

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 70°

N. Lat. { LHA, greater than 180°; Z=Z
LHA, less than 180°; Z=360°-Z

0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°					
LHA	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	LHA		
0	20.00	60	180	21.00	60	180	22.00	60	180	23.00	60	180	24.00	60	180	25.00	60	180	26.00	60	180	27.00	60	180	28.00	60	180	29.00	60	180	30.00	60	180
1	19.59	60	178	20.59	60	178	21.59	60	178	22.59	60	178	23.59	60	178	24.59	60	178	25.59	60	178	26.59	60	178	27.59	60	178	28.59	60	178	29.59	60	178
2	19.57	60	176	20.57	60	176	21.57	60	176	22.57	60	176	23.57	60	176	24.57	60	176	25.57	60	176	26.57	60	176	27.57	60	176	28.57	60	176	29.57	60	176
3	19.55	60	174	20.55	60	174	21.55	60	174	22.55	60	174	23.55	60	174	24.55	60	174	25.55	60	174	26.55	60	174	27.55	60	174	28.55	60	174	29.55	60	174
4	19.53	60	172	20.53	60	172	21.53	60	172	22.53	60	172	23.53	60	172	24.53	60	172	25.53	60	172	26.53	60	172	27.53	60	172	28.53	60	172	29.53	60	172
5	19.51	60	170	20.51	60	170	21.51	60	170	22.51	60	170	23.51	60	170	24.51	60	170	25.51	60	170	26.51	60	170	27.51	60	170	28.51	60	170	29.51	60	170
6	19.48	60	168	20.48	60	168	21.48	60	168	22.48	60	168	23.48	60	168	24.48	60	168	25.48	60	168	26.48	60	168	27.48	60	168	28.48	60	168	29.48	60	168
7	19.46	60	166	20.46	60	166	21.46	60	166	22.46	60	166	23.46	60	166	24.46	60	166	25.46	60	166	26.46	60	166	27.46	60	166	28.46	60	166	29.46	60	166
8	19.44	60	164	20.44	60	164	21.44	60	164	22.44	60	164	23.44	60	164	24.44	60	164	25.44	60	164	26.44	60	164	27.44	60	164	28.44	60	164	29.44	60	164
9	19.41	60	162	20.41	60	162	21.41	60	162	22.41	60	162	23.41	60	162	24.41	60	162	25.41	60	162	26.41	60	162	27.41	60	162	28.41	60	162	29.41	60	162
10	19.39	60	160	20.39	60	160	21.39	60	160	22.39	60	160	23.39	60	160	24.39	60	160	25.39	60	160	26.39	60	160	27.39	60	160	28.39	60	160	29.39	60	160
11	19.37	60	158	20.37	60	158	21.37	60	158	22.37	60	158	23.37	60	158	24.37	60	158	25.37	60	158	26.37	60	158	27.37	60	158	28.37	60	158	29.37	60	158
12	19.35	60	156	20.35	60	156	21.35	60	156	22.35	60	156	23.35	60	156	24.35	60	156	25.35	60	156	26.35	60	156	27.35	60	156	28.35	60	156	29.35	60	156
13	19.33	60	154	20.33	60	154	21.33	60	154	22.33	60	154	23.33	60	154	24.33	60	154	25.33	60	154	26.33	60	154	27.33	60	154	28.33	60	154	29.33	60	154
14	19.31	60	152	20.31	60	152	21.31	60	152	22.31	60	152	23.31	60	152	24.31	60	152	25.31	60	152	26.31	60	152	27.31	60	152	28.31	60	152	29.31	60	152
15	19.29	60	150	20.29	60	150	21.29	60	150	22.29	60	150	23.29	60	150	24.29	60	150	25.29	60	150	26.29	60	150	27.29	60	150	28.29	60	150	29.29	60	150
16	19.27	60	148	20.27	60	148	21.27	60	148	22.27	60	148	23.27	60	148	24.27	60	148	25.27	60	148	26.27	60	148	27.27	60	148	28.27	60	148	29.27	60	148
17	19.25	60	146	20.25	60	146	21.25	60	146	22.25	60	146	23.25	60	146	24.25	60	146	25.25	60	146	26.25	60	146	27.25	60	146	28.25	60	146	29.25	60	146
18	19.23	60	144	20.23	60	144	21.23	60	144	22.23	60	144	23.23	60	144	24.23	60	144	25.23	60	144	26.23	60	144	27.23	60	144	28.23	60	144	29.23	60	144
19	19.21	60	142	20.21	60	142	21.21	60	142	22.21	60	142	23.21	60	142	24.21	60	142	25.21	60	142	26.21	60	142	27.21	60	142	28.21	60	142	29.21	60	142
20	19.19	60	140	20.19	60	140	21.19	60	140	22.19	60	140	23.19	60	140	24.19	60	140	25.19	60	140	26.19	60	140	27.19	60	140	28.19	60	140	29.19	60	140
21	19.17	60	138	20.17	60	138	21.17	60	138	22.17	60	138	23.17	60	138	24.17	60	138	25.17	60	138	26.17	60	138	27.17	60	138	28.17	60	138	29.17	60	138
22	19.15	60	136	20.15	60	136	21.15	60	136	22.15	60	136	23.15	60	136	24.15	60	136	25.15	60	136	26.15	60	136	27.15	60	136	28.15	60	136	29.15	60	136
23	19.13	60	134	20.13	60	134	21.13	60	134	22.13	60	134	23.13	60	134	24.13	60	134	25.13	60	134	26.13	60	134	27.13	60	134	28.13	60	134	29.13	60	134
24	19.11	60	132	20.11	60	132	21.11	60	132	22.11	60	132	23.11	60	132	24.11	60	132	25.11	60	132	26.11	60	132	27.11	60	132	28.11	60	132	29.11	60	132
25	19.09	60	130	20.09	60	130	21.09	60	130	22.09	60	130	23.09	60	130	24.09	60	130	25.09	60	130	26.09	60	130	27.09	60	130	28.09	60	130	29.09	60	130
26	19.07	60	128	20.07	60	128	21.07	60	128	22.07	60	128	23.07	60	128	24.07	60	128	25.07	60	128	26.07	60	128	27.07	60	128	28.07	60	128	29.07	60	128
27	19.05	60	126	20.05	60	126	21.05	60	126	22.05	60	126	23.05	60	126	24.05	60	126	25.05	60	126	26.05	60	126	27.05	60	126	28.05	60	126	29.05	60	126
28	19.03	60	124	20.03	60	124	21.03	60	124	22.03	60	124	23.03	60	124	24.03	60	124	25.03	60	124	26.03	60	124	27.03	60	124	28.03	60	124	29.03	60	124
29	19.01	60	122	20.01	60	122	21.01	60	122	22.01	60	122	23.01	60	122	24.01	60	122	25.01	60	122	26.01	60	122	27.01	60	122	28.01	60	122	29.01	60	122
30	18.99	60	120	19.99	60	120	20.99	60	120	21.99	60	120	22.99	60	120	23.99	60	120	24.99	60	120	25.99	60	120	26.99	60	120	27.99	60	120	28.99	60	120
31	18.97	60	118	19.97	60	118	20.97	60	118	21.97	60	118	22.97	60	118	23.97	60	118	24.97	60	118	25.97	60	118	26.97	60	118	27.97	60	118	28.97	60	118
32	18.95	60	116	19.95	60	116	20.95	60	116	21.95	60	116	22.95	60	116	23.95	60	116	24.95	60	116	25.95	60	116	26.95	60	116	27.95	60	116	28.95	60	116
33	18.93	60	114	19.93	60	114	20.93	60	114	21.93	60	114	22.93	60	114	23.93	60	114	24.93	60	114	25.93	60	114	26.93	60	114	27.93	60	114	28.93	60	114
34	18.91	60	112	19.91	60	112	20.91	60	112	21.91	60	112	22.91	60	112	23.91	60	112	24.91	60	112	25.91	60	112	26.91	60	112	27.91	60	112	28.91	60	112
35	18.89	60	110	19.89	60	110	20.89	60	110	21.89	60	110	22.89	60	110	23.89	60	110	24.89	60	110	25.89	60	110	26.89	60	110	27.89	60	110	28.89	60	110
36	18.87	60	108	19.87	60	108	20.87	60	108	21.87	60	108	22.87	60	108	23.87																	

DECLINATION (0° - 14°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z
L.H.A. less than 180°Zn=360-Z

Table with columns for latitude (0° to 14°) and declination (0° to 14°). Each cell contains a numerical value representing the conversion between the two coordinates. The table is organized into a grid with latitude on the vertical axis and declination on the horizontal axis.

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180-Z
L.H.A. less than 180°Zn=180+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { LHA: greater than 180°Zn=180°-Z
LHA: less than 180°Zn=360°-Z

Table with columns for latitude (15° to 180°) and declination (15° to 29°). Each cell contains a 3-digit number representing the value for that specific latitude and declination combination.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { LHA: greater than 180°Zn=180°-Z
LHA: less than 180°Zn=180°+Z

DECLINATION (0° - 14°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for Latitude (0° to 71°) and Declination (0° to 14°). Each cell contains a numerical value representing the result of a calculation. The table is organized into a grid where the top row represents the latitude and the left column represents the declination. The values are arranged in a regular pattern, with some cells containing bolded numbers or specific symbols.

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { LHA: greater than 180°Zn=180°-Z
LHA: less than 180°Zn=360°-Z

Table with columns for latitude (15° to 180°) and declination (15° to 29°). Each cell contains a 3-digit number representing the value for that specific latitude and declination combination.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { LHA: greater than 180°Zn=180°-Z
LHA: less than 180°Zn=180°+Z

N. Lat. { LHA, greater than 180°; Z=Z
 LHA, less than 180°; Z=360°-Z

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 72°

LHA	0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°			
	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d		
0	18	00	60	180	19	00	60	180	20	00	60	180	21	00	60	180	22	00	60	180	23	00	60	180	24	00	60	180	25	00	60	180
1	17	59	60	178	18	59	60	178	22	59	60	178	23	59	60	178	24	59	60	178	25	59	60	178	26	59	60	178	27	59	60	178
2	17	57	60	176	18	57	60	176	22	57	60	176	23	57	60	176	24	57	60	176	25	57	60	176	26	57	60	176	27	57	60	176
3	17	54	60	174	18	54	60	174	22	54	60	174	23	54	60	174	24	54	60	174	25	54	60	174	26	54	60	174	27	54	60	174
4	17	51	60	172	18	51	60	172	22	51	60	172	23	51	60	172	24	51	60	172	25	51	60	172	26	51	60	172	27	51	60	172
5	17	48	60	170	18	48	60	170	22	48	60	170	23	48	60	170	24	48	60	170	25	48	60	170	26	48	60	170	27	48	60	170
6	17	45	60	168	18	45	60	168	22	45	60	168	23	45	60	168	24	45	60	168	25	45	60	168	26	45	60	168	27	45	60	168
7	17	42	60	166	18	42	60	166	22	42	60	166	23	42	60	166	24	42	60	166	25	42	60	166	26	42	60	166	27	42	60	166
8	17	39	60	164	18	39	60	164	22	39	60	164	23	39	60	164	24	39	60	164	25	39	60	164	26	39	60	164	27	39	60	164
9	17	36	60	162	18	36	60	162	22	36	60	162	23	36	60	162	24	36	60	162	25	36	60	162	26	36	60	162	27	36	60	162
10	17	33	60	160	18	33	60	160	22	33	60	160	23	33	60	160	24	33	60	160	25	33	60	160	26	33	60	160	27	33	60	160
11	17	30	60	158	18	30	60	158	22	30	60	158	23	30	60	158	24	30	60	158	25	30	60	158	26	30	60	158	27	30	60	158
12	17	27	60	156	18	27	60	156	22	27	60	156	23	27	60	156	24	27	60	156	25	27	60	156	26	27	60	156	27	27	60	156
13	17	24	60	154	18	24	60	154	22	24	60	154	23	24	60	154	24	24	60	154	25	24	60	154	26	24	60	154	27	24	60	154
14	17	21	60	152	18	21	60	152	22	21	60	152	23	21	60	152	24	21	60	152	25	21	60	152	26	21	60	152	27	21	60	152
15	17	18	60	150	18	18	60	150	22	18	60	150	23	18	60	150	24	18	60	150	25	18	60	150	26	18	60	150	27	18	60	150
16	17	15	60	148	18	15	60	148	22	15	60	148	23	15	60	148	24	15	60	148	25	15	60	148	26	15	60	148	27	15	60	148
17	17	12	60	146	18	12	60	146	22	12	60	146	23	12	60	146	24	12	60	146	25	12	60	146	26	12	60	146	27	12	60	146
18	17	09	60	144	18	09	60	144	22	09	60	144	23	09	60	144	24	09	60	144	25	09	60	144	26	09	60	144	27	09	60	144
19	17	06	60	142	18	06	60	142	22	06	60	142	23	06	60	142	24	06	60	142	25	06	60	142	26	06	60	142	27	06	60	142
20	17	03	60	140	18	03	60	140	22	03	60	140	23	03	60	140	24	03	60	140	25	03	60	140	26	03	60	140	27	03	60	140
21	16	59	60	138	18	59	60	138	22	59	60	138	23	59	60	138	24	59	60	138	25	59	60	138	26	59	60	138	27	59	60	138
22	16	56	60	136	18	56	60	136	22	56	60	136	23	56	60	136	24	56	60	136	25	56	60	136	26	56	60	136	27	56	60	136
23	16	53	60	134	18	53	60	134	22	53	60	134	23	53	60	134	24	53	60	134	25	53	60	134	26	53	60	134	27	53	60	134
24	16	50	60	132	18	50	60	132	22	50	60	132	23	50	60	132	24	50	60	132	25	50	60	132	26	50	60	132	27	50	60	132
25	16	47	60	130	18	47	60	130	22	47	60	130	23	47	60	130	24	47	60	130	25	47	60	130	26	47	60	130	27	47	60	130
26	16	44	60	128	18	44	60	128	22	44	60	128	23	44	60	128	24	44	60	128	25	44	60	128	26	44	60	128	27	44	60	128
27	16	41	60	126	18	41	60	126	22	41	60	126	23	41	60	126	24	41	60	126	25	41	60	126	26	41	60	126	27	41	60	126
28	16	38	60	124	18	38	60	124	22	38	60	124	23	38	60	124	24	38	60	124	25	38	60	124	26	38	60	124	27	38	60	124
29	16	35	60	122	18	35	60	122	22	35	60	122	23	35	60	122	24	35	60	122	25	35	60	122	26	35	60	122	27	35	60	122
30	16	32	60	120	18	32	60	120	22	32	60	120	23	32	60	120	24	32	60	120	25	32	60	120	26	32	60	120	27	32	60	120
31	16	29	60	118	18	29	60	118	22	29	60	118	23	29	60	118	24	29	60	118	25	29	60	118	26	29	60	118	27	29	60	118
32	16	26	60	116	18	26	60	116	22	26	60	116	23	26	60	116	24	26	60	116	25	26	60	116	26	26	60	116	27	26	60	116
33	16	23	60	114	18	23	60	114	22	23	60	114	23	23	60	114	24	23	60	114	25	23	60	114	26	23	60	114	27	23	60	114
34	16	20	60	112	18	20	60	112	22	20	60	112	23	20	60	112	24	20	60	112	25	20	60	112	26	20	60	112	27	20	60	112
35	16	17	60	110	18	17	60	110	22	17	60	110	23	17	60	110	24	17	60	110	25	17	60	110	26	17	60	110	27	17	60	110
36	16	14	60	108	18	14	60	108	22	14	60	108	23	14	60	108	24	14	60	108	25	14	60	108	26	14	60	108	27	14	60	108
37	16	11	60	106	18	11	60	106	22	11	60	106	23	11	60	106	24	11	60	106	25	11	60	106	26	11	60	106	27	11	60	106
38	16	08	60	104	18	08	60	104	22	08	60	104	23	08	60	104	24	08	60	104	25	08	60	104	26	08	60	104	27	08	60	104
39	16	05	60	102	18	05	60	102	22	05	60	102	23	05	60	102	24	05	60	102	25	05	60	102	26	05	60	102	27	05	60	102
40	16	02	60	100	18	02	60	100	22	02	60	100	23	02	60	100	24	02	60	100	25	02	60	100	26	02	60	100	27	02	60	100
41	15	59	60	98	18	59	60	98	22	59	60	98	23	59	60	98	24	59	60	98	25	59	60	98	26	59	60	98	27	59	60	98
42	15	56	60	96	18	56	60	96	22	56	60	96	23	56	60	96	24	56	60	96	25	56	60	96	26	56	60	96	27	56	60	96
43	15	53	60	94	18	53	60	94	22	53	60	94	23	53	60	94	24	53	60	94	25	53	60	94	26	53	60	94	27	53	60	94
44	15	50	60	92	18	50	60	92	22	50	60	92	23	50	60	92	24	50	60	92	25	50	60	92	26	50	60	92	27	50	60	92
45	15	47	60	90	18	47	60	90	22	47	60	90	23	47	60	90	24	47	60	90	25	47	60	90	26	47	60	90	27	47	60	90
46	15	44	60	88	18	44	60	88	22	44	60	88	23	44	60	88	24	44	60	88	25	44	60	88	26	44	60	88	27	44	60	88
47	15	41	60	86	18	41	60	86	22	41	60	86	23	41	60	86	24	41	60	86	25	41	60	86	26	41	60	86	27	41	60	86
48	15	38	60	84	18	38	60	84	22	38	60	84	23	38	60	84	24	3														

DECLINATION (0° - 14°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for Latitude (0° to 14°) and Declination (0° to 14°). Each cell contains a numerical value representing the result of the declination calculation. The table is organized into a grid where the top row and left column represent the latitude and the inner grid represents the declination values.

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for latitude (15° to 180°) and declination (15° to 29°). Each cell contains a 3-digit number representing the value. The table is organized into a grid where the first column is latitude and the subsequent columns are declination. The values are arranged in a specific pattern, often with a '0' in the first column and a '1' in the second column for certain declinations.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

N. Lat. { LHA, greater than 180°; Z=Z
 { LHA, less than 180°; Z=360°-Z

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 73°

LHA	0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°			
	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d		
0	17.00	60	18.00	18.00	19.00	60	18.00	22.00	60	18.00	23.00	60	18.00	24.00	60	18.00	25.00	60	18.00	26.00	60	18.00	27.00	60	18.00	28.00	60	18.00	29.00	60	18.00	30.00
1	16.59	60	17.58	17.59	18.59	60	17.58	21.59	60	17.58	22.59	60	17.58	23.59	60	17.58	24.59	60	17.58	25.59	60	17.58	26.59	60	17.58	27.59	60	17.58	28.59	60	17.58	29.59
2	16.57	60	17.56	17.57	18.57	60	17.56	21.57	60	17.56	22.57	60	17.56	23.57	60	17.56	24.57	60	17.56	25.57	60	17.56	26.57	60	17.56	27.57	60	17.56	28.57	60	17.56	29.57
3	16.54	60	17.54	17.55	18.54	60	17.54	21.55	60	17.54	22.55	60	17.54	23.55	60	17.54	24.55	60	17.54	25.55	60	17.54	26.55	60	17.54	27.55	60	17.54	28.55	60	17.54	29.55
4	16.50	60	17.50	17.51	18.50	60	17.50	21.51	60	17.50	22.51	60	17.50	23.51	60	17.50	24.51	60	17.50	25.51	60	17.50	26.51	60	17.50	27.51	60	17.50	28.51	60	17.50	29.51
5	16.46	60	17.46	17.47	18.46	60	17.46	21.47	60	17.46	22.47	60	17.46	23.47	60	17.46	24.47	60	17.46	25.47	60	17.46	26.47	60	17.46	27.47	60	17.46	28.47	60	17.46	29.47
6	16.42	60	17.42	17.43	18.42	60	17.42	21.43	60	17.42	22.43	60	17.42	23.43	60	17.42	24.43	60	17.42	25.43	60	17.42	26.43	60	17.42	27.43	60	17.42	28.43	60	17.42	29.43
7	16.37	60	17.37	17.38	18.37	60	17.37	21.38	60	17.37	22.38	60	17.37	23.38	60	17.37	24.38	60	17.37	25.38	60	17.37	26.38	60	17.37	27.38	60	17.37	28.38	60	17.37	29.38
8	16.32	60	17.32	17.33	18.32	60	17.32	21.33	60	17.32	22.33	60	17.32	23.33	60	17.32	24.33	60	17.32	25.33	60	17.32	26.33	60	17.32	27.33	60	17.32	28.33	60	17.32	29.33
9	16.27	60	17.27	17.28	18.27	60	17.27	21.28	60	17.27	22.28	60	17.27	23.28	60	17.27	24.28	60	17.27	25.28	60	17.27	26.28	60	17.27	27.28	60	17.27	28.28	60	17.27	29.28
10	16.22	60	17.22	17.23	18.22	60	17.22	21.23	60	17.22	22.23	60	17.22	23.23	60	17.22	24.23	60	17.22	25.23	60	17.22	26.23	60	17.22	27.23	60	17.22	28.23	60	17.22	29.23
11	16.17	60	17.17	17.18	18.17	60	17.17	21.18	60	17.17	22.18	60	17.17	23.18	60	17.17	24.18	60	17.17	25.18	60	17.17	26.18	60	17.17	27.18	60	17.17	28.18	60	17.17	29.18
12	16.12	60	17.12	17.13	18.12	60	17.12	21.13	60	17.12	22.13	60	17.12	23.13	60	17.12	24.13	60	17.12	25.13	60	17.12	26.13	60	17.12	27.13	60	17.12	28.13	60	17.12	29.13
13	16.07	60	17.07	17.08	18.07	60	17.07	21.08	60	17.07	22.08	60	17.07	23.08	60	17.07	24.08	60	17.07	25.08	60	17.07	26.08	60	17.07	27.08	60	17.07	28.08	60	17.07	29.08
14	16.02	60	17.02	17.03	18.02	60	17.02	21.03	60	17.02	22.03	60	17.02	23.03	60	17.02	24.03	60	17.02	25.03	60	17.02	26.03	60	17.02	27.03	60	17.02	28.03	60	17.02	29.03
15	15.97	60	16.97	16.98	17.97	60	16.97	20.98	60	16.97	21.98	60	16.97	22.98	60	16.97	23.98	60	16.97	24.98	60	16.97	25.98	60	16.97	26.98	60	16.97	27.98	60	16.97	28.98
16	15.92	60	16.92	16.93	17.92	60	16.92	20.93	60	16.92	21.93	60	16.92	22.93	60	16.92	23.93	60	16.92	24.93	60	16.92	25.93	60	16.92	26.93	60	16.92	27.93	60	16.92	28.93
17	15.87	60	16.87	16.88	17.87	60	16.87	20.88	60	16.87	21.88	60	16.87	22.88	60	16.87	23.88	60	16.87	24.88	60	16.87	25.88	60	16.87	26.88	60	16.87	27.88	60	16.87	28.88
18	15.82	60	16.82	16.83	17.82	60	16.82	20.83	60	16.82	21.83	60	16.82	22.83	60	16.82	23.83	60	16.82	24.83	60	16.82	25.83	60	16.82	26.83	60	16.82	27.83	60	16.82	28.83
19	15.77	60	16.77	16.78	17.77	60	16.77	20.78	60	16.77	21.78	60	16.77	22.78	60	16.77	23.78	60	16.77	24.78	60	16.77	25.78	60	16.77	26.78	60	16.77	27.78	60	16.77	28.78
20	15.72	60	16.72	16.73	17.72	60	16.72	20.73	60	16.72	21.73	60	16.72	22.73	60	16.72	23.73	60	16.72	24.73	60	16.72	25.73	60	16.72	26.73	60	16.72	27.73	60	16.72	28.73
21	15.67	60	16.67	16.68	17.67	60	16.67	20.68	60	16.67	21.68	60	16.67	22.68	60	16.67	23.68	60	16.67	24.68	60	16.67	25.68	60	16.67	26.68	60	16.67	27.68	60	16.67	28.68
22	15.62	60	16.62	16.63	17.62	60	16.62	20.63	60	16.62	21.63	60	16.62	22.63	60	16.62	23.63	60	16.62	24.63	60	16.62	25.63	60	16.62	26.63	60	16.62	27.63	60	16.62	28.63
23	15.57	60	16.57	16.58	17.57	60	16.57	20.58	60	16.57	21.58	60	16.57	22.58	60	16.57	23.58	60	16.57	24.58	60	16.57	25.58	60	16.57	26.58	60	16.57	27.58	60	16.57	28.58
24	15.52	60	16.52	16.53	17.52	60	16.52	20.53	60	16.52	21.53	60	16.52	22.53	60	16.52	23.53	60	16.52	24.53	60	16.52	25.53	60	16.52	26.53	60	16.52	27.53	60	16.52	28.53
25	15.47	60	16.47	16.48	17.47	60	16.47	20.48	60	16.47	21.48	60	16.47	22.48	60	16.47	23.48	60	16.47	24.48	60	16.47	25.48	60	16.47	26.48	60	16.47	27.48	60	16.47	28.48
26	15.42	60	16.42	16.43	17.42	60	16.42	20.43	60	16.42	21.43	60	16.42	22.43	60	16.42	23.43	60	16.42	24.43	60	16.42	25.43	60	16.42	26.43	60	16.42	27.43	60	16.42	28.43
27	15.37	60	16.37	16.38	17.37	60	16.37	20.38	60	16.37	21.38	60	16.37	22.38	60	16.37	23.38	60	16.37	24.38	60	16.37	25.38	60	16.37	26.38	60	16.37	27.38	60	16.37	28.38
28	15.32	60	16.32	16.33	17.32	60	16.32	20.33	60	16.32	21.33	60	16.32	22.33	60	16.32	23.33	60	16.32	24.33	60	16.32	25.33	60	16.32	26.33	60	16.32	27.33	60	16.32	28.33
29	15.27	60	16.27	16.28	17.27	60	16.27	20.28	60	16.27	21.28	60	16.27	22.28	60	16.27	23.28	60	16.27	24.28	60	16.27	25.28	60	16.27	26.28	60	16.27	27.28	60	16.27	28.28
30	15.22	60	16.22	16.23	17.22	60	16.22	20.23	60	16.22	21.23	60	16.22	22.23	60	16.22	23.23	60	16.22	24.23	60	16.22	25.23	60	16.22	26.23	60	16.22	27.23	60	16.22	28.23
31	15.17	60	16.17	16.18	17.17	60	16.17	20.18	60	16.17	21.18	60	16.17	22.18	60	16.17	23.18	60	16.17	24.18	60	16.17	25.18	60	16.17	26.18	60	16.17	27.18	60	16.17	28.18
32	15.12	60	16.12	16.13	17.12	60	16.12	20.13	60	16.12	21.13	60	16.12	22.13	60	16.12	23.13	60	16.12	24.13	60	16.12	25.13	60	16.12	26.13	60	16.12	27.13	60	16.12	28.13
33	15.07	60	16.07	16.08	17.07	60	16.07	20.08	60	16.07	21.08	60	16.07	22.08	60	16.07	23.08	60	16.07	24.08	60	16.07	25.08	60	16.07	26.08	60	16.07	27.08	60	16.07	28.08
34	15.02	60	16.02	16.03	17.02	60	16.02	20.03	60	16.02	21.03	60	16.02	22.03	60	16.02	23.03	60	16.02	24.03	60	16.02	25.03	60	16.02	26.03	60	16.02	27.03	60	16.02	28.03
35	14.97	60	15.97	15.98	16.97	60	15.97	19.98	60	15.97	20.98	60	15.97	21.98	60	15.97	22.98	60	15.97	23.98	60	15.97	24.98	60	15.97	25.98	60	15.97	26.98	60	15.97	27.98
36	14.92	60	15.92	15.93	16.92	60	15.92	19.93	60	15.92	20.93	60	15.92	21.93	60	15.92	22.93	60	15.92	23.93	60	15.92	24.93	60	15.92	25.93	60	15.92	26.93	60	15.92	27.93
37	14.87	60	15.87	15.88	16.87	60	15.87	19.88	60	15.87	20.88	60	15.87	21.88	60	15.87	22.88	60	15.87	23.88	60	15.87	24.88	60	15.87	25.88	60	15.87	26.88	60	15.87	27.88
38	14.82	60	15.82	15.83	16.82	60	15.82	19.83	60	15.82	20.83	60	15.82	21.83	60	15.82	22.83	60	15.82	23.83	60	15.82	24.83	60	15.82	25.83	60	15.82	26.83	60	15.82	27.83
39																																

DECLINATION (0° - 14°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z
L.H.A. less than 180°Zn=360-Z

Table with columns for Latitude (0° to 14°) and Declination (0° to 14°). Each cell contains a numerical value representing the result of the declination calculation. The table is organized into a grid where the top row and left column represent the latitude and the inner grid represents the declination values.

S. Lat. { L.H.A. greater than 180°Zn=180-Z
L.H.A. less than 180°Zn=180+Z

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for latitude (15° to 180°) and declination (15° to 29°). Each cell contains a value representing the difference between the given latitude and declination. The table is organized into a grid with latitude on the vertical axis and declination on the horizontal axis.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

DECLINATION (0° - 14°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for Latitude (0° to 14°) and Declination (0° to 14°). Each cell contains a 3-digit number representing the value for that specific latitude and declination combination.

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

LAT 74°

DECLINATION (15° – 29°) SAME NAME AS LATITUDE

N. Lat. { LHA, greater than 180°; Z=Z
LHA, less than 180°; Z=360°-Z

LHA	15°			16°			17°			18°			19°			20°			21°			22°			23°			24°			25°			26°			27°			28°			29°					
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	31.00	0	180	32.00	0	180	33.00	0	180	34.00	0	180	35.00	0	180	36.00	0	180	37.00	0	180	38.00	0	180	39.00	0	180	40.00	0	180	41.00	0	180	42.00	0	180	43.00	0	180	44.00	0	180	45.00	0	180			
1	30.59	0	178	31.59	0	178	32.59	0	178	33.59	0	178	34.59	0	178	35.59	0	178	36.59	0	178	37.59	0	178	38.59	0	178	39.59	0	178	40.59	0	178	41.59	0	178	42.59	0	178	43.59	0	178	44.59	0	178	45.59	0	178
2	30.57	0	175	31.57	0	175	32.57	0	175	33.57	0	175	34.57	0	175	35.57	0	175	36.57	0	175	37.57	0	175	38.57	0	175	39.57	0	175	40.57	0	175	41.57	0	175	42.57	0	175	43.57	0	175	44.57	0	175	45.57	0	175
3	30.54	0	173	31.54	0	173	32.54	0	173	33.54	0	173	34.54	0	173	35.54	0	173	36.54	0	173	37.54	0	173	38.54	0	173	39.54	0	173	40.54	0	173	41.54	0	173	42.54	0	173	43.54	0	173	44.54	0	173	45.54	0	173
4	30.50	0	171	31.50	0	171	32.50	0	171	33.50	0	171	34.50	0	171	35.50	0	171	36.50	0	171	37.50	0	171	38.50	0	171	39.50	0	171	40.50	0	171	41.50	0	171	42.50	0	171	43.50	0	171	44.50	0	171	45.50	0	171
5	30.47	0	169	31.47	0	169	32.47	0	169	33.47	0	169	34.47	0	169	35.47	0	169	36.47	0	169	37.47	0	169	38.47	0	169	39.47	0	169	40.47	0	169	41.47	0	169	42.47	0	169	43.47	0	169	44.47	0	169	45.47	0	169
6	30.44	0	167	31.44	0	167	32.44	0	167	33.44	0	167	34.44	0	167	35.44	0	167	36.44	0	167	37.44	0	167	38.44	0	167	39.44	0	167	40.44	0	167	41.44	0	167	42.44	0	167	43.44	0	167	44.44	0	167	45.44	0	167
7	30.41	0	165	31.41	0	165	32.41	0	165	33.41	0	165	34.41	0	165	35.41	0	165	36.41	0	165	37.41	0	165	38.41	0	165	39.41	0	165	40.41	0	165	41.41	0	165	42.41	0	165	43.41	0	165	44.41	0	165	45.41	0	165
8	30.38	0	163	31.38	0	163	32.38	0	163	33.38	0	163	34.38	0	163	35.38	0	163	36.38	0	163	37.38	0	163	38.38	0	163	39.38	0	163	40.38	0	163	41.38	0	163	42.38	0	163	43.38	0	163	44.38	0	163	45.38	0	163
9	30.35	0	161	31.35	0	161	32.35	0	161	33.35	0	161	34.35	0	161	35.35	0	161	36.35	0	161	37.35	0	161	38.35	0	161	39.35	0	161	40.35	0	161	41.35	0	161	42.35	0	161	43.35	0	161	44.35	0	161	45.35	0	161
10	30.32	0	159	31.32	0	159	32.32	0	159	33.32	0	159	34.32	0	159	35.32	0	159	36.32	0	159	37.32	0	159	38.32	0	159	39.32	0	159	40.32	0	159	41.32	0	159	42.32	0	159	43.32	0	159	44.32	0	159	45.32	0	159
11	30.29	0	157	31.29	0	157	32.29	0	157	33.29	0	157	34.29	0	157	35.29	0	157	36.29	0	157	37.29	0	157	38.29	0	157	39.29	0	157	40.29	0	157	41.29	0	157	42.29	0	157	43.29	0	157	44.29	0	157	45.29	0	157
12	30.26	0	155	31.26	0	155	32.26	0	155	33.26	0	155	34.26	0	155	35.26	0	155	36.26	0	155	37.26	0	155	38.26	0	155	39.26	0	155	40.26	0	155	41.26	0	155	42.26	0	155	43.26	0	155	44.26	0	155	45.26	0	155
13	30.23	0	153	31.23	0	153	32.23	0	153	33.23	0	153	34.23	0	153	35.23	0	153	36.23	0	153	37.23	0	153	38.23	0	153	39.23	0	153	40.23	0	153	41.23	0	153	42.23	0	153	43.23	0	153	44.23	0	153	45.23	0	153
14	30.20	0	151	31.20	0	151	32.20	0	151	33.20	0	151	34.20	0	151	35.20	0	151	36.20	0	151	37.20	0	151	38.20	0	151	39.20	0	151	40.20	0	151	41.20	0	151	42.20	0	151	43.20	0	151	44.20	0	151	45.20	0	151
15	30.17	0	149	31.17	0	149	32.17	0	149	33.17	0	149	34.17	0	149	35.17	0	149	36.17	0	149	37.17	0	149	38.17	0	149	39.17	0	149	40.17	0	149	41.17	0	149	42.17	0	149	43.17	0	149	44.17	0	149	45.17	0	149
16	30.14	0	147	31.14	0	147	32.14	0	147	33.14	0	147	34.14	0	147	35.14	0	147	36.14	0	147	37.14	0	147	38.14	0	147	39.14	0	147	40.14	0	147	41.14	0	147	42.14	0	147	43.14	0	147	44.14	0	147	45.14	0	147
17	30.11	0	145	31.11	0	145	32.11	0	145	33.11	0	145	34.11	0	145	35.11	0	145	36.11	0	145	37.11	0	145	38.11	0	145	39.11	0	145	40.11	0	145	41.11	0	145	42.11	0	145	43.11	0	145	44.11	0	145	45.11	0	145
18	30.08	0	143	31.08	0	143	32.08	0	143	33.08	0	143	34.08	0	143	35.08	0	143	36.08	0	143	37.08	0	143	38.08	0	143	39.08	0	143	40.08	0	143	41.08	0	143	42.08	0	143	43.08	0	143	44.08	0	143	45.08	0	143
19	30.05	0	141	31.05	0	141	32.05	0	141	33.05	0	141	34.05	0	141	35.05	0	141	36.05	0	141	37.05	0	141	38.05	0	141	39.05	0	141	40.05	0	141	41.05	0	141	42.05	0	141	43.05	0	141	44.05	0	141	45.05	0	141
20	30.02	0	139	31.02	0	139	32.02	0	139	33.02	0	139	34.02	0	139	35.02	0	139	36.02	0	139	37.02	0	139	38.02	0	139	39.02	0	139	40.02	0	139	41.02	0	139	42.02	0	139	43.02	0	139	44.02	0	139	45.02	0	139
21	29.99	0	137	31.99	0	137	32.99	0	137	33.99	0	137	34.99	0	137	35.99	0	137	36.99	0	137	37.99	0	137	38.99	0	137	39.99	0	137	40.99	0	137	41.99	0	137	42.99	0	137	43.99	0	137	44.99	0	137	45.99	0	137
22	29.96	0	135	31.96	0	135	32.96	0	135	33.96	0	135	34.96	0	135	35.96	0	135	36.96	0	135	37.96	0	135	38.96	0	135	39.96	0	135	40.96	0	135	41.96	0	135	42.96	0	135	43.96	0	135	44.96	0	135	45.96	0	135
23	29.93	0	133	31.93	0	133	32.93	0	133	33.93	0	133	34.93	0	133	35.93	0	133	36.93	0	133	37.93	0	133	38.93	0	133	39.93	0	133	40.93	0	133	41.93	0	133	42.93	0	133	43.93	0	133	44.93	0	133	45.93	0	133
24	29.90	0	131	31.90	0	131	32.90	0	131	33.90	0	131	34.90	0	131	35.90	0	131	36.90	0	131	37.90	0	131	38.90	0	131	39.90	0	131	40.90	0	131	41.90	0	131	42.90	0	131	43.90	0	131	44.90	0	131	45.90	0	131
25	29.87	0	129	31.87	0	129	32.87	0	129	33.87	0	129	34.87	0	129	35.87	0	129	36.87	0	129	37.87	0	129	38.87	0	129	39.87	0	129	40.87	0	129	41.87	0	129	42.87	0	129	43.87	0	129	44.87	0	129	45.87	0	129
26	29.84	0	127	31.84	0	127	32.84	0	127	33.84	0	127	34.84	0	127	35.84	0	127	36.84	0	127	37.84	0	127	38.84	0	127	39.84	0	127	40.84	0	127	41.84	0	127	42.84	0	127	43.84	0	127	44.84	0	127	45.84	0	127
27	29.81	0	125	31.81	0	125	32.81	0	125	33.81	0	125	34.81	0	125	35.81	0	125	36.81	0	125	37.81	0	125	38.81	0	125	39.81	0	125	40.81	0	125	41.81	0	125	42.81	0	125	43.81	0	125	44.81	0	125	45.81	0	125
28	29.78	0	123	31.78	0	123	32.78	0	123	33.78	0	123	34.78	0	123	35.78	0	123	36.78	0	123	37.78	0	123	38.78	0	123	39.78	0	123	40.78	0	123	41.78	0	123	42.78	0	123	43.78	0	123	44.78	0	123	45.78	0	123
29	29.75	0	121	31.75	0	121	32.75	0	121	33.75	0	121	34.75	0	121	35.75	0	121	36.75	0	121	37.75	0	121	38.75	0	121	39.75	0	121	40.75	0																

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=360°-Z

Table with columns for latitude (15° to 180°) and declination (15° to 29°). Each cell contains a value representing the difference between the given latitude and declination. The table is organized into a grid where the top row represents the declination and the left column represents the latitude. Values range from 0 to 360, with some cells containing negative values.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180°-Z
L.H.A. less than 180°Zn=180°+Z

N. Lat. { LHA, greater than 180°; Z=Z
 { LHA, less than 180°; Z=360°-Z

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 75°

LHA	0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°		LHA	
	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d		
0	15.00	60	18.00	60	17.00	60	18.00	60	19.00	60	20.00	60	21.00	60	22.00	60	23.00	60	24.00	60	25.00	60	26.00	60	27.00	60	28.00	60	29.00	60	180	360
2	14.58	60	17.98	60	16.99	60	17.98	60	18.99	60	19.99	60	20.99	60	21.99	60	22.99	60	23.99	60	24.99	60	25.99	60	26.99	60	27.99	60	28.99	60	178	358
4	14.56	60	17.96	60	16.97	60	17.96	60	18.97	60	19.97	60	20.97	60	21.97	60	22.97	60	23.97	60	24.97	60	25.97	60	26.97	60	27.97	60	28.97	60	176	356
6	14.55	60	17.95	60	16.96	60	17.95	60	18.96	60	19.96	60	20.96	60	21.96	60	22.96	60	23.96	60	24.96	60	25.96	60	26.96	60	27.96	60	28.96	60	174	354
8	14.51	60	17.91	60	16.92	60	17.91	60	18.92	60	19.92	60	20.92	60	21.92	60	22.92	60	23.92	60	24.92	60	25.92	60	26.92	60	27.92	60	28.92	60	172	352
10	14.46	60	17.86	60	16.87	60	17.86	60	18.87	60	19.87	60	20.87	60	21.87	60	22.87	60	23.87	60	24.87	60	25.87	60	26.87	60	27.87	60	28.87	60	169	349
12	14.40	60	17.80	60	16.81	60	17.80	60	18.81	60	19.81	60	20.81	60	21.81	60	22.81	60	23.81	60	24.81	60	25.81	60	26.81	60	27.81	60	28.81	60	167	347
14	14.33	60	17.73	60	16.74	60	17.73	60	18.74	60	19.74	60	20.74	60	21.74	60	22.74	60	23.74	60	24.74	60	25.74	60	26.74	60	27.74	60	28.74	60	165	345
16	14.24	60	17.64	60	16.65	60	17.64	60	18.65	60	19.65	60	20.65	60	21.65	60	22.65	60	23.65	60	24.65	60	25.65	60	26.65	60	27.65	60	28.65	60	163	343
18	14.15	60	17.55	60	16.56	60	17.55	60	18.56	60	19.56	60	20.56	60	21.56	60	22.56	60	23.56	60	24.56	60	25.56	60	26.56	60	27.56	60	28.56	60	161	341
20	14.05	60	17.45	60	16.46	60	17.45	60	18.46	60	19.46	60	20.46	60	21.46	60	22.46	60	23.46	60	24.46	60	25.46	60	26.46	60	27.46	60	28.46	60	159	339
22	13.53	60	17.33	60	16.34	60	17.33	60	18.34	60	19.34	60	20.34	60	21.34	60	22.34	60	23.34	60	24.34	60	25.34	60	26.34	60	27.34	60	28.34	60	158	338
24	13.41	60	17.21	60	16.22	60	17.21	60	18.22	60	19.22	60	20.22	60	21.22	60	22.22	60	23.22	60	24.22	60	25.22	60	26.22	60	27.22	60	28.22	60	156	336
26	13.27	60	17.07	60	16.08	60	17.07	60	18.08	60	19.08	60	20.08	60	21.08	60	22.08	60	23.08	60	24.08	60	25.08	60	26.08	60	27.08	60	28.08	60	154	334
28	13.13	60	16.93	60	15.94	60	16.93	60	17.94	60	18.94	60	19.94	60	20.94	60	21.94	60	22.94	60	23.94	60	24.94	60	25.94	60	26.94	60	27.94	60	152	332
30	12.97	60	16.78	60	15.79	60	16.78	60	17.79	60	18.79	60	19.79	60	20.79	60	21.79	60	22.79	60	23.79	60	24.79	60	25.79	60	26.79	60	27.79	60	150	330
32	12.81	60	16.62	60	15.63	60	16.62	60	17.63	60	18.63	60	19.63	60	20.63	60	21.63	60	22.63	60	23.63	60	24.63	60	25.63	60	26.63	60	27.63	60	148	328
34	12.63	60	16.45	60	15.46	60	16.45	60	17.46	60	18.46	60	19.46	60	20.46	60	21.46	60	22.46	60	23.46	60	24.46	60	25.46	60	26.46	60	27.46	60	146	326
36	12.05	60	16.27	60	15.28	60	16.27	60	17.28	60	18.28	60	19.28	60	20.28	60	21.28	60	22.28	60	23.28	60	24.28	60	25.28	60	26.28	60	27.28	60	144	324
38	11.46	60	16.09	60	15.10	60	16.09	60	17.10	60	18.10	60	19.10	60	20.10	60	21.10	60	22.10	60	23.10	60	24.10	60	25.10	60	26.10	60	27.10	60	142	322
40	11.26	60	15.93	60	14.94	60	15.93	60	16.94	60	17.94	60	18.94	60	19.94	60	20.94	60	21.94	60	22.94	60	23.94	60	24.94	60	25.94	60	26.94	60	140	320
42	11.05	60	15.77	60	14.78	60	15.77	60	16.78	60	17.78	60	18.78	60	19.78	60	20.78	60	21.78	60	22.78	60	23.78	60	24.78	60	25.78	60	26.78	60	138	318
44	10.84	60	15.61	60	14.62	60	15.61	60	16.62	60	17.62	60	18.62	60	19.62	60	20.62	60	21.62	60	22.62	60	23.62	60	24.62	60	25.62	60	26.62	60	136	316
46	10.62	60	15.45	60	14.46	60	15.45	60	16.46	60	17.46	60	18.46	60	19.46	60	20.46	60	21.46	60	22.46	60	23.46	60	24.46	60	25.46	60	26.46	60	134	314
48	10.39	60	15.29	60	14.30	60	15.29	60	16.30	60	17.30	60	18.30	60	19.30	60	20.30	60	21.30	60	22.30	60	23.30	60	24.30	60	25.30	60	26.30	60	132	312
50	10.15	60	15.13	60	14.14	60	15.13	60	16.14	60	17.14	60	18.14	60	19.14	60	20.14	60	21.14	60	22.14	60	23.14	60	24.14	60	25.14	60	26.14	60	130	310
52	09.90	60	14.97	60	13.98	60	14.97	60	15.98	60	16.98	60	17.98	60	18.98	60	19.98	60	20.98	60	21.98	60	22.98	60	23.98	60	24.98	60	25.98	60	128	308
54	09.65	60	14.80	60	13.81	60	14.80	60	15.81	60	16.81	60	17.81	60	18.81	60	19.81	60	20.81	60	21.81	60	22.81	60	23.81	60	24.81	60	25.81	60	126	306
56	09.39	60	14.63	60	13.64	60	14.63	60	15.64	60	16.64	60	17.64	60	18.64	60	19.64	60	20.64	60	21.64	60	22.64	60	23.64	60	24.64	60	25.64	60	124	304
58	09.13	60	14.46	60	13.47	60	14.46	60	15.47	60	16.47	60	17.47	60	18.47	60	19.47	60	20.47	60	21.47	60	22.47	60	23.47	60	24.47	60	25.47	60	122	302
60	08.87	60	14.29	60	13.30	60	14.29	60	15.30	60	16.30	60	17.30	60	18.30	60	19.30	60	20.30	60	21.30	60	22.30	60	23.30	60	24.30	60	25.30	60	120	300
62	08.61	60	14.12	60	13.13	60	14.12	60	15.13	60	16.13	60	17.13	60	18.13	60	19.13	60	20.13	60	21.13	60	22.13	60	23.13	60	24.13	60	25.13	60	118	298
64	08.35	60	13.95	60	12.96	60	13.95	60	14.96	60	15.96	60	16.96	60	17.96	60	18.96	60	19.96	60	20.96	60	21.96	60	22.96	60	23.96	60	24.96	60	116	296
66	08.09	60	13.78	60	12.79	60	13.78	60	14.79	60	15.79	60	16.79	60	17.79	60	18.79	60	19.79	60	20.79	60	21.79	60	22.79	60	23.79	60	24.79	60	114	294
68	07.83	60	13.61	60	12.62	60	13.61	60	14.62	60	15.62	60	16.62	60	17.62	60	18.62	60	19.62	60	20.62	60	21.62	60	22.62	60	23.62	60	24.62	60	112	292
70	07.57	60	13.44	60	12.45	60	13.44	60	14.45	60	15.45	60	16.45	60	17.45	60	18.45	60	19.45	60	20.45	60	21.45	60	22.45	60	23.45	60	24.45	60	110	290
72	07.31	60	13.27	60	12.28	60	13.27	60	14.28	60	15.28	60	16.28	60	17.28	60	18.28	60	19.28	60	20.28	60	21.28	60	22.28	60	23.28	60	24.28	60	108	288
74	07.05	60	13.10	60	12.11	60	13.10	60	14.11	60	15.11	60	16.11	60	17.11	60	18.11	60	19.11	60	20.11	60	21.11	60	22.11	60	23.11	60	24.11	60	106	286
76	06.79	60	12.93	60	11.94	60	12.93	60	13.94	60	14.94	60	15.94	60	16.94	60	17.94	60	18.94	60	19.94	60	20.94	60	21.94	60	22.94	60	23.94	60	104	284
78	06.53	60	12.76	60	11.77	60	12.76	60	13.77	60	14.77	60	15.77	60	16.77	60	17.77	60	18.77	60	19.77	60	20.77	60	21.77	60	22.77	60	23.77	60	102	282
80	06.27	60	12.59	60	11.60	60	12.59	60	13.60	60	14.60	60	15.60	60	16.60	60	17.60	60	18.60	60	19.60	60	20.60	60	21.60	60	22.60	60	23.60	60	100	280
82	06.01	60	12.42	60	11.43	60	12.42	60	13.43	60	14.43	60	15.43	60	16.43	60	17.43	60	18.													

CONTRARY NAME TO LATITUDE

LAT 75°

N. Lat. { LHA, greater than 180°Zn=Z
LHA, less than 180°Zn=360°-Z

0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°			
LHA	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	LHA	
122	-7	53	-58	59	238																										
120	-7	26	-59	61	240																										
118	-6	59	-58	63	242																										
116	-6	31	-58	65	244																										
114	-5	34	-58	67	246																										
112	-5	03	-58	69	248																										
110	-4	05	-58	71	250																										
108	-4	35	-58	73	252																										
106	-4	05	-59	75	254																										
104	-3	35	-58	77	256																										
102	-3	05	-58	79	258																										
100	-2	35	-58	80	260																										
98	-2	04	-58	82	262																										
96	-1	33	-58	84	264																										
94	-1	03	-58	86	266																										
92	0	31	-58	88	268																										
90	0	00	-58	90	270																										
88	0	01	-58	92	272																										
86	0	33	-58	94	274																										
84	0	33	-58	96	276																										
82	0	24	-58	98	278																										
80	0	25	-58	100	280																										
78	0	35	-58	102	282																										
76	0	35	-58	104	284																										
74	0	45	-58	106	286																										
72	0	45	-58	108	288																										
70	0	55	-58	109	290																										
68	0	54	-58	111	292																										
66	0	63	-58	113	294																										
64	0	61	-58	115	296																										
62	0	59	-58	117	298																										
60	0	7	-58	119	300																										
58	0	73	-58	121	302																										
56	0	45	-58	123	304																										
54	0	45	-58	125	306																										
52	0	9	-58	127	308																										
50	0	35	-58	129	310																										
48	0	58	-58	131	312																										
46	1	0	-58	133	314																										
44	1	04	-58	135	316																										
42	1	10	-58	137	318																										
40	1	26	-58	139	320																										
38	1	46	-58	141	322																										
36	1	25	-58	143	324																										
34	1	23	-58	145	326																										
32	1	21	-58	147	328																										
30	1	57	-58	149	330																										
28	1	3	-58	151	332																										
26	1	37	-58	153	334																										
24	1	31	-58	155	336																										
22	1	53	-58	157	338																										
20	1	45	-58	159	340																										
18	1	45	-58	161	342																										
16	1	24	-58	163	344																										
14	1	43	-58	165	346																										
12	1	40	-58	167	348																										
10	1	46	-58	169	350																										
8	1	41	-58	171	352																										
6	1	55	-58	173	354																										
4	1	58	-58	175	356																										
2	1	59	-58	177	358																										
0	1	50	-58	180	360																										

CONTRARY NAME TO LATITUDE

S. Lat. { LHA, greater than 180°Zn=180°-Z
LHA, less than 180°Zn=180°+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Z=Z L.H.A. less than 180°Z=360-Z

Table with columns for Latitude (15° to 29°) and Declination (15° to 29°). Each cell contains a numerical value representing the declination for a given latitude. The table is organized into 15-degree intervals for both latitude and declination.

S. Lat. { L.H.A. greater than 180°Z=180-Z L.H.A. less than 180°Z=180+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { LHA, greater than 180°Zn=Z
 { LHA, less than 180°Zn=60°-Z

DECLINATION (15° – 29°) **SAME NAME AS LATITUDE**

LAT 75°

LAT 75°

LHA	15°			16°			17°			18°			19°			20°			21°			22°			23°			24°			25°			26°			27°			28°			29°			LHA											
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																					
140	03	21	59	38	04	20	60	38	05	20	59	38	06	17	59	38	07	18	59	38	08	18	59	37	11	14	60	37	12	14	59	37	13	13	59	37	14	12	59	37	15	11	59	36	16	10	59	36	17	09	59	36	220				
142	03	02	60	37	04	02	59	36	05	01	59	36	07	58	60	36	06	59	59	34	06	41	60	36	09	57	59	36	10	56	59	35	11	55	59	35	12	54	60	35	13	54	59	35	14	53	59	35	17	09	59	34	218				
144	02	44	59	35	03	43	60	34	04	43	59	34	07	41	59	34	08	40	59	33	11	38	59	33	12	37	59	33	13	36	60	33	13	36	59	33	15	35	59	33	15	35	59	33	16	34	59	32	216								
146	02	27	59	33	03	26	60	33	04	26	59	32	05	25	59	32	06	24	60	32	08	23	60	32	09	23	59	32	10	22	59	32	11	21	60	31	12	21	59	31	13	20	59	31	14	19	60	31	16	18	59	31	214				
148	02	11	59	31	03	10	59	31	04	09	60	31	05	09	59	30	06	08	60	30	07	08	60	30	09	07	59	30	10	06	59	30	10	06	59	30	12	05	59	29	13	04	60	29	14	04	59	29	16	02	60	29	212				
150	01	55	60	29	02	55	59	29	03	54	60	29	04	54	59	29	05	53	60	28	06	53	59	28	08	52	59	28	09	51	60	28	10	51	60	28	11	50	60	28	12	50	59	27	13	49	59	27	15	48	59	27	210				
152	01	41	59	27	02	40	60	27	03	40	59	27	04	39	60	27	05	39	59	26	06	38	60	26	08	37	60	26	09	37	60	26	10	37	60	26	11	36	60	26	12	36	59	26	14	35	59	25	15	34	60	25	208				
154	01	27	60	25	02	27	59	25	03	26	60	25	04	26	59	25	05	25	60	25	06	25	60	24	08	24	60	24	09	24	59	24	10	23	60	24	11	23	60	24	12	23	59	24	14	22	59	24	15	21	60	23	206				
156	01	14	60	23	02	14	60	23	03	14	59	23	04	13	60	23	05	13	60	23	06	13	59	23	08	12	60	22	09	12	60	22	10	11	60	22	11	11	60	22	12	11	59	22	13	10	60	22	15	10	59	22	204				
158	01	03	59	21	02	02	60	21	03	02	60	21	04	02	59	21	05	01	60	21	06	01	60	21	08	01	59	21	09	00	60	20	10	00	60	20	11	00	59	20	11	59	60	20	13	59	60	20	14	59	59	20	202				
160	00	52	60	19	01	52	59	19	02	51	60	19	03	51	59	19	05	51	59	19	06	50	60	19	08	50	60	19	09	50	60	19	10	49	60	18	10	49	60	18	11	49	60	18	12	49	60	18	14	48	60	18	200				
162	00	42	60	17	01	42	60	17	02	42	59	17	03	41	60	17	04	41	60	17	06	41	60	17	08	41	59	17	09	40	60	17	10	40	60	17	11	40	60	17	11	40	60	16	13	40	60	16	14	39	60	16	198				
164	00	33	60	15	01	33	60	15	02	33	60	15	03	33	60	15	05	33	59	15	06	32	60	15	08	32	60	15	09	32	60	15	10	32	59	15	11	32	59	15	12	31	60	15	13	31	60	14	14	31	60	14	196				
166	00	26	59	14	01	25	60	13	02	25	60	13	03	25	60	13	04	25	60	13	05	25	60	13	08	25	59	13	09	24	60	13	10	24	60	13	11	24	60	13	12	24	60	13	13	24	60	13	14	24	60	13	194				
168	00	19	60	12	01	19	60	12	02	19	60	11	03	19	59	11	04	18	60	11	05	18	60	11	08	18	60	11	09	18	60	11	10	18	60	11	10	18	60	11	11	18	60	11	12	18	60	11	14	18	59	11	192				
170	00	13	60	10	01	13	60	10	02	13	60	10	03	13	60	10	04	13	60	9	05	13	60	9	08	13	60	9	09	13	59	9	10	12	60	9	10	12	60	9	11	12	60	9	12	12	60	9	14	12	60	9	190				
172	00	08	60	8	01	08	60	8	02	08	60	8	03	08	60	8	05	08	60	8	06	08	60	7	08	08	60	7	09	08	60	7	10	08	60	7	10	08	60	7	11	08	60	7	12	08	60	7	13	08	60	7	14	08	60	7	188
174	00	05	60	6	01	05	60	6	02	05	60	6	03	05	60	6	05	05	60	6	06	05	60	6	08	05	60	6	09	05	59	6	10	04	60	6	10	04	60	6	11	04	60	6	12	04	60	6	14	04	60	5	186				
176	00	02	60	4	01	02	60	4	02	02	60	4	03	02	60	4	04	02	60	4	05	02	60	4	08	02	60	4	09	02	60	4	10	02	60	4	10	02	60	4	11	02	60	4	12	02	60	4	14	02	60	4	184				
178	00	01	60	2	01	01	60	2	02	01	60	2	03	01	60	2	04	01	60	2	05	01	60	2	08	01	60	2	09	01	59	2	10	00	60	2	10	00	60	2	11	00	60	2	12	00	60	2	14	00	60	2	182				
180	00	00	60	0	01	00	60	0	02	00	60	0	03	00	60	0	04	00	60	0	05	00	60	0	08	00	60	0	09	00	60	0	10	00	60	0	10	00	60	0	11	00	60	0	12	00	60	0	14	00	60	0	180				

15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°
DECLINATION (15° – 29°) SAME NAME AS LATITUDE														
S. Lat. { LHA, greater than 180°Zn=180°-Z { LHA, less than 180°Zn=180°+Z														

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

N. Lat. { LHA: greater than 180°Z1=Z
LHA: less than 180°Z1=360°-Z

Table with columns for Latitude (15° to 29°) and Declination (15° to 29°). Each cell contains values for Hc, d, and Z. Includes a 'CONTRARY NAME TO LATITUDE' section on the right side of the table.

DECLINATION (15° - 29°) CONTRARY NAME TO LATITUDE

S. Lat. { LHA: greater than 180°Z1=180°-Z
LHA: less than 180°Z1=180°+Z

N. Lat. { LHA, greater than 180°; Z=Z
 N. Lat. { LHA, less than 180°; Z=360°-Z

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 76°

LAT 76°

LHA	0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°				
	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d			
0	14.00	60	18.00	17.00	16.00	15.00	13.00	12.00	10.00	9.00	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
1	13.59	60	17.58	16.59	15.59	14.59	12.59	11.59	9.59	8.59	7.59	6.59	5.59	4.59	3.59	2.59	1.59	0.59	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
2	13.58	60	17.57	16.58	15.58	14.58	12.58	11.58	9.58	8.58	7.58	6.58	5.58	4.58	3.58	2.58	1.58	0.58	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
3	13.57	60	17.56	16.57	15.57	14.57	12.57	11.57	9.57	8.57	7.57	6.57	5.57	4.57	3.57	2.57	1.57	0.57	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
4	13.56	60	17.55	16.56	15.56	14.56	12.56	11.56	9.56	8.56	7.56	6.56	5.56	4.56	3.56	2.56	1.56	0.56	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
5	13.55	60	17.54	16.55	15.55	14.55	12.55	11.55	9.55	8.55	7.55	6.55	5.55	4.55	3.55	2.55	1.55	0.55	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
6	13.54	60	17.53	16.54	15.54	14.54	12.54	11.54	9.54	8.54	7.54	6.54	5.54	4.54	3.54	2.54	1.54	0.54	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
7	13.53	60	17.52	16.53	15.53	14.53	12.53	11.53	9.53	8.53	7.53	6.53	5.53	4.53	3.53	2.53	1.53	0.53	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
8	13.52	60	17.51	16.52	15.52	14.52	12.52	11.52	9.52	8.52	7.52	6.52	5.52	4.52	3.52	2.52	1.52	0.52	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
9	13.51	60	17.50	16.51	15.51	14.51	12.51	11.51	9.51	8.51	7.51	6.51	5.51	4.51	3.51	2.51	1.51	0.51	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
10	13.50	60	17.49	16.50	15.50	14.50	12.50	11.50	9.50	8.50	7.50	6.50	5.50	4.50	3.50	2.50	1.50	0.50	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
11	13.49	60	17.48	16.49	15.49	14.49	12.49	11.49	9.49	8.49	7.49	6.49	5.49	4.49	3.49	2.49	1.49	0.49	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
12	13.48	60	17.47	16.48	15.48	14.48	12.48	11.48	9.48	8.48	7.48	6.48	5.48	4.48	3.48	2.48	1.48	0.48	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
13	13.47	60	17.46	16.47	15.47	14.47	12.47	11.47	9.47	8.47	7.47	6.47	5.47	4.47	3.47	2.47	1.47	0.47	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
14	13.46	60	17.45	16.46	15.46	14.46	12.46	11.46	9.46	8.46	7.46	6.46	5.46	4.46	3.46	2.46	1.46	0.46	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
15	13.45	60	17.44	16.45	15.45	14.45	12.45	11.45	9.45	8.45	7.45	6.45	5.45	4.45	3.45	2.45	1.45	0.45	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
16	13.44	60	17.43	16.44	15.44	14.44	12.44	11.44	9.44	8.44	7.44	6.44	5.44	4.44	3.44	2.44	1.44	0.44	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
17	13.43	60	17.42	16.43	15.43	14.43	12.43	11.43	9.43	8.43	7.43	6.43	5.43	4.43	3.43	2.43	1.43	0.43	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
18	13.42	60	17.41	16.42	15.42	14.42	12.42	11.42	9.42	8.42	7.42	6.42	5.42	4.42	3.42	2.42	1.42	0.42	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
19	13.41	60	17.40	16.41	15.41	14.41	12.41	11.41	9.41	8.41	7.41	6.41	5.41	4.41	3.41	2.41	1.41	0.41	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
20	13.40	60	17.39	16.40	15.40	14.40	12.40	11.40	9.40	8.40	7.40	6.40	5.40	4.40	3.40	2.40	1.40	0.40	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
21	13.39	60	17.38	16.39	15.39	14.39	12.39	11.39	9.39	8.39	7.39	6.39	5.39	4.39	3.39	2.39	1.39	0.39	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
22	13.38	60	17.37	16.38	15.38	14.38	12.38	11.38	9.38	8.38	7.38	6.38	5.38	4.38	3.38	2.38	1.38	0.38	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
23	13.37	60	17.36	16.37	15.37	14.37	12.37	11.37	9.37	8.37	7.37	6.37	5.37	4.37	3.37	2.37	1.37	0.37	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
24	13.36	60	17.35	16.36	15.36	14.36	12.36	11.36	9.36	8.36	7.36	6.36	5.36	4.36	3.36	2.36	1.36	0.36	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
25	13.35	60	17.34	16.35	15.35	14.35	12.35	11.35	9.35	8.35	7.35	6.35	5.35	4.35	3.35	2.35	1.35	0.35	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
26	13.34	60	17.33	16.34	15.34	14.34	12.34	11.34	9.34	8.34	7.34	6.34	5.34	4.34	3.34	2.34	1.34	0.34	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
27	13.33	60	17.32	16.33	15.33	14.33	12.33	11.33	9.33	8.33	7.33	6.33	5.33	4.33	3.33	2.33	1.33	0.33	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
28	13.32	60	17.31	16.32	15.32	14.32	12.32	11.32	9.32	8.32	7.32	6.32	5.32	4.32	3.32	2.32	1.32	0.32	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
29	13.31	60	17.30	16.31	15.31	14.31	12.31	11.31	9.31	8.31	7.31	6.31	5.31	4.31	3.31	2.31	1.31	0.31	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
30	13.30	60	17.29	16.30	15.30	14.30	12.30	11.30	9.30	8.30	7.30	6.30	5.30	4.30	3.30	2.30	1.30	0.30	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
31	13.29	60	17.28	16.29	15.29	14.29	12.29	11.29	9.29	8.29	7.29	6.29	5.29	4.29	3.29	2.29	1.29	0.29	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
32	13.28	60	17.27	16.28	15.28	14.28	12.28	11.28	9.28	8.28	7.28	6.28	5.28	4.28	3.28	2.28	1.28	0.28	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
33	13.27	60	17.26	16.27	15.27	14.27	12.27	11.27	9.27	8.27	7.27	6.27	5.27	4.27	3.27	2.27	1.27	0.27	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
34	13.26	60	17.25	16.26	15.26	14.26	12.26	11.26	9.26	8.26	7.26	6.26	5.26	4.26	3.26	2.26	1.26	0.26	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
35	13.25	60	17.24	16.25	15.25	14.25	12.25	11.25	9.25	8.25	7.25	6.25	5.25	4.25	3.25	2.25	1.25	0.25	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
36	13.24	60	17.23	16.24	15.24	14.24	12.24	11.24	9.24	8.24	7.24	6.24	5.24	4.24	3.24	2.24	1.24	0.24	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00						

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Z=Z L.H.A. less than 180°Z=360°-Z

Table with columns for Latitude (15° to 29°) and Declination (15° to 29°). Each cell contains a value representing the relationship between the two coordinates. The table is organized into a grid with 15 columns and 15 rows of data.

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

S. Lat. { L.H.A. greater than 180°Z=180°-Z L.H.A. less than 180°Z=180°-Z

N. Lat. { LHA, greater than 180°Zn=Z
 LHA, less than 180°Zn=360°-Z

DECLINATION (15° – 29°) SAME NAME AS LATITUDE

LAT 76°

LAT 76°

LHA	15°			16°			17°			18°			19°			20°			21°			22°			23°			24°			25°			26°			27°			28°			29°			LHA			
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z													
140	04	08	59	38	05	07	06	38	09	04	60	38	10	04	59	38	11	03	59	37	12	02	59	37	13	01	60	37	14	01	59	37	15	00	59	37	15	59	59	37	16	58	59	36	17	57	60	36	220
142	03	50	60	37	04	50	36	08	47	59	36	09	46	60	36	10	46	59	36	11	45	59	35	12	44	60	35	13	44	59	35	14	43	59	35	15	42	59	35	16	41	60	35	218					
144	03	34	59	35	05	32	60	06	32	59	34	08	30	59	34	10	29	60	34	11	29	59	33	12	28	60	33	13	27	60	33	14	27	59	33	15	26	59	33	16	25	60	33	216					
146	03	17	60	33	04	17	59	32	08	15	59	32	09	14	60	32	10	14	59	32	11	13	59	32	12	12	60	32	13	12	59	31	14	11	60	31	15	11	59	31	16	10	59	31	214				
148	03	02	60	31	04	02	60	31	06	01	59	30	08	00	59	30	09	59	30	10	58	60	30	12	57	60	30	13	57	59	29	14	56	60	29	15	56	59	29	16	55	59	29	212					
150	02	48	59	29	03	47	59	29	05	46	60	29	06	46	59	28	09	45	59	28	10	44	60	28	11	44	59	28	12	43	60	28	13	43	59	28	14	42	60	27	15	42	59	27	210				
152	02	34	60	27	03	34	60	27	05	33	60	27	06	33	59	26	09	31	60	26	10	31	59	26	11	31	59	26	12	30	60	26	13	30	59	26	14	29	60	26	15	29	59	25	208				
154	02	21	60	25	03	21	60	25	05	20	60	25	06	20	60	24	09	19	60	24	10	19	59	24	11	18	60	24	12	18	60	24	13	18	59	24	14	17	60	24	15	17	59	24	206				
156	02	09	60	23	03	09	60	23	05	09	59	23	07	08	60	23	09	07	60	22	10	07	60	22	11	07	60	22	12	07	59	22	13	06	60	22	14	06	60	22	15	06	59	22	204				
158	01	59	59	21	02	58	60	21	04	58	60	21	06	57	60	21	08	57	60	21	09	57	59	20	10	56	60	20	11	56	60	20	12	56	59	20	13	55	60	20	14	55	60	20	202				
160	01	48	60	19	02	48	60	19	04	48	60	19	06	47	60	19	08	47	60	19	09	47	60	19	10	47	59	19	11	46	60	18	12	46	60	18	13	46	60	18	14	46	59	18	200				
162	01	39	60	17	02	39	60	17	04	39	60	17	06	38	60	17	08	38	60	17	09	38	60	17	10	38	60	17	11	38	59	17	12	37	60	17	13	37	60	16	14	37	60	16	198				
164	01	31	60	15	02	31	60	15	04	31	60	15	06	30	60	15	08	30	60	15	09	30	60	15	10	30	60	15	11	30	60	15	12	30	59	15	13	29	60	15	14	29	60	15	196				
166	01	24	60	14	02	24	60	14	04	24	59	13	06	23	60	13	08	23	60	13	09	23	60	13	10	23	60	13	11	23	60	13	12	23	60	13	13	23	59	13	14	22	60	13	194				
168	01	18	59	12	02	17	60	12	04	17	60	12	06	17	60	12	08	17	60	12	09	17	60	12	10	17	60	12	11	17	60	12	12	17	60	12	13	17	60	12	14	17	59	12	192				
170	01	12	60	10	02	12	60	10	04	12	60	10	06	12	60	9	08	12	60	9	09	12	60	9	10	12	60	9	11	12	60	9	12	12	60	9	13	12	60	9	14	12	59	9	190				
172	01	08	60	8	02	08	60	8	04	08	60	8	06	08	60	8	08	08	60	8	09	08	60	8	10	08	59	8	11	07	60	7	12	07	60	7	13	07	60	7	14	07	60	7	188				
174	01	04	60	6	02	04	60	6	04	04	60	6	06	04	60	6	08	04	60	6	09	04	60	6	10	04	60	6	11	04	60	6	12	04	60	6	13	04	60	6	14	04	60	5	186				
176	01	02	60	4	02	02	60	4	04	02	60	4	06	02	60	4	08	02	60	4	09	02	60	4	10	02	60	4	11	02	60	4	12	02	60	4	13	02	60	4	14	02	60	4	184				
178	01	00	60	2	02	00	60	2	04	00	60	2	06	00	60	2	08	00	60	2	09	00	60	2	10	00	60	2	11	00	60	2	12	00	60	2	13	00	60	2	14	00	60	2	182				
180	01	00	60	0	02	00	60	0	04	00	60	0	06	00	60	0	08	00	60	0	09	00	60	0	10	00	60	0	11	00	60	0	12	00	60	0	13	00	60	0	14	00	60	0	180				

15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°
DECLINATION (15° – 29°) SAME NAME AS LATITUDE														
S. Lat. { LHA, greater than 180°Zn=180°-Z LHA, less than 180°Zn=180°+Z														

DECLINATION (15° – 29°) CONTRARY NAME TO LATITUDE

N. Lat. { LHA: greater than 180°Zi=Z
LHA: less than 180°Zi=360°-Z

15°		16°		17°		18°		19°		20°		21°		22°		23°		24°		25°		26°		27°		28°		29°							
LHA	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	LHA				
60	-7	43	-59	122	300																														
58	-7	19	-59	124	302																														
56	-6	55	-59	126	304																														
54	-6	32	-59	128		-7	31	-59	128	306																									
52	-6	09	-59	130		-7	08	-59	130	308																									
50	-5	48	-58	132		-6	46	-59	132	310																									
48	-5	26	-59	134		-6	25	-59	134		-7	24	-59	134	312																				
46	-5	06	-59	136		-6	05	-59	136		-7	04	-59	136	314																				
44	-4	46	-59	138		-5	45	-59	138		-6	44	-59	138	316																				
42	-4	27	-59	140		-5	26	-59	140		-6	25	-59	140		-7	24	-59	140	318															
40	-4	08	-59	142		-5	07	-60	142		-6	07	-59	142		-7	06	-59	142	320															
38	-3	50	-60	143		-4	50	-59	144		-5	49	-59	144		-6	48	-60	144	322															
36	-3	34	-59	145		-4	33	-59	145		-5	32	-60	146		-6	32	-59	146	324															
34	-3	17	-60	147		-4	17	-59	147		-5	16	-60	148		-6	16	-60	148		-7	15	-60	148	326										
32	-3	02	-60	149		-4	02	-59	149		-5	01	-60	149		-6	01	-59	150		-7	00	-60	150	328										
30	-2	48	-59	151		-3	47	-60	151		-4	47	-59	151		-5	46	-60	151		-6	46	-59	152	330										
28	-2	34	-60	153		-3	34	-59	153		-4	33	-60	153		-5	33	-60	153		-6	33	-59	153	332										
26	-2	21	-60	155		-3	21	-60	155		-4	21	-59	155		-5	20	-60	155		-6	20	-60	155		-7	20	-59	155	334					
24	-2	09	-60	157		-3	09	-60	157		-4	09	-60	157		-5	09	-59	157		-6	08	-60	157		-7	08	-60	157	336					
22	-1	59	-59	159		-2	58	-60	159		-3	58	-60	159		-4	58	-59	159		-5	58	-59	159		-6	57	-60	159	338					
20	-1	48	-60	161		-2	48	-60	161		-3	48	-60	161		-4	48	-60	161		-5	48	-59	161		-6	47	-60	161	340					
18	-1	39	-60	163		-2	39	-60	163		-3	39	-60	163		-4	39	-60	163		-5	39	-59	163		-6	38	-60	163	342					
16	-1	31	-60	165		-2	31	-60	165		-3	31	-60	165		-4	31	-60	165		-5	31	-59	165		-6	30	-60	165	344					
14	-1	24	-60	166		-2	24	-60	167		-3	24	-60	167		-4	24	-59	167		-5	23	-60	167		-6	23	-60	167	346					
12	-1	18	-59	168		-2	17	-60	168		-3	17	-60	169		-4	17	-60	169		-5	17	-60	169		-6	17	-60	169	348					
10	-1	12	-60	170		-2	12	-60	170		-3	12	-60	170		-4	12	-60	170		-5	12	-60	171		-6	12	-60	171	350					
8	-1	08	-60	172		-2	08	-60	172		-3	08	-60	172		-4	08	-60	172		-5	08	-60	172		-6	08	-60	172	352					
6	-1	04	-60	174		-2	04	-60	174		-3	04	-60	174		-4	04	-60	174		-5	04	-60	174		-6	04	-60	174	354					
4	-1	02	-60	176		-2	02	-60	176		-3	02	-60	176		-4	02	-60	176		-5	02	-60	176		-6	02	-60	176	356					
2	-1	00	-60	178		-2	00	-60	178		-3	00	-60	178		-4	00	-60	178		-5	00	-60	178		-6	00	-60	178		-7	00	-60	178	358
0	-1	00	-60	180		-2	00	-60	180		-3	00	-60	180		-4	00	-60	180		-5	00	-60	180		-6	00	-60	180		-7	00	-60	180	360

DECLINATION (15° – 29°) CONTRARY NAME TO LATITUDE

S. Lat. { LHA: greater than 180°Zi=180°-Z
LHA: less than 180°Zi=180°+Z

LAT 77°

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

N. Lat. { LHA, greater than 180°Zn=Z
LHA, less than 180°Zn=360-Z

LHA	0°			1°			2°			3°			4°			5°			6°			7°			8°			9°			10°			11°			12°			13°			14°																							
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																								
0	13.00	60	180	14.00	60	180	15.00	60	180	16.00	60	180	17.00	60	180	18.00	60	180	19.00	60	180	20.00	60	180	21.00	60	180	22.00	60	180	23.00	60	180	24.00	60	180	25.00	60	180	26.00	60	180	27.00	60	180	28.00	60	180	29.00	60	180	30.00	60	180												
2	12.58	60	178	14.00	60	178	15.00	60	178	16.00	60	178	17.00	60	178	18.00	60	178	19.00	60	178	20.00	60	178	21.00	60	178	22.00	60	178	23.00	60	178	24.00	60	178	25.00	60	178	26.00	60	178	27.00	60	178	28.00	60	178	29.00	60	178	30.00	60	178												
4	12.56	60	176	13.56	60	174	14.56	60	172	15.56	60	170	16.56	60	168	17.56	60	166	18.56	60	164	19.56	60	162	20.56	60	160	21.56	60	158	22.56	60	156	23.56	60	154	24.56	60	152	25.56	60	150	26.56	60	148	27.56	60	146	28.56	60	144	29.56	60	142	30.00	60	140									
6	12.52	60	172	13.52	60	170	14.52	60	168	15.52	60	166	16.52	60	164	17.52	60	162	18.52	60	160	19.52	60	158	20.52	60	156	21.52	60	154	22.52	60	152	23.52	60	150	24.52	60	148	25.52	60	146	26.52	60	144	27.52	60	142	28.52	60	140	29.52	60	138	30.00	60	136									
8	12.48	60	168	13.48	60	166	14.48	60	164	15.48	60	162	16.48	60	160	17.48	60	158	18.48	60	156	19.48	60	154	20.48	60	152	21.48	60	150	22.48	60	148	23.48	60	146	24.48	60	144	25.48	60	142	26.48	60	140	27.48	60	138	28.48	60	136	29.48	60	134	30.00	60	132									
10	12.43	60	163	13.43	60	161	14.43	60	159	15.43	60	157	16.43	60	155	17.43	60	153	18.43	60	151	19.43	60	149	20.43	60	147	21.43	60	145	22.43	60	143	23.43	60	141	24.43	60	139	25.43	60	137	26.43	60	135	27.43	60	133	28.43	60	131	29.43	60	129	30.00	60	127									
12	12.36	60	158	13.36	60	156	14.36	60	154	15.36	60	152	16.36	60	150	17.36	60	148	18.36	60	146	19.36	60	144	20.36	60	142	21.36	60	140	22.36	60	138	23.36	60	136	24.36	60	134	25.36	60	132	26.36	60	130	27.36	60	128	28.36	60	126	29.36	60	124	30.00	60	122									
14	12.29	60	153	13.29	60	151	14.29	60	149	15.29	60	147	16.29	60	145	17.29	60	143	18.29	60	141	19.29	60	139	20.29	60	137	21.29	60	135	22.29	60	133	23.29	60	131	24.29	60	129	25.29	60	127	26.29	60	125	27.29	60	123	28.29	60	121	29.29	60	119	30.00	60	117									
16	12.21	60	148	13.21	60	146	14.21	60	144	15.21	60	142	16.21	60	140	17.21	60	138	18.21	60	136	19.21	60	134	20.21	60	132	21.21	60	130	22.21	60	128	23.21	60	126	24.21	60	124	25.21	60	122	26.21	60	120	27.21	60	118	28.21	60	116	29.21	60	114	30.00	60	112									
18	12.12	60	143	13.12	60	141	14.12	60	139	15.12	60	137	16.12	60	135	17.12	60	133	18.12	60	131	19.12	60	129	20.12	60	127	21.12	60	125	22.12	60	123	23.12	60	121	24.12	60	119	25.12	60	117	26.12	60	115	27.12	60	113	28.12	60	111	29.12	60	109	30.00	60	107									
20	12.02	60	138	13.02	60	136	14.02	60	134	15.02	60	132	16.02	60	130	17.02	60	128	18.02	60	126	19.02	60	124	20.02	60	122	21.02	60	120	22.02	60	118	23.02	60	116	24.02	60	114	25.02	60	112	26.02	60	110	27.02	60	108	28.02	60	106	29.02	60	104	30.00	60	102									
22	11.52	60	133	13.52	60	131	14.52	60	129	15.52	60	127	16.52	60	125	17.52	60	123	18.52	60	121	19.52	60	119	20.52	60	117	21.52	60	115	22.52	60	113	23.52	60	111	24.52	60	109	25.52	60	107	26.52	60	105	27.52	60	103	28.52	60	101	29.52	60	99	30.00	60	97									
24	11.40	60	128	13.40	60	126	14.40	60	124	15.40	60	122	16.40	60	120	17.40	60	118	18.40	60	116	19.40	60	114	20.40	60	112	21.40	60	110	22.40	60	108	23.40	60	106	24.40	60	104	25.40	60	102	26.40	60	100	27.40	60	98	28.40	60	96	29.40	60	94	30.00	60	92									
26	11.27	60	123	13.27	60	121	14.27	60	119	15.27	60	117	16.27	60	115	17.27	60	113	18.27	60	111	19.27	60	109	20.27	60	107	21.27	60	105	22.27	60	103	23.27	60	101	24.27	60	99	25.27	60	97	26.27	60	95	27.27	60	93	28.27	60	91	29.27	60	89	30.00	60	87									
28	11.14	60	118	13.14	60	116	14.14	60	114	15.14	60	112	16.14	60	110	17.14	60	108	18.14	60	106	19.14	60	104	20.14	60	102	21.14	60	100	22.14	60	98	23.14	60	96	24.14	60	94	25.14	60	92	26.14	60	90	27.14	60	88	28.14	60	86	29.14	60	84	30.00	60	82									
30	11.00	60	113	13.00	60	111	14.00	60	109	15.00	60	107	16.00	60	105	17.00	60	103	18.00	60	101	19.00	60	99	20.00	60	97	21.00	60	95	22.00	60	93	23.00	60	91	24.00	60	89	25.00	60	87	26.00	60	85	27.00	60	83	28.00	60	81	29.00	60	79	30.00	60	77									
32	10.45	60	108	12.45	60	106	13.45	60	104	14.45	60	102	15.45	60	100	16.45	60	98	17.45	60	96	18.45	60	94	19.45	60	92	20.45	60	90	21.45	60	88	22.45	60	86	23.45	60	84	24.45	60	82	25.45	60	80	26.45	60	78	27.45	60	76	28.45	60	74	29.45	60	72	30.00	60	70						
34	10.29	60	103	12.29	60	101	13.29	60	99	14.29	60	97	15.29	60	95	16.29	60	93	17.29	60	91	18.29	60	89	19.29	60	87	20.29	60	85	21.29	60	83	22.29	60	81	23.29	60	79	24.29	60	77	25.29	60	75	26.29	60	73	27.29	60	71	28.29	60	69	29.29	60	67	30.00	60	65						
36	10.13	60	98	12.13	60	96	13.13	60	94	14.13	60	92	15.13	60	90	16.13	60	88	17.13	60	86	18.13	60	84	19.13	60	82	20.13	60	80	21.13	60	78	22.13	60	76	23.13	60	74	24.13	60	72	25.13	60	70	26.13	60	68	27.13	60	66	28.13	60	64	29.13	60	62	30.00	60	60						
38	09.55	60	93	11.55	60	91	12.55	60	89	13.55	60	87	14.55	60	85	15.55	60	83	16.55	60	81	17.55	60	79	18.55	60	77	19.55	60	75	20.55	60	73	21.55	60	71	22.55	60	69	23.55	60	67	24.55	60	65	25.55	60	63	26.55	60	61	27.55	60	59	28.55	60	57	29.55	60	55	30.00	60	53			
40	09.37	60	88	11.37	60	86	12.37	60	84	13.37	60	82	14.37	60	80	15.37	60	78	16.37	60	76	17.37	60	74	18.37	60	72	19.37	60	70	20.37	60	68	21.37	60	66	22.37	60	64	23.37	60	62	24.37	60	60	25.37	60	58	26.37	60	56	27.37	60	54	28.37	60	52	29.37	60	50	30.00	60	48			
42	09.19	60	83	11.19	60	81	12.19	60	79	13.19	60	77	14.19	60	75	15.19	60	73	16.19	60	71	17.19	60	69	18.19	60	67	19.19	60	65	20.19	60	63	21.19	60	61	22.19	60	59	23.19	60	57	24.19	60	55	25.19	60	53	26.19	60	51	27.19	60	49	28.19	60	47	29.19	60	45	30.00	60	43			
44	08.99	60	78	10.99	60	76	11.99	60	74	12.99	60	72	13.99	60	70	14.99	60	68	15.99	60	66	16.99	60	64	17.99	60	62	18.99	60	60	19.99	60	58	20.99	60	56	21.99	60	54	22.99	60	52	23.99	60	50	24.99	60	48	25.99	60	46	26.99	60	44	27.99	60	42	28.99	60	40	29.99	60	38	30.00	60	36
46	08.80	60	73	10.80	60	71	11.80	60	69	12.80	60	67	13.80	60	65	14.80	60	63	15.80	60	61	16.80	60	59	17.80	60	57	18.80	60	55	19.80	60	53	20.80	60	51	21.80	60	49	22.80	60	47	23.80	60	45	24.80	60	43	25.80	60	41	26.80	60													

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Zn=Z L.H.A. less than 180°Zn=360-Z

Table with columns for Latitude (15° to 77°) and Declination (15° to 29°). Each cell contains a 4-digit number representing the value for that specific latitude and declination combination.

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

S. Lat. { L.H.A. greater than 180°Zn=180-Z L.H.A. less than 180°Zn=180+Z

N. Lat. { LHA, greater than 180°Zn=Z
 LHA, less than 180°Zn=360°-Z

DECLINATION (15° – 29°) SAME NAME AS LATITUDE

LAT 77°

LAT 77°

LHA	15°			16°			17°			18°			19°			20°			21°			22°			23°			24°			25°			26°			27°			28°			29°			LHA															
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																									
140	04	55	59	39	05	54	60	38	06	54	59	38	07	53	60	38	08	53	59	38	09	52	59	38	10	51	60	38	11	51	59	38	12	50	59	37	13	49	60	37	14	49	59	37	15	48	59	37	16	47	60	37	17	47	59	37	18	46	59	36	220
142	04	39	59	37	05	38	59	36	06	37	59	36	07	37	59	36	08	36	59	36	09	36	59	36	10	35	59	36	11	34	60	36	12	34	59	35	13	33	60	35	14	33	59	35	15	32	59	35	16	31	60	35	17	31	59	35	18	30	60	35	218
144	04	23	59	35	05	22	60	35	06	22	59	34	07	21	60	34	08	21	59	34	09	20	60	34	10	20	59	34	11	19	60	34	12	19	59	33	13	18	60	33	14	17	60	33	15	16	59	33	16	16	60	33	17	15	59	33	18	15	60	33	216
146	04	08	59	33	05	07	60	33	06	07	59	33	07	06	60	32	08	06	59	32	09	05	60	32	10	05	59	32	11	04	60	32	12	04	59	32	13	03	60	32	14	03	59	31	15	02	60	31	16	02	59	31	17	01	60	31	18	01	59	31	214
148	03	54	59	31	04	53	60	31	05	53	59	31	06	52	60	31	07	52	59	30	08	51	60	30	09	51	60	30	10	51	59	30	11	50	60	30	12	50	59	30	13	49	60	30	14	49	59	30	15	48	60	29	16	48	59	29	17	47	60	29	212
150	03	40	60	29	04	40	59	29	05	39	60	29	06	39	60	29	07	39	59	28	08	38	60	28	09	38	59	28	10	37	60	28	11	37	60	28	12	37	59	28	13	36	60	28	14	36	59	28	15	35	60	28	16	35	60	27	17	35	59	27	210
152	03	28	59	27	04	27	60	27	06	27	60	27	06	27	59	27	07	26	60	27	08	26	59	26	09	25	60	26	10	25	60	26	11	25	59	26	12	24	60	26	13	24	60	26	14	24	59	26	15	23	60	26	16	23	60	26	17	23	59	25	208
154	03	16	59	25	04	15	60	25	06	15	60	25	06	15	59	25	07	14	60	25	08	14	60	25	09	14	60	24	10	14	60	24	11	13	60	24	12	13	60	24	13	13	59	24	14	12	60	24	15	12	60	24	16	12	59	24	17	11	60	24	206
156	03	05	59	23	04	04	60	23	05	04	60	23	06	04	60	23	07	04	59	23	08	03	60	23	09	03	60	23	10	03	60	23	11	03	59	22	12	02	60	22	13	02	60	22	14	02	60	22	15	02	59	22	16	01	60	22	17	01	60	22	204
158	02	54	60	21	03	54	60	21	05	54	60	21	05	54	60	21	06	54	59	21	07	53	60	21	08	53	60	21	09	53	60	21	10	53	59	21	11	52	60	20	12	52	60	20	13	52	60	20	14	52	60	20	15	52	59	20	16	51	60	20	202
160	02	45	60	19	03	45	60	19	05	45	59	19	05	45	59	19	06	44	60	19	07	44	60	19	08	44	60	19	09	44	60	19	10	44	59	19	11	43	60	19	12	43	60	19	13	43	60	18	14	43	60	18	15	43	60	18	16	43	59	18	200
162	02	37	59	17	03	36	60	17	05	36	60	17	05	36	60	17	06	36	60	17	07	36	60	17	08	36	60	17	09	36	59	17	10	35	60	17	11	35	60	17	12	35	60	17	13	35	60	17	14	35	60	17	15	35	59	16	16	34	60	16	198
164	02	29	60	15	03	29	60	15	05	29	59	15	05	29	59	15	06	28	60	15	07	28	60	15	08	28	60	15	09	28	60	15	10	28	60	15	11	28	60	15	12	28	60	15	13	28	60	15	14	28	59	15	15	27	60	15	16	27	60	15	196
166	02	22	60	14	03	22	60	14	05	22	60	14	05	22	60	14	06	22	60	14	07	22	60	14	08	22	60	14	09	22	60	14	10	22	60	14	11	22	60	14	12	22	60	14	13	22	60	14	14	22	60	14	15	22	60	14	16	22	60	14	194
168	02	16	60	12	03	16	60	12	05	16	60	12	05	16	60	12	06	16	60	12	07	16	60	12	08	16	60	12	09	16	60	12	10	16	60	12	11	16	60	12	12	16	60	12	13	16	60	12	14	16	59	12	15	16	60	12	16	16	60	12	192
170	02	11	60	10	03	11	60	10	05	11	60	10	05	11	60	10	06	11	60	10	07	11	60	9	08	11	60	9	09	11	60	9	10	11	60	9	11	11	60	9	12	11	60	9	13	11	60	9	14	11	60	9	15	11	60	9	16	11	60	9	190
172	02	07	60	8	03	07	60	8	05	07	60	8	05	07	60	8	06	07	60	8	07	07	60	8	08	07	60	8	09	07	60	8	10	07	60	8	11	07	60	8	12	07	60	8	13	07	60	8	14	07	60	8	15	07	60	8	16	07	60	8	188
174	02	04	60	6	03	04	60	6	05	04	60	6	05	04	60	6	06	04	60	6	07	04	60	6	08	04	60	6	09	04	60	6	10	04	60	6	11	04	60	6	12	04	60	6	13	04	60	6	14	04	60	6	15	04	60	6	16	04	60	6	186
176	02	02	60	4	03	02	60	4	05	02	60	4	05	02	60	4	06	02	60	4	07	02	60	4	08	02	60	4	09	02	60	4	10	02	60	4	11	02	60	4	12	02	60	4	13	02	60	4	14	02	60	4	15	02	60	4	16	02	60	4	184
178	02	00	60	2	03	00	60	2	05	00	60	2	05	00	60	2	06	00	60	2	07	00	60	2	08	00	60	2	09	00	60	2	10	00	60	2	11	00	60	2	12	00	60	2	13	00	60	2	14	00	60	2	15	00	60	2	16	00	60	2	182
180	02	00	60	0	03	00	60	0	05	00	60	0	05	00	60	0	06	00	60	0	07	00	60	0	08	00	60	0	09	00	60	0	10	00	60	0	11	00	60	0	12	00	60	0	13	00	60	0	14	00	60	0	15	00	60	0	16	00	60	0	180

15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°
DECLINATION (15° – 29°) SAME NAME AS LATITUDE														
S. Lat. { LHA, greater than 180°Zn=180°-Z LHA, less than 180°Zn=180°+Z														

N. Lat. { LHA: greater than 180°Z1=Z
 LHA: less than 180°Z1=360°-Z

DECLINATION (15° - 29°) **CONTRARY** NAME TO LATITUDE

15°		16°		17°		18°		19°		20°		21°		22°		23°		24°		25°		26°		27°		28°		29°				
LHA	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
56	-7	31	-58	126	-7	31	-59	132	310	-7	27	-59	132	310	-7	21	-60	146	-7	21	-60	146	324	-7	15	-60	155	-7	14	-60	155	334
54	-7	09	-59	128	-6	48	-59	130	308	-6	28	-59	130	308	-6	22	-60	148	-6	22	-60	148	326	-6	16	-60	157	-6	15	-60	157	336
52	-6	48	-59	130	-6	28	-59	132	310	-6	28	-59	132	310	-6	22	-60	148	-6	22	-60	148	326	-6	16	-60	157	-6	15	-60	157	336
50	-6	28	-59	132	-6	08	-59	134	312	-6	08	-59	134	312	-6	02	-60	148	-6	02	-60	148	326	-6	16	-60	157	-6	15	-60	157	336
48	-6	08	-59	134	-5	48	-59	136	314	-5	48	-59	136	314	-5	42	-60	149	-5	42	-60	149	328	-5	36	-60	158	-5	35	-60	158	338
46	-5	48	-59	136	-5	30	-59	138	316	-5	30	-59	138	316	-5	24	-60	150	-5	24	-60	150	330	-5	18	-60	159	-5	17	-60	159	340
44	-5	30	-59	138	-5	12	-60	140	318	-5	12	-60	140	318	-5	06	-60	150	-5	06	-60	150	330	-5	18	-60	159	-5	17	-60	159	340
42	-5	12	-60	140	-4	55	-59	141	320	-4	55	-59	141	320	-4	49	-60	151	-4	49	-60	151	332	-4	43	-60	160	-4	42	-60	160	342
40	-4	55	-59	141	-4	39	-59	143	322	-4	39	-59	143	322	-4	33	-60	152	-4	33	-60	152	334	-4	27	-60	161	-4	26	-60	161	344
38	-4	39	-59	143	-4	23	-59	145	324	-4	23	-59	145	324	-4	17	-60	153	-4	17	-60	153	336	-4	11	-60	162	-4	10	-60	162	346
36	-4	23	-59	145	-4	08	-59	147	326	-4	08	-59	147	326	-4	02	-60	154	-4	02	-60	154	338	-4	06	-60	163	-4	05	-60	163	348
34	-4	08	-59	147	-3	54	-59	149	328	-3	54	-59	149	328	-3	48	-60	155	-3	48	-60	155	340	-3	42	-60	164	-3	41	-60	164	348
32	-3	54	-59	149	-3	40	-60	151	330	-3	40	-60	151	330	-3	34	-60	156	-3	34	-60	156	342	-3	28	-60	165	-3	27	-60	165	348
30	-3	40	-60	151	-3	28	-60	153	332	-3	28	-60	153	332	-3	22	-60	157	-3	22	-60	157	344	-3	16	-60	166	-3	15	-60	166	348
28	-3	28	-60	153	-3	16	-60	155	334	-3	16	-60	155	334	-3	10	-60	160	-3	10	-60	160	346	-3	04	-60	167	-3	03	-60	167	348
26	-3	16	-60	155	-3	05	-60	157	336	-3	05	-60	157	336	-3	00	-60	161	-3	00	-60	161	344	-3	00	-60	167	-3	00	-60	167	348
24	-3	05	-60	157	-2	54	-60	159	338	-2	54	-60	159	338	-2	48	-60	162	-2	48	-60	162	346	-2	42	-60	168	-2	41	-60	168	348
22	-2	54	-60	159	-2	45	-60	161	340	-2	45	-60	161	340	-2	39	-60	163	-2	39	-60	163	344	-2	33	-60	169	-2	32	-60	169	348
20	-2	45	-60	161	-2	37	-60	163	342	-2	37	-60	163	342	-2	31	-60	164	-2	31	-60	164	346	-2	25	-60	170	-2	24	-60	170	348
18	-2	37	-60	163	-2	29	-60	165	344	-2	29	-60	165	344	-2	23	-60	166	-2	23	-60	166	348	-2	17	-60	171	-2	16	-60	171	348
16	-2	29	-60	165	-2	22	-60	167	346	-2	22	-60	167	346	-2	16	-60	168	-2	16	-60	168	348	-2	10	-60	172	-2	09	-60	172	348
14	-2	22	-60	166	-2	16	-60	168	348	-2	16	-60	168	348	-2	10	-60	169	-2	10	-60	169	348	-2	04	-60	173	-2	03	-60	173	348
12	-2	16	-60	168	-2	11	-60	170	350	-2	11	-60	170	350	-2	05	-60	170	-2	05	-60	170	348	-2	00	-60	171	-2	00	-60	171	348
10	-2	11	-60	170	-2	07	-60	172	352	-2	07	-60	172	352	-2	01	-60	171	-2	01	-60	171	348	-2	00	-60	172	-2	00	-60	172	348
8	-2	07	-60	172	-2	04	-60	174	354	-2	04	-60	174	354	-2	00	-60	172	-2	00	-60	172	348	-2	00	-60	173	-2	00	-60	173	348
6	-2	04	-60	174	-2	02	-60	176	356	-2	02	-60	176	356	-2	00	-60	174	-2	00	-60	174	348	-2	00	-60	174	-2	00	-60	174	348
4	-2	02	-60	176	-2	00	-60	178	358	-2	00	-60	178	358	-2	00	-60	176	-2	00	-60	176	348	-2	00	-60	175	-2	00	-60	175	348
2	-2	00	-60	178	-2	00	-60	180	360	-2	00	-60	180	360	-2	00	-60	178	-2	00	-60	178	348	-2	00	-60	176	-2	00	-60	176	348
0	-2	00	-60	180	-2	00	-60	180	360	-2	00	-60	180	360	-2	00	-60	180	-2	00	-60	180	348	-2	00	-60	178	-2	00	-60	178	348

LAT 77°

LAT 77°

DECLINATION (15° - 29°) **CONTRARY** NAME TO LATITUDE

S. Lat. { LHA: greater than 180°Z1=180°-Z
 LHA: less than 180°Z1=180°+Z

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 78°

N. Lat. { LHA, greater than 180°; Z=Z
LHA, less than 180°; Z=360°-Z

LHA	0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°		
	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	Hc	d	
0	12.00	60	18.00	13.00	60	18.00	13.00	60	18.00	13.00	60	17.00	18.00	60	18.00	19.00	60	18.00	20.00	60	18.00	21.00	60	18.00	22.00	60	18.00	23.00	60	18.00	24.00
1	11.58	60	17.98	12.98	60	17.98	12.98	60	17.98	12.98	60	16.98	17.98	60	17.98	18.98	60	17.98	19.98	60	17.98	20.98	60	17.98	21.98	60	17.98	22.98	60	17.98	23.98
2	11.56	60	17.96	12.96	60	17.96	12.96	60	17.96	12.96	60	16.96	17.96	60	17.96	18.96	60	17.96	19.96	60	17.96	20.96	60	17.96	21.96	60	17.96	22.96	60	17.96	23.96
3	11.54	60	17.94	12.94	60	17.94	12.94	60	17.94	12.94	60	16.94	17.94	60	17.94	18.94	60	17.94	19.94	60	17.94	20.94	60	17.94	21.94	60	17.94	22.94	60	17.94	23.94
4	11.52	60	17.92	12.92	60	17.92	12.92	60	17.92	12.92	60	16.92	17.92	60	17.92	18.92	60	17.92	19.92	60	17.92	20.92	60	17.92	21.92	60	17.92	22.92	60	17.92	23.92
5	11.50	60	17.90	12.90	60	17.90	12.90	60	17.90	12.90	60	16.90	17.90	60	17.90	18.90	60	17.90	19.90	60	17.90	20.90	60	17.90	21.90	60	17.90	22.90	60	17.90	23.90
6	11.48	60	17.88	12.88	60	17.88	12.88	60	17.88	12.88	60	16.88	17.88	60	17.88	18.88	60	17.88	19.88	60	17.88	20.88	60	17.88	21.88	60	17.88	22.88	60	17.88	23.88
7	11.46	60	17.86	12.86	60	17.86	12.86	60	17.86	12.86	60	16.86	17.86	60	17.86	18.86	60	17.86	19.86	60	17.86	20.86	60	17.86	21.86	60	17.86	22.86	60	17.86	23.86
8	11.44	60	17.84	12.84	60	17.84	12.84	60	17.84	12.84	60	16.84	17.84	60	17.84	18.84	60	17.84	19.84	60	17.84	20.84	60	17.84	21.84	60	17.84	22.84	60	17.84	23.84
9	11.42	60	17.82	12.82	60	17.82	12.82	60	17.82	12.82	60	16.82	17.82	60	17.82	18.82	60	17.82	19.82	60	17.82	20.82	60	17.82	21.82	60	17.82	22.82	60	17.82	23.82
10	11.40	60	17.80	12.80	60	17.80	12.80	60	17.80	12.80	60	16.80	17.80	60	17.80	18.80	60	17.80	19.80	60	17.80	20.80	60	17.80	21.80	60	17.80	22.80	60	17.80	23.80
11	11.38	60	17.78	12.78	60	17.78	12.78	60	17.78	12.78	60	16.78	17.78	60	17.78	18.78	60	17.78	19.78	60	17.78	20.78	60	17.78	21.78	60	17.78	22.78	60	17.78	23.78
12	11.36	60	17.76	12.76	60	17.76	12.76	60	17.76	12.76	60	16.76	17.76	60	17.76	18.76	60	17.76	19.76	60	17.76	20.76	60	17.76	21.76	60	17.76	22.76	60	17.76	23.76
13	11.34	60	17.74	12.74	60	17.74	12.74	60	17.74	12.74	60	16.74	17.74	60	17.74	18.74	60	17.74	19.74	60	17.74	20.74	60	17.74	21.74	60	17.74	22.74	60	17.74	23.74
14	11.32	60	17.72	12.72	60	17.72	12.72	60	17.72	12.72	60	16.72	17.72	60	17.72	18.72	60	17.72	19.72	60	17.72	20.72	60	17.72	21.72	60	17.72	22.72	60	17.72	23.72
15	11.30	60	17.70	12.70	60	17.70	12.70	60	17.70	12.70	60	16.70	17.70	60	17.70	18.70	60	17.70	19.70	60	17.70	20.70	60	17.70	21.70	60	17.70	22.70	60	17.70	23.70
16	11.28	60	17.68	12.68	60	17.68	12.68	60	17.68	12.68	60	16.68	17.68	60	17.68	18.68	60	17.68	19.68	60	17.68	20.68	60	17.68	21.68	60	17.68	22.68	60	17.68	23.68
17	11.26	60	17.66	12.66	60	17.66	12.66	60	17.66	12.66	60	16.66	17.66	60	17.66	18.66	60	17.66	19.66	60	17.66	20.66	60	17.66	21.66	60	17.66	22.66	60	17.66	23.66
18	11.24	60	17.64	12.64	60	17.64	12.64	60	17.64	12.64	60	16.64	17.64	60	17.64	18.64	60	17.64	19.64	60	17.64	20.64	60	17.64	21.64	60	17.64	22.64	60	17.64	23.64
19	11.22	60	17.62	12.62	60	17.62	12.62	60	17.62	12.62	60	16.62	17.62	60	17.62	18.62	60	17.62	19.62	60	17.62	20.62	60	17.62	21.62	60	17.62	22.62	60	17.62	23.62
20	11.20	60	17.60	12.60	60	17.60	12.60	60	17.60	12.60	60	16.60	17.60	60	17.60	18.60	60	17.60	19.60	60	17.60	20.60	60	17.60	21.60	60	17.60	22.60	60	17.60	23.60
21	11.18	60	17.58	12.58	60	17.58	12.58	60	17.58	12.58	60	16.58	17.58	60	17.58	18.58	60	17.58	19.58	60	17.58	20.58	60	17.58	21.58	60	17.58	22.58	60	17.58	23.58
22	11.16	60	17.56	12.56	60	17.56	12.56	60	17.56	12.56	60	16.56	17.56	60	17.56	18.56	60	17.56	19.56	60	17.56	20.56	60	17.56	21.56	60	17.56	22.56	60	17.56	23.56
23	11.14	60	17.54	12.54	60	17.54	12.54	60	17.54	12.54	60	16.54	17.54	60	17.54	18.54	60	17.54	19.54	60	17.54	20.54	60	17.54	21.54	60	17.54	22.54	60	17.54	23.54
24	11.12	60	17.52	12.52	60	17.52	12.52	60	17.52	12.52	60	16.52	17.52	60	17.52	18.52	60	17.52	19.52	60	17.52	20.52	60	17.52	21.52	60	17.52	22.52	60	17.52	23.52
25	11.10	60	17.50	12.50	60	17.50	12.50	60	17.50	12.50	60	16.50	17.50	60	17.50	18.50	60	17.50	19.50	60	17.50	20.50	60	17.50	21.50	60	17.50	22.50	60	17.50	23.50
26	11.08	60	17.48	12.48	60	17.48	12.48	60	17.48	12.48	60	16.48	17.48	60	17.48	18.48	60	17.48	19.48	60	17.48	20.48	60	17.48	21.48	60	17.48	22.48	60	17.48	23.48
27	11.06	60	17.46	12.46	60	17.46	12.46	60	17.46	12.46	60	16.46	17.46	60	17.46	18.46	60	17.46	19.46	60	17.46	20.46	60	17.46	21.46	60	17.46	22.46	60	17.46	23.46
28	11.04	60	17.44	12.44	60	17.44	12.44	60	17.44	12.44	60	16.44	17.44	60	17.44	18.44	60	17.44	19.44	60	17.44	20.44	60	17.44	21.44	60	17.44	22.44	60	17.44	23.44
29	11.02	60	17.42	12.42	60	17.42	12.42	60	17.42	12.42	60	16.42	17.42	60	17.42	18.42	60	17.42	19.42	60	17.42	20.42	60	17.42	21.42	60	17.42	22.42	60	17.42	23.42
30	11.00	60	17.40	12.40	60	17.40	12.40	60	17.40	12.40	60	16.40	17.40	60	17.40	18.40	60	17.40	19.40	60	17.40	20.40	60	17.40	21.40	60	17.40	22.40	60	17.40	23.40
31	10.98	60	17.38	12.38	60	17.38	12.38	60	17.38	12.38	60	16.38	17.38	60	17.38	18.38	60	17.38	19.38	60	17.38	20.38	60	17.38	21.38	60	17.38	22.38	60	17.38	23.38
32	10.96	60	17.36	12.36	60	17.36	12.36	60	17.36	12.36	60	16.36	17.36	60	17.36	18.36	60	17.36	19.36	60	17.36	20.36	60	17.36	21.36	60	17.36	22.36	60	17.36	23.36
33	10.94	60	17.34	12.34	60	17.34	12.34	60	17.34	12.34	60	16.34	17.34	60	17.34	18.34	60	17.34	19.34	60	17.34	20.34	60	17.34	21.34	60	17.34	22.34	60	17.34	23.34
34	10.92	60	17.32	12.32	60	17.32	12.32	60	17.32	12.32	60	16.32	17.32	60	17.32	18.32	60	17.32	19.32	60	17.32	20.32	60	17.32	21.32	60	17.32	22.32	60	17.32	23.32
35	10.90	60	17.30	12.30	60	17.30	12.30	60	17.30	12.30	60	16.30	17.30	60	17.30	18.30	60	17.30	19.30	60	17.30	20.30	60	17.30	21.30	60	17.30	22.30	60	17.30	23.30
36	10.88	60	17.28	12.28	60	17.28	12.28	60	17.28	12.28	60	16.28	17.28	60	17.28	18.28	60	17.28	19.28	60	17.28	20.28	60	17.28	21.28	60	17.28	22.28	60	17.28	23.28
37	10.86	60	17.26	12.26	60	17.26	12.26	60	17.26	12.26	60	16.26	17.26	60	17.26	18.26	60	17.26	19.26	60	17.26	20.26	60	17.26	21.26	60	17.26	22.26	60	17.26	23.26
38	10.84	60	17.24	12.24	60	17.24	12.24	60	17.24	12.24	60	16.24	17.24	60	17.24	18.24	60	17.24	19.24	60	17.24	20.24	60	17.24	21.24	60	17.24	22.24	60	17.24	23.24
39	10.82	60	17.22	12.22	60	17.22	12.22	60	17.22	12.22	60	16.22	17.22	60	17.22	18.22	60	17.22	19.22	60	17.22	20.22	60	17.22	21.22	60	17.22	22.22	60	17.22	23.22
40	10.80	60	17.20	12.20	60	17.20	12.20	60	17.20	12.20	60																				

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Z=Z
L.H.A. less than 180°Z=360°-Z

Table with columns for Latitude (15° to 29°) and Declination (15° to 29°). Each cell contains a value representing the difference between the two angles. The table is organized into a grid with 15 rows and 15 columns of data points.

S. Lat. { L.H.A. greater than 180°Z=180°-Z
L.H.A. less than 180°Z=180°+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

LAT 78°

DECLINATION (0° – 14°) SAME NAME AS LATITUDE

LAT 79°

N. Lat. { LHA. greater than 180°Zn=Z
LHA. less than 180°Zn=360-Z

0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°			
LHA	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	LHA
0	11.00	60	180	12.00	60	180	14.00	60	180	15.00	60	180	17.00	60	180	18.00	60	180	20.00	60	180	22.00	60	180	23.00	60	180	25.00	60	180	360
2	10.58	60	178	12.00	60	178	13.00	60	178	14.00	60	178	17.00	60	178	18.00	60	178	20.00	60	178	22.00	60	178	23.00	60	178	25.00	60	178	336
4	10.56	60	176	11.58	60	176	13.58	60	176	14.58	60	176	16.58	60	176	17.58	60	176	19.58	60	176	21.58	60	176	22.58	60	176	24.58	60	176	336
6	10.53	60	174	11.53	60	174	13.53	60	174	14.53	60	174	16.53	60	174	17.53	60	174	19.53	60	174	21.53	60	174	22.53	60	174	24.53	60	174	362
8	10.50	60	172	11.48	60	172	13.48	60	172	14.48	60	172	16.48	60	172	17.48	60	172	19.48	60	172	21.48	60	172	22.48	60	172	24.48	60	172	350
10	10.45	60	170	11.45	60	170	13.45	60	170	14.45	60	170	16.45	60	170	17.45	60	170	19.45	60	170	21.45	60	170	22.45	60	170	24.45	60	170	348
12	10.40	60	168	11.40	60	168	13.40	60	168	14.40	60	168	16.40	60	168	17.40	60	168	19.40	60	168	21.40	60	168	22.40	60	168	24.40	60	168	346
14	10.34	60	166	11.34	60	166	13.34	60	166	14.34	60	166	16.34	60	166	17.34	60	166	19.34	60	166	21.34	60	166	22.34	60	166	24.34	60	166	344
16	10.27	60	164	11.27	60	164	13.27	60	164	14.27	60	164	16.27	60	164	17.27	60	164	19.27	60	164	21.27	60	164	22.27	60	164	24.27	60	164	342
18	10.20	60	162	11.20	60	162	13.20	60	162	14.20	60	162	16.20	60	162	17.20	60	162	19.20	60	162	21.20	60	162	22.20	60	162	24.20	60	162	340
20	10.11	60	160	11.11	60	160	13.11	60	160	14.11	60	160	16.11	60	160	17.11	60	160	19.11	60	160	21.11	60	160	22.11	60	160	24.11	60	160	338
22	10.02	60	158	11.02	60	158	13.02	60	158	14.02	60	158	16.02	60	158	17.02	60	158	19.02	60	158	21.02	60	158	22.02	60	158	24.02	60	158	336
24	09.52	60	156	11.02	60	156	13.02	60	156	14.02	60	156	16.02	60	156	17.02	60	156	19.02	60	156	21.02	60	156	22.02	60	156	24.02	60	156	334
26	09.42	60	154	11.02	60	154	13.02	60	154	14.02	60	154	16.02	60	154	17.02	60	154	19.02	60	154	21.02	60	154	22.02	60	154	24.02	60	154	332
28	09.31	60	152	11.01	60	152	13.01	60	152	14.01	60	152	16.01	60	152	17.01	60	152	19.01	60	152	21.01	60	152	22.01	60	152	24.01	60	152	330
30	09.21	60	150	11.00	60	150	13.00	60	150	14.00	60	150	16.00	60	150	17.00	60	150	19.00	60	150	21.00	60	150	22.00	60	150	24.00	60	150	328
32	09.10	60	148	10.99	60	148	12.99	60	148	13.99	60	148	15.99	60	148	16.99	60	148	18.99	60	148	20.99	60	148	21.99	60	148	23.99	60	148	326
34	09.06	60	146	10.98	60	146	12.98	60	146	13.98	60	146	15.98	60	146	16.98	60	146	18.98	60	146	20.98	60	146	21.98	60	146	23.98	60	146	324
36	08.53	60	144	10.96	60	144	12.96	60	144	13.96	60	144	15.96	60	144	16.96	60	144	18.96	60	144	20.96	60	144	21.96	60	144	23.96	60	144	322
38	08.39	60	142	10.93	60	142	12.93	60	142	13.93	60	142	15.93	60	142	16.93	60	142	18.93	60	142	20.93	60	142	21.93	60	142	23.93	60	142	320
40	08.24	60	140	10.89	60	140	12.89	60	140	13.89	60	140	15.89	60	140	16.89	60	140	18.89	60	140	20.89	60	140	21.89	60	140	23.89	60	140	318
42	08.09	60	138	10.84	60	138	12.84	60	138	13.84	60	138	15.84	60	138	16.84	60	138	18.84	60	138	20.84	60	138	21.84	60	138	23.84	60	138	316
44	07.53	60	136	10.78	60	136	12.78	60	136	13.78	60	136	15.78	60	136	16.78	60	136	18.78	60	136	20.78	60	136	21.78	60	136	23.78	60	136	314
46	07.37	60	134	10.71	60	134	12.71	60	134	13.71	60	134	15.71	60	134	16.71	60	134	18.71	60	134	20.71	60	134	21.71	60	134	23.71	60	134	312
48	07.20	60	132	10.63	60	132	12.63	60	132	13.63	60	132	15.63	60	132	16.63	60	132	18.63	60	132	20.63	60	132	21.63	60	132	23.63	60	132	310
50	07.03	60	130	10.54	60	130	12.54	60	130	13.54	60	130	15.54	60	130	16.54	60	130	18.54	60	130	20.54	60	130	21.54	60	130	23.54	60	130	308
52	06.45	60	128	10.44	60	128	12.44	60	128	13.44	60	128	15.44	60	128	16.44	60	128	18.44	60	128	20.44	60	128	21.44	60	128	23.44	60	128	306
54	06.26	60	126	10.33	60	126	12.33	60	126	13.33	60	126	15.33	60	126	16.33	60	126	18.33	60	126	20.33	60	126	21.33	60	126	23.33	60	126	304
56	06.08	60	124	10.21	60	124	12.21	60	124	13.21	60	124	15.21	60	124	16.21	60	124	18.21	60	124	20.21	60	124	21.21	60	124	23.21	60	124	302
58	05.48	60	122	10.08	60	122	12.08	60	122	13.08	60	122	15.08	60	122	16.08	60	122	18.08	60	122	20.08	60	122	21.08	60	122	23.08	60	122	300
60	05.28	60	120	9.94	60	120	11.94	60	120	12.94	60	120	14.94	60	120	15.94	60	120	17.94	60	120	19.94	60	120	20.94	60	120	22.94	60	120	298
62	05.08	60	118	9.79	60	118	11.79	60	118	12.79	60	118	14.79	60	118	15.79	60	118	17.79	60	118	19.79	60	118	20.79	60	118	22.79	60	118	296
64	04.47	60	116	9.62	60	116	11.62	60	116	12.62	60	116	14.62	60	116	15.62	60	116	17.62	60	116	19.62	60	116	20.62	60	116	22.62	60	116	294
66	04.28	60	114	9.44	60	114	11.44	60	114	12.44	60	114	14.44	60	114	15.44	60	114	17.44	60	114	19.44	60	114	20.44	60	114	22.44	60	114	292
68	04.06	60	112	9.25	60	112	11.25	60	112	12.25	60	112	14.25	60	112	15.25	60	112	17.25	60	112	19.25	60	112	20.25	60	112	22.25	60	112	290
70	03.43	60	110	9.04	60	110	11.04	60	110	12.04	60	110	14.04	60	110	15.04	60	110	17.04	60	110	19.04	60	110	20.04	60	110	22.04	60	110	288
72	03.23	60	108	8.81	60	108	10.81	60	108	11.81	60	108	13.81	60	108	14.81	60	108	16.81	60	108	18.81	60	108	19.81	60	108	21.81	60	108	286
74	03.01	60	106	8.57	60	106	10.57	60	106	11.57	60	106	13.57	60	106	14.57	60	106	16.57	60	106	18.57	60	106	19.57	60	106	21.57	60	106	284
76	02.39	60	104	8.30	60	104	10.30	60	104	11.30	60	104	13.30	60	104	14.30	60	104	16.30	60	104	18.30	60	104	19.30	60	104	21.30	60	104	282
78	02.16	60	102	8.01	60	102	10.01	60	102	11.01	60	102	13.01	60	102	14.01	60	102	16.01	60	102	18.01	60	102	19.01	60	102	21.01	60	102	280
80	01.54	60	100	7.70	60	100	9.66	60	100	10.66	60	100	12.66	60	100	13.66	60	100	15.66	60	100	17.66	60	100	18.66	60	100	20.66	60	100	278
82	01.31	60	98	7.33	60	98	9.29	60	98	10.29	60	98	12.29	60	98	13.29	60	98	15.29	60	98	17.29	60	98	18.29	60	98	20.29	60	98	276
84	01.09	60	96	6.86	60	96	8.82	60	96	9.82	60	96	11.82	60	96	12.82	60	96	14.82	60	96	16.82	60	96	17.82	60	96	19.82	60	96	274
86	00.46	60	94	6.29	60	94	8.25	60	94	9.25																					

DECLINATION (0° – 14°) CONTRARY NAME TO LATITUDE

LAT 79°

N. Lat. { LHA, greater than 180°Zn=Z
LHA, less than 180°Zn=360°-Z

0°		1°		2°		3°		4°		5°		6°		7°		8°		9°		10°		11°		12°		13°		14°				
LHA	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	LHA		
132	7	20	-60	49	228																											
130	-7	03	-59	51	230																											
128	6	45	-59	53	232																											
126	-6	26	-60	55	234																											
124	6	08	-59	56	236																											
122	-6	48	-59	58	238																											
120	5	28	-60	60	240																											
118	-4	08	-59	62	242																											
116	4	48	-59	64	244																											
114	-4	06	-59	66	246																											
112	4	06	-59	68	248																											
110	-4	45	-59	70	250																											
108	3	23	-59	72	252																											
106	-3	01	-59	74	254																											
104	2	39	-59	76	256																											
102	-2	16	-59	78	258																											
100	1	54	-59	80	260																											
98	-1	31	-59	82	262																											
96	1	09	-58	84	264																											
94	-0	46	-59	86	266																											
92	0	23	-59	88	268																											
90	0	00	-59	90	270																											
88	0	23	-59	92	272																											
86	0	46	-59	94	274																											
84	0	09	-59	96	276																											
82	0	31	-59	98	278																											
80	0	54	-59	100	280																											
78	0	26	-59	102	282																											
76	0	49	-59	104	284																											
74	0	31	-59	106	286																											
72	0	23	-59	108	288																											
70	0	34	-59	110	290																											
68	0	46	-59	112	292																											
66	0	47	-59	114	294																											
64	0	48	-59	116	296																											
62	0	48	-59	118	298																											
60	0	5	-59	120	300																											
58	0	5	-59	122	302																											
56	0	6	-59	124	304																											
54	0	6	-59	126	306																											
52	0	6	-59	128	308																											
50	0	7	-59	130	310																											
48	0	7	-59	132	312																											
46	0	7	-59	134	314																											
44	0	8	-59	136	316																											
42	0	8	-59	138	318																											
40	0	8	-59	140	320																											
38	0	8	-59	142	322																											
36	0	8	-59	144	324																											
34	0	8	-59	146	326																											
32	0	9	-59	148	328																											
30	0	9	-59	150	330																											
28	0	9	-59	152	332																											
26	0	9	-59	154	334																											
24	1	0	-59	156	336																											
22	1	0	-59	158	338																											
20	1	0	-59	160	340																											
18	1	0	-59	162	342																											
16	1	0	-59	164	344																											
14	1	0	-59	166	346																											
12	1	0	-59	168	348																											
10	1	0	-59	170	350																											
8	1	0	-59	172	352																											
6	1	0	-59	174	354																											
4	1	0	-59	176	356																											
2	1	0	-59	178	358																											
0	1	0	-59	180	360																											

DECLINATION (0° – 14°) CONTRARY NAME TO LATITUDE

S. Lat. { LHA, greater than 180°Zn=180°-Z
LHA, less than 180°Zn=180°+Z

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

N. Lat. { L.H.A. greater than 180°Z=180°-Z
L.H.A. less than 180°Z=360°-Z

Table with columns for Latitude (15° to 79°) and Declination (15° to 29°). Each cell contains a numerical value representing the conversion between the two coordinates.

DECLINATION (15° - 29°) SAME NAME AS LATITUDE

S. Lat. { L.H.A. greater than 180°Z=180°-Z
L.H.A. less than 180°Z=180°-Z

N. Lat. { LHA, greater than 180°Zn=Z
 LHA, less than 180°Zn=360°-Z

DECLINATION (15° – 29°) SAME NAME AS LATITUDE

LAT 79°

LAT 79°

LHA	15°			16°			17°			18°			19°			20°			21°			22°			23°			24°			25°			26°			27°			28°			29°			LHA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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