-12.3'	55.9'	86°00.8'	80°51.1'	53°12.4'	49°51.3'		41°03.1'	43°45.2'	105°03.0'
9	204°04.5'	N 14°21.7'	13.6'	-12.4'	55.9'	85°38.1'	80°32.8'	52°47.0'	49°20.0'		41°34.5'	44°12.2'	105°32.0'
10	218°37.1'	N 14°09.3'	13.6'	-12.5'	55.9'	85°15.4'	80°14.5'	52°21.6'	48°48.7'		42°06.0'	44°39.4'	106°01.1'
11	233°09.7'	N 13°56.8'	13.6'	-12.5'	55.9'	84°52.7'	79°56.3'	51°56.3'	48°17.3'		42°37.5'	45°06.7'	106°30.3'
12	247°42.2'	N 13°44.3'	13.6'	-12.6'	56.0'	84°29.9'	79°38.1'	51°31.0'	47°45.9'	8°11.4'	43°09.0'	45°34.1'	106°59.5'
13	262°14.9'	N 13°31.7'	13.6'	-12.7'	56.0'	84°07.2'	79°19.9'	51°05.8'	47°14.4'	8°37.4'	43°40.6'	46°01.6'	107°28.7'
14	276°47.5'	N 13°19.0'	13.6'	-12.8'	56.0'	83°44.4'	79°01.7'	50°40.7'	46°42.9'	9°04.1'	44°12.3'	46°29.2'	107°58.0'
15	291°20.1'	N 13°06.3'	13.7'	-12.8'	56.1'	83°21.7'	78°43.5'	50°15.6'	46°11.4'	9°31.2'	44°43.9'	46°56.9'	108°27.3'
16	305°52.8'	N 12°53.4'	13.7'	-12.9'	56.1'	82°58.9'	78°25.4'	49°50.6'	45°39.9'	9°58.9'	45°15.6'	47°24.7'	108°56.6'
17	320°25.5'	N 12°40.5'	13.7'	-13.0'	56.1'	82°36.1'	78°07.2'	49°25.6'	45°08.3'	10°26.9'	45°47.4'	47°52.6'	109°26.0'
18	334°58.2'	N 12°27.6'	13.7'	-13.0'	56.2'	82°13.3'	77°49.1'	49°00.7'	44°36.7'	10°55.4'	46°19.2'	48°20.6'	109°55.4'
19	349°30.9'	N 12°14.5'	13.7'	-13.1'	56.2'	81°50.5'	77°31.0'	48°35.9'	44°05.0'	11°24.1'	46°51.0'	48°48.7'	110°24.9'
20	4°03.6'	N 12°01.4'	13.7'	-13.2'	56.2'	81°27.7'	77°12.9'	48°11.1'	43°33.3'	11°53.2'	47°22.9'	49°16.9'	110°54.4'
21	18°36.3'	N 11°48.2'	13.7'	-13.2'	56.3'	81°04.9'	76°54.8'	47°46.4'	43°01.6'	12°22.5'	47°54.8'	49°45.2'	111°23.9'
22	33°09.0'	N 11°35.0'	13.7'	-13.3'	56.3'	80°42.0'	76°36.8'	47°21.8'	42°29.8'	12°52.1'	48°26.7'	50°13.5'	111°53.5'
23	47°41.8'	N 11°21.7'	13.8'	-13.4'	56.3'	80°19.2'	76°18.8'	46°57.3'	41°58.0'	13°21.9'	48°58.7'	50°42.0'	112°23.1'
Mer. pass.		19 h 43 m	SD 15.2'	phase 60%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	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°02.0'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.4'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	228°45.6'	180°53.8' N 17°49.3'	219°19.7' N 2°12.7'	228°19.2' S 1°00.3'	261°21.7' S 14°15.7'	237°44.6' S 5°37.8'						
1	243°48.1'	195°53.8' N 17°49.9'	234°19.4' N 2°13.8'	243°21.2' S 1°00.1'	276°24.0' S 14°15.7'	252°45.3' S 5°37.1'						
2	258°50.6'	210°53.8' N 17°50.6'	249°19.2' N 2°14.8'	258°23.2' S 0°59.9'	291°26.4' S 14°15.7'	267°46.0' S 5°36.4'						
3	273°53.0'	225°53.9' N 17°51.2'	264°19.0' N 2°15.9'	273°25.2' S 0°59.7'	306°28.8' S 14°15.6'	282°46.7' S 5°35.7'						
4	288°55.5'	240°53.9' N 17°51.9'	279°18.8' N 2°16.9'	288°27.2' S 0°59.6'	321°31.1' S 14°15.6'	297°47.4' S 5°34.9'						
5	303°57.9'	255°53.9' N 17°52.5'	294°18.6' N 2°18.0'	303°29.2' S 0°59.4'	336°33.5' S 14°15.6'	312°48.2' S 5°34.2'						
6	319°00.4'	270°53.9' N 17°53.2'	309°18.4' N 2°19.1'	318°31.2' S 0°59.2'	351°35.9' S 14°15.5'	327°48.9' S 5°33.5'						
7	334°02.9'	285°53.9' N 17°53.8'	324°18.1' N 2°20.1'	333°33.3' S 0°59.0'	6°38.2' S 14°15.5'	342°49.6' S 5°32.8'						
8	349°05.3'	300°54.0' N 17°54.4'	339°17.9' N 2°21.2'	348°35.3' S 0°58.8'	21°40.6' S 14°15.5'	357°50.3' S 5°32.1'						
9	4°07.8'	315°54.0' N 17°55.1'	354°17.7' N 2°22.2'	3°37.3' S 0°58.6'	36°43.0' S 14°15.5'	12°51.0' S 5°31.3'						
10	19°10.3'	330°54.0' N 17°55.7'	9°17.5' N 2°23.3'	18°39.3' S 0°58.4'	51°45.3' S 14°15.4'	27°51.8' S 5°30.6'						
11	34°12.7'	345°54.0' N 17°56.4'	24°17.3' N 2°24.3'	33°41.3' S 0°58.2'	66°47.7' S 14°15.4'	42°52.5' S 5°29.9'						
12	49°15.2'	0°54.0' N 17°57.0'	39°17.1' N 2°25.4'	48°43.3' S 0°58.1'	81°50.1' S 14°15.4'	57°53.2' S 5°29.2'						
13	64°17.7'	15°54.0' N 17°57.6'	54°16.9' N 2°26.5'	63°45.3' S 0°57.9'	96°52.4' S 14°15.4'	72°53.9' S 5°28.5'						
14	79°20.1'	30°54.0' N 17°58.3'	69°16.6' N 2°27.5'	78°47.4' S 0°57.7'	111°54.8' S 14°15.3'	87°54.6' S 5°27.7'						
15	94°22.6'	45°54.1' N 17°58.9'	84°16.4' N 2°28.6'	93°49.4' S 0°57.5'	126°57.2' S 14°15.3'	102°55.4' S 5°27.0'						
16	109°25.1'	60°54.1' N 17°59.6'	99°16.2' N 2°29.6'	108°51.4' S 0°57.3'	141°59.5' S 14°15.3'	117°56.1' S 5°26.3'						
17	124°27.5'	75°54.1' N 18°00.2'	114°16.0' N 2°30.7'	123°53.4' S 0°57.1'	157°01.9' S 14°15.3'	132°56.8' S 5°25.6'						
18	139°30.0'	90°54.1' N 18°00.8'	129°15.8' N 2°31.8'	138°55.4' S 0°56.9'	172°04.3' S 14°15.2'	147°57.5' S 5°24.9'						
19	154°32.4'	105°54.1' N 18°01.5'	144°15.6' N 2°32.8'	153°57.4' S 0°56.8'	187°06.6' S 14°15.2'	162°58.3' S 5°24.1'						
20	169°34.9'	120°54.1' N 18°02.1'	159°15.3' N 2°33.9'	168°59.5' S 0°56.6'	202°09.0' S 14°15.2'	177°59.0' S 5°23.4'						
21	184°37.4'	135°54.2' N 18°02.7'	174°15.1' N 2°34.9'	184°01.5' S 0°56.4'	217°11.4' S 14°15.2'	192°59.7' S 5°22.7'						
22	199°39.8'	150°54.2' N 18°03.4'	189°14.9' N 2°36.0'	199°03.5' S 0°56.2'	232°13.7' S 14°15.1'	208°00.4' S 5°22.0'						
23	214°42.3'	165°54.2' N 18°04.0'	204°14.7' N 2°37.0'	214°05.5' S 0°56.0'	247°16.1' S 14°15.1'	223°01.1' S 5°21.2'						
		SD 15.8' d 0.6'	v -0.2' d 1.1'	v 2.0' d 0.2'	v 2.4' d 0.0'	v 0.7' d 0.7'						
Mer. pass.		11 h 56 m 24 s	9 h 23 m	8 h 46 m	6 h 34 m	8 h 9 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	62°14.5'	N 11°08.3'	13.8'	-13.4'	56.4'	79°56.4'	76°00.8'	46°32.8'	41°26.2'	13°51.9'	49°30.8'	51°10.5'	112°52.8'
1	76°47.3'	N 10°54.8'	13.8'	-13.5'	56.4'	79°33.5'	75°42.9'	46°08.5'	40°54.3'	14°22.1'	50°02.8'	51°39.1'	113°22.5'
2	91°20.1'	N 10°41.3'	13.8'	-13.6'	56.4'	79°10.7'	75°25.0'	45°44.2'	40°22.4'	14°52.4'	50°34.9'	52°07.8'	113°52.2'
3	105°52.8'	N 10°27.7'	13.8'	-13.6'	56.5'	78°47.8'	75°07.1'	45°20.1'	39°50.4'	15°22.9'	51°07.1'	52°36.6'	114°22.0'
4	120°25.6'	N 10°14.1'	13.8'	-13.7'	56.5'	78°25.0'	74°49.2'	44°56.0'	39°18.5'	15°53.6'	51°39.3'	53°05.5'	114°51.9'
5	134°58.4'	N 10°00.4'	13.8'	-13.8'	56.6'	78°02.1'	74°31.4'	44°32.0'	38°46.4'	16°24.4'	52°11.5'	53°34.4'	115°21.7'
6	149°31.2'	N 9°46.6'	13.8'	-13.8'	56.6'	77°39.3'	74°13.6'	44°08.2'	38°14.4'	16°55.3'	52°43.8'	54°03.5'	115°51.6'
7	164°04.0'	N 9°32.8'	13.8'	-13.9'	56.6'	77°16.5'	73°55.8'	43°44.4'	37°42.3'	17°26.3'	53°16.1'	54°32.6'	116°21.6'
8	178°36.7'	N 9°18.9'	13.8'	-13.9'	56.7'	76°53.6'	73°38.1'	43°20.8'	37°10.2'	17°57.5'	53°48.5'	55°01.8'	116°51.6'
9	193°09.5'	N 9°04.9'	13.8'	-14.0'	56.7'	76°30.8'	73°20.4'	42°57.3'	36°38.0'	18°28.8'	54°20.9'	55°31.1'	117°21.6'
10	207°42.3'	N 8°50.9'	13.8'	-14.1'	56.7'	76°08.0'	73°02.8'	42°33.9'	36°05.8'	19°00.2'	54°53.4'	56°00.4'	117°51.7'
11	222°15.1'	N 8°36.9'	13.8'	-14.1'	56.8'	75°45.2'	72°45.2'	42°10.7'	35°33.6'	19°31.6'	55°25.9'	56°29.9'	118°21.8'
12	236°47.9'	N 8°22.8'	13.8'	-14.2'	56.8'	75°22.4'	72°27.7'	41°47.6'	35°01.3'	20°03.2'	55°58.4'	56°59.4'	118°52.0'
13	251°20.7'	N 8°08.6'	13.8'	-14.2'	56.8'	74°59.6'	72°10.2'	41°24.6'	34°29.0'	20°34.9'	56°31.0'	57°29.0'	119°22.2'
14	265°53.4'	N 7°54.3'	13.8'	-14.3'	56.9'	74°36.8'	71°52.7'	41°01.8'	33°56.7'	21°06.6'	57°03.7'	57°58.6'	119°52.5'
15	280°26.2'	N 7°40.1'	13.8'	-14.3'	56.9'	74°14.0'	71°35.3'	40°39.1'	33°24.3'	21°38.5'	57°36.3'	58°28.4'	
16	294°59.0'	N 7°25.7'	13.8'	-14.4'	57.0'	73°51.3'	71°17.9'	40°16.6'	32°51.9'	22°10.4'	58°09.1'	58°58.2'	
17	309°31.7'	N 7°11.3'	13.7'	-14.4'	57.0'	73°28.6'	71°00.6'	39°54.3'	32°19.5'	22°42.4'	58°41.8'	59°28.0'	
18	324°04.5'	N 6°56.9'	13.7'	-14.5'	57.0'	73°05.8'	70°43.4'	39°32.1'	31°47.0'	23°14.5'	59°14.6'	59°58.0'	
19	338°37.2'	N 6°42.4'	13.7'	-14.5'	57.1'	72°43.1'	70°26.2'	39°10.1'	31°14.5'	23°46.7'	59°47.5'	60°28.0'	
20	353°09.9'	N 6°27.8'	13.7'	-14.6'	57.1'	72°20.5'	70°09.1'	38°48.3'	30°42.0'	24°18.9'	60°20.4'	60°58.1'	
21	7°42.6'	N 6°13.3'	13.7'	-14.6'	57.1'	71°57.8'	69°52.0'	38°26.7'	30°09.4'	24°51.2'	60°53.4'	61°28.3'	
22	22°15.3'	N 5°58.6'	13.7'	-14.7'	57.2'	71°35.2'	69°35.0'	38°05.3'	29°36.8'	25°23.6'	61°26.4'	61°58.5'	
23	36°48.0'	N 5°43.9'	13.7'	-14.7'	57.2'	71°12.6'	69°18.0'	37°44.1'	29°04.2'	25°56.0'	61°59.4'	62°28.8'	
Mer. pass.		20 h 28 m SD 15.4'	phase 69%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	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°02.0'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.4'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	229°44.8'	180°54.2'	N 18°04.6'	219°14.5'	N 2°38.1'	229°07.5'	S 0°55.8'	262°18.5'	S 14°15.1'	238°01.9'	S 5°20.5'			
1	244°47.2'	195°54.2'	N 18°05.3'	234°14.2'	N 2°39.2'	244°09.6'	S 0°55.6'	277°20.8'	S 14°15.1'	253°02.6'	S 5°19.8'			
2	259°49.7'	210°54.2'	N 18°05.9'	249°14.0'	N 2°40.2'	259°11.6'	S 0°55.5'	292°23.2'	S 14°15.0'	268°03.3'	S 5°19.1'			
3	274°52.2'	225°54.2'	N 18°06.5'	264°13.8'	N 2°41.3'	274°13.6'	S 0°55.3'	307°25.6'	S 14°15.0'	283°04.0'	S 5°18.4'			
4	289°54.6'	240°54.2'	N 18°07.1'	279°13.6'	N 2°42.3'	289°15.6'	S 0°55.1'	322°27.9'	S 14°15.0'	298°04.8'	S 5°17.6'			
5	304°57.1'	255°54.3'	N 18°07.8'	294°13.4'	N 2°43.4'	304°17.6'	S 0°54.9'	337°30.3'	S 14°15.0'	313°05.5'	S 5°16.9'			
6	319°59.6'	270°54.3'	N 18°08.4'	309°13.2'	N 2°44.5'	319°19.6'	S 0°54.7'	352°32.7'	S 14°14.9'	328°06.2'	S 5°16.2'			
7	335°02.0'	285°54.3'	N 18°09.0'	324°12.9'	N 2°45.5'	334°21.7'	S 0°54.5'	7°35.0'	S 14°14.9'	343°06.9'	S 5°15.5'			
8	350°04.5'	300°54.3'	N 18°09.7'	339°12.7'	N 2°46.6'	349°23.7'	S 0°54.3'	22°37.4'	S 14°14.9'	358°07.6'	S 5°14.8'			
9	5°06.9'	315°54.3'	N 18°10.3'	354°12.5'	N 2°47.6'	4°25.7'	S 0°54.2'	37°39.8'	S 14°14.9'	13°08.4'	S 5°14.0'			
10	20°09.4'	330°54.3'	N 18°10.9'	9°12.3'	N 2°48.7'	19°27.7'	S 0°54.0'	52°42.1'	S 14°14.8'	28°09.1'	S 5°13.3'			
11	35°11.9'	345°54.3'	N 18°11.5'	24°12.1'	N 2°49.8'	34°29.7'	S 0°53.8'	67°44.5'	S 14°14.8'	43°09.8'	S 5°12.6'			
12	50°14.3'	0°54.3'	N 18°12.2'	39°11.8'	N 2°50.8'	49°31.8'	S 0°53.6'	82°46.9'	S 14°14.8'	58°10.5'	S 5°11.9'			
13	65°16.8'	15°54.3'	N 18°12.8'	54°11.6'	N 2°51.9'	64°33.8'	S 0°53.4'	97°49.3'	S 14°14.8'	73°11.3'	S 5°11.1'			
14	80°19.3'	30°54.3'	N 18°13.4'	69°11.4'	N 2°52.9'	79°35.8'	S 0°53.2'	112°51.6'	S 14°14.7'	88°12.0'	S 5°10.4'			
15	95°21.7'	45°54.4'	N 18°14.0'	84°11.2'	N 2°54.0'	94°37.8'	S 0°53.1'	127°54.0'	S 14°14.7'	103°12.7'	S 5°09.7'			
16	110°24.2'	60°54.4'	N 18°14.7'	99°11.0'	N 2°55.0'	109°39.8'	S 0°52.9'	142°56.4'	S 14°14.7'	118°13.4'	S 5°09.0'			
17	125°26.7'	75°54.4'	N 18°15.3'	114°10.7'	N 2°56.1'	124°41.9'	S 0°52.7'	157°58.7'	S 14°14.7'	133°14.2'	S 5°08.3'			
18	140°29.1'	90°54.4'	N 18°15.9'	129°10.5'	N 2°57.2'	139°43.9'	S 0°52.5'	173°01.1'	S 14°14.6'	148°14.9'	S 5°07.5'			
19	155°31.6'	105°54.4'	N 18°16.5'	144°10.3'	N 2°58.2'	154°45.9'	S 0°52.3'	188°03.5'	S 14°14.6'	163°15.6'	S 5°06.8'			
20	170°34.0'	120°54.4'	N 18°17.2'	159°10.1'	N 2°59.3'	169°47.9'	S 0°52.1'	203°05.9'	S 14°14.6'	178°16.3'	S 5°06.1'			
21	185°36.5'	135°54.4'	N 18°17.8'	174°09.9'	N 3°00.3'	184°49.9'	S 0°52.0'	218°08.2'	S 14°14.6'	193°17.0'	S 5°05.4'			
22	200°39.0'	150°54.4'	N 18°18.4'	189°09.6'	N 3°01.4'	199°52.0'	S 0°51.8'	233°10.6'	S 14°14.5'	208°17.8'	S 5°04.6'			
23	215°41.4'	165°54.4'	N 18°19.0'	204°09.4'	N 3°02.5'	214°54.0'	S 0°51.6'	248°13.0'	S 14°14.5'	223°18.5'	S 5°03.9'			
		SD 15.8'	d 0.6'		v -0.2' d 1.1'		v 2.0' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'			
Mer. pass.		11 h 56 m 23 s		9 h 23 m		8 h 42 m		6 h 30 m		8 h 7 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	51°20.7'	N 5°29.2'	13.6'	-14.8'	57.3'	70°50.0'	69°01.1'	37°23.1'	28°31.5'	26°28.6'	62°32.5'	62°59.2'	78°26.3'
1	65°53.3'	N 5°14.4'	13.6'	-14.8'	57.3'	70°27.4'	68°44.3'	37°02.4'	27°58.8'	27°01.1'	63°05.6'	63°29.6'	78°44.1'
2	80°25.9'	N 4°59.6'	13.6'	-14.9'	57.3'	70°04.9'	68°27.6'	36°41.8'	27°26.1'	27°33.8'	63°38.8'	64°00.1'	79°02.0'
3	94°58.5'	N 4°44.7'	13.6'	-14.9'	57.4'	69°42.4'	68°10.9'	36°21.5'	26°53.3'	28°06.5'	64°12.0'	64°30.7'	79°19.9'
4	109°31.1'	N 4°29.8'	13.6'	-14.9'	57.4'	69°19.9'	67°54.3'	36°01.5'	26°20.6'	28°39.3'	64°45.3'	65°01.4'	79°38.0'
5	124°03.7'	N 4°14.9'	13.5'	-15.0'	57.4'	68°57.5'	67°37.8'	35°41.7'	25°47.8'	29°12.2'	65°18.6'	65°32.1'	79°56.0'
6	138°36.3'	N 3°59.9'	13.5'	-15.0'	57.5'	68°35.1'	67°21.3'	35°22.2'	25°15.0'	29°45.1'	65°52.0'	66°02.8'	80°14.2'
7	153°08.8'	N 3°44.8'	13.5'	-15.1'	57.5'	68°12.8'	67°05.0'	35°03.0'	24°42.1'	30°18.0'	66°25.4'	66°33.7'	80°32.4'
8	167°41.3'	N 3°29.8'	13.5'	-15.1'	57.6'	67°50.5'	66°48.7'	34°44.0'	24°09.3'	30°51.1'	66°58.9'	67°04.6'	80°50.7'
9	182°13.8'	N 3°14.7'	13.4'	-15.1'	57.6'	67°28.2'	66°32.5'	34°25.3'	23°36.4'	31°24.2'	67°32.4'	67°35.5'	81°09.0'
10	196°46.2'	N 2°59.5'	13.4'	-15.2'	57.6'	67°06.0'	66°16.4'	34°07.0'	23°03.5'	31°57.3'	68°05.9'	68°06.6'	81°27.4'
11	211°18.6'	N 2°44.4'	13.4'	-15.2'	57.7'	66°43.8'	66°00.3'	33°48.9'	22°30.6'	32°30.5'	68°39.5'	68°37.6'	81°45.9'
12	225°51.0'	N 2°29.2'	13.4'	-15.2'	57.7'	66°21.7'	65°44.4'	33°31.2'	21°57.7'	33°03.8'	69°13.2'	69°08.8'	82°04.4'
13	240°23.4'	N 2°13.9'	13.3'	-15.3'	57.7'	65°59.6'	65°28.6'	33°13.9'	21°24.7'	33°37.1'	69°46.9'	69°40.0'	82°23.0'
14	254°55.7'	N 1°58.6'	13.3'	-15.3'	57.8'	65°37.6'	65°12.8'	32°56.8'	20°51.8'	34°10.5'	70°20.6'	70°11.3'	82°41.6'
15	269°28.0'	N 1°43.3'	13.3'	-15.3'	57.8'	65°15.6'	64°57.2'	32°40.2'	20°18.8'	34°44.0'	70°54.4'	70°42.6'	83°00.3'
16	284°00.2'	N 1°28.0'	13.2'	-15.4'	57.9'	64°53.7'	64°41.6'	32°23.9'	19°45.9'	35°17.5'	71°28.2'	71°14.0'	83°19.1'
17	298°32.5'	N 1°12.6'	13.2'	-15.4'	57.9'	64°31.9'	64°26.2'	32°08.0'	19°13.0'	35°51.0'	72°02.1'	71°45.5'	83°37.9'
18	313°04.7'	N 0°57.3'	13.2'	-15.4'	57.9'	64°10.1'	64°10.8'	31°52.5'	18°40.1'	36°24.7'	72°36.1'	72°17.0'	83°56.7'
19	327°36.8'	N 0°41.8'	13.1'	-15.4'	58.0'	63°48.4'	63°55.6'		18°07.1'	36°58.3'	73°10.0'	72°48.6'	84°15.6'
20	342°08.9'	N 0°26.4'	13.1'	-15.5'	58.0'	63°26.8'	63°40.5'		17°34.3'	37°32.1'	73°44.1'	73°20.2'	84°34.6'
21	356°41.0'	N 0°10.9'	13.0'	-15.5'	58.1'	63°05.2'			17°01.4'	38°05.8'	74°18.1'	73°51.9'	84°53.6'
22	11°13.0'	S 0°04.5'	13.0'	-15.5'	58.1'	62°43.7'			16°28.6'	38°39.7'	74°52.3'	74°23.6'	85°12.6'
23	25°45.0'	S 0°20.0'	12.9'	-15.5'	58.1'	62°22.3'			15°55.8'	39°13.6'	75°26.4'	74°55.4'	85°31.7'
Mer. pass.		21 h 14 m SD 15.6'		phase 79%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	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°02.0'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.4'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

Friday 13 May 2022 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	230°43.9'	180°54.4'	N 18°19.6'	219°09.2'	N 3°03.5'	229°56.0'	S 0°51.4'	263°15.3'	S 14°14.5'	238°19.2'	S 5°03.2'			
1	245°46.4'	195°54.4'	N 18°20.3'	234°09.0'	N 3°04.6'	244°58.0'	S 0°51.2'	278°17.7'	S 14°14.5'	253°19.9'	S 5°02.5'			
2	260°48.8'	210°54.4'	N 18°20.9'	249°08.7'	N 3°05.6'	260°00.0'	S 0°51.0'	293°20.1'	S 14°14.4'	268°20.7'	S 5°01.8'			
3	275°51.3'	225°54.5'	N 18°21.5'	264°08.5'	N 3°06.7'	275°02.1'	S 0°50.8'	308°22.5'	S 14°14.4'	283°21.4'	S 5°01.0'			
4	290°53.8'	240°54.5'	N 18°22.1'	279°08.3'	N 3°07.8'	290°04.1'	S 0°50.7'	323°24.8'	S 14°14.4'	298°22.1'	S 5°00.3'			
5	305°56.2'	255°54.5'	N 18°22.7'	294°08.1'	N 3°08.8'	305°06.1'	S 0°50.5'	338°27.2'	S 14°14.4'	313°22.8'	S 4°59.6'			
6	320°58.7'	270°54.5'	N 18°23.3'	309°07.9'	N 3°09.9'	320°08.1'	S 0°50.3'	353°29.6'	S 14°14.4'	328°23.6'	S 4°58.9'			
7	336°01.2'	285°54.5'	N 18°24.0'	324°07.6'	N 3°10.9'	335°10.2'	S 0°50.1'	8°31.9'	S 14°14.3'	343°24.3'	S 4°58.1'			
8	351°03.6'	300°54.5'	N 18°24.6'	339°07.4'	N 3°12.0'	350°12.2'	S 0°49.9'	23°34.3'	S 14°14.3'	358°25.0'	S 4°57.4'			
9	6°06.1'	315°54.5'	N 18°25.2'	354°07.2'	N 3°13.1'	5°14.2'	S 0°49.7'	38°36.7'	S 14°14.3'	13°25.7'	S 4°56.7'			
10	21°08.5'	330°54.5'	N 18°25.8'	9°07.0'	N 3°14.1'	20°16.2'	S 0°49.6'	53°39.1'	S 14°14.3'	28°26.5'	S 4°56.0'			
11	36°11.0'	345°54.5'	N 18°26.4'	24°06.7'	N 3°15.2'	35°18.2'	S 0°49.4'	68°41.4'	S 14°14.2'	43°27.2'	S 4°55.2'			
12	51°13.5'	0°54.5'	N 18°27.0'	39°06.5'	N 3°16.2'	50°20.3'	S 0°49.2'	83°43.8'	S 14°14.2'	58°27.9'	S 4°54.5'			
13	66°15.9'	15°54.5'	N 18°27.6'	54°06.3'	N 3°17.3'	65°22.3'	S 0°49.0'	98°46.2'	S 14°14.2'	73°28.7'	S 4°53.8'			
14	81°18.4'	30°54.5'	N 18°28.3'	69°06.1'	N 3°18.4'	80°24.3'	S 0°48.8'	113°48.6'	S 14°14.2'	88°29.4'	S 4°53.1'			
15	96°20.9'	45°54.5'	N 18°28.9'	84°05.8'	N 3°19.4'	95°26.3'	S 0°48.7'	128°50.9'	S 14°14.1'	103°30.1'	S 4°52.4'			
16	111°23.3'	60°54.5'	N 18°29.5'	99°05.6'	N 3°20.5'	110°28.4'	S 0°48.5'	143°53.3'	S 14°14.1'	118°30.8'	S 4°51.6'			
17	126°25.8'	75°54.5'	N 18°30.1'	114°05.4'	N 3°21.5'	125°30.4'	S 0°48.3'	158°55.7'	S 14°14.1'	133°31.6'	S 4°50.9'			
18	141°28.3'	90°54.5'	N 18°30.7'	129°05.2'	N 3°22.6'	140°32.4'	S 0°48.1'	173°58.1'	S 14°14.1'	148°32.3'	S 4°50.2'			
19	156°30.7'	105°54.5'	N 18°31.3'	144°04.9'	N 3°23.7'	155°34.4'	S 0°47.9'	189°00.4'	S 14°14.0'	163°33.0'	S 4°49.5'			
20	171°33.2'	120°54.5'	N 18°31.9'	159°04.7'	N 3°24.7'	170°36.5'	S 0°47.7'	204°02.8'	S 14°14.0'	178°33.7'	S 4°48.7'			
21	186°35.6'	135°54.5'	N 18°32.5'	174°04.5'	N 3°25.8'	185°38.5'	S 0°47.6'	219°05.2'	S 14°14.0'	193°34.5'	S 4°48.0'			
22	201°38.1'	150°54.5'	N 18°33.1'	189°04.3'	N 3°26.8'	200°40.5'	S 0°47.4'	234°07.6'	S 14°14.0'	208°35.2'	S 4°47.3'			
23	216°40.6'	165°54.5'	N 18°33.7'	204°04.0'	N 3°27.9'	215°42.5'	S 0°47.2'	249°09.9'	S 14°14.0'	223°35.9'	S 4°46.6'			
		SD 15.8'	d 0.6'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 22 s		9 h 24 m		8 h 39 m		6 h 26 m		8 h 6 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	40°17.0'	S 0°35.6'	12.9'	-15.5'	58.2'	64°30.0'	62°00.9'	60°44.2'	15°23.1'	39°47.5'	75°27.3'	76°00.7'	85°50.8'
1	54°48.9'	S 0°51.1'	12.9'	-15.6'	58.2'	64°06.9'	61°39.7'	60°09.9'	14°50.4'	40°21.5'	75°59.2'	76°34.9'	86°10.0'
2	69°20.7'	S 1°06.7'	12.8'	-15.6'	58.2'	63°43.8'	61°18.5'	59°35.7'	14°17.9'	40°55.6'	76°31.2'	77°09.2'	86°29.2'
3	83°52.5'	S 1°22.2'	12.8'	-15.6'	58.3'	63°20.8'	60°57.4'	59°01.3'	13°45.4'	41°29.7'	77°03.2'	77°43.6'	86°48.5'
4	98°24.3'	S 1°37.8'	12.7'	-15.6'	58.3'	62°57.9'	60°36.4'	58°27.0'	13°13.0'	42°03.8'	77°35.3'	78°18.0'	87°07.8'
5	112°56.0'	S 1°53.4'	12.7'	-15.6'	58.4'	62°35.0'	60°15.5'	57°52.6'	12°40.8'	42°38.1'	78°07.4'	78°52.5'	87°27.2'
6	127°27.6'	S 2°09.1'	12.6'	-15.6'	58.4'	62°12.2'	59°54.7'	57°18.1'	12°08.7'	43°12.3'	78°39.6'	79°27.0'	87°46.5'
7	141°59.2'	S 2°24.7'	12.5'	-15.6'	58.4'	61°49.5'	59°34.0'	56°43.6'	11°36.8'	43°46.6'	79°11.8'	80°01.5'	88°06.0'
8	156°30.8'	S 2°40.3'	12.5'	-15.6'	58.5'	61°26.9'	59°13.4'	56°09.0'	11°05.1'	44°21.0'	79°44.1'	80°36.1'	88°25.4'
9	171°02.3'	S 2°56.0'	12.4'	-15.7'	58.5'	61°04.3'	58°52.9'	55°34.4'	10°33.7'	44°55.4'	80°16.5'	81°10.7'	88°44.9'
10	185°33.7'	S 3°11.6'	12.4'	-15.7'	58.5'	60°41.8'	58°32.5'	54°59.8'	10°02.6'	45°29.9'	80°48.9'	81°45.4'	89°04.4'
11	200°05.1'	S 3°27.3'	12.3'	-15.7'	58.6'	60°19.4'	58°12.2'	54°25.1'	9°31.9'	46°04.4'	81°21.3'	82°20.2'	89°23.9'
12	214°36.4'	S 3°43.0'	12.3'	-15.7'	58.6'	59°57.1'	57°52.0'	53°50.4'	9°01.6'	46°39.0'	81°53.8'	82°55.0'	89°43.5'
13	229°07.7'	S 3°58.6'	12.2'	-15.7'	58.7'	59°34.9'	57°32.0'	53°15.6'	8°31.9'	47°13.6'	82°26.4'	83°29.8'	90°03.1'
14	243°38.9'	S 4°14.3'	12.1'	-15.7'	58.7'	59°12.7'	57°12.1'	52°40.8'	8°02.8'	47°48.3'	82°59.0'	84°04.7'	90°22.7'
15	258°10.0'	S 4°30.0'	12.1'	-15.7'	58.7'	58°50.7'	56°52.3'	52°05.9'		48°23.0'	83°31.6'	84°39.6'	90°42.4'
16	272°41.1'	S 4°45.6'	12.0'	-15.7'	58.8'	58°28.8'	56°32.7'	51°31.0'		48°57.8'	84°04.3'	85°14.5'	91°02.1'
17	287°12.1'	S 5°01.3'	11.9'	-15.7'	58.8'	58°06.9'	56°13.1'	50°56.0'		49°32.6'	84°37.1'	85°49.6'	91°21.8'
18	301°43.0'	S 5°16.9'	11.9'	-15.7'	58.8'	57°45.2'	55°53.8'	50°21.0'		50°07.5'	85°09.8'	86°24.6'	91°41.5'
19	316°13.9'	S 5°32.6'	11.8'	-15.6'	58.9'	57°23.6'	55°34.5'	49°46.0'		50°42.4'	85°42.7'	86°59.7'	92°01.2'
20	330°44.7'	S 5°48.2'	11.7'	-15.6'	58.9'	57°02.1'	55°15.5'	49°10.9'		51°17.4'	86°15.6'	87°34.9'	92°21.0'
21	345°15.4'	S 6°03.9'	11.7'	-15.6'	58.9'	56°40.7'	54°56.5'	48°35.7'		51°52.4'	86°48.5'	88°10.1'	92°40.7'
22	359°46.1'	S 6°19.5'	11.6'	-15.6'	59.0'	56°19.5'	54°37.8'	48°00.6'		52°27.5'	87°21.5'	88°45.3'	93°00.5'
23	14°16.7'	S 6°35.1'	11.5'	-15.6'	59.0'	55°58.4'	54°19.2'	47°25.3'		53°02.6'	87°54.5'	89°20.6'	93°20.3'
Mer. pass.		22 h 1 m SD 15.9'	phase 87%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.2'	Acrux	+0.8	173°02.1'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.0'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.3'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	231°43.0'	180°54.5'	N 18°34.3'	219°03.8'	N 3°29.0'		230°44.6'	S 0°47.0'		264°12.3'	S 14°13.9'		238°36.6'	S 4°45.8'				
1	246°45.5'	195°54.5'	N 18°34.9'	234°03.6'	N 3°30.0'		245°46.6'	S 0°46.8'		279°14.7'	S 14°13.9'		253°37.4'	S 4°45.1'				
2	261°48.0'	210°54.5'	N 18°35.6'	249°03.4'	N 3°31.1'		260°48.6'	S 0°46.6'		294°17.1'	S 14°13.9'		268°38.1'	S 4°44.4'				
3	276°50.4'	225°54.5'	N 18°36.2'	264°03.1'	N 3°32.1'		275°50.6'	S 0°46.5'		309°19.4'	S 14°13.9'		283°38.8'	S 4°43.7'				
4	291°52.9'	240°54.5'	N 18°36.8'	279°02.9'	N 3°33.2'		290°52.7'	S 0°46.3'		324°21.8'	S 14°13.8'		298°39.5'	S 4°42.9'				
5	306°55.4'	255°54.5'	N 18°37.4'	294°02.7'	N 3°34.3'		305°54.7'	S 0°46.1'		339°24.2'	S 14°13.8'		313°40.3'	S 4°42.2'				
6	321°57.8'	270°54.5'	N 18°38.0'	309°02.5'	N 3°35.3'		320°56.7'	S 0°45.9'		354°26.6'	S 14°13.8'		328°41.0'	S 4°41.5'				
7	337°00.3'	285°54.5'	N 18°38.6'	324°02.2'	N 3°36.4'		335°58.7'	S 0°45.7'		9°28.9'	S 14°13.8'		343°41.7'	S 4°40.8'				
8	352°02.8'	300°54.5'	N 18°39.2'	339°02.0'	N 3°37.4'		351°00.8'	S 0°45.6'		24°31.3'	S 14°13.8'		358°42.5'	S 4°40.1'				
9	7°05.2'	315°54.5'	N 18°39.8'	354°01.8'	N 3°38.5'		6°02.8'	S 0°45.4'		39°33.7'	S 14°13.7'		13°43.2'	S 4°39.3'				
10	22°07.7'	330°54.5'	N 18°40.4'	9°01.6'	N 3°39.6'		21°04.8'	S 0°45.2'		54°36.1'	S 14°13.7'		28°43.9'	S 4°38.6'				
11	37°10.1'	345°54.5'	N 18°41.0'	24°01.3'	N 3°40.6'		36°06.8'	S 0°45.0'		69°38.4'	S 14°13.7'		43°44.6'	S 4°37.9'				
12	52°12.6'	90°54.5'	N 18°41.6'	39°01.1'	N 3°41.7'		51°08.9'	S 0°44.8'		84°40.8'	S 14°13.7'		58°45.4'	S 4°37.2'				
13	67°15.1'	15°54.5'	N 18°42.2'	54°00.9'	N 3°42.7'		66°10.9'	S 0°44.6'		99°43.2'	S 14°13.6'		73°46.1'	S 4°36.4'				
14	82°17.5'	30°54.5'	N 18°42.8'	69°00.6'	N 3°43.8'		81°12.9'	S 0°44.5'		114°45.6'	S 14°13.6'		88°46.8'	S 4°35.7'				
15	97°20.0'	45°54.5'	N 18°43.4'	84°00.4'	N 3°44.9'		96°14.9'	S 0°44.3'		129°48.0'	S 14°13.6'		103°47.6'	S 4°35.0'				
16	112°22.5'	60°54.5'	N 18°44.0'	99°00.2'	N 3°45.9'		111°17.0'	S 0°44.1'		144°50.3'	S 14°13.6'		118°48.3'	S 4°34.3'				
17	127°24.9'	75°54.5'	N 18°44.6'	113°60.0'	N 3°47.0'		126°19.0'	S 0°43.9'		159°52.7'	S 14°13.6'		133°49.0'	S 4°33.5'				
18	142°27.4'	90°54.5'	N 18°45.2'	128°59.7'	N 3°48.0'		141°21.0'	S 0°43.7'		174°55.1'	S 14°13.5'		148°49.7'	S 4°32.8'				
19	157°29.9'	105°54.5'	N 18°45.8'	143°59.5'	N 3°49.1'		156°23.0'	S 0°43.6'		189°57.5'	S 14°13.5'		163°50.5'	S 4°32.1'				
20	172°32.3'	120°54.5'	N 18°46.4'	158°59.3'	N 3°50.2'		171°25.1'	S 0°43.4'		204°59.8'	S 14°13.5'		178°51.2'	S 4°31.4'				
21	187°34.8'	135°54.5'	N 18°46.9'	173°59.0'	N 3°51.2'		186°27.1'	S 0°43.2'		220°02.2'	S 14°13.5'		193°51.9'	S 4°30.6'				
22	202°37.3'	150°54.5'	N 18°47.5'	188°58.8'	N 3°52.3'		201°29.1'	S 0°43.0'		235°04.6'	S 14°13.4'		208°52.7'	S 4°29.9'				
23	217°39.7'	165°54.5'	N 18°48.1'	203°58.6'	N 3°53.3'		216°31.2'	S 0°42.8'		250°07.0'	S 14°13.4'		223°53.4'	S 4°29.2'				
		SD 15.8'	d 0.6'		v -0.2' d 1.1'			v 2.0' d 0.2'			v 2.4' d 0.0'			v 0.7' d 0.7'				
Mer. pass.		11 h 56 m 22 s		9 h 24 m			8 h 36 m			6 h 22 m			8 h 5 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Antares	-Spica	+Arcturus	+Regulus	+Procyon	+Pollux
0	28°47.2'	S 6°50.7'	11.4'	-15.6'	59.0'	55°37.4'	54°00.7'	46°50.1'			53°37.7'	88°27.5'	89°55.9'
1	43°17.7'	S 7°06.3'	11.4'	-15.6'	59.1'	55°16.5'	53°42.4'	46°14.8'			54°13.0'	89°00.6'	90°31.3'
2	57°48.0'	S 7°21.8'	11.3'	-15.5'	59.1'	54°55.8'	53°24.3'	45°39.4'			54°48.2'	89°33.8'	91°06.7'
3	72°18.3'	S 7°37.4'	11.2'	-15.5'	59.2'	54°35.2'	53°06.4'	45°04.0'			55°23.5'	90°06.9'	91°42.2'
4	86°48.5'	S 7°52.9'	11.1'	-15.5'	59.2'	54°14.8'	52°48.7'	44°28.6'			55°58.9'	90°40.2'	92°17.7'
5	101°18.7'	S 8°08.4'	11.1'	-15.5'	59.2'	53°54.5'	52°31.1'	43°53.1'			56°34.2'	91°13.4'	92°53.2'
6	115°48.7'	S 8°23.9'	11.0'	-15.5'	59.3'	53°34.4'	52°13.8'	43°17.6'			57°09.7'	91°46.7'	93°28.8'
7	130°18.7'	S 8°39.3'	10.9'	-15.4'	59.3'	53°14.5'	51°56.6'	42°42.1'			57°45.2'	92°20.1'	94°04.4'
8	144°48.6'	S 8°54.7'	10.8'	-15.4'	59.3'	52°54.7'	51°39.7'	42°06.5'			58°20.7'	92°53.5'	94°40.1'
9	159°18.4'	S 9°10.1'	10.7'	-15.4'	59.4'	52°35.1'	51°22.9'	41°30.8'			58°56.3'	93°26.9'	95°15.8'
10	173°48.1'	S 9°25.5'	10.6'	-15.3'	59.4'	52°15.7'	51°06.4'	40°55.2'			59°31.9'	94°00.3'	95°51.6'
11	188°17.7'	S 9°40.8'	10.5'	-15.3'	59.4'	51°56.4'	50°50.1'	40°19.5'			60°07.5'	94°33.8'	96°27.4'
12	202°47.3'	S 9°56.1'	10.5'	-15.3'	59.5'	51°37.4'	50°34.0'	39°43.7'			60°43.2'	95°07.3'	97°03.2'
13	217°16.7'	S 10°11.4'	10.4'	-15.2'	59.5'	51°18.5'	50°18.2'	39°07.9'			61°19.0'	95°40.9'	97°39.1'
14	231°46.1'	S 10°26.6'	10.3'	-15.2'	59.5'	50°59.8'	50°02.5'	38°32.1'	8°48.6'		61°54.8'	96°14.5'	98°15.0'
15	246°15.4'	S 10°41.8'	10.2'	-15.1'	59.6'	50°41.3'	49°47.1'	37°56.2'	9°19.6'		62°30.6'	96°48.1'	98°51.0'
16	260°44.6'	S 10°56.9'	10.1'	-15.1'	59.6'	50°23.1'		37°20.3'	9°51.3'		63°06.5'	97°21.8'	99°27.0'
17	275°13.6'	S 11°12.0'	10.0'	-15.0'	59.6'	50°05.0'		36°44.4'	10°23.4'		63°42.4'	97°55.4'	100°03.1'
18	289°42.6'	S 11°27.1'	9.9'	-15.0'	59.6'	49°47.2'		36°08.4'	10°56.0'		64°18.3'	98°29.2'	100°39.1'
19	304°11.5'	S 11°42.1'	9.8'	-15.0'	59.7'	49°29.6'		35°32.4'	11°29.0'		64°54.3'	99°02.9'	101°15.3'
20	318°40.3'	S 11°57.0'	9.7'	-14.9'	59.7'	49°12.2'		34°56.4'	12°02.3'		65°30.3'	99°36.7'	101°51.4'
21	333°09.0'	S 12°11.9'	9.6'	-14.8'	59.7'	48°55.1'		34°20.3'	12°35.9'	31°16.0'	66°06.4'	100°10.5'	102°27.6'
22	347°37.7'	S 12°26.8'	9.5'	-14.8'	59.8'	48°38.2'		33°44.2'	13°09.8'	31°31.4'	66°42.5'	100°44.3'	103°03.8'
23	2°06.2'	S 12°41.6'	9.4'	-14.7'	59.8'	48°21.5'		33°08.1'	13°43.9'	31°47.3'	67°18.7'	101°18.1'	103°40.1'
Mer. pass.		22 h 51 m SD 16.1'		phase 93%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.2'	Acrux	+0.8	173°02.1'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.0'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.2'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.8'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	232°42.2'		180°54.5'	N 18°48.7'	218°58.3'	N 3°54.4'	231°33.2'	S 0°42.7'	265°09.4'	S 14°13.4'	238°54.1'	S 4°28.5'
1	247°44.6'		195°54.5'	N 18°49.3'	233°58.1'	N 3°55.5'	246°35.2'	S 0°42.5'	280°11.7'	S 14°13.4'	253°54.8'	S 4°27.7'
2	262°47.1'		210°54.5'	N 18°49.9'	248°57.9'	N 3°56.5'	261°37.2'	S 0°42.3'	295°14.1'	S 14°13.4'	268°55.6'	S 4°27.0'
3	277°49.6'		225°54.5'	N 18°50.5'	263°57.7'	N 3°57.6'	276°39.3'	S 0°42.1'	310°16.5'	S 14°13.3'	283°56.3'	S 4°26.3'
4	292°52.0'		240°54.5'	N 18°51.1'	278°57.4'	N 3°58.6'	291°41.3'	S 0°41.9'	325°18.9'	S 14°13.3'	298°57.0'	S 4°25.6'
5	307°54.5'		255°54.5'	N 18°51.7'	293°57.2'	N 3°59.7'	306°43.3'	S 0°41.8'	340°21.3'	S 14°13.3'	313°57.8'	S 4°24.8'
6	322°57.0'		270°54.5'	N 18°52.3'	308°57.0'	N 4°00.8'	321°45.4'	S 0°41.6'	355°23.6'	S 14°13.3'	328°58.5'	S 4°24.1'
7	337°59.4'		285°54.5'	N 18°52.9'	323°56.7'	N 4°01.8'	336°47.4'	S 0°41.4'	10°26.0'	S 14°13.3'	343°59.2'	S 4°23.4'
8	353°01.9'		300°54.5'	N 18°53.5'	338°56.5'	N 4°02.9'	351°49.4'	S 0°41.2'	25°28.4'	S 14°13.2'	358°59.9'	S 4°22.7'
9	8°04.4'		315°54.4'	N 18°54.0'	353°56.3'	N 4°03.9'	6°51.4'	S 0°41.0'	40°30.8'	S 14°13.2'	14°00.7'	S 4°21.9'
10	23°06.8'		330°54.4'	N 18°54.6'	8°56.0'	N 4°05.0'	21°53.5'	S 0°40.9'	55°33.2'	S 14°13.2'	29°01.4'	S 4°21.2'
11	38°09.3'		345°54.4'	N 18°55.2'	23°55.8'	N 4°06.1'	36°55.5'	S 0°40.7'	70°35.5'	S 14°13.2'	44°02.1'	S 4°20.5'
12	53°11.7'		90°54.4'	N 18°55.8'	38°55.6'	N 4°07.1'	51°57.5'	S 0°40.5'	85°37.9'	S 14°13.2'	59°02.9'	S 4°19.8'
13	68°14.2'		15°54.4'	N 18°56.4'	53°55.3'	N 4°08.2'	66°59.6'	S 0°40.3'	100°40.3'	S 14°13.1'	74°03.6'	S 4°19.0'
14	83°16.7'		30°54.4'	N 18°57.0'	68°55.1'	N 4°09.2'	82°01.6'	S 0°40.1'	115°42.7'	S 14°13.1'	89°04.3'	S 4°18.3'
15	98°19.1'		45°54.4'	N 18°57.6'	83°54.9'	N 4°10.3'	97°03.6'	S 0°40.0'	130°45.1'	S 14°13.1'	104°05.1'	S 4°17.6'
16	113°21.6'		60°54.4'	N 18°58.1'	98°54.6'	N 4°11.4'	112°05.7'	S 0°39.8'	145°47.5'	S 14°13.1'	119°05.8'	S 4°16.9'
17	128°24.1'		75°54.4'	N 18°58.7'	113°54.4'	N 4°12.4'	127°07.7'	S 0°39.6'	160°49.8'	S 14°13.1'	134°06.5'	S 4°16.1'
18	143°26.5'		90°54.4'	N 18°59.3'	128°54.2'	N 4°13.5'	142°09.7'	S 0°39.4'	175°52.2'	S 14°13.0'	149°07.2'	S 4°15.4'
19	158°29.0'		105°54.4'	N 18°59.9'	143°53.9'	N 4°14.5'	157°11.7'	S 0°39.2'	190°54.6'	S 14°13.0'	164°08.0'	S 4°14.7'
20	173°31.5'		120°54.4'	N 19°00.5'	158°53.7'	N 4°15.6'	172°13.8'	S 0°39.1'	205°57.0'	S 14°13.0'	179°08.7'	S 4°14.0'
21	188°33.9'		135°54.4'	N 19°01.1'	173°53.5'	N 4°16.7'	187°15.8'	S 0°38.9'	220°59.4'	S 14°13.0'	194°09.4'	S 4°13.2'
22	203°36.4'		150°54.3'	N 19°01.6'	188°53.2'	N 4°17.7'	202°17.8'	S 0°38.7'	236°01.7'	S 14°12.9'	209°10.2'	S 4°12.5'
23	218°38.9'		165°54.3'	N 19°02.2'	203°53.0'	N 4°18.8'	217°19.9'	S 0°38.5'	251°04.1'	S 14°12.9'	224°10.9'	S 4°11.8'
			SD 15.8'	d 0.6'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'
Mer. pass.			11 h 56 m 23 s		9 h 24 m		8 h 33 m		6 h 18 m		8 h 4 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Altair	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	16°34.6'	S 12°56.3'	9.3'	-14.7'	59.8'		84°09.0'	48°05.1'	32°31.9'	14°18.2'	32°03.8'	67°54.8'	101°33.9'
1	31°02.9'	S 13°11.0'	9.2'	-14.6'	59.9'		83°39.1'	47°49.0'	31°55.7'	14°52.7'	32°20.7'	68°31.1'	101°53.3'
2	45°31.1'	S 13°25.6'	9.1'	-14.6'	59.9'		83°09.1'	47°33.1'	31°19.5'	15°27.4'	32°38.2'	69°07.3'	102°12.8'
3	59°59.2'	S 13°40.2'	9.0'	-14.5'	59.9'		82°39.0'	47°17.6'	30°43.3'	16°02.3'	32°56.1'	69°43.6'	102°32.2'
4	74°27.2'	S 13°54.6'	8.9'	-14.4'	59.9'		82°09.0'	47°02.2'	30°07.0'	16°37.3'	33°14.5'	70°19.9'	102°51.5'
5	88°55.1'	S 14°09.1'	8.8'	-14.4'	60.0'		81°39.0'		29°30.7'	17°12.4'	33°33.3'	70°56.3'	103°10.8'
6	103°22.9'	S 14°23.4'	8.7'	-14.3'	60.0'		81°08.9'		28°54.3'	17°47.6'	33°52.6'	71°32.7'	103°30.1'
7	117°50.5'	S 14°37.7'	8.6'	-14.2'	60.0'		80°38.9'		28°18.0'	18°23.0'	34°12.3'	72°09.1'	103°49.3'
8	132°18.1'	S 14°51.9'	8.5'	-14.1'	60.0'		80°08.8'		27°41.6'	18°58.4'	34°32.4'	72°45.6'	104°08.5'
9	146°45.6'	S 15°06.0'	8.4'	-14.1'	60.1'		79°38.7'		27°05.2'	19°34.0'	34°52.9'	73°22.1'	104°27.6'
10	161°12.9'	S 15°20.1'	8.3'	-14.0'	60.1'		79°08.7'		26°28.8'	20°09.6'	35°13.9'	73°58.6'	104°46.6'
11	175°40.2'	S 15°34.0'	8.1'	-13.9'	60.1'		78°38.6'		25°52.3'	20°45.4'	35°35.2'	74°35.2'	105°05.6'
12	190°07.3'	S 15°47.9'	8.0'	-13.8'	60.1'		78°08.5'		25°15.8'	21°21.2'	35°56.9'	75°11.8'	105°24.5'
13	204°34.4'	S 16°01.7'	7.9'	-13.7'	60.2'		77°38.5'		24°39.3'	21°57.1'	36°19.0'	75°48.4'	105°43.4'
14	219°01.3'	S 16°15.5'	7.8'	-13.6'	60.2'		77°08.4'		24°02.8'	22°33.1'	36°41.4'	76°25.1'	106°02.2'
15	233°28.1'	S 16°29.1'	7.7'	-13.5'	60.2'		76°38.3'		23°26.3'	23°09.1'	37°04.2'	77°01.8'	106°20.9'
16	247°54.8'	S 16°42.6'	7.6'	-13.5'	60.2'		76°08.3'		22°49.8'	23°45.2'	37°27.3'	77°38.5'	106°39.6'
17	262°21.4'	S 16°56.1'	7.5'	-13.4'	60.3'		75°38.2'		22°13.2'	24°21.4'	37°50.8'	78°15.2'	106°58.2'
18	276°47.9'	S 17°09.4'	7.4'	-13.3'	60.3'		75°08.2'		21°36.7'	24°57.6'	38°14.5'	78°52.0'	107°16.7'
19	291°14.2'	S 17°22.7'	7.2'	-13.2'	60.3'		74°38.2'		21°00.1'	25°33.9'	38°38.6'	79°28.8'	107°35.1'
20	305°40.5'	S 17°35.9'	7.1'	-13.1'	60.3'	97°28.0'	74°08.2'		20°23.6'	26°10.3'	39°03.0'	80°05.7'	107°53.5'
21	320°06.6'	S 17°48.9'	7.0'	-13.0'	60.3'	97°13.0'	73°38.2'		19°47.0'	26°46.7'	39°27.6'	80°42.5'	108°11.7'
22	334°32.6'	S 18°01.9'	6.9'	-12.9'	60.4'	96°58.0'	73°08.3'		19°10.4'	27°23.1'	39°52.6'	81°19.4'	108°29.9'
23	348°58.5'	S 18°14.7'	6.8'	-12.7'	60.4'	96°42.9'	72°38.3'		18°33.9'	27°59.6'	40°17.8'	81°56.3'	108°48.0'
Mer. pass.			23 h 46 m	SD 16.3'	phase 98%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°02.0'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°33.0'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

Monday 16 May 2022 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	233°41.3'	180°54.3'	N 19°02.8'	218°52.8'	N 4°19.8'	232°21.9'	S 0°38.3'	266°06.5'	S 14°12.9'	239°11.6'	S 4°11.1'			
1	248°43.8'	195°54.3'	N 19°03.4'	233°52.5'	N 4°20.9'	247°23.9'	S 0°38.2'	281°08.9'	S 14°12.9'	254°12.4'	S 4°10.3'			
2	263°46.2'	210°54.3'	N 19°04.0'	248°52.3'	N 4°22.0'	262°26.0'	S 0°38.0'	296°11.3'	S 14°12.9'	269°13.1'	S 4°09.6'			
3	278°48.7'	225°54.3'	N 19°04.5'	263°52.1'	N 4°23.0'	277°28.0'	S 0°37.8'	311°13.7'	S 14°12.8'	284°13.8'	S 4°08.9'			
4	293°51.2'	240°54.3'	N 19°05.1'	278°51.8'	N 4°24.1'	292°30.0'	S 0°37.6'	326°16.0'	S 14°12.8'	299°14.6'	S 4°08.2'			
5	308°53.6'	255°54.3'	N 19°05.7'	293°51.6'	N 4°25.1'	307°32.1'	S 0°37.4'	341°18.4'	S 14°12.8'	314°15.3'	S 4°07.4'			
6	323°56.1'	270°54.3'	N 19°06.3'	308°51.3'	N 4°26.2'	322°34.1'	S 0°37.3'	356°20.8'	S 14°12.8'	329°16.0'	S 4°06.7'			
7	338°58.6'	285°54.2'	N 19°06.8'	323°51.1'	N 4°27.3'	337°36.1'	S 0°37.1'	11°23.2'	S 14°12.8'	344°16.8'	S 4°06.0'			
8	354°01.0'	300°54.2'	N 19°07.4'	338°50.9'	N 4°28.3'	352°38.2'	S 0°36.9'	26°25.6'	S 14°12.7'	359°17.5'	S 4°05.3'			
9	9°03.5'	315°54.2'	N 19°08.0'	353°50.6'	N 4°29.4'	7°40.2'	S 0°36.7'	41°28.0'	S 14°12.7'	14°18.2'	S 4°04.5'			
10	24°06.0'	330°54.2'	N 19°08.6'	8°50.4'	N 4°30.4'	22°42.2'	S 0°36.6'	56°30.3'	S 14°12.7'	29°18.9'	S 4°03.8'			
11	39°08.4'	345°54.2'	N 19°09.1'	23°50.2'	N 4°31.5'	37°44.3'	S 0°36.4'	71°32.7'	S 14°12.7'	44°19.7'	S 4°03.1'			
12	54°10.9'	0°54.2'	N 19°09.7'	38°49.9'	N 4°32.6'	52°46.3'	S 0°36.2'	86°35.1'	S 14°12.7'	59°20.4'	S 4°02.3'			
13	69°13.4'	15°54.2'	N 19°10.3'	53°49.7'	N 4°33.6'	67°48.3'	S 0°36.0'	101°37.5'	S 14°12.7'	74°21.1'	S 4°01.6'			
14	84°15.8'	30°54.2'	N 19°10.9'	68°49.4'	N 4°34.7'	82°50.4'	S 0°35.8'	116°39.9'	S 14°12.6'	89°21.9'	S 4°00.9'			
15	99°18.3'	45°54.1'	N 19°11.4'	83°49.2'	N 4°35.7'	97°52.4'	S 0°35.7'	131°42.3'	S 14°12.6'	104°22.6'	S 4°00.2'			
16	114°20.7'	60°54.1'	N 19°12.0'	98°49.0'	N 4°36.8'	112°54.4'	S 0°35.5'	146°44.7'	S 14°12.6'	119°23.3'	S 3°59.4'			
17	129°23.2'	75°54.1'	N 19°12.6'	113°48.7'	N 4°37.9'	127°56.5'	S 0°35.3'	161°47.0'	S 14°12.6'	134°24.1'	S 3°58.7'			
18	144°25.7'	90°54.1'	N 19°13.1'	128°48.5'	N 4°38.9'	142°58.5'	S 0°35.1'	176°49.4'	S 14°12.6'	149°24.8'	S 3°58.0'			
19	159°28.1'	105°54.1'	N 19°13.7'	143°48.3'	N 4°40.0'	158°00.5'	S 0°35.0'	191°51.8'	S 14°12.5'	164°25.5'	S 3°57.3'			
20	174°30.6'	120°54.1'	N 19°14.3'	158°48.0'	N 4°41.0'	173°02.6'	S 0°34.8'	206°54.2'	S 14°12.5'	179°26.3'	S 3°56.5'			
21	189°33.1'	135°54.1'	N 19°14.8'	173°47.8'	N 4°42.1'	188°04.6'	S 0°34.6'	221°56.6'	S 14°12.5'	194°27.0'	S 3°55.8'			
22	204°35.5'	150°54.0'	N 19°15.4'	188°47.5'	N 4°43.1'	203°06.6'	S 0°34.4'	236°59.0'	S 14°12.5'	209°27.7'	S 3°55.1'			
23	219°38.0'	165°54.0'	N 19°16.0'	203°47.3'	N 4°44.2'	218°08.7'	S 0°34.2'	252°01.4'	S 14°12.5'	224°28.5'	S 3°54.4'			
		SD 15.8'	d 0.6'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 24 s		9 h 25 m		8 h 29 m		6 h 15 m		8 h 3 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	3°24.3'	S 18°27.5'	6.7'	-12.6'	60.4'	96°27.7'	92°14.3'	72°08.4'	17°57.3'	28°36.2'	40°43.3'	82°33.2'	109°06.0'
1	17°50.0'	S 18°40.1'	6.6'	-12.5'	60.4'	96°12.5'	91°37.4'	71°38.5'	17°20.8'	29°12.7'	41°09.1'	83°10.2'	109°23.9'
2	32°15.6'	S 18°52.6'	6.5'	-12.4'	60.4'	95°57.2'	91°00.4'	71°08.6'	16°44.2'	29°49.4'	41°35.1'	83°47.2'	109°41.7'
3	46°41.0'	S 19°05.0'	6.3'	-12.3'	60.5'	95°41.9'	90°23.5'	70°38.8'	16°07.7'	30°26.0'	42°01.3'	84°24.2'	109°59.4'
4	61°06.4'	S 19°17.3'	6.2'	-12.2'	60.5'	95°26.6'	89°46.5'	70°09.0'	15°31.2'	31°02.7'	42°27.8'	85°01.2'	110°17.0'
5	75°31.6'	S 19°29.5'	6.1'	-12.1'	60.5'	95°11.2'	89°09.5'	69°39.2'	14°54.8'	31°39.5'	42°54.5'	85°38.3'	110°34.5'
6	89°56.7'	S 19°41.5'	6.0'	-11.9'	60.5'	94°55.8'	88°32.5'	69°09.5'	14°18.4'	32°16.2'	43°21.4'	86°15.3'	110°51.9'
7	104°21.7'	S 19°53.5'	5.9'	-11.8'	60.5'	94°40.3'	87°55.4'	68°39.8'	13°42.0'	32°53.1'	43°48.6'	86°52.4'	111°09.1'
8	118°46.6'	S 20°05.3'	5.8'	-11.7'	60.5'	94°24.8'	87°18.4'	68°10.2'	13°05.7'	33°29.9'	44°16.0'	87°29.5'	111°26.3'
9	133°11.4'	S 20°17.0'	5.7'	-11.5'	60.6'	94°09.3'	86°41.3'	67°40.6'	12°29.5'	34°06.8'	44°43.5'	88°06.6'	111°43.3'
10	147°36.0'	S 20°28.5'	5.5'	-11.4'	60.6'	93°53.8'	86°04.2'	67°11.0'	11°53.4'	34°43.7'	45°11.3'	88°43.8'	112°00.3'
11	162°00.6'	S 20°39.9'	5.4'	-11.3'	60.6'	93°38.2'	85°27.1'	66°41.5'	11°17.3'	35°20.6'	45°39.2'	89°21.0'	112°17.1'
12	176°25.0'	S 20°51.2'	5.3'	-11.1'	60.6'	93°22.6'	84°50.0'	66°12.1'	10°41.4'	35°57.6'	46°07.4'	89°58.1'	112°33.7'
13	190°49.3'	S 21°02.4'	5.2'	-11.0'	60.6'	93°06.9'	84°12.8'	65°42.7'	10°05.7'	36°34.6'	46°35.7'	90°35.3'	112°50.3'
14	205°13.5'	S 21°13.4'	5.1'	-10.9'	60.6'	92°51.3'	83°35.7'	65°13.3'	9°30.1'	37°11.6'	47°04.2'	91°12.5'	113°06.7'
15	219°37.6'	S 21°24.2'	5.0'	-10.7'	60.6'	92°35.6'	82°58.5'	64°44.0'	8°54.7'	37°48.6'	47°32.8'	91°49.8'	113°23.0'
16	234°01.6'	S 21°35.0'	4.9'	-10.6'	60.7'	92°19.9'	82°21.3'	64°14.8'	8°19.7'	38°25.7'	48°01.6'	92°27.0'	113°39.2'
17	248°25.5'	S 21°45.6'	4.8'	-10.4'	60.7'	92°04.1'	81°44.1'	63°45.7'	7°44.9'	39°02.7'	48°30.6'	93°04.3'	113°55.2'
18	262°49.3'	S 21°56.0'	4.7'	-10.3'	60.7'	91°48.4'	81°06.9'	63°16.6'	7°10.6'	39°39.8'	48°59.7'	93°41.5'	114°11.0'
19	277°12.9'	S 22°06.3'	4.6'	-10.1'	60.7'	91°32.6'	80°29.7'	62°47.6'	6°36.9'	40°17.0'	49°29.0'	94°18.8'	114°26.8'
20	291°36.5'	S 22°16.4'	4.5'	-10.0'	60.7'	91°16.8'	79°52.4'	62°18.6'		40°54.1'	49°58.4'	94°56.1'	114°42.4'
21	305°60.0'	S 22°26.4'	4.4'	-9.8'	60.7'	91°01.0'	79°15.2'	61°49.8'		41°31.3'	50°28.0'	95°33.4'	114°57.8'
22	320°23.3'	S 22°36.3'	4.3'	-9.7'	60.7'	90°45.2'	78°37.9'	61°21.0'		42°08.4'	50°57.7'	96°10.7'	115°13.1'
23	334°46.6'	S 22°45.9'	4.1'	-9.5'	60.7'	90°29.4'	78°00.6'	60°52.3'		42°45.6'	51°27.5'	96°48.0'	
Mer. pass.		0 h 45 m SD 16.5'	phase 100%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°32.8'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	234°40.5'	180°54.0'	N 19°16.5'	218°47.1'	N 4°45.3'	233°10.7'	S 0°34.1'	267°03.7'	S 14°12.4'	239°29.2'	S 3°53.6'			
1	249°42.9'	195°54.0'	N 19°17.1'	233°46.8'	N 4°46.3'	248°12.7'	S 0°33.9'	282°06.1'	S 14°12.4'	254°29.9'	S 3°52.9'			
2	264°45.4'	210°54.0'	N 19°17.7'	248°46.6'	N 4°47.4'	263°14.8'	S 0°33.7'	297°08.5'	S 14°12.4'	269°30.7'	S 3°52.2'			
3	279°47.9'	225°54.0'	N 19°18.2'	263°46.3'	N 4°48.4'	278°16.8'	S 0°33.5'	312°10.9'	S 14°12.4'	284°31.4'	S 3°51.5'			
4	294°50.3'	240°53.9'	N 19°18.8'	278°46.1'	N 4°49.5'	293°18.8'	S 0°33.4'	327°13.3'	S 14°12.4'	299°32.1'	S 3°50.7'			
5	309°52.8'	255°53.9'	N 19°19.4'	293°45.9'	N 4°50.6'	308°20.9'	S 0°33.2'	342°15.7'	S 14°12.3'	314°32.9'	S 3°50.0'			
6	324°55.2'	270°53.9'	N 19°19.9'	308°45.6'	N 4°51.6'	323°22.9'	S 0°33.0'	357°18.1'	S 14°12.3'	329°33.6'	S 3°49.3'			
7	339°57.7'	285°53.9'	N 19°20.5'	323°45.4'	N 4°52.7'	338°25.0'	S 0°32.8'	12°20.5'	S 14°12.3'	344°34.3'	S 3°48.6'			
8	355°00.2'	300°53.9'	N 19°21.1'	338°45.1'	N 4°53.7'	353°27.0'	S 0°32.6'	27°22.8'	S 14°12.3'	359°35.1'	S 3°47.8'			
9	10°02.6'	315°53.8'	N 19°21.6'	353°44.9'	N 4°54.8'	8°29.0'	S 0°32.5'	42°25.2'	S 14°12.3'	14°35.8'	S 3°47.1'			
10	25°05.1'	330°53.8'	N 19°22.2'	8°44.6'	N 4°55.9'	23°31.1'	S 0°32.3'	57°27.6'	S 14°12.3'	29°36.5'	S 3°46.4'			
11	40°07.6'	345°53.8'	N 19°22.7'	23°44.4'	N 4°56.9'	38°33.1'	S 0°32.1'	72°30.0'	S 14°12.2'	44°37.3'	S 3°45.6'			
12	55°10.0'	0°53.8'	N 19°23.3'	38°44.2'	N 4°58.0'	53°35.1'	S 0°31.9'	87°32.4'	S 14°12.2'	59°38.0'	S 3°44.9'			
13	70°12.5'	15°53.8'	N 19°23.9'	53°43.9'	N 4°59.0'	68°37.2'	S 0°31.8'	102°34.8'	S 14°12.2'	74°38.7'	S 3°44.2'			
14	85°15.0'	30°53.8'	N 19°24.4'	68°43.7'	N 5°00.1'	83°39.2'	S 0°31.6'	117°37.2'	S 14°12.2'	89°39.5'	S 3°43.5'			
15	100°17.4'	45°53.7'	N 19°25.0'	83°43.4'	N 5°01.1'	98°41.2'	S 0°31.4'	132°39.6'	S 14°12.2'	104°40.2'	S 3°42.7'			
16	115°19.9'	60°53.7'	N 19°25.5'	98°43.2'	N 5°02.2'	113°43.3'	S 0°31.2'	147°42.0'	S 14°12.2'	119°40.9'	S 3°42.0'			
17	130°22.4'	75°53.7'	N 19°26.1'	113°42.9'	N 5°03.3'	128°45.3'	S 0°31.1'	162°44.3'	S 14°12.1'	134°41.7'	S 3°41.3'			
18	145°24.8'	90°53.7'	N 19°26.6'	128°42.7'	N 5°04.3'	143°47.4'	S 0°30.9'	177°46.7'	S 14°12.1'	149°42.4'	S 3°40.6'			
19	160°27.3'	105°53.7'	N 19°27.2'	143°42.5'	N 5°05.4'	158°49.4'	S 0°30.7'	192°49.1'	S 14°12.1'	164°43.1'	S 3°39.8'			
20	175°29.7'	120°53.6'	N 19°27.8'	158°42.2'	N 5°06.4'	173°51.4'	S 0°30.5'	207°51.5'	S 14°12.1'	179°43.9'	S 3°39.1'			
21	190°32.2'	135°53.6'	N 19°28.3'	173°42.0'	N 5°07.5'	188°53.5'	S 0°30.4'	222°53.9'	S 14°12.1'	194°44.6'	S 3°38.4'			
22	205°34.7'	150°53.6'	N 19°28.9'	188°41.7'	N 5°08.6'	203°55.5'	S 0°30.2'	237°56.3'	S 14°12.0'	209°45.4'	S 3°37.6'			
23	220°37.1'	165°53.6'	N 19°29.4'	203°41.5'	N 5°09.6'	218°57.6'	S 0°30.0'	252°58.7'	S 14°12.0'	224°46.1'	S 3°36.9'			
		SD 15.8'	d 0.6'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 25 s		9 h 25 m		8 h 26 m		6 h 11 m		8 h 2 m				

h	Moon					Lunar distance								
	GHA	dec	v	d	HP	-Venus	-Fomalhaut	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	
0	349°09.7'	S 22°55.5'	4.0'	-9.4'	60.7'			86°21.1'	77°23.4'	60°23.7'		43°22.8'	51°57.5'	97°25.4'
1	3°32.8'	S 23°04.8'	3.9'	-9.2'	60.7'			85°45.1'	76°46.1'	59°55.1'		44°00.1'	52°27.5'	98°02.7'
2	17°55.7'	S 23°14.0'	3.9'	-9.0'	60.7'			85°09.1'	76°08.8'	59°26.7'		44°37.3'	52°57.7'	98°40.0'
3	32°18.6'	S 23°23.1'	3.8'	-8.9'	60.8'			84°33.1'	75°31.5'	58°58.4'		45°14.5'	53°28.0'	99°17.4'
4	46°41.3'	S 23°31.9'	3.7'	-8.7'	60.8'			83°57.0'	74°54.2'	58°30.2'		45°51.8'	53°58.4'	99°54.8'
5	61°04.0'	S 23°40.6'	3.6'	-8.5'	60.8'			83°21.0'	74°16.9'	58°02.1'		46°29.1'	54°28.9'	100°32.1'
6	75°26.6'	S 23°49.2'	3.5'	-8.4'	60.8'			82°45.0'	73°39.5'	57°34.0'		47°06.4'	54°59.5'	101°09.5'
7	89°49.0'	S 23°57.5'	3.4'	-8.2'	60.8'			82°08.9'	73°02.2'	57°06.1'		47°43.6'	55°30.3'	101°46.9'
8	104°11.4'	S 24°05.7'	3.3'	-8.0'	60.8'			81°32.9'	72°24.9'	56°38.4'		48°20.9'	56°01.1'	102°24.2'
9	118°33.7'	S 24°13.8'	3.2'	-7.8'	60.8'			80°56.8'	71°47.6'	56°10.7'		48°58.2'	56°32.0'	103°01.6'
10	132°55.9'	S 24°21.6'	3.1'	-7.7'	60.8'			80°20.8'	71°10.2'	55°43.1'		49°35.5'	57°03.0'	103°39.0'
11	147°18.1'	S 24°29.3'	3.0'	-7.5'	60.8'			79°44.8'	70°32.9'	55°15.7'		50°12.9'	57°34.0'	104°16.4'
12	161°40.1'	S 24°36.8'	3.0'	-7.3'	60.8'			79°08.8'	69°55.6'	54°48.5'		50°50.2'	58°05.2'	104°53.7'
13	176°02.1'	S 24°44.1'	2.9'	-7.1'	60.8'			78°32.7'	69°18.3'	54°21.3'		51°27.5'	58°36.4'	105°31.1'
14	190°24.0'	S 24°51.2'	2.8'	-6.9'	60.8'			77°56.7'	68°40.9'	53°54.3'	6°38.9'	52°04.8'	59°07.7'	106°08.5'
15	204°45.8'	S 24°58.1'	2.7'	-6.8'	60.8'			77°20.7'	68°03.6'	53°27.4'	7°12.8'	52°42.2'	59°39.1'	106°45.9'
16	219°07.5'	S 25°04.9'	2.7'	-6.6'	60.8'	119°35.6'		76°44.7'	67°26.3'	53°00.7'	7°47.3'	53°19.5'	60°10.6'	107°23.3'
17	233°29.2'	S 25°11.5'	2.6'	-6.4'	60.8'	119°01.0'		76°08.8'	66°48.9'	52°34.2'	8°22.1'	53°56.8'	60°42.1'	108°00.6'
18	247°50.8'	S 25°17.9'	2.5'	-6.2'	60.8'	118°26.3'		75°32.8'	66°11.6'	52°07.8'	8°57.4'	54°34.2'	61°13.7'	108°38.0'
19	262°12.3'	S 25°24.1'	2.5'	-6.0'	60.8'	117°51.7'		74°56.8'	65°34.3'	51°41.6'	9°32.9'	55°11.5'	61°45.4'	109°15.4'
20	276°33.7'	S 25°30.1'	2.4'	-5.8'	60.8'	117°17.1'		74°20.9'	64°57.0'	51°15.5'	10°08.6'	55°48.8'	62°17.1'	109°52.7'
21	290°55.1'	S 25°35.9'	2.3'	-5.6'	60.8'	116°42.5'		73°44.9'	64°19.7'	50°49.6'	10°44.6'	56°26.2'	62°48.8'	110°30.1'
22	305°16.5'	S 25°41.5'	2.3'	-5.4'	60.8'	116°07.9'		73°09.0'	63°42.4'	50°23.9'	11°20.7'	57°03.5'	63°20.7'	111°07.4'
23	319°37.8'	S 25°46.9'	2.2'	-5.2'	60.8'	115°33.3'		72°33.1'	63°05.1'	49°58.4'	11°56.9'	57°40.8'	63°52.5'	111°44.8'
Mer. pass.		0 h 45 m SD 16.6'		phase 99%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.5'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°32.6'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	235°39.6'		180°53.5'	N 19°30.0'	218°41.2'	N 5°10.7'	233°59.6'	S 0°29.8'	268°01.1'	S 14°12.0'	239°46.8'	S 3°36.2'
1	250°42.1'		195°53.5'	N 19°30.5'	233°41.0'	N 5°11.7'	249°01.6'	S 0°29.7'	283°03.5'	S 14°12.0'	254°47.6'	S 3°35.5'
2	265°44.5'		210°53.5'	N 19°31.1'	248°40.7'	N 5°12.8'	264°03.7'	S 0°29.5'	298°05.9'	S 14°12.0'	269°48.3'	S 3°34.7'
3	280°47.0'		225°53.5'	N 19°31.6'	263°40.5'	N 5°13.8'	279°05.7'	S 0°29.3'	313°08.3'	S 14°12.0'	284°49.0'	S 3°34.0'
4	295°49.5'		240°53.5'	N 19°32.2'	278°40.2'	N 5°14.9'	294°07.7'	S 0°29.1'	328°10.6'	S 14°11.9'	299°49.8'	S 3°33.3'
5	310°51.9'		255°53.4'	N 19°32.7'	293°40.0'	N 5°16.0'	309°09.8'	S 0°29.0'	343°13.0'	S 14°11.9'	314°50.5'	S 3°32.6'
6	325°54.4'		270°53.4'	N 19°33.3'	308°39.8'	N 5°17.0'	324°11.8'	S 0°28.8'	358°15.4'	S 14°11.9'	329°51.2'	S 3°31.8'
7	340°56.9'		285°53.4'	N 19°33.8'	323°39.5'	N 5°18.1'	339°13.9'	S 0°28.6'	13°17.8'	S 14°11.9'	344°52.0'	S 3°31.1'
8	355°59.3'		300°53.4'	N 19°34.4'	338°39.3'	N 5°19.1'	354°15.9'	S 0°28.4'	28°20.2'	S 14°11.9'	359°52.7'	S 3°30.4'
9	11°01.8'		315°53.3'	N 19°34.9'	353°39.0'	N 5°20.2'	9°17.9'	S 0°28.2'	43°22.6'	S 14°11.9'	14°53.4'	S 3°29.7'
10	26°04.2'		330°53.3'	N 19°35.5'	8°38.8'	N 5°21.2'	24°20.0'	S 0°28.1'	58°25.0'	S 14°11.8'	29°54.2'	S 3°28.9'
11	41°06.7'		345°53.3'	N 19°36.0'	23°38.5'	N 5°22.3'	39°22.0'	S 0°27.9'	73°27.4'	S 14°11.8'	44°54.9'	S 3°28.2'
12	56°09.2'		0°53.3'	N 19°36.6'	38°38.3'	N 5°23.4'	54°24.1'	S 0°27.7'	88°29.8'	S 14°11.8'	59°55.6'	S 3°27.5'
13	71°11.6'		15°53.2'	N 19°37.1'	53°38.0'	N 5°24.4'	69°26.1'	S 0°27.6'	103°32.2'	S 14°11.8'	74°56.4'	S 3°26.7'
14	86°14.1'		30°53.2'	N 19°37.6'	68°37.8'	N 5°25.5'	84°28.1'	S 0°27.4'	118°34.6'	S 14°11.8'	89°57.1'	S 3°26.0'
15	101°16.6'		45°53.2'	N 19°38.2'	83°37.5'	N 5°26.5'	99°30.2'	S 0°27.2'	133°37.0'	S 14°11.8'	104°57.9'	S 3°25.3'
16	116°19.0'		60°53.2'	N 19°38.7'	98°37.3'	N 5°27.6'	114°32.2'	S 0°27.0'	148°39.4'	S 14°11.7'	119°58.6'	S 3°24.6'
17	131°21.5'		75°53.1'	N 19°39.3'	113°37.0'	N 5°28.6'	129°34.3'	S 0°26.9'	163°41.7'	S 14°11.7'	134°59.3'	S 3°23.8'
18	146°24.0'		90°53.1'	N 19°39.8'	128°36.8'	N 5°29.7'	144°36.3'	S 0°26.7'	178°44.1'	S 14°11.7'	150°00.1'	S 3°23.1'
19	161°26.4'		105°53.1'	N 19°40.4'	143°36.5'	N 5°30.8'	159°38.4'	S 0°26.5'	193°46.5'	S 14°11.7'	165°00.8'	S 3°22.4'
20	176°28.9'		120°53.1'	N 19°40.9'	158°36.3'	N 5°31.8'	174°40.4'	S 0°26.3'	208°48.9'	S 14°11.7'	180°01.5'	S 3°21.7'
21	191°31.3'		135°53.0'	N 19°41.4'	173°36.0'	N 5°32.9'	189°42.4'	S 0°26.2'	223°51.3'	S 14°11.7'	195°02.3'	S 3°20.9'
22	206°33.8'		150°53.0'	N 19°42.0'	188°35.8'	N 5°33.0'	204°44.5'	S 0°26.0'	238°53.7'	S 14°11.6'	210°03.0'	S 3°20.2'
23	221°36.3'		165°53.0'	N 19°42.5'	203°35.5'	N 5°35.0'	219°46.5'	S 0°25.8'	253°56.1'	S 14°11.6'	225°03.8'	S 3°19.5'
			SD 15.8'	d 0.5'	v -0.2'	d 1.1'	v 2.0'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'
Mer. pass.			11 h 56 m 27 s		9 h 25 m		8 h 23 m		6 h 7 m		8 h 1 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigil Kent	+Hadar	+Spica
0	333°59.0'	S 25°52.2'	2.2'	-5.0'	60.8'	83°56.8'	71°57.2'	62°27.8'	49°33.0'	12°33.3'			58°18.1'
1	348°20.2'	S 25°57.2'	2.1'	-4.8'	60.8'	83°41.4'	71°21.3'	61°50.5'	49°07.9'	13°09.7'			58°55.4'
2	2°41.3'	S 26°02.1'	2.1'	-4.6'	60.8'	83°26.0'	70°45.5'	61°13.3'	48°43.0'	13°46.3'		48°58.7'	59°32.8'
3	17°02.4'	S 26°06.7'	2.0'	-4.4'	60.8'	83°10.7'	70°09.7'	60°36.0'	48°18.2'	14°22.9'		49°13.8'	60°10.1'
4	31°23.4'	S 26°11.2'	2.0'	-4.3'	60.8'	82°55.4'	69°33.9'	59°58.8'	47°53.7'	14°59.5'		49°29.2'	60°47.4'
5	45°44.4'	S 26°15.4'	2.0'	-4.1'	60.7'	82°40.2'	68°58.1'	59°21.5'	47°29.4'	15°36.2'		49°44.9'	61°24.6'
6	60°05.4'	S 26°19.5'	1.9'	-3.9'	60.7'	82°25.1'	68°22.3'	58°44.3'	47°05.3'	16°13.0'		50°00.9'	62°01.9'
7	74°26.3'	S 26°23.3'	1.9'	-3.6'	60.7'	82°09.9'	67°46.6'	58°07.1'	46°41.5'	16°49.8'		50°17.1'	62°39.2'
8	88°47.2'	S 26°27.0'	1.9'	-3.4'	60.7'	81°54.9'	67°10.8'	57°29.9'	46°17.9'	17°26.6'	46°38.9'	50°33.6'	63°16.5'
9	103°08.1'	S 26°30.4'	1.8'	-3.2'	60.7'		66°35.2'	56°52.7'	45°54.5'	18°03.5'	46°54.1'	50°50.4'	63°53.7'
10	117°28.9'	S 26°33.7'	1.8'	-3.0'	60.7'		65°59.5'	56°15.6'	45°31.4'	18°40.4'	47°09.7'	51°07.4'	64°30.9'
11	131°49.7'	S 26°36.7'	1.8'	-2.8'	60.7'		65°23.9'	55°38.4'	45°08.5'	19°17.3'	47°25.5'	51°24.7'	65°08.2'
12	146°10.5'	S 26°39.5'	1.8'	-2.6'	60.7'		64°48.3'	55°01.3'	44°45.9'	19°54.2'	47°41.7'	51°42.3'	65°45.4'
13	160°31.3'	S 26°42.2'	1.8'	-2.4'	60.7'		64°12.7'	54°24.1'	44°23.6'	20°31.1'	47°58.1'	52°00.0'	66°22.6'
14	174°52.0'	S 26°44.6'	1.7'	-2.2'	60.7'		63°37.2'	53°47.0'	44°01.5'	21°08.0'	48°14.9'	52°18.0'	66°59.8'
15	189°12.8'	S 26°46.8'	1.7'	-2.0'	60.7'		63°01.6'	53°09.9'	43°39.8'	21°45.0'	48°31.9'	52°36.3'	67°37.0'
16	203°33.5'	S 26°48.8'	1.7'	-1.8'	60.6'		62°26.2'	52°32.9'	43°18.3'	22°21.9'	48°49.1'	52°54.8'	68°14.1'
17	217°54.2'	S 26°50.7'	1.7'	-1.6'	60.6'		61°50.7'	51°55.8'	42°57.1'	22°58.9'	49°06.7'	53°13.4'	68°51.3'
18	232°15.0'	S 26°52.3'	1.7'	-1.4'	60.6'		61°15.3'	51°18.8'	42°36.2'	23°35.8'	49°24.5'	53°32.4'	69°28.4'
19	246°35.7'	S 26°53.7'	1.7'	-1.2'	60.6'		60°40.0'	50°41.8'	42°15.7'	24°12.8'	49°42.6'	53°51.5'	70°05.5'
20	260°56.4'	S 26°54.9'	1.7'	-1.0'	60.6'		60°04.7'	50°04.8'	41°55.4'	24°49.7'	50°00.9'	54°10.8'	70°42.6'
21	275°17.2'	S 26°55.9'	1.8'	-0.8'	60.6'		59°29.4'	49°27.8'	41°35.5'	25°26.6'	50°19.5'	54°30.3'	71°19.7'
22	289°37.9'	S 26°56.7'	1.8'	-0.6'	60.6'		58°54.2'	48°50.9'	41°16.0'	26°03.6'	50°38.3'	54°50.1'	71°56.7'
23	303°58.7'	S 26°57.3'	1.8'	-0.4'	60.6'		58°19.0'	48°13.9'	40°56.7'	26°40.5'	50°57.3'	55°10.0'	72°33.8'
Mer. pass.			1 h 49 m SD 16.6'	phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.1'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	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°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°32.3'	N 89°21.4'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	236°38.7'		180°52.9'	N 19°43.1'	218°35.3'	N 5°36.0'	234°48.6'	S 0°25.6'	268°58.5'	S 14°11.6'	240°04.5'	S 3°18.7'
1	251°41.2'		195°52.9'	N 19°43.6'	233°35.0'	N 5°37.1'	249°50.6'	S 0°25.5'	284°00.9'	S 14°11.6'	255°05.2'	S 3°18.0'
2	266°43.7'		210°52.9'	N 19°44.1'	248°34.8'	N 5°38.2'	264°52.7'	S 0°25.3'	299°03.3'	S 14°11.6'	270°06.0'	S 3°17.3'
3	281°46.1'		225°52.9'	N 19°44.7'	263°34.5'	N 5°39.2'	279°54.7'	S 0°25.1'	314°05.7'	S 14°11.6'	285°06.7'	S 3°16.6'
4	296°48.6'		240°52.8'	N 19°45.2'	278°34.3'	N 5°40.3'	294°56.7'	S 0°24.9'	329°08.1'	S 14°11.5'	300°07.4'	S 3°15.8'
5	311°51.1'		255°52.8'	N 19°45.7'	293°34.0'	N 5°41.3'	309°58.8'	S 0°24.8'	344°10.5'	S 14°11.5'	315°08.2'	S 3°15.1'
6	326°53.5'		270°52.8'	N 19°46.3'	308°33.8'	N 5°42.4'	325°00.8'	S 0°24.6'	359°12.9'	S 14°11.5'	330°08.9'	S 3°14.4'
7	341°56.0'		285°52.7'	N 19°46.8'	323°33.5'	N 5°43.4'	340°02.9'	S 0°24.4'	14°15.3'	S 14°11.5'	345°09.6'	S 3°13.6'
8	356°58.5'		300°52.7'	N 19°47.4'	338°33.3'	N 5°44.5'	355°04.9'	S 0°24.2'	29°17.7'	S 14°11.5'	0°10.4'	S 3°12.9'
9	12°00.9'		315°52.7'	N 19°47.9'	353°33.0'	N 5°45.5'	10°07.0'	S 0°24.1'	44°20.1'	S 14°11.5'	15°11.1'	S 3°12.2'
10	27°03.4'		330°52.7'	N 19°48.4'	8°32.7'	N 5°46.6'	25°09.0'	S 0°23.9'	59°22.5'	S 14°11.4'	30°11.9'	S 3°11.5'
11	42°05.8'		345°52.6'	N 19°49.0'	23°32.5'	N 5°47.7'	40°11.0'	S 0°23.7'	74°24.9'	S 14°11.4'	45°12.6'	S 3°10.7'
12	57°08.3'		0°52.6'	N 19°49.5'	38°32.2'	N 5°48.7'	55°13.1'	S 0°23.5'	89°27.2'	S 14°11.4'	60°13.3'	S 3°10.0'
13	72°10.8'		15°52.6'	N 19°50.0'	53°32.0'	N 5°49.8'	70°15.1'	S 0°23.4'	104°29.6'	S 14°11.4'	75°14.1'	S 3°09.3'
14	87°13.2'		30°52.5'	N 19°50.5'	68°31.7'	N 5°50.8'	85°17.2'	S 0°23.2'	119°32.0'	S 14°11.4'	90°14.8'	S 3°08.6'
15	102°15.7'		45°52.5'	N 19°51.1'	83°31.5'	N 5°51.9'	100°19.2'	S 0°23.0'	134°34.4'	S 14°11.4'	105°15.6'	S 3°07.8'
16	117°18.2'		60°52.5'	N 19°51.6'	98°31.2'	N 5°52.9'	115°21.3'	S 0°22.9'	149°36.8'	S 14°11.4'	120°16.3'	S 3°07.1'
17	132°20.6'		75°52.4'	N 19°52.1'	113°31.0'	N 5°54.0'	130°23.3'	S 0°22.7'	164°39.2'	S 14°11.3'	135°17.0'	S 3°06.4'
18	147°23.1'		90°52.4'	N 19°52.7'	128°30.7'	N 5°55.0'	145°25.4'	S 0°22.5'	179°41.6'	S 14°11.3'	150°17.8'	S 3°05.6'
19	162°25.6'		105°52.4'	N 19°53.2'	143°30.5'	N 5°56.1'	160°27.4'	S 0°22.3'	194°44.0'	S 14°11.3'	165°18.5'	S 3°04.9'
20	177°28.0'		120°52.3'	N 19°53.7'	158°30.2'	N 5°57.1'	175°29.4'	S 0°22.2'	209°46.4'	S 14°11.3'	180°19.2'	S 3°04.2'
21	192°30.5'		135°52.3'	N 19°54.2'	173°29.9'	N 5°58.2'	190°31.5'	S 0°22.0'	224°48.8'	S 14°11.3'	195°20.0'	S 3°03.5'
22	207°33.0'		150°52.3'	N 19°54.8'	188°29.7'	N 5°59.3'	205°33.5'	S 0°21.8'	239°51.2'	S 14°11.3'	210°20.7'	S 3°02.7'
23	222°35.4'		165°52.2'	N 19°55.3'	203°29.4'	N 6°00.3'	220°35.6'	S 0°21.7'	254°53.6'	S 14°11.3'	225°21.5'	S 3°02.0'
			SD 15.8' d 0.5'		v -0.3' d 1.1'		v 2.0' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'	
Mer. pass.			11 h 56 m 30 s		9 h 26 m		8 h 20 m		6 h 3 m		7 h 59 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Acrux
0	318°19.5'	S 26°57.6'	1.8'	-0.2'	60.5'	73°49.4'	57°43.8'	47°37.0'	40°37.8'	27°17.4'	51°16.6'	55°30.1'	66°43.0'
1	332°40.3'	S 26°57.8'	1.8'	0.0'	60.5'	75°29.3'	57°08.7'	47°00.2'	40°19.3'	27°54.3'	51°36.1'	55°50.4'	67°01.0'
2	347°01.1'	S 26°57.8'	1.9'	0.2'	60.5'	75°09.2'	56°33.7'	46°23.3'	40°01.2'	28°31.2'	51°55.8'	56°10.8'	67°19.2'
3	1°22.0'	S 26°57.6'	1.9'	0.4'	60.5'	74°49.2'	55°58.7'	45°46.5'	39°43.4'	29°08.0'	52°15.7'	56°31.5'	67°37.4'
4	15°42.9'	S 26°57.1'	1.9'	0.6'	60.5'	74°29.3'	55°23.7'	45°09.7'	39°26.0'	29°44.9'	52°35.9'	56°52.3'	67°55.8'
5	30°03.8'	S 26°56.5'	1.9'	0.8'	60.5'	74°09.5'	54°48.8'	44°32.9'	39°09.0'	30°21.8'	52°56.2'	57°13.3'	68°14.3'
6	44°24.7'	S 26°55.7'	2.0'	1.0'	60.4'	73°49.8'	54°14.0'	43°56.2'	38°52.4'	30°58.6'	53°16.7'	57°34.4'	68°32.9'
7	58°45.7'	S 26°54.6'	2.0'	1.2'	60.4'	73°30.2'	53°39.2'	43°19.4'	38°36.2'	31°35.4'	53°37.5'	57°55.7'	68°51.6'
8	73°06.7'	S 26°53.4'	2.1'	1.4'	60.4'	73°10.7'	53°04.4'	42°42.7'	38°20.4'	32°12.2'	53°58.4'	58°17.1'	69°10.4'
9	87°27.8'	S 26°51.9'	2.1'	1.6'	60.4'	72°51.3'	52°29.8'	42°06.1'		32°49.0'	54°19.5'	58°38.7'	69°29.3'
10	101°48.9'	S 26°50.3'	2.2'	1.8'	60.4'	72°31.9'	51°55.1'	41°29.4'		33°25.7'	54°40.7'	59°00.5'	69°48.3'
11	116°10.1'	S 26°48.5'	2.2'	2.0'	60.4'	72°12.7'	51°20.6'	40°52.8'		34°02.5'	55°02.2'	59°22.4'	70°07.4'
12	130°31.3'	S 26°46.4'	2.3'	2.2'	60.3'	71°53.6'	50°46.1'	40°16.3'		34°39.2'	55°23.8'	59°44.4'	70°26.6'
13	144°52.6'	S 26°44.2'	2.3'	2.4'	60.3'	71°34.6'	50°11.7'	39°39.7'		35°15.9'	55°45.6'	60°06.5'	70°45.8'
14	159°13.9'	S 26°41.8'	2.4'	2.6'	60.3'	71°15.7'	49°37.3'	39°03.2'		35°52.6'	56°07.5'	60°28.8'	71°05.2'
15	173°35.3'	S 26°39.1'	2.5'	2.8'	60.3'	70°57.0'	49°03.0'	38°26.7'		36°29.2'	56°29.6'	60°51.2'	71°24.6'
16	187°56.8'	S 26°36.3'	2.5'	3.0'	60.3'	70°38.3'	48°28.8'	37°50.3'		37°05.9'	56°51.8'	61°13.7'	71°44.1'
17	202°18.3'	S 26°33.3'	2.6'	3.2'	60.2'	70°19.8'	47°54.6'	37°13.9'		37°42.5'	57°14.2'	61°36.4'	72°03.7'
18	216°39.9'	S 26°30.1'	2.7'	3.4'	60.2'	70°01.4'	47°20.6'	36°37.5'		38°19.0'	57°36.7'	61°59.1'	72°23.4'
19	231°01.5'	S 26°26.7'	2.7'	3.6'	60.2'	69°43.0'	46°46.6'	36°01.2'		38°55.6'	57°59.4'	62°22.0'	72°43.2'
20	245°23.3'	S 26°23.1'	2.8'	3.8'	60.2'	69°24.9'	46°12.6'	35°24.9'		39°32.1'	58°22.2'	62°44.9'	73°03.0'
21	259°45.1'	S 26°19.3'	2.9'	4.0'	60.2'	69°06.8'	45°38.8'	34°48.6'		40°08.6'	58°45.1'	63°08.0'	73°22.9'
22	274°07.0'	S 26°15.4'	3.0'	4.2'	60.1'	68°48.9'	45°05.1'	34°12.4'		40°45.1'	59°08.1'	63°31.2'	73°42.8'
23	288°28.9'	S 26°11.2'	3.0'	4.3'	60.1'	68°31.1'	44°31.4'	33°36.2'		41°21.6'	59°31.3'	63°54.5'	74°02.8'
Mer. pass.			2 h 54 m SD 16.5'		phase 89%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°32.0'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

Friday 20 May 2022 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	237°37.9'	180°52.2'	N 19°55.8'	218°29.2'	N 6°01.4'	235°37.6'	S 0°21.5'	269°56.0'	S 14°11.2'	240°22.2'	S 3°01.3'			
1	252°40.3'	195°52.2'	N 19°56.3'	233°28.9'	N 6°02.4'	250°39.7'	S 0°21.3'	284°58.4'	S 14°11.2'	255°22.9'	S 3°00.5'			
2	267°42.8'	210°52.1'	N 19°56.9'	248°28.7'	N 6°03.5'	265°41.7'	S 0°21.1'	300°00.8'	S 14°11.2'	270°23.7'	S 2°59.8'			
3	282°45.3'	225°52.1'	N 19°57.4'	263°28.4'	N 6°04.5'	280°43.8'	S 0°21.0'	315°03.2'	S 14°11.2'	285°24.4'	S 2°59.1'			
4	297°47.7'	240°52.1'	N 19°57.9'	278°28.1'	N 6°05.6'	295°45.8'	S 0°20.8'	330°05.6'	S 14°11.2'	300°25.2'	S 2°58.4'			
5	312°50.2'	255°52.0'	N 19°58.4'	293°27.9'	N 6°06.6'	310°47.9'	S 0°20.6'	345°08.0'	S 14°11.2'	315°25.9'	S 2°57.6'			
6	327°52.7'	270°52.0'	N 19°59.0'	308°27.6'	N 6°07.7'	325°49.9'	S 0°20.4'	0°10.4'	S 14°11.2'	330°26.6'	S 2°56.9'			
7	342°55.1'	285°52.0'	N 19°59.5'	323°27.4'	N 6°08.7'	340°52.0'	S 0°20.3'	15°12.8'	S 14°11.1'	345°27.4'	S 2°56.2'			
8	357°57.6'	300°51.9'	N 19°60.0'	338°27.1'	N 6°09.8'	355°54.0'	S 0°20.1'	30°15.2'	S 14°11.1'	0°28.1'	S 2°55.5'			
9	13°00.1'	315°51.9'	N 20°00.5'	353°26.8'	N 6°10.8'	10°56.1'	S 0°19.9'	45°17.6'	S 14°11.1'	15°28.9'	S 2°54.7'			
10	28°02.5'	330°51.9'	N 20°01.0'	8°26.6'	N 6°11.9'	25°58.1'	S 0°19.8'	60°20.0'	S 14°11.1'	30°29.6'	S 2°54.0'			
11	43°05.0'	345°51.8'	N 20°01.6'	23°26.3'	N 6°12.9'	41°00.1'	S 0°19.6'	75°22.4'	S 14°11.1'	45°30.3'	S 2°53.3'			
12	58°07.5'	0°51.8'	N 20°02.1'	38°26.1'	N 6°14.0'	56°02.2'	S 0°19.4'	90°24.8'	S 14°11.1'	60°31.1'	S 2°52.5'			
13	73°09.9'	15°51.7'	N 20°02.6'	53°25.8'	N 6°15.1'	71°04.2'	S 0°19.2'	105°27.2'	S 14°11.1'	75°31.8'	S 2°51.8'			
14	88°12.4'	30°51.7'	N 20°03.1'	68°25.5'	N 6°16.1'	86°06.3'	S 0°19.1'	120°29.6'	S 14°11.0'	90°32.6'	S 2°51.1'			
15	103°14.8'	45°51.7'	N 20°03.6'	83°25.3'	N 6°17.2'	101°08.3'	S 0°18.9'	135°32.0'	S 14°11.0'	105°33.3'	S 2°50.4'			
16	118°17.3'	60°51.6'	N 20°04.1'	98°25.0'	N 6°18.2'	116°10.4'	S 0°18.7'	150°34.4'	S 14°11.0'	120°34.0'	S 2°49.6'			
17	133°19.8'	75°51.6'	N 20°04.7'	113°24.8'	N 6°19.3'	131°12.4'	S 0°18.6'	165°36.8'	S 14°11.0'	135°34.8'	S 2°48.9'			
18	148°22.2'	90°51.6'	N 20°05.2'	128°24.5'	N 6°20.3'	146°14.5'	S 0°18.4'	180°39.2'	S 14°11.0'	150°35.5'	S 2°48.2'			
19	163°24.7'	105°51.5'	N 20°05.7'	143°24.2'	N 6°21.4'	161°16.5'	S 0°18.2'	195°41.6'	S 14°11.0'	165°36.3'	S 2°47.4'			
20	178°27.2'	120°51.5'	N 20°06.2'	158°24.0'	N 6°22.4'	176°18.6'	S 0°18.0'	210°44.0'	S 14°11.0'	180°37.0'	S 2°46.7'			
21	193°29.6'	135°51.4'	N 20°06.7'	173°23.7'	N 6°23.5'	191°20.6'	S 0°17.9'	225°46.4'	S 14°10.9'	195°37.7'	S 2°46.0'			
22	208°32.1'	150°51.4'	N 20°07.2'	188°23.5'	N 6°24.5'	206°22.7'	S 0°17.7'	240°48.8'	S 14°10.9'	210°38.5'	S 2°45.3'			
23	223°34.6'	165°51.4'	N 20°07.7'	203°23.2'	N 6°25.6'	221°24.7'	S 0°17.5'	255°51.2'	S 14°10.9'	225°39.2'	S 2°44.5'			
		SD 15.8' d 0.5'		v -0.3' d 1.1'		v 2.0' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'				
Mer. pass.		11 h 56 m 33 s		9 h 26 m		8 h 16 m		5 h 59 m		7 h 58 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Mars	-Fomalhaut	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	302°51.0'	S 26°06.9'	3.1'	4.5'	60.1'		64°03.3'	43°57.8'	33°00.1'	41°58.0'	59°54.6'	64°17.8'	74°22.9'
1	317°13.1'	S 26°02.4'	3.2'	4.7'	60.1'		63°28.7'	43°24.3'	32°23.9'	42°34.4'	60°18.0'	64°41.3'	74°43.1'
2	331°35.3'	S 25°57.7'	3.3'	4.9'	60.0'		62°54.1'	42°50.9'	31°47.9'	43°10.8'	60°41.5'	65°04.8'	75°03.3'
3	345°57.6'	S 25°52.8'	3.4'	5.1'	60.0'		62°19.6'	42°17.6'	31°11.9'	43°47.1'	61°05.1'	65°28.4'	75°23.5'
4	0°20.0'	S 25°47.7'	3.5'	5.2'	60.0'		61°45.1'	41°44.4'	30°35.9'	44°23.4'	61°28.8'	65°52.2'	75°43.8'
5	14°42.5'	S 25°42.5'	3.6'	5.4'	60.0'		61°10.6'	41°11.3'	29°59.9'	44°59.7'	61°52.6'	66°15.9'	76°04.2'
6	29°05.1'	S 25°37.1'	3.7'	5.6'	59.9'		60°36.2'	40°38.3'	29°24.1'	45°36.0'	62°16.6'	66°39.8'	76°24.6'
7	43°27.8'	S 25°31.5'	3.8'	5.8'	59.9'		60°01.8'	40°05.4'	28°48.2'	46°12.2'	62°40.6'	67°03.7'	76°45.0'
8	57°50.6'	S 25°25.7'	3.9'	5.9'	59.9'		59°27.4'	39°32.7'	28°12.4'	46°48.4'	63°04.7'	67°27.7'	77°05.5'
9	72°13.5'	S 25°19.8'	4.0'	6.1'	59.9'		58°53.1'	39°00.0'	27°36.7'	47°24.5'	63°28.8'	67°51.8'	77°26.0'
10	86°36.4'	S 25°13.7'	4.1'	6.3'	59.8'		58°18.8'	38°27.5'	27°01.0'	48°00.7'	63°53.1'	68°16.0'	77°46.6'
11	100°59.5'	S 25°07.4'	4.2'	6.4'	59.8'		57°44.5'	37°55.1'	26°25.3'	48°36.8'	64°17.4'	68°40.2'	78°07.2'
12	115°22.7'	S 25°00.9'	4.3'	6.6'	59.8'	119°52.6'	57°10.3'	37°22.8'	25°49.8'	49°12.8'	64°41.9'	69°04.4'	78°27.8'
13	129°46.0'	S 24°54.3'	4.4'	6.8'	59.8'	119°18.9'	56°36.1'	36°50.6'	25°14.2'	49°48.9'	65°06.4'	69°28.7'	78°48.5'
14	144°09.4'	S 24°47.6'	4.5'	6.9'	59.7'	118°45.2'	56°01.9'	36°18.6'	24°38.7'	50°24.9'	65°30.9'	69°53.1'	79°09.2'
15	158°32.9'	S 24°40.6'	4.6'	7.1'	59.7'	118°11.5'	55°27.8'	35°46.7'	24°03.3'	51°00.9'	65°55.6'	70°17.5'	79°29.9'
16	172°56.5'	S 24°33.5'	4.7'	7.3'	59.7'	117°37.9'	54°53.7'	35°15.0'	23°28.0'	51°36.8'	66°20.3'	70°42.0'	79°50.7'
17	187°20.3'	S 24°26.3'	4.8'	7.4'	59.7'	117°04.3'	54°19.6'	34°43.4'	22°52.7'	52°12.7'	66°45.1'	71°06.5'	80°11.5'
18	201°44.1'	S 24°18.9'	5.0'	7.6'	59.6'	116°30.7'	53°45.6'	34°12.0'	22°17.4'	52°48.6'	67°09.9'	71°31.1'	80°32.3'
19	216°08.1'	S 24°11.3'	5.1'	7.7'	59.6'	115°57.2'	53°11.6'	33°40.8'	21°42.3'	53°24.4'	67°34.8'	71°55.7'	80°53.1'
20	230°32.1'	S 24°03.6'	5.2'	7.9'	59.6'	115°23.7'	52°37.6'	33°09.7'	21°07.2'	54°00.2'	67°59.7'	72°20.4'	81°14.0'
21	244°56.3'	S 23°55.7'	5.3'	8.0'	59.6'	114°50.3'	52°03.7'	32°38.8'	20°32.2'	54°36.0'	68°24.7'	72°45.0'	81°34.8'
22	259°20.6'	S 23°47.7'	5.4'	8.2'	59.5'	114°16.9'	51°29.8'	32°08.0'	19°57.2'	55°11.7'	68°49.8'	73°09.8'	81°55.7'
23	273°45.0'	S 23°39.5'	5.5'	8.3'	59.5'	113°43.5'	50°56.0'	31°37.5'	19°22.4'	55°47.4'	69°14.9'	73°34.5'	82°16.6'
Mer. pass.		3 h 59 m SD 16.4'		phase 80%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.8'	N 89°21.4'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	238°37.0'	180°51.3' N 20°08.2'	218°22.9' N 6°26.6'	236°26.8' S 0°17.4'	270°53.6' S 14°10.9'	240°40.0' S 2°43.8'						
1	253°39.5'	195°51.3' N 20°08.7'	233°22.7' N 6°27.7'	251°28.8' S 0°17.2'	285°56.0' S 14°10.9'	255°40.7' S 2°43.1'						
2	268°42.0'	210°51.2' N 20°09.3'	248°22.4' N 6°28.7'	266°30.9' S 0°17.0'	300°58.4' S 14°10.9'	270°41.4' S 2°42.3'						
3	283°44.4'	225°51.2' N 20°09.8'	263°22.1' N 6°29.8'	281°32.9' S 0°16.9'	316°00.8' S 14°10.9'	285°42.2' S 2°41.6'						
4	298°46.9'	240°51.2' N 20°10.3'	278°21.9' N 6°30.8'	296°35.0' S 0°16.7'	331°03.2' S 14°10.8'	300°42.9' S 2°40.9'						
5	313°49.3'	255°51.1' N 20°10.8'	293°21.6' N 6°31.9'	311°37.0' S 0°16.5'	346°05.6' S 14°10.8'	315°43.7' S 2°40.2'						
6	328°51.8'	270°51.1' N 20°11.3'	308°21.3' N 6°32.9'	326°39.1' S 0°16.3'	1°08.0' S 14°10.8'	330°44.4' S 2°39.4'						
7	343°54.3'	285°51.0' N 20°11.8'	323°21.1' N 6°34.0'	341°41.1' S 0°16.2'	16°10.4' S 14°10.8'	345°45.1' S 2°38.7'						
8	358°56.7'	300°51.0' N 20°12.3'	338°20.8' N 6°35.0'	356°43.2' S 0°16.0'	31°12.8' S 14°10.8'	0°45.9' S 2°38.0'						
9	13°59.2'	315°51.0' N 20°12.8'	353°20.5' N 6°36.1'	11°45.2' S 0°15.8'	46°15.3' S 14°10.8'	15°46.6' S 2°37.3'						
10	29°01.7'	330°50.9' N 20°13.3'	8°20.3' N 6°37.1'	26°47.3' S 0°15.7'	61°17.7' S 14°10.8'	30°47.4' S 2°36.5'						
11	44°04.1'	345°50.9' N 20°13.8'	23°20.0' N 6°38.2'	41°49.3' S 0°15.5'	76°20.1' S 14°10.8'	45°48.1' S 2°35.8'						
12	59°06.6'	0°50.8' N 20°14.3'	38°19.7' N 6°39.2'	56°51.4' S 0°15.3'	91°22.5' S 14°10.7'	60°48.8' S 2°35.1'						
13	74°09.1'	15°50.8' N 20°14.8'	53°19.5' N 6°40.3'	71°53.4' S 0°15.2'	106°24.9' S 14°10.7'	75°49.6' S 2°34.3'						
14	89°11.5'	30°50.8' N 20°15.3'	68°19.2' N 6°41.3'	86°55.5' S 0°15.0'	121°27.3' S 14°10.7'	90°50.3' S 2°33.6'						
15	104°14.0'	45°50.7' N 20°15.8'	83°18.9' N 6°42.4'	101°57.6' S 0°14.8'	136°29.7' S 14°10.7'	105°51.1' S 2°32.9'						
16	119°16.5'	60°50.7' N 20°16.3'	98°18.7' N 6°43.4'	116°59.6' S 0°14.6'	151°32.1' S 14°10.7'	120°51.8' S 2°32.2'						
17	134°18.9'	75°50.6' N 20°16.8'	113°18.4' N 6°44.5'	132°01.7' S 0°14.5'	166°34.5' S 14°10.7'	135°52.6' S 2°31.4'						
18	149°21.4'	90°50.6' N 20°17.3'	128°18.1' N 6°45.5'	147°03.7' S 0°14.3'	181°36.9' S 14°10.7'	150°53.3' S 2°30.7'						
19	164°23.8'	105°50.5' N 20°17.8'	143°17.9' N 6°46.6'	162°05.8' S 0°14.1'	196°39.3' S 14°10.7'	165°54.0' S 2°30.0'						
20	179°26.3'	120°50.5' N 20°18.3'	158°17.6' N 6°47.6'	177°07.8' S 0°14.0'	211°41.7' S 14°10.6'	180°54.8' S 2°29.2'						
21	194°28.8'	135°50.4' N 20°18.8'	173°17.3' N 6°48.7'	192°09.9' S 0°13.8'	226°44.1' S 14°10.6'	195°55.5' S 2°28.5'						
22	209°31.2'	150°50.4' N 20°19.3'	188°17.1' N 6°49.7'	207°11.9' S 0°13.6'	241°46.5' S 14°10.6'	210°56.3' S 2°27.8'						
23	224°33.7'	165°50.4' N 20°19.8'	203°16.8' N 6°50.8'	222°14.0' S 0°13.5'	256°48.9' S 14°10.6'	225°57.0' S 2°27.1'						
		SD 15.8' d 0.5'	v -0.3' d 1.0'	v 2.1' d 0.2'	v 2.4' d 0.0'	v 0.7' d 0.7'						
Mer. pass.		11 h 56 m 37 s	9 h 27 m	8 h 13 m	5 h 55 m	7 h 57 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Mars	-Fomalhaut	-Saturn	+Altair	+Antares	+Rigil Kent	+Hadar
0	288°09.6'	S 23°31.2'	5.7'	8.5'	59.5'	113°10.2'	50°22.1'	31°07.1'	18°47.6'		56°23.1'	69°40.0'	73°59.3'
1	302°34.2'	S 23°22.7'	5.8'	8.6'	59.4'	112°36.9'	49°48.4'	30°37.0'	18°12.9'		56°58.8'	70°05.2'	74°24.1'
2	316°59.0'	S 23°14.1'	5.9'	8.7'	59.4'	112°03.6'	49°14.6'	30°07.1'	17°38.3'		57°34.4'	70°30.4'	74°49.0'
3	331°23.9'	S 23°05.4'	6.0'	8.9'	59.4'	111°30.3'	48°40.9'	29°37.3'	17°03.8'		58°09.9'	70°55.7'	75°13.9'
4	345°48.9'	S 22°56.5'	6.1'	9.0'	59.4'	110°57.1'	48°07.2'	29°07.9'	16°29.5'		58°45.5'	71°21.0'	75°38.8'
5	0°14.0'	S 22°47.5'	6.3'	9.2'	59.3'	110°24.0'	47°33.6'	28°38.6'	15°55.2'		59°20.9'	71°46.3'	76°03.7'
6	14°39.3'	S 22°38.3'	6.4'	9.3'	59.3'	109°50.9'	47°00.0'	28°09.6'	15°21.1'		59°56.4'	72°11.7'	76°28.7'
7	29°04.7'	S 22°29.1'	6.5'	9.4'	59.3'	109°17.8'	46°26.5'	27°40.9'	14°47.1'		60°31.8'	72°37.1'	76°53.6'
8	43°30.2'	S 22°19.6'	6.6'	9.5'	59.2'	108°44.7'	45°52.9'	27°12.5'	14°13.2'		61°07.2'	73°02.6'	77°18.6'
9	57°55.8'	S 22°10.1'	6.7'	9.7'	59.2'	108°11.7'	45°19.5'	26°44.3'	13°39.5'		61°42.6'	73°28.0'	77°43.6'
10	72°21.5'	S 22°00.4'	6.9'	9.8'	59.2'	107°38.7'	44°46.0'	26°16.4'	13°06.0'		62°17.9'	73°53.5'	78°08.6'
11	86°47.4'	S 21°50.6'	7.0'	9.9'	59.2'	107°05.8'	44°12.6'	25°48.9'	12°32.7'		62°53.2'	74°19.0'	78°33.6'
12	101°13.4'	S 21°40.7'	7.1'	10.0'	59.1'	106°32.9'	43°39.2'	25°21.7'	11°59.6'		63°28.4'	74°44.6'	78°58.7'
13	115°39.5'	S 21°30.6'	7.2'	10.2'	59.1'	105°60.0'	43°05.9'	24°54.8'	11°26.8'		64°03.6'	75°10.1'	79°23.7'
14	130°05.7'	S 21°20.5'	7.3'	10.3'	59.1'	105°27.2'	42°32.6'	24°28.2'	10°54.2'		64°38.8'	75°35.7'	79°48.8'
15	144°32.1'	S 21°10.2'	7.5'	10.4'	59.0'	104°54.4'	41°59.4'	24°02.1'	10°22.0'		65°13.9'	76°01.3'	80°13.8'
16	158°58.5'	S 20°59.8'	7.6'	10.5'	59.0'	104°21.6'	41°26.1'	23°36.3'	9°50.1'		65°49.0'	76°26.9'	80°38.9'
17	173°25.1'	S 20°49.3'	7.7'	10.6'	59.0'	103°48.9'	40°53.0'	23°11.0'	9°18.6'		66°24.1'	76°52.5'	81°03.9'
18	187°51.8'	S 20°38.6'	7.8'	10.7'	58.9'	103°16.2'	40°19.8'	22°46.1'	8°47.6'		66°59.1'	77°18.2'	81°29.0'
19	202°18.7'	S 20°27.9'	8.0'	10.8'	58.9'	102°43.5'	39°46.7'	22°21.7'	8°17.1'		67°34.1'	77°43.8'	81°54.1'
20	216°45.6'	S 20°17.1'	8.1'	11.0'	58.9'	102°10.9'	39°13.7'	21°57.7'	7°47.3'		68°09.1'	78°09.5'	82°19.1'
21	231°12.7'	S 20°06.1'	8.2'	11.1'	58.9'	101°38.4'	38°40.6'	21°34.2'			68°44.0'	78°35.1'	82°44.2'
22	245°39.9'	S 19°55.0'	8.3'	11.2'	58.8'	101°05.8'	38°07.6'	21°11.3'		38°29.2'	69°18.9'	79°00.8'	83°09.3'
23	260°07.2'	S 19°43.9'	8.4'	11.3'	58.8'	100°33.3'	37°34.7'	20°48.9'		38°44.3'	69°53.7'	79°26.5'	83°34.3'
Mer. pass.		4 h 59 m SD 16.2' phase 70%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.7'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	239°36.2'	180°50.3' N 20°20.3'	218°16.5' N 6°51.8'	237°16.0' S 0°13.3'	271°51.3' S 14°10.6'	240°57.8' S 2°26.3'						
1	254°38.6'	195°50.3' N 20°20.8'	233°16.3' N 6°52.9'	252°18.1' S 0°13.1'	286°53.7' S 14°10.6'	255°58.5' S 2°25.6'						
2	269°41.1'	210°50.2' N 20°21.3'	248°16.0' N 6°53.9'	267°20.1' S 0°13.0'	301°56.1' S 14°10.6'	270°59.2' S 2°24.9'						
3	284°43.6'	225°50.2' N 20°21.8'	263°15.7' N 6°55.0'	282°22.2' S 0°12.8'	316°58.5' S 14°10.6'	285°60.0' S 2°24.1'						
4	299°46.0'	240°50.1' N 20°22.3'	278°15.5' N 6°56.0'	297°24.2' S 0°12.6'	332°01.0' S 14°10.6'	301°00.7' S 2°23.4'						
5	314°48.5'	255°50.1' N 20°22.8'	293°15.2' N 6°57.1'	312°26.3' S 0°12.5'	347°03.4' S 14°10.5'	316°01.5' S 2°22.7'						
6	329°50.9'	270°50.0' N 20°23.3'	308°14.9' N 6°58.1'	327°28.4' S 0°12.3'	2°05.8' S 14°10.5'	331°02.2' S 2°22.0'						
7	344°53.4'	285°50.0' N 20°23.8'	323°14.6' N 6°59.2'	342°30.4' S 0°12.1'	17°08.2' S 14°10.5'	346°03.0' S 2°21.2'						
8	359°55.9'	300°49.9' N 20°24.3'	338°14.4' N 7°00.2'	357°32.5' S 0°11.9'	32°10.6' S 14°10.5'	1°03.7' S 2°20.5'						
9	14°58.3'	315°49.9' N 20°24.8'	353°14.1' N 7°01.3'	12°34.5' S 0°11.8'	47°13.0' S 14°10.5'	16°04.4' S 2°19.8'						
10	30°00.8'	330°49.8' N 20°25.2'	8°13.8' N 7°02.3'	27°36.6' S 0°11.6'	62°15.4' S 14°10.5'	31°05.2' S 2°19.0'						
11	45°03.3'	345°49.8' N 20°25.7'	23°13.6' N 7°03.3'	42°38.6' S 0°11.4'	77°17.8' S 14°10.5'	46°05.9' S 2°18.3'						
12	60°05.7'	0°49.7' N 20°26.2'	38°13.3' N 7°04.4'	57°40.7' S 0°11.3'	92°20.2' S 14°10.5'	61°06.7' S 2°17.6'						
13	75°08.2'	15°49.7' N 20°26.7'	53°13.0' N 7°05.4'	72°42.7' S 0°11.1'	107°22.6' S 14°10.4'	76°07.4' S 2°16.9'						
14	90°10.7'	30°49.7' N 20°27.2'	68°12.7' N 7°06.5'	87°44.8' S 0°10.9'	122°25.0' S 14°10.4'	91°08.2' S 2°16.1'						
15	105°13.1'	45°49.6' N 20°27.7'	83°12.5' N 7°07.5'	102°46.9' S 0°10.8'	137°27.4' S 14°10.4'	106°08.9' S 2°15.4'						
16	120°15.6'	60°49.6' N 20°28.2'	98°12.2' N 7°08.6'	117°48.9' S 0°10.6'	152°29.8' S 14°10.4'	121°09.6' S 2°14.7'						
17	135°18.1'	75°49.5' N 20°28.7'	113°11.9' N 7°09.6'	132°51.0' S 0°10.4'	167°32.3' S 14°10.4'	136°10.4' S 2°13.9'						
18	150°20.5'	90°49.5' N 20°29.1'	128°11.6' N 7°10.7'	147°53.0' S 0°10.3'	182°34.7' S 14°10.4'	151°11.1' S 2°13.2'						
19	165°23.0'	105°49.4' N 20°29.6'	143°11.4' N 7°11.7'	162°55.1' S 0°10.1'	197°37.1' S 14°10.4'	166°11.9' S 2°12.5'						
20	180°25.4'	120°49.4' N 20°30.1'	158°11.1' N 7°12.8'	177°57.1' S 0°09.9'	212°39.5' S 14°10.4'	181°12.6' S 2°11.8'						
21	195°27.9'	135°49.3' N 20°30.6'	173°10.8' N 7°13.8'	192°59.2' S 0°09.8'	227°41.9' S 14°10.4'	196°13.4' S 2°11.0'						
22	210°30.4'	150°49.3' N 20°31.1'	188°10.5' N 7°14.9'	208°01.3' S 0°09.6'	242°44.3' S 14°10.4'	211°14.1' S 2°10.3'						
23	225°32.8'	165°49.2' N 20°31.6'	203°10.3' N 7°15.9'	223°03.3' S 0°09.4'	257°46.7' S 14°10.3'	226°14.9' S 2°09.6'						
		SD 15.8' d 0.5'	v -0.3' d 1.0'	v 2.1' d 0.2'	v 2.4' d 0.0'	v 0.7' d 0.7'						
Mer. pass.		11 h 56 m 41 s	9 h 27 m	8 h 10 m	5 h 52 m	7 h 56 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Mars	-Fomalhaut	-Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	274°34.7'	S 19°32.6'	8.6'	11.4'	58.8'	100°00.9'	37°01.8'	20°27.1'		38°59.8'	70°28.5'	79°52.1'	83°59.3'
1	289°02.2'	S 19°21.2'	8.7'	11.5'	58.7'	99°28.4'	36°28.9'	20°05.9'		39°15.5'	71°03.3'	80°17.8'	84°24.4'
2	303°29.9'	S 19°09.8'	8.8'	11.6'	58.7'	98°56.0'	35°56.1'	19°45.4'		39°31.6'	71°38.0'	80°43.5'	84°49.4'
3	317°57.7'	S 18°58.2'	8.9'	11.7'	58.7'	98°23.7'	35°23.3'	19°25.5'		39°48.0'	72°12.7'	81°09.2'	85°14.4'
4	332°25.6'	S 18°46.5'	9.0'	11.8'	58.6'	97°51.4'	34°50.5'	19°06.3'		40°04.8'	72°47.4'	81°34.8'	85°39.4'
5	346°53.6'	S 18°34.8'	9.1'	11.8'	58.6'	97°19.1'	34°17.8'	18°47.8'		40°21.8'	73°22.0'	82°00.5'	86°04.4'
6	1°21.8'	S 18°23.0'	9.3'	11.9'	58.6'	96°46.9'	33°45.2'			40°39.1'	73°56.6'	82°26.2'	86°29.4'
7	15°50.0'	S 18°11.0'	9.4'	12.0'	58.5'	96°14.6'	33°12.5'			40°56.7'	74°31.2'	82°51.8'	86°54.3'
8	30°18.4'	S 17°59.0'	9.5'	12.1'	58.5'	95°42.5'	32°39.9'			41°14.6'	75°05.7'	83°17.5'	87°19.3'
9	44°46.9'	S 17°46.9'	9.6'	12.2'	58.5'	95°10.3'	32°07.4'			41°32.7'	75°40.2'	83°43.1'	87°44.2'
10	59°15.5'	S 17°34.7'	9.7'	12.3'	58.5'	94°38.3'	31°34.9'			41°51.1'	76°14.6'	84°08.8'	88°09.1'
11	73°44.2'	S 17°22.4'	9.8'	12.4'	58.4'	94°06.2'	31°02.4'			42°09.8'	76°49.0'	84°34.4'	88°34.0'
12	88°13.0'	S 17°10.1'	9.9'	12.4'	58.4'	93°34.2'	30°30.0'			42°28.7'	77°23.4'	84°60.0'	88°58.8'
13	102°41.9'	S 16°57.7'	10.0'	12.5'	58.4'	93°02.2'	29°57.6'			42°47.8'	77°57.7'	85°25.6'	89°23.6'
14	117°11.0'	S 16°45.1'	10.2'	12.6'	58.3'	92°30.2'	29°25.2'			43°07.2'	78°32.0'	85°51.1'	89°48.4'
15	131°40.1'	S 16°32.6'	10.3'	12.7'	58.3'	91°58.3'	28°52.9'			43°26.8'	79°06.3'	86°16.7'	90°13.2'
16	146°09.4'	S 16°19.9'	10.4'	12.7'	58.3'	91°26.5'	28°20.6'			43°46.6'	79°40.5'	86°42.3'	90°38.0'
17	160°38.8'	S 16°07.2'	10.5'	12.8'	58.2'	90°54.6'	27°48.4'			44°06.7'	80°14.7'	87°07.8'	91°02.7'
18	175°08.2'	S 15°54.4'	10.6'	12.9'	58.2'	90°22.8'	27°16.2'			44°26.9'	80°48.8'	87°33.3'	91°27.4'
19	189°37.8'	S 15°41.5'	10.7'	12.9'	58.2'	89°51.1'	26°44.1'		7°51.9'	44°47.4'	81°22.9'	87°58.8'	91°52.1'
20	204°07.5'	S 15°28.5'	10.8'	13.0'	58.1'	89°19.3'	26°11.9'		8°21.0'	45°08.0'	81°57.0'	88°24.2'	92°16.7'
21	218°37.3'	S 15°15.5'	10.9'	13.1'	58.1'	88°47.6'	25°39.9'		8°50.7'	45°28.9'	82°31.1'	88°49.7'	92°41.3'
22	233°07.2'	S 15°02.5'	11.0'	13.1'	58.1'	88°16.0'	25°07.9'		9°20.9'	45°49.9'	83°05.1'	89°15.1'	93°05.9'
23	247°37.1'	S 14°49.3'	11.1'	13.2'	58.1'	87°44.3'	24°35.9'		9°51.4'	46°11.1'	83°39.1'	89°40.5'	93°30.4'
Mer. pass.		5 h 54 m SD 16.0'	phase 59%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.7'
Vega	+0.0	80°34.4'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.5'	N 89°21.3'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	240°35.3'	180°49.2'	N 20°32.0'	218°10.0'	N 7°16.9'	238°05.4'	S 0°09.3'	272°49.1'	S 14°10.3'	241°15.6'	S 2°08.9'							
1	255°37.8'	195°49.1'	N 20°32.5'	233°09.7'	N 7°18.0'	253°07.4'	S 0°09.1'	287°51.5'	S 14°10.3'	256°16.3'	S 2°08.1'							
2	270°40.2'	210°49.1'	N 20°33.0'	248°09.4'	N 7°19.0'	268°09.5'	S 0°08.9'	302°53.9'	S 14°10.3'	271°17.1'	S 2°07.4'							
3	285°42.7'	225°49.0'	N 20°33.5'	263°09.2'	N 7°20.1'	283°11.5'	S 0°08.8'	317°56.4'	S 14°10.3'	286°17.8'	S 2°06.7'							
4	300°45.2'	240°49.0'	N 20°34.0'	278°08.9'	N 7°21.1'	298°13.6'	S 0°08.6'	332°58.8'	S 14°10.3'	301°18.6'	S 2°05.9'							
5	315°47.6'	255°48.9'	N 20°34.4'	293°08.6'	N 7°22.2'	313°15.7'	S 0°08.4'	348°01.2'	S 14°10.3'	316°19.3'	S 2°05.2'							
6	330°50.1'	270°48.8'	N 20°34.9'	308°08.3'	N 7°23.2'	328°17.7'	S 0°08.3'	3°03.6'	S 14°10.3'	331°20.1'	S 2°04.5'							
7	345°52.6'	285°48.8'	N 20°35.4'	323°08.0'	N 7°24.3'	343°19.8'	S 0°08.1'	18°06.0'	S 14°10.3'	346°20.8'	S 2°03.8'							
8	0°55.0'	300°48.7'	N 20°35.9'	338°07.8'	N 7°25.3'	358°21.8'	S 0°07.9'	33°08.4'	S 14°10.2'	1°21.6'	S 2°03.0'							
9	15°57.5'	315°48.7'	N 20°36.4'	353°07.5'	N 7°26.3'	13°23.9'	S 0°07.8'	48°10.8'	S 14°10.2'	16°22.3'	S 2°02.3'							
10	30°59.9'	330°48.6'	N 20°36.8'	8°07.2'	N 7°27.4'	28°26.0'	S 0°07.6'	63°13.2'	S 14°10.2'	31°23.0'	S 2°01.6'							
11	46°02.4'	345°48.6'	N 20°37.3'	23°06.9'	N 7°28.4'	43°28.0'	S 0°07.4'	78°15.6'	S 14°10.2'	46°23.8'	S 2°00.8'							
12	61°04.9'	0°48.5'	N 20°37.8'	38°06.6'	N 7°29.5'	58°30.1'	S 0°07.3'	93°18.1'	S 14°10.2'	61°24.5'	S 2°00.1'							
13	76°07.3'	15°48.5'	N 20°38.3'	53°06.4'	N 7°30.5'	73°32.1'	S 0°07.1'	108°20.5'	S 14°10.2'	76°25.3'	S 1°59.4'							
14	91°09.8'	30°48.4'	N 20°38.7'	68°06.1'	N 7°31.6'	88°34.2'	S 0°06.9'	123°22.9'	S 14°10.2'	91°26.0'	S 1°58.7'							
15	106°12.3'	45°48.4'	N 20°39.2'	83°05.8'	N 7°32.6'	103°36.3'	S 0°06.8'	138°25.3'	S 14°10.2'	106°26.8'	S 1°57.9'							
16	121°14.7'	60°48.3'	N 20°39.7'	98°05.5'	N 7°33.6'	118°38.3'	S 0°06.6'	153°27.7'	S 14°10.2'	121°27.5'	S 1°57.2'							
17	136°17.2'	75°48.3'	N 20°40.1'	113°05.2'	N 7°34.7'	133°40.4'	S 0°06.4'	168°30.1'	S 14°10.2'	136°28.3'	S 1°56.5'							
18	151°19.7'	90°48.2'	N 20°40.6'	128°05.0'	N 7°35.7'	148°42.4'	S 0°06.3'	183°32.5'	S 14°10.1'	151°29.0'	S 1°55.7'							
19	166°22.1'	105°48.1'	N 20°41.1'	143°04.7'	N 7°36.8'	163°44.5'	S 0°06.1'	198°34.9'	S 14°10.1'	166°29.8'	S 1°55.0'							
20	181°24.6'	120°48.1'	N 20°41.6'	158°04.4'	N 7°37.8'	178°46.6'	S 0°06.0'	213°37.4'	S 14°10.1'	181°30.5'	S 1°54.3'							
21	196°27.0'	135°48.0'	N 20°42.0'	173°04.1'	N 7°38.8'	193°48.6'	S 0°05.8'	228°39.8'	S 14°10.1'	196°31.2'	S 1°53.6'							
22	211°29.5'	150°48.0'	N 20°42.5'	188°03.8'	N 7°39.9'	208°50.7'	S 0°05.6'	243°42.2'	S 14°10.1'	211°32.0'	S 1°52.8'							
23	226°32.0'	165°47.9'	N 20°43.0'	203°03.5'	N 7°40.9'	223°52.7'	S 0°05.5'	258°44.6'	S 14°10.1'	226°32.7'	S 1°52.1'							
		SD 15.8' d 0.5'		v -0.3' d 1.0'		v 2.1' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'								
Mer. pass.		11 h 56 m 46 s		9 h 28 m		8 h 7 m		5 h 48 m		7 h 55 m								

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Venus	-Jupiter	-Mars	+Saturn	+Fomalhaut	+Altair	+Antares
0	262°07.2'	S 14°36.1'	11.2'	13.3'	58.0'	87°12.8'	48°46.3'	27°48.6'	24°03.9'	10°22.2'		46°32.5'	84°13.0'
1	276°37.4'	S 14°22.9'	11.3'	13.3'	58.0'	86°41.2'	48°15.2'	27°15.3'	23°32.0'	10°53.4'		46°54.0'	84°46.9'
2	291°07.7'	S 14°09.5'	11.4'	13.4'	58.0'	86°09.7'	47°44.2'	26°42.0'	23°00.2'	11°24.7'		47°15.7'	85°20.8'
3	305°38.1'	S 13°56.2'	11.5'	13.4'	57.9'	85°38.2'	47°13.2'	26°08.8'	22°28.4'	11°56.2'		47°37.6'	85°54.6'
4	320°08.5'	S 13°42.7'	11.6'	13.5'	57.9'	85°06.8'	46°42.3'	25°35.6'	21°56.6'	12°27.9'		47°59.6'	86°28.4'
5	334°39.1'	S 13°29.2'	11.7'	13.5'	57.9'	84°35.4'	46°11.4'	25°02.5'	21°24.9'	12°59.8'		48°21.8'	87°02.2'
6	349°09.8'	S 13°15.7'	11.8'	13.6'	57.8'	84°04.0'	45°40.5'	24°29.4'	20°53.2'	13°31.7'		48°44.1'	87°35.9'
7	3°40.5'	S 13°02.1'	11.8'	13.6'	57.8'	83°32.6'	45°09.7'	23°56.3'	20°21.6'	14°03.8'		49°06.6'	88°09.6'
8	18°11.4'	S 12°48.5'	11.9'	13.7'	57.8'	83°01.3'	44°38.9'	23°23.3'	19°50.0'	14°36.0'		49°29.2'	88°43.2'
9	32°42.3'	S 12°34.8'	12.0'	13.7'	57.8'	82°30.1'	44°08.1'	22°50.4'	19°18.4'	15°08.2'		49°51.9'	89°16.9'
10	47°13.3'	S 12°21.1'	12.1'	13.8'	57.7'	81°58.8'	43°37.4'	22°17.5'	18°47.0'	15°40.5'		50°14.7'	89°50.5'
11	61°44.4'	S 12°07.3'	12.2'	13.8'	57.7'	81°27.6'	43°06.7'	21°44.6'	18°15.5'	16°12.8'		50°37.7'	90°24.0'
12	76°15.6'	S 11°53.4'	12.3'	13.9'	57.7'	80°56.5'	42°36.0'	21°11.8'	17°44.1'	16°45.2'		51°00.8'	90°57.5'
13	90°46.9'	S 11°39.6'	12.4'	13.9'	57.6'	80°25.3'	42°05.4'	20°39.0'	17°12.8'	17°17.6'		51°24.0'	91°31.0'
14	105°18.3'	S 11°25.7'	12.4'	14.0'	57.6'	79°54.2'	41°34.8'	20°06.3'	16°41.5'	17°50.1'	18°06.4'	51°47.3'	92°04.5'
15	119°49.7'	S 11°11.7'	12.5'	14.0'	57.6'	79°23.2'	41°04.2'	19°33.7'	16°10.3'	18°22.5'	18°22.4'	52°10.8'	92°37.9'
16	134°21.2'	S 10°57.7'	12.6'	14.0'	57.5'	78°52.1'	40°33.7'	19°01.1'	15°39.1'	18°55.0'	18°39.1'	52°34.3'	93°11.3'
17	148°52.8'	S 10°43.7'	12.7'	14.1'	57.5'	78°21.1'	40°03.2'	18°28.5'	15°08.0'	19°27.5'	18°56.5'	52°57.9'	93°44.6'
18	163°24.5'	S 10°29.6'	12.8'	14.1'	57.5'	77°50.2'	39°32.7'	17°56.0'	14°37.0'	20°00.1'	19°14.6'	53°21.6'	94°17.9'
19	177°56.3'	S 10°15.5'	12.8'	14.1'	57.5'	77°19.2'	39°02.3'	17°23.6'	14°06.0'	20°32.6'	19°33.3'	53°45.5'	94°51.2'
20	192°28.1'	S 10°01.4'	12.9'	14.2'	57.4'	76°48.3'	38°31.9'	16°51.2'	13°35.1'	21°05.1'	19°52.6'	54°09.4'	95°24.5'
21	207°00.0'	S 9°47.2'	13.0'	14.2'	57.4'	76°17.5'	38°01.6'	16°18.9'	13°04.2'	21°37.7'	20°12.4'	54°33.4'	95°57.7'
22	221°32.0'	S 9°33.0'	13.1'	14.2'	57.4'	75°46.6'	37°31.2'	15°46.6'	12°33.4'	22°10.2'	20°32.8'	54°57.5'	96°30.9'
23	236°04.1'	S 9°18.8'	13.1'	14.3'	57.3'	75°15.8'	37°00.9'	15°14.5'	12°02.8'	22°42.7'	20°53.7'	55°21.7'	97°04.0'
Mer. pass.		6 h 45 m SD 15.8' phase 48%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.1'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.4'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	241°34.4'	180°47.9'	N 20°43.4'	218°03.3'	N 7°42.0'	238°54.8'	S 0°05.3'	273°47.0'	S 14°10.1'	241°33.5'	S 1°51.4'			
1	256°36.9'	195°47.8'	N 20°43.9'	233°03.0'	N 7°43.0'	253°56.9'	S 0°05.1'	288°49.4'	S 14°10.1'	256°34.2'	S 1°50.6'			
2	271°39.4'	210°47.8'	N 20°44.4'	248°02.7'	N 7°44.0'	268°58.9'	S 0°05.0'	303°51.8'	S 14°10.1'	271°35.0'	S 1°49.9'			
3	286°41.8'	225°47.7'	N 20°44.8'	263°02.4'	N 7°45.1'	284°01.0'	S 0°04.8'	318°54.3'	S 14°10.1'	286°35.7'	S 1°49.2'			
4	301°44.3'	240°47.6'	N 20°45.3'	278°02.1'	N 7°46.1'	299°03.1'	S 0°04.6'	333°56.7'	S 14°10.1'	301°36.5'	S 1°48.5'			
5	316°46.8'	255°47.6'	N 20°45.8'	293°01.8'	N 7°47.2'	314°05.1'	S 0°04.5'	348°59.1'	S 14°10.0'	316°37.2'	S 1°47.7'			
6	331°49.2'	270°47.5'	N 20°46.2'	308°01.6'	N 7°48.2'	329°07.2'	S 0°04.3'	4°01.5'	S 14°10.0'	331°38.0'	S 1°47.0'			
7	346°51.7'	285°47.5'	N 20°46.7'	323°01.3'	N 7°49.2'	344°09.2'	S 0°04.1'	19°03.9'	S 14°10.0'	346°38.7'	S 1°46.3'			
8	1°54.2'	300°47.4'	N 20°47.1'	338°01.0'	N 7°50.3'	359°11.3'	S 0°04.0'	34°06.3'	S 14°10.0'	1°39.5'	S 1°45.6'			
9	16°56.6'	315°47.4'	N 20°47.6'	353°00.7'	N 7°51.3'	14°13.4'	S 0°03.8'	49°08.7'	S 14°10.0'	16°40.2'	S 1°44.8'			
10	31°59.1'	330°47.3'	N 20°48.1'	8°00.4'	N 7°52.4'	29°15.4'	S 0°03.6'	64°11.2'	S 14°10.0'	31°41.0'	S 1°44.1'			
11	47°01.5'	345°47.2'	N 20°48.5'	23°00.1'	N 7°53.4'	44°17.5'	S 0°03.5'	79°13.6'	S 14°10.0'	46°41.7'	S 1°43.4'			
12	62°04.0'	0°47.2'	N 20°49.0'	37°59.8'	N 7°54.4'	59°19.6'	S 0°03.3'	94°16.0'	S 14°10.0'	61°42.4'	S 1°42.6'			
13	77°06.5'	15°47.1'	N 20°49.4'	52°59.6'	N 7°55.5'	74°21.6'	S 0°03.2'	109°18.4'	S 14°10.0'	76°43.2'	S 1°41.9'			
14	92°08.9'	30°47.1'	N 20°49.9'	67°59.3'	N 7°56.5'	89°23.7'	S 0°03.0'	124°20.8'	S 14°10.0'	91°43.9'	S 1°41.2'			
15	107°11.4'	45°47.0'	N 20°50.4'	82°59.0'	N 7°57.6'	104°25.8'	S 0°02.8'	139°23.2'	S 14°10.0'	106°44.7'	S 1°40.5'			
16	122°13.9'	60°46.9'	N 20°50.8'	97°58.7'	N 7°58.6'	119°27.8'	S 0°02.7'	154°25.7'	S 14°10.0'	121°45.4'	S 1°39.7'			
17	137°16.3'	75°46.9'	N 20°51.3'	112°58.4'	N 7°59.6'	134°29.9'	S 0°02.5'	169°28.1'	S 14°09.9'	136°46.2'	S 1°39.0'			
18	152°18.8'	90°46.8'	N 20°51.7'	127°58.1'	N 8°00.7'	149°31.9'	S 0°02.3'	184°30.5'	S 14°09.9'	151°46.9'	S 1°38.3'			
19	167°21.3'	105°46.8'	N 20°52.2'	142°57.8'	N 8°01.7'	164°34.0'	S 0°02.2'	199°32.9'	S 14°09.9'	166°47.7'	S 1°37.5'			
20	182°23.7'	120°46.7'	N 20°52.6'	157°57.5'	N 8°02.7'	179°36.1'	S 0°02.0'	214°35.3'	S 14°09.9'	181°48.4'	S 1°36.8'			
21	197°26.2'	135°46.6'	N 20°53.1'	172°57.3'	N 8°03.8'	194°38.1'	S 0°01.8'	229°37.7'	S 14°09.9'	196°49.2'	S 1°36.1'			
22	212°28.7'	150°46.6'	N 20°53.5'	187°57.0'	N 8°04.8'	209°40.2'	S 0°01.7'	244°40.2'	S 14°09.9'	211°49.9'	S 1°35.4'			
23	227°31.1'	165°46.5'	N 20°54.0'	202°56.7'	N 8°05.9'	224°42.3'	S 0°01.5'	259°42.6'	S 14°09.9'	226°50.7'	S 1°34.6'			
		SD 15.8'	d 0.5'	v -0.3'	d 1.0'	v 2.1'	d 0.2'	v 2.4'	d 0.0'	v 0.7'	d 0.7'			
Mer. pass.		11 h 56 m 52 s		9 h 28 m		8 h 3 m		5 h 44 m		7 h 53 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Jupiter	-Mars	+Fomalhaut	+Saturn	+Altair	+Antares
0	250°36.2'	S 9°04.5'	13.2'	14.3'	57.3'	74°45.1'	36°30.7'	14°42.4'	11°32.2'	21°15.1'	23°15.3'	55°45.9'	97°37.2'
1	265°08.4'	S 8°50.3'	13.3'	14.3'	57.3'	74°14.3'	36°00.4'	14°10.3'	11°01.7'	21°36.9'	23°47.8'	56°10.2'	98°10.3'
2	279°40.7'	S 8°35.9'	13.3'	14.3'	57.2'	73°43.6'	35°30.2'	13°38.4'	10°31.3'	21°59.2'	24°20.3'	56°34.6'	98°43.3'
3	294°13.0'	S 8°21.6'	13.4'	14.4'	57.2'	73°13.0'	35°00.1'	13°06.6'	10°01.0'	22°21.8'	24°52.8'	56°59.1'	99°16.3'
4	308°45.4'	S 8°07.2'	13.5'	14.4'	57.2'	72°42.3'	34°29.9'	12°34.8'	9°30.9'	22°44.8'	25°25.3'	57°23.7'	99°49.3'
5	323°17.9'	S 7°52.9'	13.5'	14.4'	57.2'	72°11.7'	33°59.8'	12°03.2'	9°00.9'	23°08.2'	25°57.8'	57°48.3'	100°22.3'
6	337°50.4'	S 7°38.5'	13.6'	14.4'	57.1'	71°41.1'	33°29.8'	11°31.6'	8°31.0'	23°32.0'	26°30.3'	58°13.0'	100°55.2'
7	352°23.0'	S 7°24.0'	13.6'	14.4'	57.1'	71°10.6'	32°59.7'	11°00.2'	8°01.4'	23°56.0'	27°02.7'	58°37.7'	101°28.1'
8	6°55.6'	S 7°09.6'	13.7'	14.5'	57.1'	70°40.1'	32°29.7'	10°29.0'	7°32.0'	24°20.4'	27°35.2'	59°02.5'	102°01.0'
9	21°28.3'	S 6°55.1'	13.8'	14.5'	57.0'	70°09.6'	31°59.7'	9°57.9'	7°02.8'	24°45.0'	28°07.6'	59°27.3'	102°33.8'
10	36°01.1'	S 6°40.6'	13.8'	14.5'	57.0'	69°39.1'	31°29.8'	9°26.9'	6°34.0'	25°10.0'	28°40.0'	59°52.3'	103°06.6'
11	50°33.9'	S 6°26.1'	13.9'	14.5'	57.0'	69°08.7'	30°59.9'	8°56.2'	6°05.5'	25°35.1'	29°12.4'	60°17.2'	103°39.4'
12	65°06.8'	S 6°11.6'	13.9'	14.5'	57.0'	68°38.3'	30°30.0'	8°25.7'	5°37.5'	26°00.6'	29°44.8'	60°42.2'	104°12.2'
13	79°39.7'	S 5°57.1'	14.0'	14.5'	56.9'	68°08.0'	30°00.1'	7°55.5'	5°10.1'	26°26.2'	30°17.2'	61°07.3'	104°44.9'
14	94°12.7'	S 5°42.6'	14.0'	14.6'	56.9'	67°37.6'	29°30.3'	7°25.6'		26°52.1'	30°49.5'	61°32.4'	105°17.6'
15	108°45.8'	S 5°28.0'	14.1'	14.6'	56.9'	67°07.3'	29°00.5'	6°56.1'		27°18.1'	31°21.8'	61°57.6'	105°50.2'
16	123°18.9'	S 5°13.4'	14.1'	14.6'	56.9'	66°37.1'	28°30.7'	6°27.1'		27°44.4'	31°54.2'	62°22.8'	106°22.8'
17	137°52.0'	S 4°58.9'	14.2'	14.6'	56.8'	66°06.8'	28°01.0'	5°58.6'		28°10.8'	32°26.4'	62°48.1'	106°55.4'
18	152°25.2'	S 4°44.3'	14.2'	14.6'	56.8'	65°36.6'	27°31.3'			28°37.4'	32°58.7'	63°13.3'	107°28.0'
19	166°58.4'	S 4°29.7'	14.3'	14.6'	56.8'	65°06.4'	27°01.6'			29°04.2'	33°31.0'	63°38.7'	108°00.5'
20	181°31.7'	S 4°15.1'	14.3'	14.6'	56.7'	64°36.3'	26°32.0'			29°31.1'	34°03.2'	64°04.0'	108°33.0'
21	196°05.0'	S 4°00.5'	14.4'	14.6'	56.7'	64°06.2'	26°02.3'			29°58.2'	34°35.4'	64°29.4'	109°05.5'
22	210°38.4'	S 3°45.9'	14.4'	14.6'	56.7'	63°36.1'	25°32.8'			30°25.4'	35°07.6'	64°54.9'	109°37.9'
23	225°11.8'	S 3°31.3'	14.4'	14.6'	56.7'	63°06.0'	25°03.2'			30°52.8'	35°39.7'	65°20.4'	110°10.4'
Mer. pass.		7 h 31 m SD 15.6'		phase 37%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.2'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	242°33.6'	180°46.4'	N 20°54.4'	217°56.4'	N 8°06.9'	239°44.3'	S 0°01.4'	274°45.0'	S 14°09.9'	241°51.4'	S 1°33.9'							
1	257°36.0'	195°46.4'	N 20°54.9'	232°56.1'	N 8°07.9'	254°46.4'	S 0°01.2'	289°47.4'	S 14°09.9'	256°52.2'	S 1°33.2'							
2	272°38.5'	210°46.3'	N 20°55.4'	247°55.8'	N 8°09.0'	269°48.5'	S 0°01.0'	304°49.8'	S 14°09.9'	271°52.9'	S 1°32.5'							
3	287°41.0'	225°46.3'	N 20°55.8'	262°55.5'	N 8°10.0'	284°50.5'	S 0°00.9'	319°52.2'	S 14°09.9'	286°53.7'	S 1°31.7'							
4	302°43.4'	240°46.2'	N 20°56.3'	277°55.2'	N 8°11.0'	299°52.6'	S 0°00.7'	334°54.7'	S 14°09.9'	301°54.4'	S 1°31.0'							
5	317°45.9'	255°46.1'	N 20°56.7'	292°54.9'	N 8°12.1'	314°54.7'	S 0°00.5'	349°57.1'	S 14°09.9'	316°55.2'	S 1°30.3'							
6	332°48.4'	270°46.1'	N 20°57.1'	307°54.6'	N 8°13.1'	329°56.7'	S 0°00.4'	4°59.5'	S 14°09.8'	331°55.9'	S 1°29.5'							
7	347°50.8'	285°46.0'	N 20°57.6'	322°54.3'	N 8°14.1'	344°58.8'	S 0°00.2'	20°01.9'	S 14°09.8'	346°56.7'	S 1°28.8'							
8	2°53.3'	300°45.9'	N 20°58.0'	337°54.0'	N 8°15.2'	0°00.9'	S 0°00.1'	35°04.3'	S 14°09.8'	1°57.4'	S 1°28.1'							
9	17°55.8'	315°45.9'	N 20°58.5'	352°53.8'	N 8°16.2'	15°02.9'	N 0°00.1'	50°06.8'	S 14°09.8'	16°58.1'	S 1°27.4'							
10	32°58.2'	330°45.8'	N 20°58.9'	7°53.5'	N 8°17.2'	30°05.0'	N 0°00.3'	65°09.2'	S 14°09.8'	31°58.9'	S 1°26.6'							
11	48°00.7'	345°45.8'	N 20°59.4'	22°53.2'	N 8°18.3'	45°07.1'	N 0°00.4'	80°11.6'	S 14°09.8'	46°59.6'	S 1°25.9'							
12	63°03.1'	0°45.7'	N 20°59.8'	37°52.9'	N 8°19.3'	60°09.1'	N 0°00.6'	95°14.0'	S 14°09.8'	62°00.4'	S 1°25.2'							
13	78°05.6'	15°45.6'	N 21°00.3'	52°52.6'	N 8°20.3'	75°11.2'	N 0°00.8'	110°16.4'	S 14°09.8'	77°01.1'	S 1°24.4'							
14	93°08.1'	30°45.6'	N 21°00.7'	67°52.3'	N 8°21.4'	90°13.3'	N 0°00.9'	125°18.9'	S 14°09.8'	92°01.9'	S 1°23.7'							
15	108°10.5'	45°45.5'	N 21°01.2'	82°52.0'	N 8°22.4'	105°15.3'	N 0°01.1'	140°21.3'	S 14°09.8'	107°02.6'	S 1°23.0'							
16	123°13.0'	60°45.4'	N 21°01.6'	97°51.7'	N 8°23.4'	120°17.4'	N 0°01.2'	155°23.7'	S 14°09.8'	122°03.4'	S 1°22.3'							
17	138°15.5'	75°45.4'	N 21°02.0'	112°51.4'	N 8°24.5'	135°19.5'	N 0°01.4'	170°26.1'	S 14°09.8'	137°04.1'	S 1°21.5'							
18	153°17.9'	90°45.3'	N 21°02.5'	127°51.1'	N 8°25.5'	150°21.6'	N 0°01.6'	185°28.5'	S 14°09.8'	152°04.9'	S 1°20.8'							
19	168°20.4'	105°45.2'	N 21°02.9'	142°50.8'	N 8°26.5'	165°23.6'	N 0°01.7'	200°31.0'	S 14°09.8'	167°05.6'	S 1°20.1'							
20	183°22.9'	120°45.2'	N 21°03.4'	157°50.5'	N 8°27.6'	180°25.7'	N 0°01.9'	215°33.4'	S 14°09.7'	182°06.4'	S 1°19.4'							
21	198°25.3'	135°45.1'	N 21°03.8'	172°50.2'	N 8°28.6'	195°27.8'	N 0°02.1'	230°35.8'	S 14°09.7'	197°07.1'	S 1°18.6'							
22	213°27.8'	150°45.0'	N 21°04.2'	187°49.9'	N 8°29.6'	210°29.8'	N 0°02.2'	245°38.2'	S 14°09.7'	212°07.9'	S 1°17.9'							
23	228°30.3'	165°45.0'	N 21°04.7'	202°49.6'	N 8°30.7'	225°31.9'	N 0°02.4'	260°40.7'	S 14°09.7'	227°08.6'	S 1°17.2'							
		SD 15.8' d 0.4'		v -0.3' d 1.0'		v 2.1' d 0.2'		v 2.4' d 0.0'		v 0.7' d 0.7'								
Mer. pass.		11 h 56 m 58 s		9 h 28 m		8 h 0 m		5 h 40 m		7 h 52 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Jupiter	+Mars	+Fomalhaut	+Saturn	+Altair	+Rigel Kent
0	239°45.2'	S 3°16.7'	14.5'	14.6'	56.6'	62°36.0'	24°33.7'			31°20.2'	36°11.9'	65°45.9'	109°34.2'
1	254°18.7'	S 3°02.1'	14.5'	14.6'	56.6'	62°06.0'	24°04.2'			31°47.8'	36°44.0'	66°11.4'	109°57.1'
2	268°52.3'	S 2°47.5'	14.6'	14.6'	56.6'	61°36.0'	23°34.7'			32°15.5'	37°16.1'	66°37.0'	110°20.0'
3	283°25.8'	S 2°32.9'	14.6'	14.6'	56.6'	61°06.0'	23°05.2'			32°43.3'	37°48.2'	67°02.5'	110°42.7'
4	297°59.4'	S 2°18.3'	14.6'	14.6'	56.5'	60°36.1'	22°35.8'			33°11.2'	38°20.2'	67°28.2'	111°05.4'
5	312°33.1'	S 2°03.7'	14.7'	14.6'	56.5'	60°06.2'	22°06.4'			33°39.2'	38°52.3'	67°53.8'	111°28.0'
6	327°06.7'	S 1°49.1'	14.7'	14.6'	56.5'	59°36.3'	21°37.0'			34°07.2'	39°24.3'	68°19.5'	111°50.6'
7	341°40.4'	S 1°34.5'	14.7'	14.6'	56.5'	59°06.5'	21°07.7'		5°16.2'	34°35.4'	39°56.3'	68°45.1'	112°13.0'
8	356°14.2'	S 1°19.9'	14.8'	14.6'	56.4'	58°36.7'	20°38.4'		5°43.2'	35°03.6'	40°28.2'	69°10.9'	112°35.4'
9	10°47.9'	S 1°05.3'	14.8'	14.6'	56.4'	58°06.9'	20°09.1'		6°10.8'	35°31.9'	41°00.2'	69°36.6'	112°57.6'
10	25°21.7'	S 0°50.7'	14.8'	14.6'	56.4'	57°37.1'	19°39.9'		6°38.7'	36°00.3'	41°32.1'	70°02.3'	113°19.8'
11	39°55.5'	S 0°36.2'	14.8'	14.6'	56.4'	57°07.4'	19°10.6'		7°07.0'	36°28.8'	42°04.0'	70°28.1'	113°41.9'
12	54°29.4'	S 0°21.6'	14.9'	14.5'	56.3'	56°37.7'	18°41.4'	5°40.5'	7°35.4'	36°57.3'	42°35.9'	70°53.9'	114°04.0'
13	69°03.2'	S 0°07.1'	14.9'	14.5'	56.3'	56°08.0'	18°12.2'	6°08.1'	8°04.1'	37°25.9'	43°07.7'	71°19.7'	114°25.9'
14	83°37.1'	N 0°07.5'	14.9'	14.5'	56.3'	55°38.3'	17°43.1'	6°36.2'	8°32.9'	37°54.5'	43°39.6'	71°45.5'	114°47.7'
15	98°11.0'	N 0°22.0'	14.9'	14.5'	56.3'	55°08.7'	17°14.0'	7°04.8'	9°01.8'	38°23.2'	44°11.4'	72°11.3'	115°09.5'
16	112°45.0'	N 0°36.5'	15.0'	14.5'	56.2'	54°39.1'	16°44.9'	7°33.8'	9°30.9'	38°51.9'	44°43.2'	72°37.2'	115°31.2'
17	127°18.9'	N 0°51.0'	15.0'	14.5'	56.2'	54°09.5'	16°15.8'	8°03.1'	10°00.0'	39°20.7'	45°14.9'	73°03.0'	115°52.7'
18	141°52.9'	N 1°05.5'	15.0'	14.5'	56.2'	53°40.0'	15°46.7'	8°32.6'	10°29.2'	39°49.5'	45°46.7'	73°28.9'	116°14.2'
19	156°26.9'	N 1°20.0'	15.0'	14.4'	56.2'	53°10.4'	15°17.7'	9°02.4'	10°58.5'	40°18.4'	46°18.4'	73°54.7'	116°35.5'
20	171°00.9'	N 1°34.4'	15.0'	14.4'	56.1'	52°40.9'	14°48.7'	9°32.3'	11°27.7'	40°47.3'	46°50.1'	74°20.6'	116°56.8'
21	185°34.9'	N 1°48.8'	15.0'	14.4'	56.1'	52°11.5'	14°19.8'	10°02.3'	11°57.1'	41°16.3'	47°21.8'	74°46.5'	117°18.0'
22	200°08.9'	N 2°03.2'	15.0'	14.4'	56.1'	51°42.0'	13°50.8'	10°32.4'	12°26.4'	41°45.2'	47°53.5'	75°12.4'	117°39.1'
23	214°43.0'	N 2°17.6'	15.1'	14.4'	56.1'	51°12.6'	13°21.9'	11°02.7'	12°55.8'	42°14.3'	48°25.1'	75°38.3'	118°00.0'
Mer. pass.		8 h 16 m SD 15.4'		phase 27%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.5'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°31.1'	N 89°21.3'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.4'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°28.9'	Canopus	-0.6	263°53.8'	S 52°42.6'				

Thursday 26 May 2022 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	243°32.7'	180°44.9'	N 21°05.1'	217°49.3'	N 8°31.7'	240°34.0'	N 0°02.5'	275°43.1'	S 14°09.7'	242°09.4'	S 1°16.4'			
1	258°35.2'	195°44.8'	N 21°05.5'	232°49.0'	N 8°32.7'	255°36.0'	N 0°02.7'	290°45.5'	S 14°09.7'	257°10.1'	S 1°15.7'			
2	273°37.6'	210°44.8'	N 21°06.0'	247°48.7'	N 8°33.8'	270°38.1'	N 0°02.9'	305°47.9'	S 14°09.7'	272°10.9'	S 1°15.0'			
3	288°40.1'	225°44.7'	N 21°06.4'	262°48.4'	N 8°34.8'	285°40.2'	N 0°03.0'	320°50.3'	S 14°09.7'	287°11.6'	S 1°14.3'			
4	303°42.6'	240°44.6'	N 21°06.9'	277°48.1'	N 8°35.8'	300°42.2'	N 0°03.2'	335°52.8'	S 14°09.7'	302°12.4'	S 1°13.5'			
5	318°45.0'	255°44.6'	N 21°07.3'	292°47.8'	N 8°36.8'	315°44.3'	N 0°03.3'	350°55.2'	S 14°09.7'	317°13.1'	S 1°12.8'			
6	333°47.5'	270°44.5'	N 21°07.7'	307°47.5'	N 8°37.9'	330°46.4'	N 0°03.5'	5°57.6'	S 14°09.7'	332°13.9'	S 1°12.1'			
7	348°50.0'	285°44.4'	N 21°08.2'	322°47.2'	N 8°38.9'	345°48.5'	N 0°03.7'	21°00.0'	S 14°09.7'	347°14.6'	S 1°11.4'			
8	3°52.4'	300°44.4'	N 21°08.6'	337°46.9'	N 8°39.9'	0°50.5'	N 0°03.8'	36°02.5'	S 14°09.7'	2°15.4'	S 1°10.6'			
9	18°54.9'	315°44.3'	N 21°09.0'	352°46.6'	N 8°41.0'	15°52.6'	N 0°04.0'	51°04.9'	S 14°09.7'	17°16.1'	S 1°09.9'			
10	33°57.4'	330°44.2'	N 21°09.4'	7°46.3'	N 8°42.0'	30°54.7'	N 0°04.1'	66°07.3'	S 14°09.7'	32°16.9'	S 1°09.2'			
11	48°59.8'	345°44.1'	N 21°09.9'	22°46.0'	N 8°43.0'	45°56.7'	N 0°04.3'	81°09.7'	S 14°09.7'	47°17.6'	S 1°08.4'			
12	64°02.3'	0°44.1'	N 21°10.3'	37°45.7'	N 8°44.1'	60°58.8'	N 0°04.5'	96°12.1'	S 14°09.6'	62°18.4'	S 1°07.7'			
13	79°04.7'	15°44.0'	N 21°10.7'	52°45.4'	N 8°45.1'	76°00.9'	N 0°04.6'	111°14.6'	S 14°09.6'	77°19.1'	S 1°07.0'			
14	94°07.2'	30°43.9'	N 21°11.2'	67°45.1'	N 8°46.1'	91°03.0'	N 0°04.8'	126°17.0'	S 14°09.6'	92°19.9'	S 1°06.3'			
15	109°09.7'	45°43.9'	N 21°11.6'	82°44.8'	N 8°47.1'	106°05.0'	N 0°04.9'	141°19.4'	S 14°09.6'	107°20.6'	S 1°05.5'			
16	124°12.1'	60°43.8'	N 21°12.0'	97°44.5'	N 8°48.2'	121°07.1'	N 0°05.1'	156°21.8'	S 14°09.6'	122°21.4'	S 1°04.8'			
17	139°14.6'	75°43.7'	N 21°12.4'	112°44.2'	N 8°49.2'	136°09.2'	N 0°05.3'	171°24.3'	S 14°09.6'	137°22.1'	S 1°04.1'			
18	154°17.1'	90°43.7'	N 21°12.9'	127°43.9'	N 8°50.2'	151°11.3'	N 0°05.4'	186°26.7'	S 14°09.6'	152°22.9'	S 1°03.4'			
19	169°19.5'	105°43.6'	N 21°13.3'	142°43.6'	N 8°51.2'	166°13.3'	N 0°05.6'	201°29.1'	S 14°09.6'	167°23.6'	S 1°02.6'			
20	184°22.0'	120°43.5'	N 21°13.7'	157°43.3'	N 8°52.3'	181°15.4'	N 0°05.7'	216°31.5'	S 14°09.6'	182°24.4'	S 1°01.9'			
21	199°24.5'	135°43.4'	N 21°14.1'	172°43.0'	N 8°53.3'	196°17.5'	N 0°05.9'	231°34.0'	S 14°09.6'	197°25.1'	S 1°01.2'			
22	214°26.9'	150°43.4'	N 21°14.6'	187°42.7'	N 8°54.3'	211°19.5'	N 0°06.1'	246°36.4'	S 14°09.6'	212°25.9'	S 1°00.4'			
23	229°29.4'	165°43.3'	N 21°15.0'	202°42.4'	N 8°55.4'	226°21.6'	N 0°06.2'	261°38.8'	S 14°09.6'	227°26.6'	S 0°59.7'			
		SD 15.8' d 0.4'		v -0.3' d 1.0'		v 2.1' d 0.2'		v 2.4' d 0.0'		v 0.8' d 0.7'				
Mer. pass.		11 h 57 m 4 s		9 h 29 m		7 h 57 m		5 h 36 m		7 h 51 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	+Jupiter	+Mars	+Fomalhaut	+Saturn	+Altair	+Rigil Kent
0	229°17.1'	N 2°32.0'	15.1'	14.4'	56.0'	50°43.2'	12°53.0'	11°33.0'	13°25.2'	42°43.3'	48°56.7'	76°04.2'	118°20.9'
1	243°51.1'	N 2°46.4'	15.1'	14.3'	56.0'	50°13.8'	12°24.1'	12°03.4'	13°54.7'	43°12.4'	49°28.3'	76°30.1'	118°41.6'
2	258°25.2'	N 3°00.7'	15.1'	14.3'	56.0'	49°44.4'	11°55.3'	12°33.8'	14°24.1'	43°41.5'	49°59.9'	76°56.1'	119°02.3'
3	272°59.3'	N 3°15.0'	15.1'	14.3'	56.0'	49°15.1'	11°26.4'	13°04.3'	14°53.5'	44°10.6'	50°31.4'	77°22.0'	119°22.8'
4	287°33.4'	N 3°29.3'	15.1'	14.3'	55.9'	48°45.8'	10°57.6'	13°34.8'	15°23.0'	44°39.8'	51°03.0'	77°47.9'	119°43.2'
5	302°07.5'	N 3°43.5'	15.1'	14.2'	55.9'	48°16.5'	10°28.9'	14°05.4'	15°52.4'	45°09.0'	51°34.5'	78°13.8'	
6	316°41.6'	N 3°57.8'	15.1'	14.2'	55.9'	47°47.3'	10°00.1'	14°36.0'	16°21.9'	45°38.2'	52°06.0'	78°39.7'	
7	331°15.7'	N 4°12.0'	15.1'	14.2'	55.9'	47°18.0'	9°31.4'	15°06.6'	16°51.3'	46°07.4'	52°37.4'	79°05.7'	
8	345°49.9'	N 4°26.1'	15.1'	14.1'	55.9'	46°48.8'	9°02.7'	15°37.2'	17°20.7'	46°36.7'	53°08.9'	79°31.6'	
9	0°24.0'	N 4°40.3'	15.1'	14.1'	55.8'	46°19.6'	8°34.0'	16°07.9'	17°50.2'	47°05.9'	53°40.3'	79°57.5'	
10	14°58.1'	N 4°54.4'	15.1'	14.1'	55.8'	45°50.5'	8°05.3'	16°38.5'	18°19.6'	47°35.2'	54°11.7'	80°23.4'	
11	29°32.2'	N 5°08.5'	15.1'	14.1'	55.8'	45°21.3'	7°36.7'	17°09.2'	18°49.0'	48°04.5'	54°43.1'	80°49.4'	
12	44°06.3'	N 5°22.6'	15.1'	14.0'	55.8'	44°52.2'	7°08.1'	17°39.8'	19°18.4'	48°33.8'	55°14.5'	81°15.3'	
13	58°40.5'	N 5°36.6'	15.1'	14.0'	55.7'	44°23.1'	6°39.5'	18°10.5'	19°47.8'	49°03.2'	55°45.8'	81°41.2'	
14	73°14.6'	N 5°50.6'	15.1'	14.0'	55.7'	43°54.0'	6°10.9'	18°41.1'	20°17.2'	49°32.5'	56°17.1'	82°07.1'	
15	87°48.7'	N 6°04.5'	15.1'	13.9'	55.7'	43°25.0'	5°42.4'	19°11.8'	20°46.6'	50°01.9'	56°48.4'	82°33.0'	
16	102°22.8'	N 6°18.5'	15.1'	13.9'	55.7'	42°55.9'	5°13.9'	19°42.5'	21°16.0'	50°31.2'	57°19.7'	82°58.9'	
17	116°56.9'	N 6°32.4'	15.1'	13.9'	55.7'	42°26.9'	4°45.4'	20°13.1'	21°45.3'	51°00.6'	57°51.0'	83°24.8'	
18	131°31.0'	N 6°46.2'	15.1'	13.8'	55.6'	41°57.9'	4°16.9'	20°43.8'	22°14.7'	51°30.0'	58°22.2'	83°50.7'	
19	146°05.1'	N 7°00.0'	15.1'	13.8'	55.6'	41°29.0'	3°48.5'	21°14.4'	22°44.0'	51°59.4'	58°53.5'	84°16.6'	
20	160°39.2'	N 7°13.8'	15.1'	13.7'	55.6'	41°00.0'	3°20.1'	21°45.1'	23°13.3'	52°28.8'	59°24.7'	84°42.4'	
21	175°13.3'	N 7°27.6'	15.1'	13.7'	55.6'	40°31.1'	2°51.7'	22°15.7'	23°42.6'	52°58.2'	59°55.9'	85°08.3'	
22	189°47.3'	N 7°41.3'	15.0'	13.7'	55.6'	40°02.2'	2°23.3'	22°46.3'	24°11.9'	53°27.6'	60°27.0'	85°34.1'	
23	204°21.4'	N 7°54.9'	15.0'	13.6'	55.5'		1°55.1'	23°16.9'	24°41.2'	53°57.0'	60°58.2'	85°60.0'	
Mer. pass.		8 h 58 m SD 15.3'		phase 18%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.0'	Polaris	+2.0	315°30.9'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	244°31.9'	180°43.2'	N 21°15.4'	217°42.1'	N 8°56.4'	241°23.7'	N 0°06.4'	276°41.2'	S 14°09.6'	242°27.4'	S 0°59.0'			
1	259°34.3'	195°43.2'	N 21°15.8'	232°41.8'	N 8°57.4'	256°25.8'	N 0°06.5'	291°43.7'	S 14°09.6'	257°28.2'	S 0°58.3'			
2	274°36.8'	210°43.1'	N 21°16.3'	247°41.5'	N 8°58.4'	271°27.8'	N 0°06.7'	306°46.1'	S 14°09.6'	272°28.9'	S 0°57.5'			
3	289°39.2'	225°43.0'	N 21°16.7'	262°41.2'	N 8°59.5'	286°29.9'	N 0°06.9'	321°48.5'	S 14°09.6'	287°29.7'	S 0°56.8'			
4	304°41.7'	240°42.9'	N 21°17.1'	277°40.9'	N 9°00.5'	301°32.0'	N 0°07.0'	336°51.0'	S 14°09.6'	302°30.4'	S 0°56.1'			
5	319°44.2'	255°42.9'	N 21°17.5'	292°40.5'	N 9°01.5'	316°34.1'	N 0°07.2'	351°53.4'	S 14°09.6'	317°31.2'	S 0°55.4'			
6	334°46.6'	270°42.8'	N 21°17.9'	307°40.2'	N 9°02.5'	331°36.1'	N 0°07.3'	6°55.8'	S 14°09.6'	332°31.9'	S 0°54.6'			
7	349°49.1'	285°42.7'	N 21°18.3'	322°39.9'	N 9°03.6'	346°38.2'	N 0°07.5'	21°58.2'	S 14°09.5'	347°32.7'	S 0°53.9'			
8	4°51.6'	300°42.6'	N 21°18.8'	337°39.6'	N 9°04.6'	1°40.3'	N 0°07.7'	37°00.7'	S 14°09.5'	2°33.4'	S 0°53.2'			
9	19°54.0'	315°42.6'	N 21°19.2'	352°39.3'	N 9°05.6'	16°42.4'	N 0°07.8'	52°03.1'	S 14°09.5'	17°34.2'	S 0°52.5'			
10	34°56.5'	330°42.5'	N 21°19.6'	7°39.0'	N 9°06.6'	31°44.4'	N 0°08.0'	67°05.5'	S 14°09.5'	32°34.9'	S 0°51.7'			
11	49°59.0'	345°42.4'	N 21°20.0'	22°38.7'	N 9°07.6'	46°46.5'	N 0°08.1'	82°07.9'	S 14°09.5'	47°35.7'	S 0°51.0'			
12	65°01.4'	0°42.3'	N 21°20.4'	37°38.4'	N 9°08.7'	61°48.6'	N 0°08.3'	97°10.4'	S 14°09.5'	62°36.4'	S 0°50.3'			
13	80°03.9'	15°42.3'	N 21°20.8'	52°38.1'	N 9°09.7'	76°50.7'	N 0°08.4'	112°12.8'	S 14°09.5'	77°37.2'	S 0°49.5'			
14	95°06.4'	30°42.2'	N 21°21.3'	67°37.8'	N 9°10.7'	91°52.8'	N 0°08.6'	127°15.2'	S 14°09.5'	92°37.9'	S 0°48.8'			
15	110°08.8'	45°42.1'	N 21°21.7'	82°37.5'	N 9°11.7'	106°54.8'	N 0°08.8'	142°17.7'	S 14°09.5'	107°38.7'	S 0°48.1'			
16	125°11.3'	60°42.0'	N 21°22.1'	97°37.1'	N 9°12.8'	121°56.9'	N 0°08.9'	157°20.1'	S 14°09.5'	122°39.4'	S 0°47.4'			
17	140°13.7'	75°42.0'	N 21°22.5'	112°36.8'	N 9°13.8'	136°59.0'	N 0°09.1'	172°22.5'	S 14°09.5'	137°40.2'	S 0°46.6'			
18	155°16.2'	90°41.9'	N 21°22.9'	127°36.5'	N 9°14.8'	152°01.1'	N 0°09.2'	187°24.9'	S 14°09.5'	152°40.9'	S 0°45.9'			
19	170°18.7'	105°41.8'	N 21°23.3'	142°36.2'	N 9°15.8'	167°03.1'	N 0°09.4'	202°27.4'	S 14°09.5'	167°41.7'	S 0°45.2'			
20	185°21.1'	120°41.7'	N 21°23.7'	157°35.9'	N 9°16.8'	182°05.2'	N 0°09.5'	217°29.8'	S 14°09.5'	182°42.4'	S 0°44.5'			
21	200°23.6'	135°41.7'	N 21°24.1'	172°35.6'	N 9°17.9'	197°07.3'	N 0°09.7'	232°32.2'	S 14°09.5'	197°43.2'	S 0°43.7'			
22	215°26.1'	150°41.6'	N 21°24.5'	187°35.3'	N 9°18.9'	212°09.4'	N 0°09.9'	247°34.7'	S 14°09.5'	212°43.9'	S 0°43.0'			
23	230°28.5'	165°41.5'	N 21°24.9'	202°35.0'	N 9°19.9'	227°11.5'	N 0°10.0'	262°37.1'	S 14°09.5'	227°44.7'	S 0°42.3'			
		SD 15.8' d 0.4'		v -0.3' d 1.0'		v 2.1' d 0.2'		v 2.4' d 0.0'		v 0.8' d 0.7'				
Mer. pass.		11 h 57 m 11 s		9 h 29 m		7 h 53 m		5 h 32 m		7 h 50 m				

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Venus	+Jupiter	+Mars	+Fomalhaut	+Saturn	+Achernar	+Altair
0	218°55.4'	N 8°08.5'	15.0'	13.6'	55.5'	1°26.9'	23°47.5'	25°10.4'	54°26.4'	61°29.3'		86°25.8'
1	233°29.4'	N 8°22.1'	15.0'	13.5'	55.5'	0°58.9'	24°18.1'	25°39.7'	54°55.8'	62°00.4'		86°51.6'
2	248°03.4'	N 8°35.6'	15.0'	13.5'	55.5'		24°48.7'	26°08.9'	55°25.3'	62°31.5'		87°17.4'
3	262°37.4'	N 8°49.1'	15.0'	13.4'	55.4'		25°19.3'	26°38.1'	55°54.7'	63°02.6'		87°43.2'
4	277°11.4'	N 9°02.6'	15.0'	13.4'	55.4'		25°49.8'	27°07.3'	56°24.1'	63°33.6'		88°09.0'
5	291°45.4'	N 9°16.0'	14.9'	13.4'	55.4'	0°56.4'	26°20.4'	27°36.5'	56°53.6'	64°04.6'		88°34.8'
6	306°19.3'	N 9°29.3'	14.9'	13.3'	55.4'	1°24.3'	26°50.9'	28°05.7'	57°23.0'	64°35.7'		89°00.5'
7	320°53.2'	N 9°42.7'	14.9'	13.3'	55.4'	1°52.3'	27°21.4'	28°34.8'	57°52.4'	65°06.7'		89°26.3'
8	335°27.1'	N 9°55.9'	14.9'	13.2'	55.4'	2°20.4'	27°52.0'	29°04.0'	58°21.9'	65°37.6'		89°52.0'
9	350°01.0'	N 10°09.1'	14.9'	13.2'	55.3'	2°48.5'	28°22.5'	29°33.1'	58°51.3'	66°08.6'		90°17.7'
10	4°34.9'	N 10°22.3'	14.8'	13.1'	55.3'	3°16.6'	28°52.9'	30°02.2'	59°20.7'	66°39.5'		90°43.4'
11	19°08.7'	N 10°35.4'	14.8'	13.1'	55.3'	3°44.7'	29°23.4'	30°31.3'	59°50.2'	67°10.4'		91°09.1'
12	33°42.5'	N 10°48.5'	14.8'	13.0'	55.3'	4°12.8'	29°53.9'	31°00.4'	60°19.6'	67°41.4'		91°34.7'
13	48°16.3'	N 11°01.5'	14.8'	13.0'	55.3'	4°40.9'	30°24.3'	31°29.4'	60°49.0'	68°12.2'	68°24.2'	92°00.4'
14	62°50.1'	N 11°14.4'	14.7'	12.9'	55.2'	5°09.0'	30°54.7'	31°58.5'	61°18.4'	68°43.1'	68°39.2'	92°26.0'
15	77°23.8'	N 11°27.3'	14.7'	12.8'	55.2'	5°37.0'	31°25.2'	32°27.5'	61°47.9'	69°14.0'	68°54.3'	92°51.6'
16	91°57.5'	N 11°40.2'	14.7'	12.8'	55.2'	6°05.1'	31°55.6'	32°56.5'	62°17.3'	69°44.8'	69°09.5'	93°17.2'
17	106°31.2'	N 11°53.0'	14.7'	12.7'	55.2'	6°33.1'	32°25.9'	33°25.5'	62°46.7'	70°15.6'	69°24.8'	93°42.7'
18	121°04.9'	N 12°05.7'	14.6'	12.7'	55.2'	7°01.1'	32°56.3'	33°54.5'	63°16.1'	70°46.4'	69°40.1'	94°08.3'
19	135°38.5'	N 12°18.4'	14.6'	12.6'	55.1'	7°29.1'	33°26.7'	34°23.5'	63°45.5'	71°17.2'	69°55.5'	94°33.8'
20	150°12.1'	N 12°31.0'	14.6'	12.6'	55.1'	7°57.1'	33°57.0'	34°52.4'	64°14.9'	71°47.9'	70°10.9'	94°59.3'
21	164°45.6'	N 12°43.6'	14.5'	12.5'	55.1'	8°25.0'	34°27.4'	35°21.3'	64°44.3'	72°18.7'	70°26.5'	95°24.8'
22	179°19.2'	N 12°56.1'	14.5'	12.4'	55.1'	8°52.9'	34°57.7'	35°50.3'	65°13.7'	72°49.4'	70°42.1'	95°50.2'
23	193°52.7'	N 13°08.5'	14.5'	12.4'	55.1'	9°20.9'	35°28.0'	36°19.2'	65°43.1'	73°20.1'	70°57.7'	96°15.6'
Mer. pass.		9 h 41 m SD 15.1'		phase 11%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.1'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.4'	N 5°10.0'	Polaris	+2.0	315°30.7'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	245°31.0'	180°41.4' N 21°25.3'	217°34.7' N 9°20.9'	242°13.5' N 0°10.2'	277°39.5' S 14°09.5'	242°45.5' S 0°41.6'						
1	260°33.5'	195°41.4' N 21°25.8'	232°34.3' N 9°21.9'	257°15.6' N 0°10.3'	292°41.9' S 14°09.5'	257°46.2' S 0°40.8'						
2	275°35.9'	210°41.3' N 21°26.2'	247°34.0' N 9°23.0'	272°17.7' N 0°10.5'	307°44.4' S 14°09.5'	272°47.0' S 0°40.1'						
3	290°38.4'	225°41.2' N 21°26.6'	262°33.7' N 9°24.0'	287°19.8' N 0°10.6'	322°46.8' S 14°09.5'	287°47.7' S 0°39.4'						
4	305°40.8'	240°41.1' N 21°27.0'	277°33.4' N 9°25.0'	302°21.8' N 0°10.8'	337°49.2' S 14°09.5'	302°48.5' S 0°38.7'						
5	320°43.3'	255°41.0' N 21°27.4'	292°33.1' N 9°26.0'	317°23.9' N 0°11.0'	352°51.7' S 14°09.5'	317°49.2' S 0°37.9'						
6	335°45.8'	270°41.0' N 21°27.8'	307°32.8' N 9°27.0'	332°26.0' N 0°11.1'	7°54.1' S 14°09.5'	332°50.0' S 0°37.2'						
7	350°48.2'	285°40.9' N 21°28.2'	322°32.4' N 9°28.1'	347°28.1' N 0°11.3'	22°56.5' S 14°09.5'	347°50.7' S 0°36.5'						
8	5°50.7'	300°40.8' N 21°28.6'	337°32.1' N 9°29.1'	2°30.2' N 0°11.4'	37°59.0' S 14°09.4'	2°51.5' S 0°35.8'						
9	20°53.2'	315°40.7' N 21°29.0'	352°31.8' N 9°30.1'	17°32.2' N 0°11.6'	53°01.4' S 14°09.4'	17°52.2' S 0°35.0'						
10	35°55.6'	330°40.6' N 21°29.4'	7°31.5' N 9°31.1'	32°34.3' N 0°11.7'	68°03.8' S 14°09.4'	32°53.0' S 0°34.3'						
11	50°58.1'	345°40.6' N 21°29.8'	22°31.2' N 9°32.1'	47°36.4' N 0°11.9'	83°06.3' S 14°09.4'	47°53.7' S 0°33.6'						
12	66°00.6'	0°40.5' N 21°30.2'	37°30.9' N 9°33.1'	62°38.5' N 0°12.1'	98°08.7' S 14°09.4'	62°54.5' S 0°32.8'						
13	81°03.0'	15°40.4' N 21°30.6'	52°30.5' N 9°34.2'	77°40.6' N 0°12.2'	113°11.1' S 14°09.4'	77°55.3' S 0°32.1'						
14	96°05.5'	30°40.3' N 21°31.0'	67°30.2' N 9°35.2'	92°42.6' N 0°12.4'	128°13.6' S 14°09.4'	92°56.0' S 0°31.4'						
15	111°08.0'	45°40.3' N 21°31.4'	82°29.9' N 9°36.2'	107°44.7' N 0°12.5'	143°16.0' S 14°09.4'	107°56.8' S 0°30.7'						
16	126°10.4'	60°40.2' N 21°31.8'	97°29.6' N 9°37.2'	122°46.8' N 0°12.7'	158°18.4' S 14°09.4'	122°57.5' S 0°29.9'						
17	141°12.9'	75°40.1' N 21°32.2'	112°29.3' N 9°38.2'	137°48.9' N 0°12.8'	173°20.8' S 14°09.4'	137°58.3' S 0°29.2'						
18	156°15.3'	90°40.0' N 21°32.6'	127°29.0' N 9°39.2'	152°51.0' N 0°13.0'	188°23.3' S 14°09.4'	152°59.0' S 0°28.5'						
19	171°17.8'	105°39.9' N 21°32.9'	142°28.6' N 9°40.2'	167°53.1' N 0°13.2'	203°25.7' S 14°09.4'	167°59.8' S 0°27.8'						
20	186°20.3'	120°39.8' N 21°33.3'	157°28.3' N 9°41.3'	182°55.1' N 0°13.3'	218°28.1' S 14°09.4'	183°00.5' S 0°27.0'						
21	201°22.7'	135°39.8' N 21°33.7'	172°28.0' N 9°42.3'	197°57.2' N 0°13.5'	233°30.6' S 14°09.4'	198°01.3' S 0°26.3'						
22	216°25.2'	150°39.7' N 21°34.1'	187°27.7' N 9°43.3'	212°59.3' N 0°13.6'	248°33.0' S 14°09.4'	213°02.0' S 0°25.6'						
23	231°27.7'	165°39.6' N 21°34.5'	202°27.4' N 9°44.3'	228°01.4' N 0°13.8'	263°35.4' S 14°09.4'	228°02.8' S 0°24.9'						
		SD 15.8' d 0.4'	v -0.3' d 1.0'	v 2.1' d 0.2'	v 2.4' d 0.0'	v 0.8' d 0.7'						
Mer. pass.		11 h 57 m 18 s	9 h 30 m	7 h 50 m	5 h 28 m	7 h 49 m						

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	+Venus	+Jupiter	+Mars	+Fomalhaut	+Achernar	+Saturn	+Altair
0	208°26.2'	N 13°20.9'	14.4'	12.3'	55.1'	9°48.8'	35°58.3'	36°48.0'	66°12.5'	71°13.4'	73°50.8'	96°41.0'
1	222°59.6'	N 13°33.2'	14.4'	12.3'	55.0'	10°16.6'	36°28.5'	37°16.9'	66°41.9'	71°29.2'	74°21.5'	97°06.4'
2	237°33.0'	N 13°45.5'	14.4'	12.2'	55.0'	10°44.5'	36°58.8'	37°45.8'	67°11.3'	71°45.0'	74°52.2'	97°31.8'
3	252°06.4'	N 13°57.7'	14.3'	12.1'	55.0'	11°12.4'	37°29.0'	38°14.6'	67°40.6'	72°00.9'	75°22.8'	97°57.1'
4	266°39.7'	N 14°09.8'	14.3'	12.1'	55.0'	11°40.2'	37°59.3'	38°43.4'	68°10.0'	72°16.9'	75°53.4'	98°22.4'
5	281°13.0'	N 14°21.9'	14.3'	12.0'	55.0'	12°08.0'	38°29.5'	39°12.2'	68°39.3'	72°32.9'	76°24.1'	98°47.7'
6	295°46.3'	N 14°33.9'	14.2'	11.9'	55.0'	12°35.8'	38°59.7'	39°41.0'	69°08.7'	72°48.9'	76°54.7'	99°12.9'
7	310°19.5'	N 14°45.8'	14.2'	11.9'	54.9'	13°03.6'	39°29.9'	40°09.8'	69°38.0'	73°05.1'	77°25.2'	99°38.1'
8	324°52.7'	N 14°57.7'	14.2'	11.8'	54.9'	13°31.3'	40°00.1'	40°38.6'	70°07.4'	73°21.2'	77°55.8'	100°03.3'
9	339°25.8'	N 15°09.5'	14.1'	11.7'	54.9'	13°59.1'	40°30.2'	41°07.3'	70°36.7'	73°37.4'	78°26.4'	100°28.5'
10	353°59.0'	N 15°21.2'	14.1'	11.7'	54.9'	14°26.8'	41°00.4'	41°36.1'	71°06.0'	73°53.7'	78°56.9'	100°53.6'
11	8°32.0'	N 15°32.8'	14.0'	11.6'	54.9'	14°54.6'	41°30.5'	42°04.8'	71°35.3'	74°10.0'	79°27.4'	101°18.7'
12	23°05.1'	N 15°44.4'	14.0'	11.5'	54.9'	15°22.3'	42°00.6'	42°33.5'	72°04.6'	74°26.4'	79°57.9'	101°43.8'
13	37°38.1'	N 15°55.9'	14.0'	11.4'	54.8'	15°49.9'	42°30.7'	43°02.2'	72°33.9'	74°42.8'	80°28.4'	102°08.8'
14	52°11.0'	N 16°07.4'	13.9'	11.4'	54.8'	16°17.6'	43°00.8'	43°30.9'	73°03.2'	74°59.2'	80°58.9'	102°33.9'
15	66°43.9'	N 16°18.7'	13.9'	11.3'	54.8'	16°45.3'	43°30.9'	43°59.5'	73°32.5'	75°15.7'	81°29.3'	102°58.8'
16	81°16.8'	N 16°30.0'	13.8'	11.2'	54.8'	17°12.9'	44°00.9'	44°28.2'	74°01.8'	75°32.2'	81°59.8'	103°23.8'
17	95°49.6'	N 16°41.2'	13.8'	11.1'	54.8'	17°40.5'	44°31.0'	44°56.8'	74°31.0'	75°48.8'	82°30.2'	103°48.7'
18	110°22.4'	N 16°52.4'	13.7'	11.1'	54.8'	18°08.1'	45°01.0'	45°25.4'	75°00.3'	76°05.4'	83°00.6'	104°13.5'
19	124°55.1'	N 17°03.4'	13.7'	11.0'	54.7'	18°35.7'	45°31.0'	45°54.0'	75°29.5'	76°22.1'	83°31.0'	104°38.4'
20	139°27.8'	N 17°14.4'	13.7'	10.9'	54.7'	19°03.3'	46°01.0'	46°22.6'	75°58.8'	76°38.7'	84°01.4'	105°03.2'
21	154°00.5'	N 17°25.3'	13.6'	10.8'	54.7'	19°30.9'	46°31.0'	46°51.2'	76°28.0'	76°55.5'	84°31.7'	105°27.9'
22	168°33.1'	N 17°36.1'	13.6'	10.7'	54.7'	19°58.4'	47°01.0'	47°19.7'	76°57.2'	77°12.2'	85°02.1'	105°52.7'
23	183°05.7'	N 17°46.9'	13.5'	10.7'	54.7'	20°25.9'	47°31.0'	47°48.3'	77°26.4'	77°29.0'	85°32.4'	106°17.4'
Mer. pass.		10 h 25 m SD 15.0'	phase 6%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.0'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.9'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.4'	N 5°10.0'	Polaris	+2.0	315°30.4'	N 89°21.3'
Rigel Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.8'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	246°30.1'	180°39.5'	N 21°34.9'	217°27.0'	N 9°45.3'		243°03.5'	N 0°13.9'		278°37.9'	S 14°09.4'		243°03.6'	S 0°24.1'				
1	261°32.6'	195°39.4'	N 21°35.3'	232°26.7'	N 9°46.3'		258°05.5'	N 0°14.1'		293°40.3'	S 14°09.4'		258°04.3'	S 0°23.4'				
2	276°35.1'	210°39.4'	N 21°35.7'	247°26.4'	N 9°47.3'		273°07.6'	N 0°14.2'		308°42.7'	S 14°09.4'		273°05.1'	S 0°22.7'				
3	291°37.5'	225°39.3'	N 21°36.1'	262°26.1'	N 9°48.4'		288°09.7'	N 0°14.4'		323°45.2'	S 14°09.4'		288°05.8'	S 0°22.0'				
4	306°40.0'	240°39.2'	N 21°36.5'	277°25.7'	N 9°49.4'		303°11.8'	N 0°14.5'		338°47.6'	S 14°09.4'		303°06.6'	S 0°21.2'				
5	321°42.5'	255°39.1'	N 21°36.9'	292°25.4'	N 9°50.4'		318°13.9'	N 0°14.7'		353°50.1'	S 14°09.4'		318°07.3'	S 0°20.5'				
6	336°44.9'	270°39.0'	N 21°37.2'	307°25.1'	N 9°51.4'		333°16.0'	N 0°14.9'		8°52.5'	S 14°09.4'		333°08.1'	S 0°19.8'				
7	351°47.4'	285°38.9'	N 21°37.6'	322°24.8'	N 9°52.4'		348°18.0'	N 0°15.0'		23°54.9'	S 14°09.4'		348°08.8'	S 0°19.1'				
8	6°49.8'	300°38.9'	N 21°38.0'	337°24.4'	N 9°53.4'		3°20.1'	N 0°15.2'		38°57.4'	S 14°09.4'		3°09.6'	S 0°18.3'				
9	21°52.3'	315°38.8'	N 21°38.4'	352°24.1'	N 9°54.4'		18°22.2'	N 0°15.3'		53°59.8'	S 14°09.4'		18°10.3'	S 0°17.6'				
10	36°54.8'	330°38.7'	N 21°38.8'	7°23.8'	N 9°55.4'		33°24.3'	N 0°15.5'		69°02.2'	S 14°09.4'		33°11.1'	S 0°16.9'				
11	51°57.2'	345°38.6'	N 21°39.2'	22°23.5'	N 9°56.4'		48°26.4'	N 0°15.6'		84°04.7'	S 14°09.4'		48°11.9'	S 0°16.2'				
12	66°59.7'	0°38.5'	N 21°39.5'	37°23.1'	N 9°57.5'		63°28.5'	N 0°15.8'		99°07.1'	S 14°09.4'		63°12.6'	S 0°15.4'				
13	82°02.2'	15°38.4'	N 21°39.9'	52°22.8'	N 9°58.5'		78°30.6'	N 0°15.9'		114°09.5'	S 14°09.4'		78°13.4'	S 0°14.7'				
14	97°04.6'	30°38.4'	N 21°40.3'	67°22.5'	N 9°59.5'		93°32.6'	N 0°16.1'		129°12.0'	S 14°09.4'		93°14.1'	S 0°14.0'				
15	112°07.1'	45°38.3'	N 21°40.7'	82°22.2'	N 10°00.5'		108°34.7'	N 0°16.2'		144°14.4'	S 14°09.4'		108°14.9'	S 0°13.3'				
16	127°09.6'	60°38.2'	N 21°41.1'	97°21.8'	N 10°01.5'		123°36.8'	N 0°16.4'		159°16.8'	S 14°09.4'		123°15.6'	S 0°12.5'				
17	142°12.0'	75°38.1'	N 21°41.5'	112°21.5'	N 10°02.5'		138°38.9'	N 0°16.6'		174°19.3'	S 14°09.4'		138°16.4'	S 0°11.8'				
18	157°14.5'	90°38.0'	N 21°41.8'	127°21.2'	N 10°03.5'		153°41.0'	N 0°16.7'		189°21.7'	S 14°09.4'		153°17.1'	S 0°11.1'				
19	172°17.0'	105°37.9'	N 21°42.2'	142°20.9'	N 10°04.5'		168°43.1'	N 0°16.9'		204°24.2'	S 14°09.4'		168°17.9'	S 0°10.4'				
20	187°19.4'	120°37.8'	N 21°42.6'	157°20.5'	N 10°05.5'		183°45.2'	N 0°17.0'		219°26.6'	S 14°09.4'		183°18.7'	S 0°09.6'				
21	202°21.9'	135°37.8'	N 21°43.0'	172°20.2'	N 10°06.5'		198°47.2'	N 0°17.2'		234°29.0'	S 14°09.4'		198°19.4'	S 0°08.9'				
22	217°24.3'	150°37.7'	N 21°43.3'	187°19.9'	N 10°07.5'		213°49.3'	N 0°17.3'		249°31.5'	S 14°09.4'		213°20.2'	S 0°08.2'				
23	232°26.8'	165°37.6'	N 21°43.7'	202°19.5'	N 10°08.5'		228°51.4'	N 0°17.5'		264°33.9'	S 14°09.4'		228°20.9'	S 0°07.5'				
		SD 15.8' d 0.4'		v -0.3' d 1.0'			v 2.1' d 0.2'			v 2.4' d 0.0'			v 0.8' d 0.7'					
Mer. pass.		11 h 57 m 26 s		9 h 30 m			7 h 47 m			5 h 25 m			7 h 47 m					

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	+Venus	+Jupiter	+Mars	+Achernar	+Fomalhaut	+Saturn	+Altair
0	197°38.2'	N 17°57.6'	13.5'	10.6'	54.7'	20°53.5'	48°00.9'	48°16.8'	77°45.9'	77°55.6'	86°02.8'	106°42.0'
1	212°10.6'	N 18°08.1'	13.4'	10.5'	54.7'	21°21.0'	48°30.9'	48°45.3'	78°02.7'	78°24.8'	86°33.1'	107°06.6'
2	226°43.1'	N 18°18.6'	13.4'	10.4'	54.6'	21°48.4'	49°00.8'	49°13.8'	78°19.6'	78°54.0'	87°03.4'	107°31.2'
3	241°15.4'	N 18°29.1'	13.3'	10.3'	54.6'	22°15.9'	49°30.7'	49°42.3'	78°36.5'	79°23.2'	87°33.6'	107°55.7'
4	255°47.8'	N 18°39.4'	13.3'	10.2'	54.6'	22°43.4'	50°00.6'	50°10.8'	78°53.5'	79°52.3'	88°03.9'	108°20.2'
5	270°20.1'	N 18°49.6'	13.2'	10.2'	54.6'	23°10.8'	50°30.5'	50°39.3'	79°10.5'	80°21.5'	88°34.2'	108°44.6'
6	284°52.3'	N 18°59.8'	13.2'	10.1'	54.6'	23°38.3'	51°00.4'	51°07.7'	79°27.5'	80°50.6'	89°04.4'	109°09.0'
7	299°24.5'	N 19°09.9'	13.1'	10.0'	54.6'	24°05.7'	51°30.2'	51°36.2'	79°44.5'	81°19.8'	89°34.6'	109°33.4'
8	313°56.6'	N 19°19.9'	13.1'	9.9'	54.6'	24°33.1'	52°00.1'	52°04.6'	80°01.6'	81°48.9'	90°04.8'	109°57.7'
9	328°28.7'	N 19°29.8'	13.0'	9.8'	54.5'	25°00.5'	52°29.9'	52°33.0'	80°18.6'	82°18.0'	90°35.0'	110°22.0'
10	343°00.8'	N 19°39.6'	13.0'	9.7'	54.5'	25°27.8'	52°59.7'	53°01.4'	80°35.7'	82°47.1'	91°05.2'	110°46.2'
11	357°32.8'	N 19°49.3'	13.0'	9.6'	54.5'	25°55.2'	53°29.5'	53°29.8'	80°52.9'	83°16.2'	91°35.4'	111°10.3'
12	12°04.7'	N 19°58.9'	12.9'	9.5'	54.5'	26°22.5'	53°59.3'	53°58.2'	81°10.0'	83°45.3'	92°05.5'	111°34.5'
13	26°36.6'	N 20°08.4'	12.9'	9.4'	54.5'	26°49.9'	54°29.1'	54°26.5'	81°27.2'	84°14.3'	92°35.7'	111°58.5'
14	41°08.5'	N 20°17.9'	12.8'	9.4'	54.5'							
15	55°40.3'	N 20°27.2'	12.8'	9.3'	54.5'							
16	70°12.0'	N 20°36.5'	12.7'	9.2'	54.5'							
17	84°43.8'	N 20°45.7'	12.7'	9.1'	54.4'							
18	99°15.4'	N 20°54.7'	12.6'	9.0'	54.4'							
19	113°47.0'	N 21°03.7'	12.6'	8.9'	54.4'							
20	128°18.6'	N 21°12.6'	12.5'	8.8'	54.4'							
21	142°50.1'	N 21°21.4'	12.5'	8.7'	54.4'							
22	157°21.6'	N 21°30.0'	12.4'	8.6'	54.4'							
23	171°53.0'	N 21°38.6'	12.4'	8.5'	54.4'							
Mer. pass.		11 h 10 m SD 14.9'			phase 2%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.0'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.8'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.4'	N 5°10.0'	Polaris	+2.0	315°30.1'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.9'	S 52°42.6'				

Monday 30 May 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	247°29.3'	180°37.5'	N 21°44.1'	217°19.2'	N 10°09.5'		243°53.5'	N 0°17.6'		279°36.3'	S 14°09.4'		243°21.7'	S 0°06.7'				
1	262°31.7'	195°37.4'	N 21°44.5'	232°18.9'	N 10°10.6'		258°55.6'	N 0°17.8'		294°38.8'	S 14°09.4'		258°22.4'	S 0°06.0'				
2	277°34.2'	210°37.3'	N 21°44.8'	247°18.6'	N 10°11.6'		273°57.7'	N 0°17.9'		309°41.2'	S 14°09.4'		273°23.2'	S 0°05.3'				
3	292°36.7'	225°37.2'	N 21°45.2'	262°18.2'	N 10°12.6'		288°59.8'	N 0°18.1'		324°43.7'	S 14°09.4'		288°24.0'	S 0°04.6'				
4	307°39.1'	240°37.1'	N 21°45.6'	277°17.9'	N 10°13.6'		304°01.9'	N 0°18.2'		339°46.1'	S 14°09.4'		303°24.7'	S 0°03.8'				
5	322°41.6'	255°37.1'	N 21°46.0'	292°17.6'	N 10°14.6'		319°03.9'	N 0°18.4'		354°48.5'	S 14°09.4'		318°25.5'	S 0°03.1'				
6	337°44.1'	270°37.0'	N 21°46.3'	307°17.2'	N 10°15.6'		334°06.0'	N 0°18.5'		9°51.0'	S 14°09.4'		333°26.2'	S 0°02.4'				
7	352°46.5'	285°36.9'	N 21°46.7'	322°16.9'	N 10°16.6'		349°08.1'	N 0°18.7'		24°53.4'	S 14°09.4'		348°27.0'	S 0°01.7'				
8	7°49.0'	300°36.8'	N 21°47.1'	337°16.6'	N 10°17.6'		4°10.2'	N 0°18.9'		39°55.9'	S 14°09.4'		3°27.7'	S 0°01.0'				
9	22°51.4'	315°36.7'	N 21°47.4'	352°16.2'	N 10°18.6'		19°12.3'	N 0°19.0'		54°58.3'	S 14°09.4'		18°28.5'	S 0°00.2'				
10	37°53.9'	330°36.6'	N 21°47.8'	7°15.9'	N 10°19.6'		34°14.4'	N 0°19.2'		70°00.7'	S 14°09.4'		33°29.3'	N 0°00.5'				
11	52°56.4'	345°36.5'	N 21°48.2'	22°15.6'	N 10°20.6'		49°16.5'	N 0°19.3'		85°03.2'	S 14°09.4'		48°30.0'	N 0°01.2'				
12	67°58.8'	0°36.4'	N 21°48.5'	37°15.2'	N 10°21.6'		64°18.6'	N 0°19.5'		100°05.6'	S 14°09.4'		63°30.8'	N 0°01.9'				
13	83°01.3'	15°36.4'	N 21°48.9'	52°14.9'	N 10°22.6'		79°20.7'	N 0°19.6'		115°08.0'	S 14°09.4'		78°31.5'	N 0°02.7'				
14	98°03.8'	30°36.3'	N 21°49.3'	67°14.6'	N 10°23.6'		94°22.7'	N 0°19.8'		130°10.5'	S 14°09.4'		93°32.3'	N 0°03.4'				
15	113°06.2'	45°36.2'	N 21°49.6'	82°14.2'	N 10°24.6'		109°24.8'	N 0°19.9'		145°12.9'	S 14°09.4'		108°33.0'	N 0°04.1'				
16	128°08.7'	60°36.1'	N 21°50.0'	97°13.9'	N 10°25.6'		124°26.9'	N 0°20.1'		160°15.4'	S 14°09.4'		123°33.8'	N 0°04.8'				
17	143°11.2'	75°36.0'	N 21°50.4'	112°13.6'	N 10°26.6'		139°29.0'	N 0°20.2'		175°17.8'	S 14°09.4'		138°34.6'	N 0°05.6'				
18	158°13.6'	90°35.9'	N 21°50.7'	127°13.2'	N 10°27.6'		154°31.1'	N 0°20.4'		190°20.3'	S 14°09.4'		153°35.3'	N 0°06.3'				
19	173°16.1'	105°35.8'	N 21°51.1'	142°12.9'	N 10°28.6'		169°33.2'	N 0°20.5'		205°22.7'	S 14°09.4'		168°36.1'	N 0°07.0'				
20	188°18.6'	120°35.7'	N 21°51.5'	157°12.5'	N 10°29.6'		184°35.3'	N 0°20.7'		220°25.1'	S 14°09.4'		183°36.8'	N 0°07.7'				
21	203°21.0'	135°35.6'	N 21°51.8'	172°12.2'	N 10°30.6'		199°37.4'	N 0°20.8'		235°27.6'	S 14°09.4'		198°37.6'	N 0°08.5'				
22	218°23.5'	150°35.5'	N 21°52.2'	187°11.9'	N 10°31.6'		214°39.5'	N 0°21.0'		250°30.0'	S 14°09.4'		213°38.3'	N 0°09.2'				
23	233°25.9'	165°35.5'	N 21°52.5'	202°11.5'	N 10°32.6'		229°41.6'	N 0°21.1'		265°32.5'	S 14°09.4'		228°39.1'	N 0°09.9'				
		SD 15.8'	d 0.4'		v -0.3' d 1.0'			v 2.1' d 0.2'			v 2.4' d 0.0'			v 0.8' d 0.7'				
Mer. pass.		11 h 57 m 35 s			9 h 31 m			7 h 43 m			5 h 21 m			7 h 46 m				

h	Moon				
	GHA	dec	v	d	HP
0	186°24.3'	N 21°47.1'	12.3'	8.4'	54.4'
1	200°55.7'	N 21°55.5'	12.3'	8.3'	54.4'
2	215°26.9'	N 22°03.8'	12.2'	8.2'	54.3'
3	229°58.2'	N 22°11.9'	12.2'	8.1'	54.3'
4	244°29.3'	N 22°20.0'	12.1'	8.0'	54.3'
5	259°00.5'	N 22°28.0'	12.1'	7.9'	54.3'
6	273°31.5'	N 22°35.8'	12.0'	7.8'	54.3'
7	288°02.6'	N 22°43.6'	12.0'	7.7'	54.3'
8	302°33.5'	N 22°51.3'	11.9'	7.5'	54.3'
9	317°04.5'	N 22°58.8'	11.9'	7.4'	54.3'
10	331°35.4'	N 23°06.2'	11.8'	7.3'	54.3'
11	346°06.2'	N 23°13.6'	11.8'	7.2'	54.2'
12	0°37.0'	N 23°20.8'	11.8'	7.1'	54.2'
13	15°07.8'	N 23°27.9'	11.7'	7.0'	54.2'
14	29°38.5'	N 23°34.9'	11.7'	6.9'	54.2'
15	44°09.1'	N 23°41.8'	11.6'	6.8'	54.2'
16	58°39.7'	N 23°48.6'	11.6'	6.7'	54.2'
17	73°10.3'	N 23°55.3'	11.5'	6.6'	54.2'
18	87°40.8'	N 24°01.9'	11.5'	6.4'	54.2'
19	102°11.3'	N 24°08.3'	11.4'	6.3'	54.2'
20	116°41.8'	N 24°14.6'	11.4'	6.2'	54.2'
21	131°12.2'	N 24°20.9'	11.4'	6.1'	54.2'
22	145°42.5'	N 24°27.0'	11.3'	6.0'	54.1'
23	160°12.9'	N 24°33.0'	11.3'	5.9'	54.1'
Mer. pass.	11 h 57 m SD 14.8'	phase 0%			

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.0'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.0'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.8'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.4'	N 5°10.0'	Polaris	+2.0	315°29.8'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.9'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	248°28.4'	180°35.4'	N 21°52.9'	217°11.2'	N 10°33.6'	244°43.6'	N 0°21.3'	280°34.9'	S 14°09.4'	243°39.9'	N 0°10.6'	
1	263°30.9'	195°35.3'	N 21°53.3'	232°10.9'	N 10°34.6'	259°45.7'	N 0°21.4'	295°37.3'	S 14°09.4'	258°40.6'	N 0°11.3'	
2	278°33.3'	210°35.2'	N 21°53.6'	247°10.5'	N 10°35.6'	274°47.8'	N 0°21.6'	310°39.8'	S 14°09.4'	273°41.4'	N 0°12.1'	
3	293°35.8'	225°35.1'	N 21°54.0'	262°10.2'	N 10°36.6'	289°49.9'	N 0°21.7'	325°42.2'	S 14°09.4'	288°42.1'	N 0°12.8'	
4	308°38.3'	240°35.0'	N 21°54.3'	277°09.8'	N 10°37.6'	304°52.0'	N 0°21.9'	340°44.7'	S 14°09.4'	303°42.9'	N 0°13.5'	
5	323°40.7'	255°34.9'	N 21°54.7'	292°09.5'	N 10°38.6'	319°54.1'	N 0°22.0'	355°47.1'	S 14°09.4'	318°43.7'	N 0°14.2'	
6	338°43.2'	270°34.8'	N 21°55.0'	307°09.2'	N 10°39.6'	334°56.2'	N 0°22.2'	10°49.6'	S 14°09.4'	333°44.4'	N 0°15.0'	
7	353°45.7'	285°34.7'	N 21°55.4'	322°08.8'	N 10°40.6'	349°58.3'	N 0°22.3'	25°52.0'	S 14°09.4'	348°45.2'	N 0°15.7'	
8	8°48.1'	300°34.6'	N 21°55.8'	337°08.5'	N 10°41.6'	5°00.4'	N 0°22.5'	40°54.4'	S 14°09.4'	3°45.9'	N 0°16.4'	
9	23°50.6'	315°34.5'	N 21°56.1'	352°08.1'	N 10°42.6'	20°02.5'	N 0°22.6'	55°56.9'	S 14°09.4'	18°46.7'	N 0°17.1'	
10	38°53.1'	330°34.4'	N 21°56.5'	7°07.8'	N 10°43.6'	35°04.6'	N 0°22.8'	70°59.3'	S 14°09.4'	33°47.4'	N 0°17.9'	
11	53°55.5'	345°34.3'	N 21°56.8'	22°07.4'	N 10°44.6'	50°06.7'	N 0°22.9'	86°01.8'	S 14°09.4'	48°48.2'	N 0°18.6'	
12	68°58.0'	0°34.3'	N 21°57.2'	37°07.1'	N 10°45.6'	65°08.8'	N 0°23.1'	101°04.2'	S 14°09.4'	63°49.0'	N 0°19.3'	
13	84°00.4'	15°34.2'	N 21°57.5'	52°06.8'	N 10°46.6'	80°10.9'	N 0°23.2'	116°06.7'	S 14°09.4'	78°49.7'	N 0°20.0'	
14	99°02.9'	30°34.1'	N 21°57.9'	67°06.4'	N 10°47.6'	95°13.0'	N 0°23.4'	131°09.1'	S 14°09.4'	93°50.5'	N 0°20.7'	
15	114°05.4'	45°34.0'	N 21°58.2'	82°06.1'	N 10°48.6'	110°15.0'	N 0°23.5'	146°11.5'	S 14°09.4'	108°51.2'	N 0°21.5'	
16	129°07.8'	60°33.9'	N 21°58.6'	97°05.7'	N 10°49.5'	125°17.1'	N 0°23.7'	161°14.0'	S 14°09.4'	123°52.0'	N 0°22.2'	
17	144°10.3'	75°33.8'	N 21°58.9'	112°05.4'	N 10°50.5'	140°19.2'	N 0°23.8'	176°16.4'	S 14°09.4'	138°52.8'	N 0°22.9'	
18	159°12.8'	90°33.7'	N 21°59.3'	127°05.0'	N 10°51.5'	155°21.3'	N 0°24.0'	191°18.9'	S 14°09.4'	153°53.5'	N 0°23.6'	
19	174°15.2'	105°33.6'	N 21°59.6'	142°04.7'	N 10°52.5'	170°23.4'	N 0°24.1'	206°21.3'	S 14°09.4'	168°54.3'	N 0°24.4'	
20	189°17.7'	120°33.5'	N 21°60.0'	157°04.4'	N 10°53.5'	185°25.5'	N 0°24.3'	221°23.8'	S 14°09.4'	183°55.0'	N 0°25.1'	
21	204°20.2'	135°33.4'	N 22°00.3'	172°04.0'	N 10°54.5'	200°27.6'	N 0°24.4'	236°26.2'	S 14°09.4'	198°55.8'	N 0°25.8'	
22	219°22.6'	150°33.3'	N 22°00.6'	187°03.7'	N 10°55.5'	215°29.7'	N 0°24.6'	251°28.7'	S 14°09.4'	213°56.6'	N 0°26.5'	
23	234°25.1'	165°33.2'	N 22°01.0'	202°03.3'	N 10°56.5'	230°31.8'	N 0°24.7'	266°31.1'	S 14°09.4'	228°57.3'	N 0°27.2'	
		SD 15.8'	d 0.4'	v -0.3'	d 1.0'	v 2.1'	d 0.2'	v 2.4'	d -0.0'	v 0.8'	d 0.7'	
Mer. pass.		11 h 57 m 43 s		9 h 31 m		7 h 40 m		5 h 17 m		7 h 45 m		

h	Moon					Lunar distance				
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux
0	174°43.1'	N 24°38.8'	11.2'	5.8'	54.1'					
1	189°13.4'	N 24°44.6'	11.2'	5.6'	54.1'					
2	203°43.6'	N 24°50.2'	11.2'	5.5'	54.1'					
3	218°13.7'	N 24°55.8'	11.1'	5.4'	54.1'					
4	232°43.9'	N 25°01.2'	11.1'	5.3'	54.1'					
5	247°13.9'	N 25°06.5'	11.0'	5.2'	54.1'					
6	261°44.0'	N 25°11.6'	11.0'	5.1'	54.1'					
7	276°14.0'	N 25°16.7'	11.0'	4.9'	54.1'					
8	290°44.0'	N 25°21.6'	10.9'	4.8'	54.1'					
9	305°13.9'	N 25°26.4'	10.9'	4.7'	54.1'					
10	319°43.8'	N 25°31.1'	10.9'	4.6'	54.1'		117°58.4'	70°24.9'	40°23.4'	33°57.1'
11	334°13.7'	N 25°35.7'	10.8'	4.4'	54.0'		117°33.2'	69°55.2'	39°58.5'	33°27.4'
							117°08.0'	69°25.6'	39°33.7'	32°57.7'
12	348°43.6'	N 25°40.1'	10.8'	4.3'	54.0'		116°42.8'	68°56.0'	39°09.0'	32°28.0'
13	3°13.4'	N 25°44.4'	10.8'	4.2'	54.0'		116°17.5'	68°26.4'	38°44.4'	31°58.3'
14	17°43.1'	N 25°48.6'	10.8'	4.1'	54.0'		115°52.2'	67°56.8'	38°20.0'	31°28.7'
15	32°12.9'	N 25°52.7'	10.7'	4.0'	54.0'		115°26.9'	67°27.2'	37°55.6'	30°59.0'
16	46°42.6'	N 25°56.7'	10.7'	3.8'	54.0'		115°01.5'	66°57.6'	37°31.4'	30°29.4'
17	61°12.3'	N 26°00.5'	10.7'	3.7'	54.0'		114°36.2'	66°28.0'	37°07.2'	29°59.8'
18	75°42.0'	N 26°04.2'	10.6'	3.6'	54.0'		114°10.8'	65°58.4'	36°43.2'	29°30.2'
19	90°11.6'	N 26°07.8'	10.6'	3.5'	54.0'	119°32.9'	113°45.3'	65°28.8'	36°19.4'	29°00.5'
20	104°41.3'	N 26°11.3'	10.6'	3.3'	54.0'	119°03.3'	113°19.9'	64°59.3'	35°55.6'	28°30.9'
21	119°10.8'	N 26°14.6'	10.6'	3.2'	54.0'	118°33.7'	112°54.4'	64°29.7'	35°32.0'	28°01.4'
22	133°40.4'	N 26°17.8'	10.5'	3.1'	54.0'	118°04.2'	112°28.9'	64°00.2'	35°08.5'	27°31.8'
23	148°10.0'	N 26°20.9'	10.5'	3.0'	54.0'	117°34.6'	112°03.4'	63°30.6'	34°45.2'	27°02.2'
Mer. pass.		12 h 47 m SD 14.8'		phase 0%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.9'	S 29°30.2'	Spica	+1.0	158°24.4'	S 11°16.7'	Betelgeuse	+0.5	270°54.8'	N 7°24.6'
Deneb	+1.2	49°27.0'	N 45°21.3'	Acrux	+0.8	173°02.2'	S 63°13.6'	Capella	+0.1	280°25.6'	N 46°01.2'
Altair	+0.8	62°01.8'	N 8°55.5'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°06.3'	S 8°10.6'
Vega	+0.0	80°34.3'	N 38°48.1'	Pollux	+1.2	243°20.2'	N 27°58.4'	Aldebaran	+0.9	290°42.5'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.4'	N 5°10.0'	Polaris	+2.0	315°29.5'	N 89°21.3'
Rigil Kent	-0.0	139°42.7'	S 60°55.7'	Adhara	+1.5	255°07.9'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.3'
Arcturus	-0.1	145°49.6'	N 19°04.0'	Sirius	-1.4	258°28.5'	S 16°44.9'				
Hadar	+0.6	148°38.5'	S 60°29.0'	Canopus	-0.6	263°53.9'	S 52°42.6'				