

**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:  $2D = 2 \times 24 = 48$  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:  
 $4 \times 113,196P = 452,784P$

C. FOR THE LEAP YEARS:  
 $1 \times 152,869P = 152,869P$

**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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