

1(a) Principal (P) = Rs 10800
 time (n) = 3 years
 rate (r) = $12\frac{1}{2} = \frac{25}{2} \% \text{ p.a.}$

$$\begin{aligned} \text{amount (A)} &= P \left(1 + \frac{r}{100}\right)^n \\ &= 10800 \left(1 + \frac{25}{200}\right)^3 \\ &= \overset{27}{10800} \times \frac{225}{\underset{100}{200}} \times \frac{225}{\underset{200}{200}} \times \frac{225}{\underset{200}{200}} \\ &= \text{Rs } 15377.34 \end{aligned}$$

$$\begin{aligned} \text{compound Interest (CI)} &= A - P \\ &= 15377.34 - 10800 \\ &= \text{Rs } 4577.34 \end{aligned}$$

1(b) P = Rs 18000, time (t) = $2\frac{1}{2} = \frac{5}{2}$ years,
 rate (r) = 10% p.a.

$$\begin{aligned} A &= P \left(1 + \frac{r}{100}\right)^2 \left(1 + \frac{r/2}{100}\right)^1 \\ &= 18000 \left(1 + \frac{10}{100}\right)^2 \left(1 + \frac{5}{100}\right) \\ &= \overset{9}{18000} \times \frac{11}{\underset{10}{10}} \times \frac{11}{\underset{10}{10}} \times \frac{105}{\underset{100}{100}} \\ &= \text{Rs } 22869.00 \end{aligned}$$

[$2\frac{1}{2}$ years
 = 2 complete
 years + 1 year
 with interest
 rate/2]

$$\begin{aligned} \text{CI} = A - P &= 22869 - 18000 \\ &= \text{Rs } 4869 \end{aligned}$$