Calender

Calenders:

Odd-days:

→ The no. of extra days that are present when divisible by 7.

Jan - 3 (31)   July - 3 (31)
Feb - 0 (NLP)/1 (LP) Aug - 3 (31)
Mar - 3 (31)   Sep - 2 (30)
Apr - 2 (30)   Oct - 3 (31)
May - 3 (31)   Nov - 2 (30)
June - 2 (30)   Dec - 3 (31)

1) Non-Leap year = $\dfrac{\overset{52}{\cancel{365}}}{\underset{1}{\cancel{7}}}$ = 1

2) Leap year = $\dfrac{\overset{52}{\cancel{366}}}{\underset{1}{\cancel{7}}}$ = 2 ← (extra)

odd days

Leap year:-

1 Earth year = 365 Days 5 hrs 48 min 48 sec

6 hr × 4 = 24 hrs = 1 day

Rules:

$$\div 4$$

$$\div 100 \qquad \boxed{\text{Leap year}}$$

$$\div 400 \qquad \text{NLP}$$

$$\text{Leap year}$$
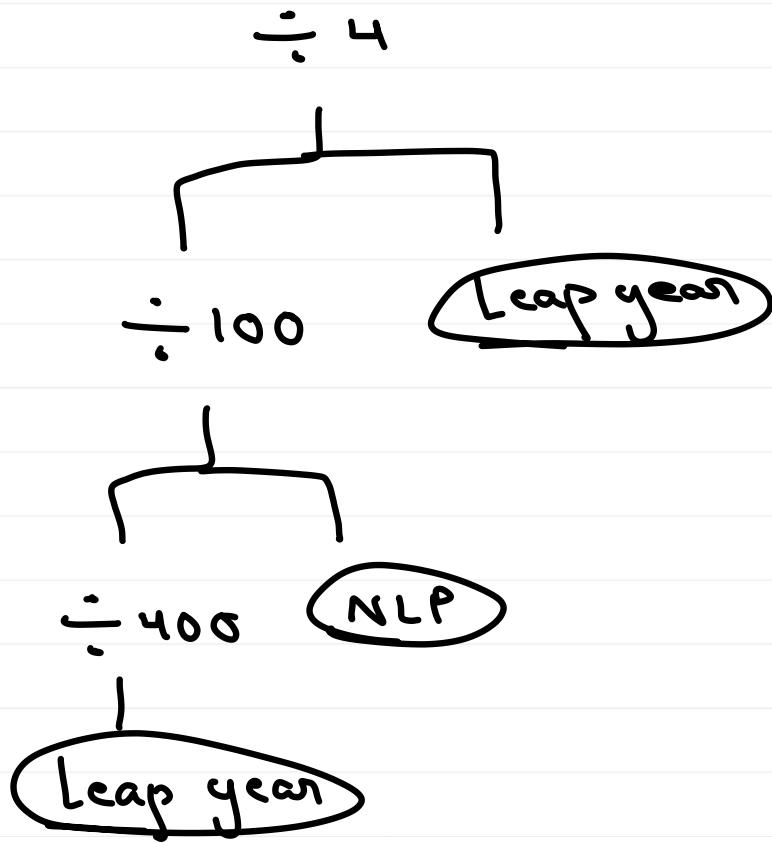
→ For every 100 years,

$$\text{odd days} = 76 \, nlp + 24 \, lp$$
$$= (76 \times 1) + (24 \times 2)$$
$$= 76 + 48 \qquad (\div \text{ by } 7)$$
$$= 124/7$$

+400 $\qquad = 5$ odd days.

→ 100 years = 5 odd days = 500, 900, 1300 - -

→ 200 years = 3 odd days = 600, 1000, 1400 - -

→ 300 years = 1 odd days = 700, 1100, 1500 - -

→ 400 years = 0 odd days = 800, 1200, 1600 - -

(* For 200 years we do $(5 + 5)$ % 7 = 3 odd days) $\overset{(100y \ 100y)}{}$

⇒ **Days of week ⟷ odd days**

Sunday   — 0

Monday   — 1

Tuesday   — 2

Wednesday — 3   ⎫

Thursday   — 4   ⎬   odd days

Friday   — 5   ⎭

Saturday   — 6

☆ **Model 1:**

Day on a Particular Date:

Q) 29 - 01 - 2005.

$$29 - 01 - 2005.$$

29 ↓   01 ↓   ↘ 2005

29%7   ✗   2000 + 4 yrs

↓   ↓   ↓

①   0 + 5
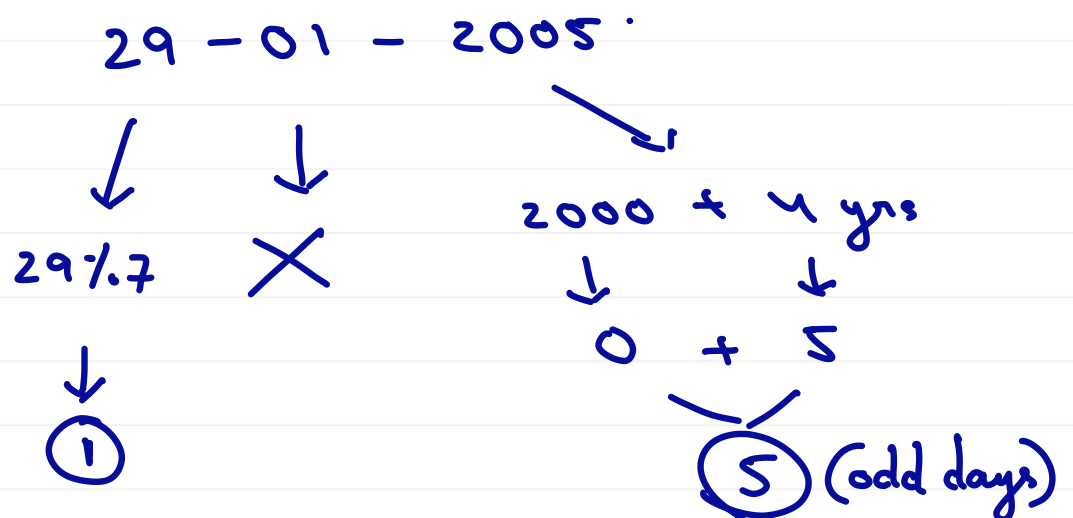
                 ⑤ (odd days)

⇒ 1 + 5 ⇒ 6 (Saturday)

Q) 15-08-1947.

15-08-1947

→ ①

↓ 7 months   1900 + 46

↓
3

0 (n|p)

3
2
3
2
3
_____

16%7 = ②

① (1900 → ①)

35 + (11×2) / 7 *(for lp count do x/4)*

↓
57%7

↓
①

⇒ 1+2+1+1 = 5 (Friday)

Q) 19-06-1440

19-06-1440

→ ⑤

↓ 5 months.   1400 + 39

↓
3

1 (lp)

3
2
3
_____

12%7

1400 → ③

(30+9×2)%7.

48%7

↓
⑥

↓
⑤
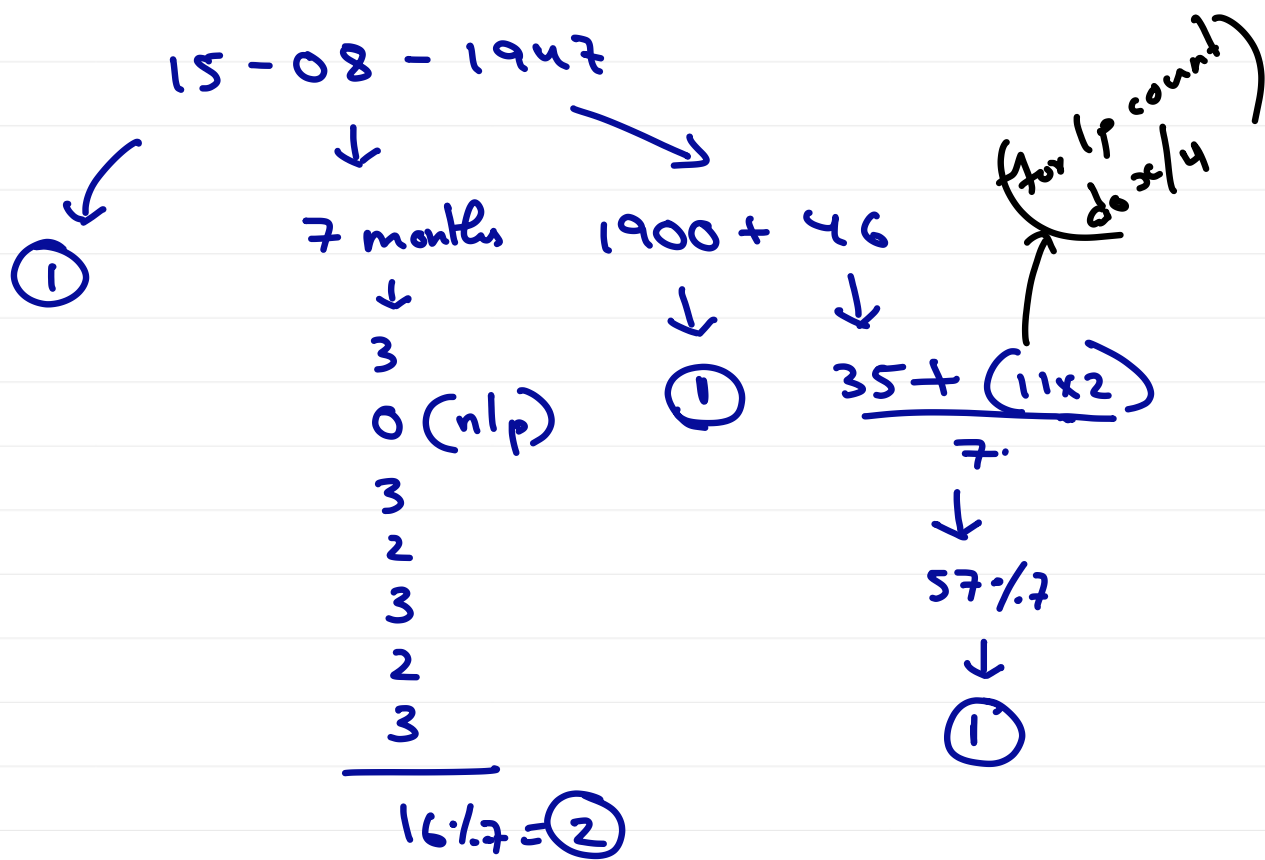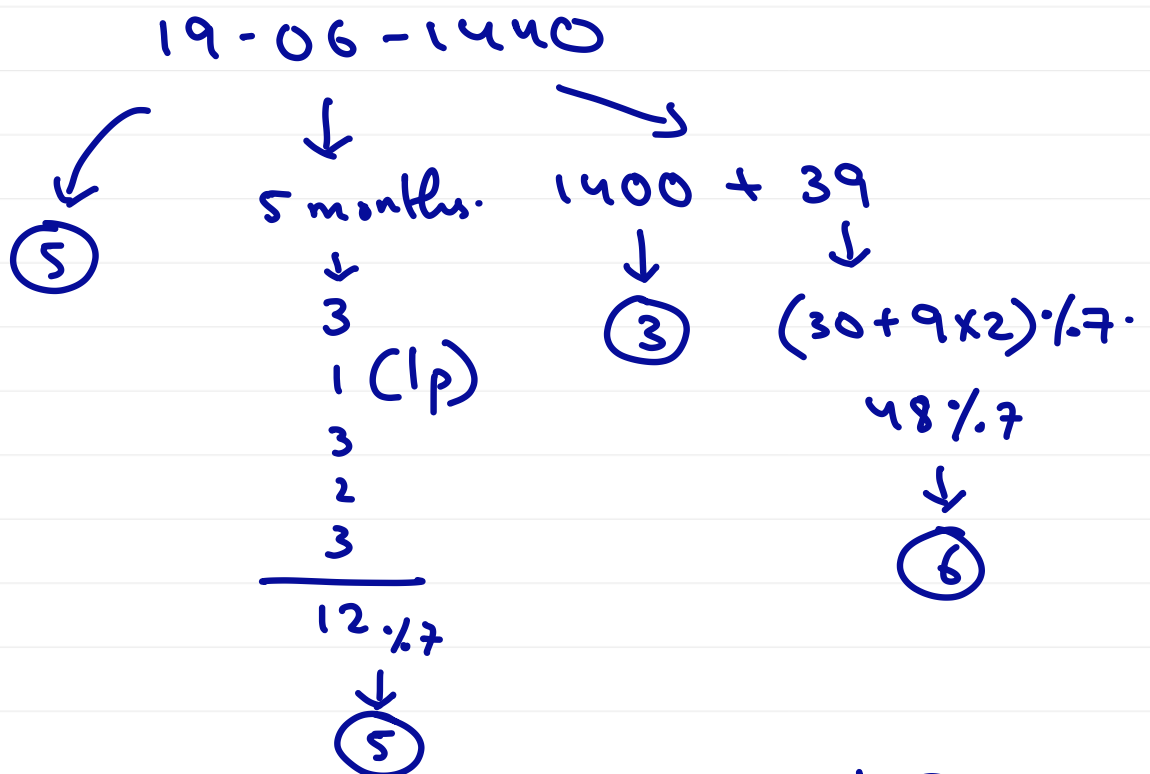
⇒ 5+5+3+6 ⇒ 19%7 = 5 (Friday)

2 Imp things to rembere when doing ↑ questions.

1) when year is given as 1440 calc odd days for 1439 years same goes for months

2) Check whether given year is lp year or not to keep 0 odd days or 1 odd days for feb month.

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=> **Last days of Century years:**

$$100 \text{ yr's} - 5 \quad (\text{Fri})$$
$$200 \text{ yr's} - 3 \quad (\text{Wed})$$
$$300 \text{ yr's} - 1 \quad (\text{Mon})$$
$$400 \text{ yr's} - 0 \quad (\text{Sun})$$

→ Tue, Thu, Sat are not last days of century years.

=> **Same Calender year:**

$$lp \xrightarrow{+28}$$
$$lp+1 \xrightarrow{+6}$$
$$lp+2 \xrightarrow{+11}$$
$$lp+3 \xrightarrow{+11}$$

} Only works when there are consistent leap years in btw.