

Introducing the Symmetry010 Calendar

A simple perpetual solar calendar that is symmetrical across and between equal quarters, having 30+**31**+30 **days** per quarter, yet conserves the traditional 7-day week.

(Formerly known as the “Classic” Symmetry Calendar)

Home Page on the Web:

<<http://individual.utoronto.ca/kalendis/classic.htm>>

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Overview of the Symmetry010 Calendar

<<http://individual.utoronto.ca/kalendis/classic.htm>>

30 + 31 + 30 Days per Quarter

Days	30 ↓	31 ↓	30 ↓	Weeks
91 →	Start on Monday January	February	March End on Sunday	← 13
+91 →	Start on Monday April	May	June End on Sunday	← +13
+91 →	Start on Monday July	August	September End on Sunday	← +13
+91 →	Start on Monday October	November	December End on Sunday	← +13
= 364	← Total in Non-Leap Years →			= 52
+7 →	In a Leap Year append a Leap Week to December. Leap years occur at symmetrically arranged intervals of 6 or 5 years.			← +1
= 371	← Total in Leap Years →			= 53

The Symmetry010 Calendar — 3 by 4 design

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Note: **16** denotes the Mid-Quarter Day

January

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	2	3	4	5	6	7
2	8	9	10	11	12	13	14
3	15	16	17	18	19	20	21
4	22	23	24	25	26	27	28
5	29	30					

February

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
5			1	2	3	4	5
6	6	7	8	9	10	11	12
7	13	14	15	16	17	18	19
8	20	21	22	23	24	25	26
9	27	28	29	30	31		

March

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
9						1	2
10	3	4	5	6	7	8	9
11	10	11	12	13	14	15	16
12	17	18	19	20	21	22	23
13	24	25	26	27	28	29	30

April

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
14	1	2	3	4	5	6	7
15	8	9	10	11	12	13	14
16	15	16	17	18	19	20	21
17	22	23	24	25	26	27	28
18	29	30					

May

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
18			1	2	3	4	5
19	6	7	8	9	10	11	12
20	13	14	15	16	17	18	19
21	20	21	22	23	24	25	26
22	27	28	29	30	31		

June

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
22						1	2
23	3	4	5	6	7	8	9
24	10	11	12	13	14	15	16
25	17	18	19	20	21	22	23
26	24	25	26	27	28	29	30

July

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	1	2	3	4	5	6	7
28	8	9	10	11	12	13	14
29	15	16	17	18	19	20	21
30	22	23	24	25	26	27	28
31	29	30					

August

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
31			1	2	3	4	5
32	6	7	8	9	10	11	12
33	13	14	15	16	17	18	19
34	20	21	22	23	24	25	26
35	27	28	29	30	31		

September

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
35						1	2
36	3	4	5	6	7	8	9
37	10	11	12	13	14	15	16
38	17	18	19	20	21	22	23
39	24	25	26	27	28	29	30

October

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40	1	2	3	4	5	6	7
41	8	9	10	11	12	13	14
42	15	16	17	18	19	20	21
43	22	23	24	25	26	27	28
44	29	30					

November

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
44			1	2	3	4	5
45	6	7	8	9	10	11	12
46	13	14	15	16	17	18	19
47	20	21	22	23	24	25	26
48	27	28	29	30	31		

December

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
48						1	2
49	3	4	5	6	7	8	9
50	10	11	12	13	14	15	16
51	17	18	19	20	21	22	23
52	24	25	26	27	28	29	30

In Leap Years, append a Leap Week to December, making it a 37-day month or append a stand-alone leap week at the end of the year as a 7-day “mini-month”. Leap years occur at symmetrically arranged intervals of 6 or 5 years.

53	31/1	32/2	33/3	34/4	35/5	36/6	37/7
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The Symmetry010 Calendar

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quad "puzzle" design, ordinal day numbers

Note: **16** denotes the Mid-Quarter Day

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	2	3	4	5	6	7
2	8	9	10	11	12	13	14
3	15	16	17	18	19	20	21
4	22	23	24	25	26	27	28
5	29	30	1	2	3	4	5
6	6	7	8	9	10	11	12
7	13	14	15	16	17	18	19
8	20	21	22	23	24	25	26
9	27	28	29	30	31	1	2
10	3	4	5	6	7	8	9
11	10	11	12	13	14	15	16
12	17	18	19	20	21	22	23
13	24	25	26	27	28	29	30

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	183	184	185	186	187	188	189
28	190	191	192	193	194	195	196
29	197	198	199	200	201	202	203
30	204	205	206	207	208	209	210
31	211	212	213	214	215	216	217
32	218	219	220	221	222	223	224
33	225	226	227	228	229	230	231
34	232	233	234	235	236	237	238
35	239	240	241	242	243	244	245
36	246	247	248	249	250	251	252
37	253	254	255	256	257	258	259
38	260	261	262	263	264	265	266
39	267	268	269	270	271	272	273

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
14	92	93	94	95	96	97	98
15	99	100	101	102	103	104	105
16	106	107	108	109	110	111	112
17	113	114	115	116	117	118	119
18	120	121	122	123	124	125	126
19	127	128	129	130	131	132	133
20	134	135	136	137	138	139	140
21	141	142	143	144	145	146	147
22	148	149	150	151	152	153	154
23	155	156	157	158	159	160	161
24	162	163	164	165	166	167	168
25	169	170	171	172	173	174	175
26	176	177	178	179	180	181	182

week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40	274	275	276	277	278	279	280
41	281	282	283	284	285	286	287
42	288	289	290	291	292	293	294
43	295	296	297	298	299	300	301
44	302	303	304	305	306	307	308
45	309	310	311	312	313	314	315
46	316	317	318	319	320	321	322
47	323	324	325	326	327	328	329
48	330	331	332	333	334	335	336
49	337	338	339	340	341	342	343
50	344	345	346	347	348	349	350
51	351	352	353	354	355	356	357
52	358	359	360	361	362	363	364

In Leap Years, append a Leap Week to December, making it a 37-day month or append a stand-alone leap week at the end of the year as a 7-day "mini-month". Leap years occur at symmetrically arranged intervals of 6 or 5 years.

365	366	367	368	369	370	371
53	31/1	32/2	33/3	34/4	35/5	36/6
						37/7

Symmetry010 Calendar Benefits

<<http://individual.utoronto.ca/kalendis/classic.htm>>

- The Symmetry010 Calendar is perpetual — a permanent copy can be reused every year.
- It conserves the 7-day week (no intercalated or “null” or leap days outside of the traditional 7-day weekly cycle).
- Its symmetrical structure paves the way to simpler, aesthetically pleasing calendar designs.
- Its **superior symmetrical leap rule** ensures excellent long-term astronomical accuracy:
 - The simple fixed arithmetic **52/293** leap rule has 52 leap years that are automatically and inherently symmetrically spread as smoothly as possible within each repeating cycle of 293 years:
 - **It is a leap year only if the remainder of $(52 \times \text{Year} + 146) / 293$ is less than 52.**
 - With this simple single-step leap rule, leap year intervals occur in groups of either $6 + 6 + 5 = 17$ years or $6 + 5 = 11$ years, which symmetrically group into sub-cycles of $17 + 11 + 17 = 45$ years or sub-cycles of $17 + 17 + 11 + 17 + 17 = 79$ years. In each full calendar cycle these sub-cycles inherently occur symmetrically in the sequence $45 + 79 + 45 + 79 + 45 = 293$ years.
 - With 52 leap weeks in the cycle, and 52 weeks in a regular year, the fixed cycle length equals exactly 294 regular years, and the average interval between leap weeks is exactly 294 weeks.
 - The calendar mean year $\equiv 365 + \frac{71}{293}$ days $\equiv 365\text{d } 5\text{h } 48\text{m } 56 + \frac{152}{293}\text{s}$, which is intentionally slightly shorter than the present era northward equinoctial mean year of 365d 5h 49m 0s, ensuring essentially drift-free performance for more than 4 future millennia.
 - Due to the symmetrical arrangement of leap years, the timing of the mean northward equinox moment always falls at the cycle average in the first year of every 293-year cycle. **This feature simplifies astronomical performance evaluations.**
- **Every Symmetry010 year and quarter starts on Monday and ends on Sunday.**
- Its symmetrical 13-week quarters are identical. Every quarter has the same count of weekdays and weekend days.
- Every date has permanently fixed week-in-year and day-in-year ordinal numbers, facilitating administrative, academic, commercial and industrial applications, and simplifying calendar arithmetic.
- There is always a whole number of weeks in every year (common year = 52 weeks, leap year = 53 weeks) and in every quarter (13 weeks, last quarter of leap year = 14 weeks).
- **Every secular holiday, event, anniversary, birthday, and memorial day has a permanently fixed weekday and date, because the calendar is perpetual.**
- Holiday and/or special day overlaps are less likely to occur and are easy to predict and avoid.
- Sunday, April 7th is proposed as a permanently fixed Symmetry010 date for Easter, based on the median date of the Sunday after the day of the astronomical lunar opposition that is on or after the day of the astronomical northward equinox, calculated for the meridian of Jerusalem.
 - Fixing Easter also fixes all Easter-related ecclesiastical calendar dates (counted before or after Easter).
 - See “**Appendix**: A Declaration of the Second Ecumenical Council of the Vatican on Revision of the Calendar” at the end of the archive “[Constitution on the sacred liturgy Sacrosanctum Concilium solemnly promulgated by His Holiness Pope Paul VI on December 4, 1963](http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19631204_sacrosanctum-concilium_en.html)” at <http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19631204_sacrosanctum-concilium_en.html>.
- The coherent structure of the calendar enables simple arithmetic expressions in calculating the following for statistical or business purposes: weekday; day number of year, quarter or month; week number of year or quarter; month number of year or quarter.
- **Symmetry010 calendar arithmetic is in the public domain**, allowing **royalty-free** computer implementation.
- The **freeware** *Kalendis* computer program demonstrates the calendar and inter-converts dates, and is freely available at <<http://individual.utoronto.ca/kalendis/kalendis.htm>>.
- “Friday the 13th” never happens.