

Table 1.1. Approximate values of solar declination (δ , in integer degrees) for selected days of the year relative to the Northern Hemisphere (switch +/- signs for Southern Hemisphere). On this table, day 81 = March Equinox, day 170 = June Solstice, day 264 = September Equinox, and day 355 = December Solstice.

Day	δ	Day	δ	Day	δ	Day	δ	Day	δ
5	-22.7	81	0.0	155	22.5	230	12.8	305	-15.3
10	-22.1	85	1.6	160	23.0	235	11.1	310	-16.8
15	-21.3	90	3.6	165	23.3	240	9.3	315	-18.2
20	-20.4	95	5.6	170	23.5	245	7.4	320	-19.4
25	-19.3	100	7.5	175	23.5	250	5.5	325	-20.5
30	-18.1	105	9.4	180	23.3	255	3.5	330	-21.4
35	-16.7	110	11.3	185	22.9	260	1.5	335	-22.1
40	-15.2	115	13.0	190	22.4	264	0.0	340	-22.7
45	-13.6	120	14.6	195	21.9	270	-2.6	345	-23.2
50	-12.0	125	16.1	200	20.9	275	-4.6	350	-23.4
55	-10.2	130	17.6	205	19.9	280	-6.5	355	-23.5
60	-8.3	135	18.8	210	18.7	285	-8.4	360	-23.4
65	-6.4	140	20.0	215	17.4	290	-10.3	365	-23.1
70	-4.4	145	21.0	220	16.0	295	-12.1		
75	-2.4	150	21.8	225	14.5	300	-13.8		

Note: We can determine the latitude where the Sun is perpendicular or directly overhead at solar noon directly from the declination values. Positive values of δ indicate this location is in the Northern Hemisphere, while negative values of δ indicate this location Southern Hemisphere. For example, on Day 50 the Sun is directly overhead at 12° S, while on Day 160 the Sun is directly overhead at 23° N.

Table 1.2. Length of time of daylight* for a given latitude in the Northern Hemisphere (all values are in hours: minutes).

Latitude	21 st December	21 st March or 22 nd September	21 st June
90° N	0:00	Sun at horizon	24:00
80° N	0:00	12:00	24:00
70° N	0:00	12:00	24:00
66½° N	0:00	12:00	24:00
60° N	5:33	12:00	18:27
50° N	7:42	12:00	16:18
40° N	9:08	12:00	14:52
30° N	10:04	12:00	13:56
23½° N	10:35	12:00	13:25
20° N	10:48	12:00	13:12
10° N	11:25	12:00	12:35
0°	12:00	12:00	12:00

*Daylight refers to the length of time between sunrise and sunset.

Table 1.3. Length of time of daylight* for a given latitude in the Southern Hemisphere (all values are in hours: minutes).

Latitude	21 st December	21 st March or 22 nd September	21 st June
90° S	24:00	Sun at horizon	0:00
80° S	24:00	12:00	0:00
70° S	24:00	12:00	0:00
66½° S	24:00	12:00	0:00
60° S	18:27	12:00	5:33
50° S	16:18	12:00	7:42
40° S	14:52	12:00	9:08
30° S	13:56	12:00	10:04
23½° S	13:25	12:00	10:35
20° S	13:12	12:00	10:48
10° S	12:35	12:00	11:25
0°	12:00	12:00	12:00

*Daylight refers to the length of time between sunrise and sunset.