

**JEWISH CALENDAR TUTORIAL WORKSHEET 1 (2013)**

**YEAR BEING CALCULATED:2013**

**PART I: CALCULATION OF THE DAY OF THE WEEK FOR THE MOLAD**

- 1.**  
STARTING DATE YEAR: 3761 B.C.  
STARTING DATE MOLAD OF TISHRI: OCTOBER 7 or SEPTEMBER 37  
STARTING DATE EXACT TIME: D2 H5 P204
- 2.**  
YEAR BEING CALCULATED:2013
- 3.**  
THE DIFFERENCE IN YEARS:3761 - 1 + 2013 = 5773 YEARS  
[Comment: When calculating the molad for A.D. years, always subtract 1 because there is no "Year 0" in the "B.C. - A.D. scale."]
- 4.**  
CONVERT THIS DIFFERENCE INTO THE NUMBER OF 19-YR CYCLES PLUS REMAINING COMMON YEARS AND LEAP YEARS:  
 $5773 / 19 = 303$  cycles plus a remainder of 16 years  
The sequence of leap years today is: 3, 6, 8, 11, 14, 17, 19  
Therefore the remainder of 16 years = 11 Common Years + 5 Leap Years
- 5.**  
CALCULATE THE DIFFERENCE BETWEEN THESE TWO DATES TO FIND THE CORRECT DAY OF THE WEEK FOR THE MOLAD.  
  
COMMENT: For calculation purposes turn all periods of time into "Parts". The numbers will be larger, but the calculating processes will be much easier. In large numbers every 3 digits are separated by commas for easier recognition of the numbers. See also the Data File for the actual data needed here for the calculations.
- 6.**  
FIRST CONVERT ALL PERIODS OF TIME INTO PARTS.  
  
A.PER CYCLE: A Jewish 19-Year Cycle exceeds a full number of weeks by 2 Days 16 Hours 595 Parts.  
This is written as 2D 16H 595P.  
THUS:  $2D = 2 \times 24 = 48$  HOURS plus 16 HOURS = 64 HOURS  
 $64 \times 1080 = 69120$  PARTS plus 595P = 69,715P  
  
B.PER COMMON YEAR: A common year exceeds a full number of weeks by 4 Days 8 Hours 876 Parts.  
This is written as 4D 8H 876P.  
THUS:  $4D \times 24 = 96H$  plus 8H = 104H  
 $104 \times 1080 = 112320$  PARTS plus 876P = 113,196P

C.PER LEAP YEAR: A (Jewish) leap year exceeds a full number of weeks by 5 Days 21 Hours 589 Parts. This is written as 5D 21H 589P.  
THUS:  $5D \times 24 = 120H$  plus  $21H = 141H$   
 $141 \times 1080 = 152280$  PARTS plus  $589P = 152,869P$

**7.**  
NOW WE CAN START WITH THE CALCULATIONS FOR OUR YEAR.

A. FOR THE NUMBER OF CYCLES:  
 $303 \times 69,715P = 21,123,645P$

B. FOR THE COMMON YEARS:  
 $11 \times 113,196P = 1,245,156P$

C. FOR THE LEAP YEARS:  
 $5 \times 152,869P = 764,345P$

**8.**  
TOTAL UP THESE 3 AMOUNTS OF TIME:  
 $21,123,645 + 1,245,156 + 764,345 = 23,133,146P$

**9.**  
CONVERT THE RESULT BACK INTO "WEEKS, DAYS, HOURS, PARTS":  
 $23,133,146 / 1080 = 21,419$  HOURS plus  $626P$   
 $21,419 / 24 = 892$  DAYS plus  $11H$   
 $892 / 7 = 127$  WEEKS plus  $3D$

**10.**  
FROM THIS RESULT DISCARD THE FULL NUMBER OF WEEKS:  
THUS THE RESULT IS:  $3D 11H 626P$

**11.**  
ADD THIS REMAINDER TO THE STARTING DATE:  
 $D2 H5 P204$  plus  $3D 11H 626P = D5 H16 P830$

**12.**  
IF THE TOTAL IS 8 DAYS OR MORE, THEN DISCARD 7 DAYS, OTHERWISE KEEP THIS RESULT:  
 $D5 H16 P830$

**13.**  
THE RESULT YOU HAVE IS THE DAY OF THE WEEK AND THE EXACT TIME OF THAT DAY FOR THE JEWISH MOLAD OF TISHRI FOR THIS YEAR.

**14.**  
ENTER THE RESULT HERE IN THE FORMAT: D H P:  $D5 H16 P830$   
THIS IS EQUAL TO: THURSDAY, 10:46:07 a.m.

[Comment: Day 1 = Sunday, Day 7 = Saturday; H0 = 6:00 p.m., H6 = midnight; H12 = 6:00 a.m., etc.]

You have now completed the first part of the calculation of the Molad for the year 2013 A.D. That wasn't very difficult was it? Make a note of the HOURS and PARTS in this result. (i.e. the H16 P830)

[Comment: In programs that reckon days from midnight to midnight this will appear as H10 P830.]

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