



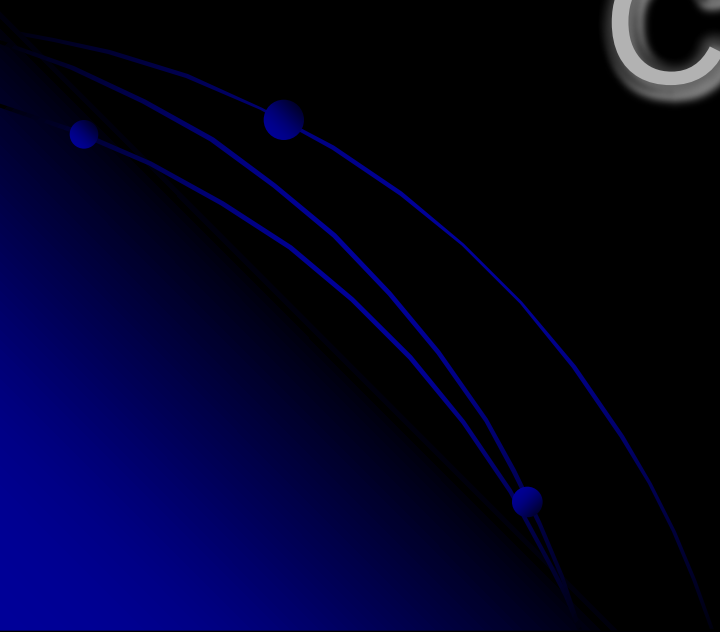
Unlocking the Mystery of Birkat Hachamah & The Hebrew Calendar

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Sponsored by Jill & David Mogil in memory of Jill's father, Saul Mirowitz, ob"m



III. Setting the Calendar



Summary

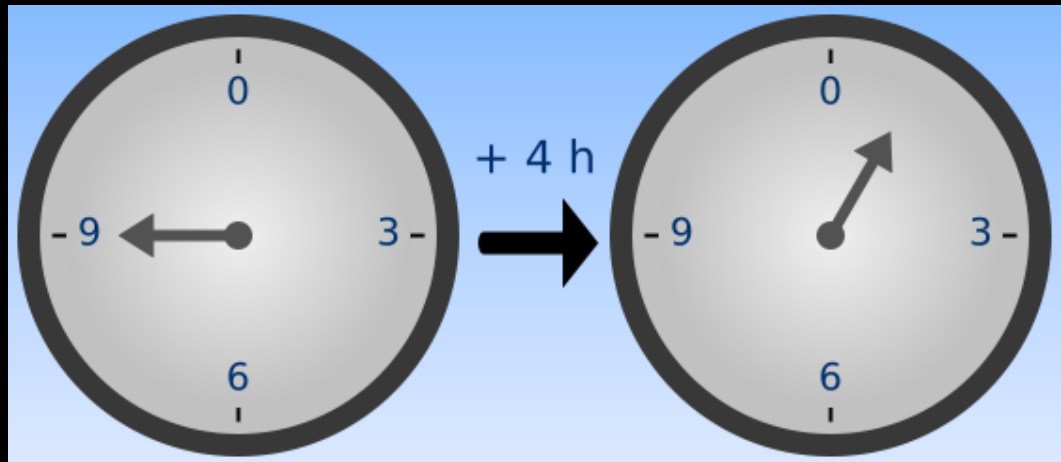
Tekufat Shmuel	365d 6h	
Tekufat Rav Ada	365d 5h 997p 48m	
Length of Molad	29d 12h 793p	כ"ט י"ב תשצ"ג
Molad Shift	1d 12h 793p	אי"ב תשצ"ג
* Annual Molad Shift – Simple	4d 8h 867p	ד"ח תתע"ו
* Annual Molad Shift – Gravid	5d 21h 589p	הכ"א תקפ"ט
** Annual Tekufah Shift – Simple	10d 21h 204p	
** Annual Tekufah Shift – Gravid	-18d 15h 589p	
Leap Years – “Machzor Hakatan”	3,6,8,11,14,17,19	גו"ח אדז"ט

* Length of Year MOD 7

** In relation to the Lunar Year

Modular Division (MOD 7)

- **Modular arithmetic** (a.k.a “**clock arithmetic**”)
 - system of arithmetic for integers where numbers “wrap around” after reaching a certain value, the modulus.
- E.g. CLOCK - 12-hour time:
 - 7:00 o'clock + 8 hours = 3:00 o'clock.
 - clock time “wraps around” every 12 hours - arithmetic *modulo* 12



Calculating Molad Tishrei

Example 1

Given the Molad of Tishrei 5769
Calculate the Molad of 5770

Molad 5769: 3d 7h 1057p
304th cycle, 12th year – Simple year.

EXAMPLE 1: MOLAD 5770			
Molad 5769	3d	7h	1057p
+ Molad Shift	4d	8h	876p
Molad 5770	0d	16h	853p

Calculating Molad Tsihrei

Example 2

Given the Molad of Tishrei 5771
Calculate the Molad of 5772

Molad 5771: 5d 1h 649p
304th cycle, 14th year – Gravid year.

EXAMPLE 1: MOLAD 5772			
Molad 5771	5d	1h	649p
+ Gravid Molad Shift	5d	21h	589p
Molad 5772	3d	23h	158p

Molad / Calendar Starting Point

R. Johanan b. Hanina said: The day consisted of twelve hours. In the first hour, his dust was gathered; in the second, it was kneaded into a shapeless mass...in the ninth, he was commanded not to eat of the tree...

אמר רבי יוחנן בר חנינא: שתיים
עשרה שעות היו היום; שעה ראשונה
- הוצבר עפרו, שניה - נעשה גולם...
תשיעית - נצטווה שלא לאכול מן
האילן (סנה' לח:)

- Molad Yishuv = First Molad Tishrei 'sanctified' by Adam
- 6d 14h = י"ד
 - 1. 2nd Hour - Adam created = 14th hour of 24 hr day.
 - Assumption: The moon was created on day 4 (28 Elul) in a such a way as to 'renew' itself together with Adam. (R. Yosef Gaon)
 - 2. 9th hour – 1st Mitzvah – He 'sanctified' the New Moon at that time.
 - Molad falls 6 hours prior to being visible = 2nd hour (Tos. RH 8a)

Shenat Tohu – שנת תהו

The Primordial Year

- Molad Tishrei 1 = Friday, Day 6, 14h = ו"ד
- => World created on Day 1 = 25 Elul
- => Sun/Moon created on Day 4 = 28 Elul

“Shenat Tohu” – שנת תהו

Hypothetical year starting 1 YEAR
PRIOR to Creation, containing the
5 days prior to Adam's creation.

Molad Yishuv or Molad Tohu?

19 year Cycle, and all lunisolar calendar calculations begin with Molad Tohu



What year is it?
5769 from *Molad Tohu*
(Rambam)

Calculating Molad Tohu from וי"ד

Calculating Molad Tohu				
	6d	13h	1080p	Molad Yishuv (וי"ד)
-	4d	8h	876p	Yearly Molad Shift
=	2d	5h	204p	Molad Tohu (Yr 0)

Molad Tohu
2d 5h 204p
בהר"ד

MOLAD TISHREI *yr n*

- Molad Tishrei of *yr n* can be calculated from Molad Tohu
 - = Molad Tohu + $n \times$ Annual Molad Shift
 - To take into consideration the leap years, this is simplified by multiplying the number of 19 year cycles $\times$ the 'molad shift' of the Machzor Hakatan
- All numbers are MOD 7

Constants to Aid in Molad Math

Useful Calculations of Molad shifts (0 = Shabbat)			
Molad Tohu	2d	5h	204p
1 Month	1d	12h	793p
6 Months	2d	4h	438p
SIMPLE year (12 months)	4d	8h	876p
GRAVID year (13 months)	5d	21h	589p
19 -year cycle (Machzor Katan)	2d	16h	595p

EXCEL PROGRAM TO CALCULATE MOLAD MATH				
MULTIPLE	DAYS	HOURS	PARTS	
235	1	12	793	
Mod 7	2	16	595	

$D4 = \text{MOD}(D3 * A3, 1080)$

$C4 = \text{MOD}((\text{QUOTIENT}(D3 * A3, 1080)) + C3 * A3, 24)$

$B4 = \text{MOD}(\text{QUOTIENT}((\text{QUOTIENT}(D3 * A3, 1080)) + C3 * A3, 24) + B3 * A3, 7)$

When is Molad Tishrei 5770?

- $5770 = 304 \text{ r. } 13$
- $= 303 \text{ cycles \& 12 yrs have passed since Molad Tohu.}$
- Molad Cheshvan = 303 cycles, 12 years + 1 month

19 Year Shift x # of cycles passed				
MULTIPLE	DAYS	HOURS	PARTS	
303	2	16	595	
Mod 7	2	22	1005	

Annual Molad Shift x number of Simple Years				
MULTIPLE	DAYS	HOURS	PARTS	
8	4	8	876	
Mod 7	6	22	528	

- Molad Tohu
- $+ [303 \times (19 \text{ year shift})]$
- $+ [8 \times (\text{simple yearly shift}) + 4 \times (\text{gravid shift})]$

Molad Tohu	2d	5h	204p
+ 19 yr Shift	2d	22h	1005
8 Regular	6d	22h	528p
4 Gravid	2d	14h	196p
Mod 7=	0d	16h	853p

Gravid Molad Shift x # of Gravid years in cycle				
MULTIPLE	DAYS	HOURS	PARTS	
4	5	21	589	
Mod 7	2	14	196	

מולדי תשרי שנות ד' קי"א – ו"א

Moladey Tishrey, Years 4111-6000 (351-2240 C.E.)

MGLADGTH	0		1		2		3		4		5		6		7		8		9											
YEAR																														
4111	3	10	566	0	19	362	6	16	951	4	1	747	1	10	543	0	8	52	4	16	928	2	1	724	0	23	233	5	8	29
4121	2	16	905	1	14	414	5	23	210	4	20	799	2	5	595	6	14	391	5	11	980	2	20	776	0	5	572	6	3	81
4131	3	11	957	2	9	466	6	18	262	4	3	58	3	0	647	0	9	443	4	18	239	3	15	828	1	0	624	5	9	420
4141	4	6	1009	1	15	805	0	13	314	4	22	110	2	6	986	1	4	495	5	13	291	2	22	87	1	19	676	6	4	472
4151	5	1	1061	2	10	857	6	19	653	5	17	162	3	1	1038	0	10	834	6	8	343	3	17	139	1	1	1015	6	23	524
4161	4	8	320	3	5	909	0	14	705	4	23	501	3	21	10	1	5	886	5	14	682	4	12	191	1	20	1067	0	18	576
4171	5	3	372	2	12	168	1	9	757	5	18	553	3	3	349	2	0	938	6	9	734	3	18	530	2	16	39	0	0	915
4181	5	22	424	3	7	220	0	16	16	6	13	605	3	22	401	1	7	197	0	4	786	4	13	582	3	11	91	0	19	967
4191	5	4	763	4	2	272	1	11	68	5	19	944	4	17	453	2	2	249	6	11	45	5	8	634	2	17	430	1	14	1019
4201	5	23	815	3	8	611	2	6	120	6	14	996	3	23	792	2	21	301	0	6	97	6	3	686	3	12	482	0	21	278
4211	6	18	867	4	3	663	1	12	459	0	9	1048	4	18	844	2	3	640	1	1	149	5	9	1025	4	7	534	1	16	330
4221	6	1	126	4	22	715	2	7	511	6	16	307	5	13	896	2	22	692	1	20	201	6	4	1077	3	13	873	2	11	382
4231	6	20	178	4	4	1054	3	2	563	0	11	359	4	20	155	3	17	744	1	2	540	0	0	49	4	8	925	1	17	721
4241	6	15	230	5	0	26	2	8	902	1	6	411	5	15	207	4	12	796	1	21	592	6	6	388	5	3	977	2	12	773
4251	6	21	569	5	19	78	3	3	954	0	12	750	6	10	259	3	19	55	2	16	644	0	1	440	4	10	236	3	7	825
4261	0	16	621	5	1	417	3	22	1006	1	7	802	0	5	311	4	14	107	1	22	983	0	20	492	5	5	288	2	14	84
4271	1	11	673	5	20	469	3	5	265	2	2	854	6	11	650	5	9	159	2	17	1035	0	2	831	6	0	340	3	9	136
4281	0	17	1012	6	15	521	4	0	317	2	21	906	0	6	702	4	15	498	3	13	7	0	21	883	5	6	679	4	4	188
4291	1	12	1064	5	21	860	4	19	369	2	4	165	1	1	754	5	10	550	2	19	346	1	16	935	6	1	731	3	10	527
4301	2	8	36	6	16	912	5	14	421	2	23	217	0	8	13	6	5	602	3	14	398	0	23	194	6	20	783	4	5	579
4311	1	14	375	0	11	964	4	20	760	3	18	269	1	3	65	5	11	941	4	9	450	1	18	246	6	3	42	5	0	631
4321	2	9	427	1	6	1016	5	15	812	3	0	608	1	22	117	6	6	993	3	15	789	2	13	298	6	22	94	4	6	970
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4341	3	23	531	1	8	327	5	17	123	4	14	712	1	23	508	6	8	304	5	5	893	2	14	689	6	23	485	5	20	1074
4351	3	5	870	2	3	379	6	12	175	3	20	1051	2	18	560	0	3	356	4	12	152	3	9	741	0	18	537	6	16	46
4361	4	0	922	1	9	718	0	7	227	4	16	23	2	0	899	0	22	408	5	7	204	2	16	0	1	13	589	5	22	385
4371	4	19	974	2	4	770	6	13	566	5	11	75	2	19	951	0	4	747	6	2	256	3	11	52	2	8	641	6	17	437
4381	4	2	233	2	23	822	0	8	618	4	17	414	3	14	1003	0	23	799	5	8	595	4	6	104	1	14	980	0	12	489
4391	4	21	285	2	6	81	1	3	670	5	12	466	2	21	262	1	18	851	6	3	647	5	1	156	2	9	1032	6	18	828
4401	5	16	337	3	1	133	0	9	1009	6	7	518	3	16	314	1	1	110	6	22	699	4	7	495	3	5	4	0	13	880
4411	4	22	676	3	20	185	1	4	1061	5	13	857	4	11	366	1	20	162	0	17	751	5	2	547	2	11	343	1	8	932
4421	5	17	728	3	2	524	2	0	33	6	8	909	3	17	705	2	15	214	0	0	10	5	21	599	3	6	395	0	15	191
4431	6	12	780	3	21	576	1	6	372	0	3	961	4	12	757	3	10	266	0	19	62	5	3	938	4	1	447	1	10	243
4441	5	19	39	4	16	628	2	1	424	6	10	220	5	7	809	2	16	605	1	14	114	5	22	990	3	7	786	2	5	295
4451	6	14	91	3	22	967	2	20	476	0	5	272	6	2	861	3	11	657	0	20	453	6	17	1042	4	2	836	1	11	634
4461	0	9	143	4	17	1019	2	2	815	1	0	324	5	9	120	4	6	709	1	15	505	6	0	301	4	21	890	2	6	686
4471	6	15	482	5	12	1071	2	21	867	1	19	376	6	4	172	3	12	1048	2	10	557	6	19	353	4	4	149	3	1	738
4481	0	10	534	4	19	330	3	16	919	1	1	715	6	23	224	4	8	20	1	16	896	0	14	405	4	23	201	2	7	1077
4491	1	5	586	5	14	382	4	11	971	1	20	767	6	5	563	5	3	72	2	11	948	6	20	744	5	18	253	3	3	49
4501	0	11	925	6	9	434	3	18	230	2	15	819	0	0	615	4	9	411	3	6	1000	0	15	796	5	0	592	3	22	101
4511	1	6	977	0	4	486	4	13	282	1	22	78	0	19	667	5	4	463	2	13	259	1	10	848	5	19	644	3	4	440
4521	2	1	1029	6	10	825	5	8	334	2	17	130	0	1	1006	5	23	515	3	8	311	0	17	107	6	14	696	3	23	492
4531	2	21	1	0	5	877	4	14	673	3	12	182	0	20	1058	5	5	854	4	3	363	1	12	159	5	20	1035	4	18	544
4541	2	3	340	1	0	929	5	9	725	2	18	521	1	16	30	6	0	906	3	9	702	2	7	211	6	16	7	5	13	596
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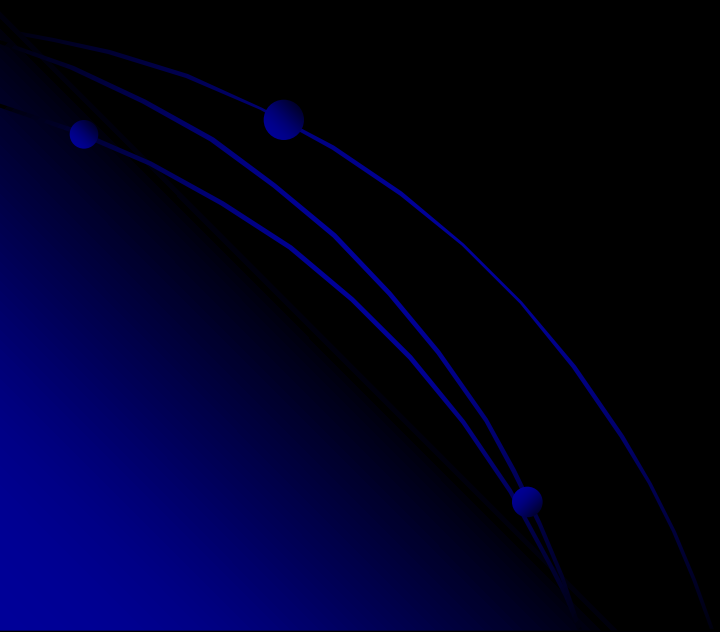
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YEAR																														
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4121	2	16	905	1	14	414	5	23	210	4	20	799	2	5	595	6	14	391	5	11	980	2	20	776	0	5	572	6	3	81
4131	3	11	957	2	9	466	6	18	262	4	3	58	3	0	647	0	9	443	4	18	239	3	15	828	1	0	624	5	9	420
4141	4	6	1009	1	15	805	0	13	314	4	22	110	2	6	986	1	4	495	5	13	291	2	22	87	1	19	676	6	4	472
4151	5	1	1061	2	10	857	6	19	653	5	17	162	3	1	1038	0	10	834	6	8	343	3	17	139	1	1	1015	6	23	524
4161	4	8	320	3	5	909	0	14	705	4	23	501	3	21	10	1	5	886	5	14	682	4	12	191	1	20	1067	0	18	576
4171	5	3	372	2	12	168	1	9	757	5	18	553	3	3	349	2	0	938	6	9	734	3	18	530	2	16	39	0	0	915
4181	5	22	424	3	7	220	0	16	16	6	13	605	3	22	401	1	7	197	0	4	786	4	13	582	3	11	91	0	19	967
4191	5	4	763	4	2	272	1	11	68	5	19	944	4	17	453	2	2	249	6	11	45	5	8	634	2	17	430	1	14	1019
4201	5	23	815	3	8	611	2	6	120	6	14	996	3	23	792	2	21	301	0	6	97	6	3	686	3	12	482	0	21	278
4211	6	18	867	4	3	663	1	12	459	0	9	1048	4	18	844	2	3	640	1	1	149	5	9	1025	4	7	534	1	16	330
4221	6	1	126	4	22	715	2	7	511	6	16	307	5	13	896	2	22	692	1	20	201	6	4	1077	3	13	873	2	11	382
4231	6	20	178	4	4	1054	3	2	563	0	11	359	4	20	155	3	17	744	1	2	540	0	0	49	4	8	925	1	17	721
4241	6	15	230	5	0	26	2	8	902	1	6	411	5	15	207	4	12	796	1	21	592	6	6	388	5	3	977	2	12	773
4251	6	21	569	5	19	78	3	3	954	0	12	750	6	10	259	3	19	55	2	16	644	0	1	440	4	10	236	3	7	825
4261	0	16	621	5	1	417	3	22	1006	1	7	802	0	5	311	4	14	107	1	22	983	0	20	492	5	5	288	2	14	84
4271	1	11	673	5	20	469	3	5	265	2	2	854	6	11	650	5	9	159	2	17	1035	0	2	831	6	0	340	3	9	136
4281	0	17	1012	6	15	521	4	0	317	2	21	906	0	6	702	4	15	498	3	13	7	0	21	883	5	6	679	4	4	188
4291	1	12	1064	5	21	860	4	19	369	2	4	165	1	1	754	5	10	550	2	19	346	1	16	935	6	1	731	3	10	527
4301	2	8	36	6	16	912	5	14	421	2	23	217	0	8	13	6	5	602	3	14	398	0	23	194	6	20	783	4	5	579
4311	1	14	375	0	11	964	4	20	760	3	18	269	1	3	65	5	11	941	4	9	450	1	18	246	6	3	42	5	0	631
4321	2	9	427	1	6	1016	5	15	812	3	0	608	1	22	117	6	6	993	3	15	789	2	13	298	6	22	94	4	6	970
4331	3	4	479	0	13	275	6	10	864	3	19	660	1	4	456	0	1	1045	4	10	841	1	19	637	0	17	146	5	1	1022
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4351	3	5	870	2	3	379	6	12	175	3	20	1051	2	18	560	0	3	356	4	12	152	3	9	741	0	18	537	6	16	46
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4371	4	19	974	2	4	770	6	13	566	5	11	75	2	19	951	0	4	747	6	2	256	3	11	52	2	8	641	6	17	437
4381	4	2	233	2	23	822	0	8	618	4	17	414	3	14	1003	0	23	799	5	8	595	4	6	104	1	14	980	0	12	489
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4401	5	16	337	3	1	133	0	9	1009	6	7	518	3	16	314	1	1	110	6	22	699	4	7	495	3	5	4	0	13	880
4411	4	22	676	3	20	185	1	4	1061	5	13	857	4	11	366	1	20	162	0	17	751	5	2	547	2	11	343	1	8	932
4421	5	17	728	3	2	524	2	0	33	6	8	909	3	17	705	2	15	214	0	0	10	5	21	599	3	6	395	0	15	191
4431	6	12	780	3	21	576	1	6	372	0	3	961	4	12	757	3	10	266	0	19	62	5	3	938	4	1	447	1	10	243
4441	5	19	39	4	16	628	2	1	424	6	10	220	5	7	809	2	16	605	1	14	114	5	22	990	3	7	786	2	5	295
4451	6	14	91	3	22	967	2	20	476	0	5	272	6	2	861	3	11	657	0	20	453	6	17	1042	4	2	836	1	11	634
4461	0	9	143	4	17	1019	2	2	815	1	0	324	5	9	120	4	6	709	1	15	505	6	0	301	4	21	890	2	6	686
4471	6	15	482	5	12	1071	2	21	867	1	19	376	6	4	172	3	12	1048	2	10	557	6	19	353	4	4	149	3	1	738
4481	0	10	534	4	19	330	3	16	919	1	1	715	6	23	224	4	8	20	1	16	896	0	14	405	4	23	201	2	7	1077
4491	1	5	586	5	14	382	4	11	971	1	20	767	6	5	563	5	3	72	2	11	948	6	20	744	5	18	253	3	3	49
4501	0	11	925	6	9	434	3	18	230	2	15	819	0	0	615	4	9	411	3	6	1000	0	15	796	5	0	592	3	22	101
4511	1	6	977	0	4	486	4	13	282	1	22	78	0	19	667	5	4	463	2	13	259	1	10	848	5	19	644	3	4	440
4521	2	1	1029	6	10	825	5	8	334	2	17	130	0	1	1006	5	23	515	3	8	311	0	17	107	6	14	696	3	23	492
4531	2	21	1	0	5	877	4	14	673	3	12	182	0	20	1058	5	5	854	4	3	363	1	12	159	5	20	1035	4	18	544
4541	2	3	340	1	0	929	5	9	725	2	18	521	1	16	30	6	0	906	3	9	702	2	7	211	6	16	7	5	13	596
4551	2	22	392	0	7	188	6	4	777	3	13	573	0	22	369	6	19	958	4	4	754	1	13	550	0	11	59	4	19	935
4561	2	23	444	1	2	240	5	11	36	4	8	625	1	17	421	6	2	217	4	23	806	2	8	602	1	6	111	5	14	987

Molad Tishrei Yr x?

5751	5	0	258	2	9	54	1	6	643	5	15	439	3	0	235	1	21	824	6	6	620	5	4	129	2	12	1005	6	21	801
5761	5	19	310	3	4	106	0	12	982	6	10	491	3	19	287	2	16	876	0	1	672	4	10	468	3	7	1057	0	16	853
5771	5	1	649	3	23	158	1	7	1034	5	16	830	4	14	339	1	23	135	0	20	724	5	5	520	2	14	316	1	11	905
5781	5	20	701	3	5	497	2	3	6	6	11	882	5	9	391	2	18	187	0	2	1063	6	0	572	3	9	368	0	18	164
5791	6	15	753	4	8	549	3	8	847	7	12	938	5	17	440	3	20	242	1	3	1155	7	1	628	4	17	420	2	20	1016



Excel formulas for generating Molad Chart

A	B	C	D	E	F	G	H	I
Sunday, October 02, 1921	3:54 AM	17 chalakim	57	17.27272727	54	1	9	989

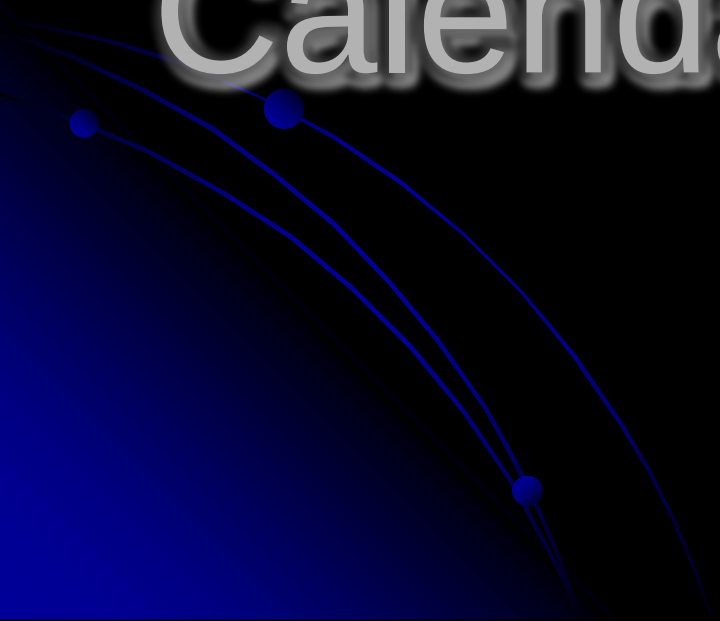
A1 = 9/21/1921 3:10:54 PM	Starting date
A2=A1+29.5305941358	Decimal value for Molad Shift, formatted as date
B2=A2	Formatted as time
C2=FLOOR(E2,1) & " chalakim"	Parts (rounded down to whole number)
D2=SECOND(A2)	Seconds
E2=D2/3.3	Parts (with decimal)
F2=MINUTE(A2)	Minutes
G2=WEEKDAY(A2+0.25)	# of day of week (add 0.25 to compensate for day starting at 6:00pm)
H2=HOUR(A2+0.25)	Hour of day
I2=F2*18+E2	Total Parts out of hour

Molad Chart 2008-2010 - Excel

Friday, September 02, 1921	3:10 PM	16 chalakim	54	16.36363636	10		6	21	196
Sunday, October 02, 1921	3:54 AM	17 chalakim	57	17.27272727	54		1	9	989

Tuesday, September 30, 2008	1:58 AM	13 chalakim	44	13.33333333	58		3	7	1057
Wednesday, October 29, 2008	2:42 PM	14 chalakim	47	14.24242424	42		4	20	770
Friday, November 28, 2008	3:26 AM	15 chalakim	51	15.45454545	26		6	9	483
Saturday, December 27, 2008	4:10 PM	16 chalakim	54	16.36363636	10		7	22	196
Monday, January 26, 2009	4:54 AM	17 chalakim	57	17.27272727	54		2	10	989
Tuesday, February 24, 2009	5:39 PM	0 chalakim	1	0.30303030	39		3	23	702
Thursday, March 26, 2009	6:23 AM	1 chalakim	4	1.21212121	23		5	12	415
Friday, April 24, 2009	7:07 PM	2 chalakim	7	2.12121212	7		7	1	128
Sunday, May 24, 2009	7:51 AM	3 chalakim	11	3.33333333	51		1	13	921
Monday, June 22, 2009	8:35 PM	4 chalakim	14	4.24242424	35		3	2	634
Wednesday, July 22, 2009	9:19 AM	5 chalakim	17	5.15151515	19		4	15	347
Thursday, August 20, 2009	10:03 PM	6 chalakim	21	6.36363636	3		6	4	60
Saturday, September 19, 2009	10:47 AM	7 chalakim	24	7.27272727	47		7	16	853
Sunday, October 18, 2009	11:31 PM	8 chalakim	27	8.18181818	31		2	5	566
Tuesday, November 17, 2009	12:15 PM	9 chalakim	31	9.39393939	15		3	18	279
Thursday, December 17, 2009	12:59 AM	10 chalakim	34	10.30303030	59		5	6	1072
Friday, January 15, 2010	1:43 PM	11 chalakim	37	11.21212121	43		6	19	785
Sunday, February 14, 2010	2:27 AM	12 chalakim	41	12.42424242	27		1	8	498
Monday, March 15, 2010	3:11 PM	13 chalakim	44	13.33333333	11		2	21	211
Wednesday, April 14, 2010	3:55 AM	14 chalakim	47	14.24242424	55		4	9	1004
Thursday, May 13, 2010	4:39 PM	15 chalakim	51	15.45454545	39		5	22	717
Saturday, June 12, 2010	5:23 AM	16 chalakim	54	16.36363636	23		7	11	430
Sunday, July 11, 2010	6:07 PM	17 chalakim	57	17.27272727	7		2	0	143
Tuesday, August 10, 2010	6:52 AM	0 chalakim	1	0.30303030	52		3	12	936
Wednesday, September 08, 2010	7:36 PM	1 chalakim	4	1.21212121	36		5	1	649

IV. So What does the Calendar Look Like?



How Many Days in Each Month?

The Rabbis of Caesarea said in the name of R. Abba: How do we know that a month is not reckoned by its hours? Because it says, until a month of days you reckon a month by days, but you do not reckon a month by hours.

מנין שאין מחשבין שעות לחדשים?
שנאמר (במדבר י"א) עד חדש ימים -
ימים אתה מחשב לחדשים, ואי
אתה מחשב שעות לחדשים (גמ' מגילה
ה.).

- Molad = ~29.5 days.
- Calendar “Month” will be of EITHER 29 / 30 days
 - 30 day months = מלא, “Full”
 - 29 day months = חסר, “Deficient”

How Many Days Rosh Chodesh does Each Month Have?

Full month = 30 days. Deficient Month = 29 days

A 2 day Rosh Chodesh always follows a “Full” month

- Day 30 of outgoing month = 1st day RC

- Day 1 of incoming month = 2nd day RC

א' דראש חדש חשון = ל' תשרי

ב' דראש חדש חשון = א' חשון

“Birdseye View of Hebrew Calendar”

Month		Days in Month		Days of Rosh Chodesh	
Tishrei – תשרי		30			
Cheshvan – חשון		29			
Kislev – כסלו		30			
Tevet – טבת		29			
Shevat – שבט		30			
Adar א' – אדר I	Adar – אדר	30	29		
Adar ב' – אדר II		29			
Nisan – ניסן		30			
Iyar – אייר		29			
Sivan – סיון		30			
Tamuz – תמוז		29			
Av – אב		30			
Ellul - אלול		29			

“Birdseye View of Hebrew Calendar”

Month		Days in Month		Days of Rosh Chodesh	
Tishrei – תשרי		30		1	
Cheshvan – חשון		29		2	
Kislev – כסלו		30		1	
Tevet – טבת		29		2	
Shevat – שבט		30		1	
Adar I – אדר א'	Adar – אדר	30	29	2	2
Adar II – אדר ב'		29		2	
Nisan – ניסן		30		1	
Iyar – אייר		29		2	
Sivan – סיון		30		1	
Tamuz – תמוז		29		2	
Av – אב		30		1	
Ellul - אלול		29		2	

“Birdseye View of Hebrew Calendar”

Month		Days in Month		Days of Rosh Chodesh	
Tishrei – תשרי		30		1	
Cheshvan – חשון		29/30		2	
Kislev – כסלו		29/30		1/2	
Tevet – טבת		29		1/2	
Shevat – שבט		30		1	
Adar א' – אדר I	Adar – אדר	30	29	2	2
Adar ב' – אדר II		29		2	
Nisan – ניסן		30		1	
Iyar – אייר		29		2	
Sivan – סיון		30		1	
Tamuz – תמוז		29		2	
Av – אב		30		1	
Ellul - אלול		29		2	

Year “Types”

A.K.A.

* Defective

** Excessive

ח, כ, ש	חשון	כסלו
חסרה Chaseirah Incomplete*	29	29
כסדרה Kesidrah Regular	29	30
שלימה Shleimah Complete**	30	30

Relationship between Molad & Rosh Chodesh



ROSH HASHANAH

is determined by **MOLAD TISHREI**
(with 4 exceptions - Dechiyot)

ROSH CHODESH

is determined by the cycle of 29-30 day month cycle, *irrespective of the molad of that month.*

