The solar & lunar cycles - explainations & adjustments. (after Brom)

I) Adhikamāsa - the extra month.

Purpose. To ensure the lunar cycle (1 month is 29.5305887 days) stays in line with the solar cycle. (1 year is 365 days 5 hours 49 mins. 12 secs.) solar year / lunar month = 12.368277 so. need extra 0.368277 lunar months.

Method. Add 7 months every 19 years, 7/19= 0.368421, good enough. Thai system. Add extra 30 day month to the hot season (8th month) on the 3rd.6th.9th.11th.14th.17th.&19thyears.

Notes. i) the full moon for entering the Vassa, (Asalha Puja) falls on the same day of the year every 19years.

ii) still this is not completely accurate, 0.000144 month too much each year, over 7000years an extra month is added. So every 7000 years there should be one 19 year cycle with only 6 adhikamāsa. Nowadays, after 2500 years we enter the Rains 10.5 days later than at the time of the Buddha.

II) Adikavāra -the extra day.

Purpose To ensure that the 29.5 day offical lunar month keeps in line with the 29.5305887 'real' lunar month.

Method Adding 7 adhikamāsa every 19 years gives average lunar month of 29.515, not good enough. $365.24250 = 180+154+[7/19]/X. \therefore 365.24250 = 365.05263+1/X. \therefore 1/X=0.18987. \therefore X=5.267.$ So an extra day added on average every 5.25 years. In place of 29-30-29-30-29 we have 29-30-30-30-29-30

Adhikavāra

6x30 day-months , 6x 29 day months + adikamāsa 30 days 7 times = 19 yrs.