



Exercise 12B

$$R_1 = 12\%$$

$$R_2 = 10\%$$

$$P_1 = \text{Rs. } 8000$$

$$P_2 = \text{Rs. } 9100$$

Let their amount  $s$  be equal in  $T$  years.

$$\begin{aligned}\text{Amount}_1 &= S.I._1 + P_1 \\ &= \frac{P_1 \times R_1 \times T}{100} + P_1 \\ &= \frac{8000 \times 12 \times T}{100} + 8000 \\ &= 960T + 8000\end{aligned}$$

$$\begin{aligned}\text{Amount}_2 &= S.I._2 + P_2 \\ &= \frac{P_2 \times R_2 \times T}{100} + P_2 \\ &= \frac{9100 \times 10 \times T}{100} + 9100 \\ &= 910T + 9100\end{aligned}$$

$$\begin{aligned}\text{Amount}_1 &= \text{Amount}_2 \\ \Rightarrow 960T + 8000 &= 910T + 9100 \\ \Rightarrow 960T - 910T &= 9100 - 8000 \\ \Rightarrow 50T &= 1100 \\ \Rightarrow T &= 22\end{aligned}$$

Hence, after 22 years their amounts will be equal.

Q9

**Answer :**

(c) Rs. 768

Let the rate be  $R\%$ .

$$\begin{aligned} \text{S.I.} &= A - P \\ &= 720 - 600 \\ &= \text{Rs. } 120 \end{aligned}$$

Time = 4 years

$$\begin{aligned} R &= \frac{100 \times \text{SI}}{P \times T} \\ R &= \frac{100 \times 120}{600 \times 4} \\ &= 5 \end{aligned}$$

Rate of interest = 5%

Now,  $R = (5 + 2)\% = 7\%$

$$\begin{aligned} \text{S.I.} &= \frac{P \times R \times T}{100} \\ &= \frac{600 \times 7 \times 4}{100} \\ &= \text{Rs. } 168 \end{aligned}$$

$$\begin{aligned} \text{Amount} &= \text{SI} + P \\ &= 600 + 168 \\ &= \text{Rs. } 768 \end{aligned}$$

Q10

**Answer :**

(d)  $y^2 = zx$

$$y = \text{S.I. on } x = \frac{x \times R \times T}{100} \quad \dots (i)$$

$$z = \text{S.I. on } y = \frac{y \times R \times T}{100} \quad \dots (ii)$$

Dividing equation (i) by (ii) :

$$\Rightarrow \frac{y}{z} = \left( \frac{x \times R \times T}{100} \times \frac{100}{y \times R \times T} \right)$$

$$\Rightarrow \frac{y}{z} = \frac{x}{y}$$

$$\Rightarrow y^2 = xz$$

Q11

**Answer :**

(a)  $1 \frac{1}{4}$  years

Rate = 10% per annum

Simple Interest =  $0.125 \times \text{Principal}$

$$\Rightarrow \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100} = 0.125 \times \text{Principal}$$

$$\Rightarrow \frac{\text{Time}}{10} = 0.125$$

$$\Rightarrow \text{Time} = 1.25 = 1 \frac{1}{4} \text{ years}$$

Q12

**Answer :**

(b) Rs 2400

Rate =  $3 \frac{3}{4}$  % per annum

$$= \frac{15}{4} \% \text{ per annum}$$

Time =  $2 \frac{1}{3}$  years

$$= \frac{7}{3} \text{ years}$$

$$\text{S.I.} = \frac{P \times \frac{15}{4} \times \frac{7}{3}}{100}$$

$$\Rightarrow P = \frac{210 \times 100}{\left(\frac{15}{4} \times \frac{7}{3}\right)}$$

$$\Rightarrow P = 600 \times 4$$

$$\Rightarrow P = \text{Rs } 2400$$

\*\*\*\*\* END \*\*\*\*\*