

PROFIT, LOSS AND DISCOUNT

1. $CP > SP = \text{LOSS}$

$$\text{LOSS} = CP - SP$$

$$\text{LOSS \%} = \frac{CP - SP}{CP} \times 100$$

CP = cost price
SP = selling price

2. $CP < SP = \text{profit}$

$$\text{profit} = SP - CP$$

$$\text{profit \%} = \frac{SP - CP}{CP} \times 100$$

3. L% P% SP

$$CP = \frac{100}{100 - L\%} \times SP$$

$$CP = \frac{100}{100 + P\%} \times SP$$

$$CP = \frac{100}{100 \pm P/L (\%)} \times SP$$

4. L% P% CP

$$SP = \frac{100 - L\%}{100} \times CP$$

$$SP = \frac{100 \pm P/L (\%)}{100} \times CP$$

$$SP = \frac{100 + P\%}{100} \times CP$$

p.g NO:- 83

$$1. \quad CP = 120 \times 80 + 280 + 0.4 \times 170 + 72 \\ = 10,000$$

$$\text{profit} = 8\%$$

$$SP = ?$$

$$SP = \frac{108}{100} \times 10,000 = 10,800$$

$$SP \text{ per ream} = \frac{10800}{170} = 90$$

2. Given 2000 No's

$$\frac{95}{100} \times 2000 = 1900$$

$$S.P = 1900 \times 25 = 47,500$$

$$\text{profit} = 25\%$$

$$CP = \frac{100}{125} \times 47500 \\ = 38,000$$

$$\text{passed} = 1000$$

$$SP = 1000 \times 25 = 25,000$$

$$\text{Loss} = 38000 - 25000 \\ = 13,000$$

$$3. \quad SP = 1920$$

$$\text{profit} = ?$$

$$\frac{SP - CP}{CP} \times 100 = \frac{CP - SP}{CP} \times 100$$

$$1920 - CP = CP - 1280$$

$$2CP = 3200$$

$$CP = 1600$$

$$\text{profit} = 25\%$$

$$SP = ?$$

$$SP = \frac{125}{100} \times 1600 \\ = 2000$$

$$4. \quad S.P = 177 \text{ per kg}$$

$$\text{profit} = 18\%$$

$$\begin{array}{ccc} 2 \text{ kg} & 3 \text{ kg} & = 5 \text{ kg} \\ | & | & \\ 200 \text{ Per kg} & ? & \end{array}$$

$$\text{Total S.P} = 5 \times 177 = 885$$

$$C.P = \frac{100}{118} \times 885 \\ = 750$$

$$2 \times 200 + 3 \times x = 750$$

$$x = 116.67 \text{ per kg}$$

Level - 2

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$$1. \quad \frac{12000 \times 1 \times 10}{100} + \frac{x \times 1 \times 20}{100} = \frac{(12000+x) \times 1 \times 14}{100}$$

$$x = 8000$$

$$\begin{aligned} \text{Total} &= 12000 + 8000 \\ &= 20,000 \end{aligned}$$

4.

$$\frac{P}{3} - 7\%$$

$$\frac{P}{4} - 8\%$$

$$\frac{5P}{12} - 10\%$$

$$P - \left(\frac{P}{3} + \frac{P}{4} \right) = \frac{5P}{12}$$

$$I = \text{RS. } 561$$

$$\frac{\frac{P}{3} \times 1 \times 7}{100} + \frac{\frac{P}{4} \times 1 \times 8}{100} + \frac{\frac{5P}{12} \times 1 \times 10}{100} = 561$$

$$P = 6600$$

COMPOUND INTEREST

Yearly:-

$$A = P \left(1 + \frac{R}{100} \right)^n$$

$$A = P + RC$$

$$C = A - P$$

$$= P \left(1 + \frac{R}{100} \right)^n - P$$

$$C = P \left[\left(1 + \frac{R}{100} \right)^n - 1 \right]$$

Half yearly:-

$$A = P \left(1 + \frac{R/2}{100} \right)^n$$

$$C = P \left[\left(1 + \frac{R}{200} \right)^{2n} - 1 \right]$$

Quarterly:-

$$A = P \left(1 + \frac{R/4}{100} \right)^n$$

$$C = P \left[\left(1 + \frac{R}{400} \right)^{4n} - 1 \right]$$

3. Given $n = 2$ years $R = 12\frac{1}{2} = \frac{25}{2}\%$ $C = 510$

$$C = P \left[\left(1 + \frac{R}{100} \right)^n - 1 \right]$$

$$510 = P \left[\left(1 + \frac{12.5}{100} \right)^2 - 1 \right]$$

$$P = 1920$$

$$R = \frac{25}{2}\%$$

$$T = 2 \text{ years}$$

$$I = ?$$

$$I = \frac{PTR}{100} = \frac{1920 \times 2 \times 12.5}{100} = 480 \text{ RS.}$$

4.

27000, $C = 4818.30$ RS.



$$R = 8\%$$

$$R = 9\%$$

$$n = 2 \text{ yrs}$$

$$n = 2 \text{ yrs}$$

$$P = x$$

$$P = (27000 - x)$$

$$x \left[\left(1 + \frac{8}{100} \right)^2 - 1 \right] + (27000 - x) \left[\left(1 + \frac{9}{100} \right)^2 - 1 \right] = 4818.30$$

$$x = 12000$$

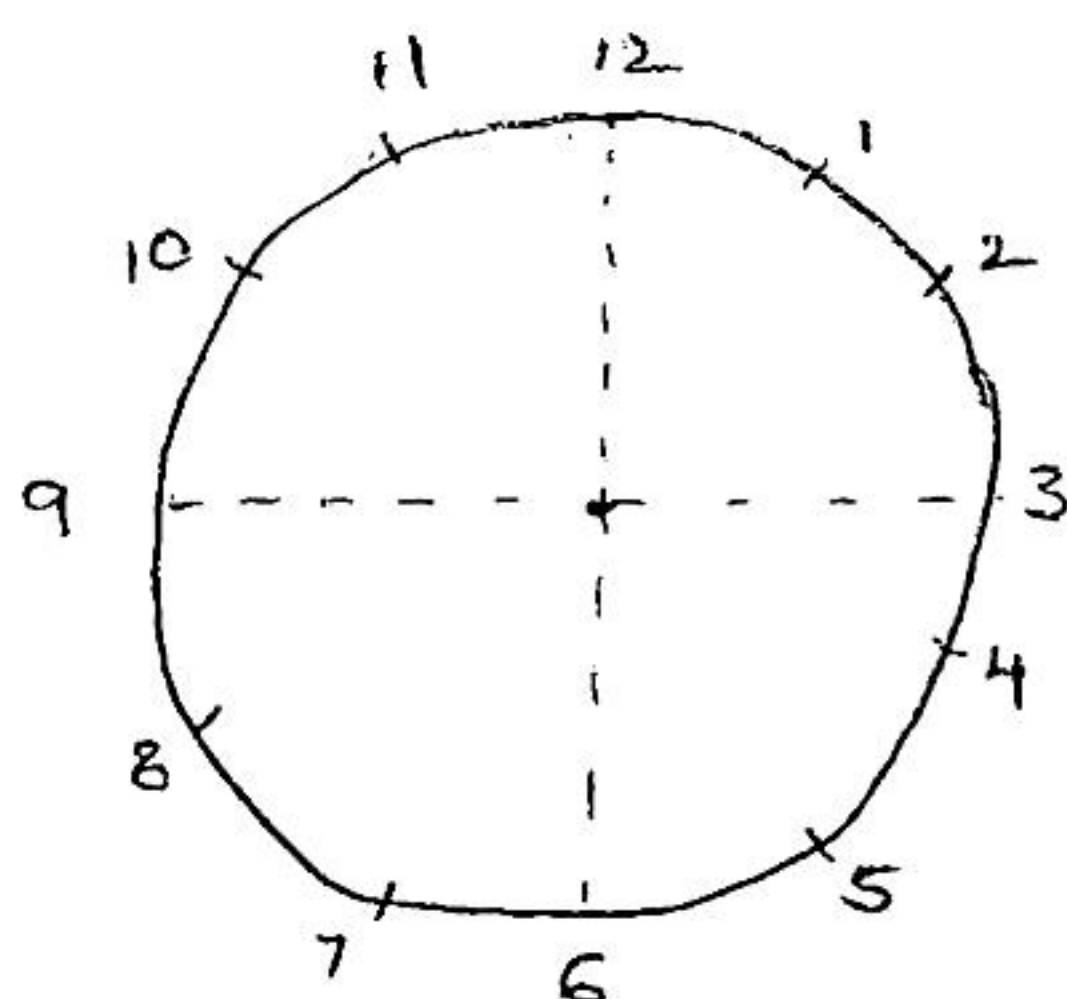
5.

$$A = 12500 \left(1 + \frac{20}{100} \right)^3 - \left[2000 + 2000 \left(1 + \frac{20}{100} \right)^1 + 2000 \left(1 + \frac{20}{100} \right)^2 \right]$$

$$= 14520$$

CLOCKS

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$$60 \text{ min} = 360^\circ$$

$$\boxed{1 \text{ min} = 6^\circ}$$

$$12 \text{ hours} = 360^\circ$$

$$\boxed{1 \text{ hour} = 30^\circ}$$



$$60 \text{ min} = 30^\circ$$

$$1 \text{ min} = \frac{1^\circ}{2}$$

The difference between minutes and hours are

$$= 6 - \frac{1}{2} = 5 \frac{1}{2} = \frac{11}{2}^\circ$$

1. In a clock of 12 hours the minutes hand and hours hand are coincide into each other. The angle between them is 0° is in 11 times.
2. In a clock of 12 hours the minutes hand and hours hand are in opposite direction i.e., the angle between them is 180° is in 11 times $\longleftrightarrow$
3. In a clock of 12 hours the minutes hand and hours hand are perpendicular to each other that is the angle between them is 90° is in 22 times. $\updownarrow$

4.

$$\boxed{\theta = \frac{11}{2}m - 30h}$$

$$, \text{ if } \frac{11}{2}m > 30h$$

θ = The angle between the minute hand and hour hand

m = minutes

h = hours

$$\boxed{\theta = 30h - \frac{11}{2}m}$$

$$, \text{ if } \frac{11}{2}m < 30h$$

Ex:- What is the angle between minutes and hours hand of a clock at 4 hr 30m.

$$\begin{aligned} \text{A. } \theta &= \frac{11}{2}m - 30h \\ &= \frac{11}{2}(30) - 30(4) \\ &= 165 - 120 \\ &= 45^\circ \end{aligned}$$

Ex:- What is the angle between the two hands of a clock when the clock shows 3 hours 25 minutes

$$\begin{aligned} \text{A. } \theta &= \frac{11}{2}m - 30h \\ &= \frac{11}{2}(25) - 30(3) \\ \theta &= 47\frac{1}{2}^\circ \end{aligned}$$

Ex:-) At what time between 6 and 7^o are the hands of a clock together.

$$\text{A. } \theta = \frac{11}{2}m - 30h$$

@ Both hands together (coincides) means $\theta = 0^\circ$

$$0 = \frac{11}{2}m - 30(6)$$

$$m = 32\frac{8}{11}$$

∴ @ 6 hours $32\frac{8}{11}$ min both hands are coincide.

Ex:- A what time between 3 and 4^o are the hands of a clock in the opposite direction

A. Opposite direction, $\theta = 180^\circ$

$$\theta = \frac{11}{2}m - 30h$$

$$180 = \frac{11}{2}m - 30(3)$$

$$m = 49\frac{1}{11}$$

∴ @ 3 hours $49\frac{1}{11}$ min.