x $6x$

HOME ASSIGNMENT – 3 august

Q1) Let the sum be x

$$x = \left[\left(1 + \frac{10}{100}\right)^2\right]^2 - 1 = 525$$

$$\Rightarrow x\left[\left(\frac{11}{10}\right)^2\right] = 525$$

$$\Rightarrow x\left[\frac{121 - 100}{100}\right] = 525$$

$$\Rightarrow x = \frac{525 \times 100}{21} = 2500$$

for S.I, P = ₹ 2500, R = 5% p.a, T = 4 yr

$$SI = \left[\frac{2500 \times 4 \times 5}{100}\right] = ₹500$$

Q2) $SI = \frac{PNR}{100}$, N = 3, R = 8%

$$\Rightarrow SI = \frac{P \times 3 \times 8}{100} \quad \text{--- (1)}$$

$$\Rightarrow C.I = P\left[\left(1 + \frac{r}{n}\right)^{nt} - 1\right]$$

here $n = 1, t = 2, r = \frac{10}{100}$, P = 4000

$$\text{So, } CI = 4000\left[\left(1 + \frac{10}{100}\right)^2 - 1\right] = 4000\,(1.21 - 1)$$

$\Rightarrow CI = 4000 \times 0.21 = 2$

But given $= SI = \frac{1}{2} \times CI$

$= \frac{P \times 3 \times 8}{100} = 4000 \times 0.21 \times \frac{1}{2}$

$P = \frac{4000 \times 0.21 \times 100}{3 \times 8} \times \frac{1}{2} \Rightarrow P = ₹ 1750$

Q2) If there is a 60% increase in an amount in 6 years at simple interest then,

$SI = 60\%\ P$, $SI = \frac{60P}{100}$ Interest $= \frac{PTR}{100}$

$\Rightarrow \frac{60P}{100} = \frac{P \times 6 \times R}{100} \Rightarrow \frac{60}{100} = \frac{6 \times R}{100}$

$\therefore$ Rate of Interest $= 10\%$.

Compound Interest $\Rightarrow CI = P\left[1 + \frac{R}{100}\right]^n - P$

$\Rightarrow C.I = 12000\left[1 + \frac{10}{100}\right]^3 - 12000$

$\Rightarrow C.I = 12000\left[\frac{11}{10}\right]^3 - 12000 \Rightarrow C.I = 12000\left[\frac{1331}{1000}\right] - 12000$

$\Rightarrow C.I = 15972 - 12000 = ₹ 3972$

Q1) $S.I = \frac{PRT}{100} = \frac{1500 \times x \times 2}{100} = 300x$

$C.I = 15000\left[\left(1 + \frac{x}{100}\right)^2 - 1\right] = 15000\left[1 + \frac{x^2}{10000} + \frac{2x}{100} - 1\right]$

$= 1.5x^2 + 300x$

$C.I - S.I = 96$

$= 1.5x^2 + 300x - 300x = 96$

$= 1.5x^2 = 96$

$= x^2 = \frac{96}{1.5} = 64 \therefore x = 8\%$