The average time for the moon to circle the earth as it circles the sun is 29.53059 days. [aka Synodic month—29.53059 days—29d 12 h 44m 03s]

The first year is 29.53059 times 12 = 354.367 days. The first year in days will be 354.

The greatest variation from nominal is plus or minus about 6.5 hours.

The number of days in the moon cycle cannot be less than 29 or greater than 30.

For the second year there are 3 choices—353, 354, or 355 days.

When using the 355-day length, 354 plus 355 = 709, divided by 29.53059 = 24.009.

The 354 plus 354 = 708, divided by 29.53059 = 23.975 days.

The 354 plus 353 = 707, divided by 29.53059 = 23.941 days.

The 355 must be chosen because it results in the whole number 24. Because the moon and the earth are 21 days from completing the 3rd year cycle a 13-month year must be chosen. The three possibilities are 383, 384 and 385 days.

When adding the correct number from the previous two years of 709 plus 385 = 1094, divided by 29.53059 = 37.046.

709 plus 384 = 1093, divided by 29.53059 = 37.01246

709 plus 383 = 1092, divided by 29.53059 = 36.9786

The 384-length year is the closest number to complete 37. It is not chosen because it places the end of the month 2 days from completing the yearly cycle.

The 385-day length is chosen because it ends up one day from completing that yearly cycle.

To the number 1094 add the following three possibilities. 353, 354 and 355, totaling 1447, 1448 and 1449. Dividing each by 29.53059 = 49.000036. 1448 divided by 29.53059 = 49.0339. Dividing 1449 by 29.53059 = 49.0677.

The closest to the whole number 49 would be the short year of 353. The problem is that by choosing that short year it reverts back to repeating the same cycle of the first 4 years. Therefore, the next closest number to 49 would be the nominal year of 354, which is chosen.

1448 plus 353 = 1801. 1801 divided by 29.53059 = 60.9876. The nominal year would be 1802 divided by 29.53059 = 61.0214. 1803, the long year, when divided by 29.53059 = 61.0553, showing that the short year of 353 must be chosen because it comes closest to the whole number 61. 61 minus 60.9876 has a difference of .0124, clearly the closest to the number required of 61.

Consulting chart 6 it is found the total number of days in the first nineteen years of the Hebrew calendar is 6939. 6939 divided by 29.53059 = 234.9766 which results in the travel of the moon matching the solar year. This can be seen by consulting chart 3 and looking at the first 19 years. In the D column is found the number 0 which represents a complete whole day.

Looking at Chart 6 for the complete 13 cycles, the number of days is found as 90216. Dividing 90216 by 29.53059 = 3055.0016, which is the closest number with very little carryover.