

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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