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JEWISH CALENDAR TUTORIAL WORKSHEET 1 (2002)

YEAR BEING CALCULATED: 2002

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:2002

3.
THE DIFFERENCE IN YEARS:3761 - 1 + 2002 = 5762 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: 5762 / 19 = 303 cycles plus a remainder of 5 years

The sequence of leap years today is: 3, 6, 8, 11, 14, 17, 19

Therefore the remainder of 5 years = 4 Common Years + 1 Leap Year

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 = 2x24 = 48 HOURS plus 16 HOURS = 64 HOURS
64 x 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 x 24 = 96H plus 8H = 104H
104 x 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 x 24 = 120H plus 21H = 141H
141 x 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 x 69,715P = 21,123,645P

B. FOR THE COMMON YEARS:
4 x 113,196P = 452,784P

C. FOR THE LEAP YEARS:
1 x 152,869P = 152,869P

8.
TOTAL UP THESE 3 AMOUNTS OF TIME:
21,123,645 + 452,784 + 152,869 = 21,729,298P

9.
CONVERT THE RESULT BACK INTO "WEEKS, DAYS, HOURS, PARTS":
21,729,298 / 1080 = 20,119 HOURS plus 778P
20,119 / 24 = 838 DAYS plus 7H
838 / 7 = 119 WEEKS plus 5D

10.
FROM THIS RESULT DISCARD THE FULL NUMBER OF WEEKS: THUS THE RESULT IS: 5D 7H 778P

11.
ADD THIS REMAINDER TO THE STARTING DATE: D2 H5 P204 plus 5D 7H 778P = D7 H12 P982

12.
IF THE TOTAL IS 8 DAYS OR MORE, THEN DISCARD 7 DAYS, OTHERWISE KEEP THIS RESULT: D7 H12 P982

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: D7 H12 P982

THIS IS EQUAL TO:SATURDAY, 6:54:33 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 2002 A.D. That wasn't very difficult was it? Make a note of the HOURS and PARTS in this result. (i.e. the H12 P982)

[Comment: In programs that reckon days from midnight to midnight this will appear as H6 P982.]

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