



Compound Interest Ex 14.2 Q11

**Answer :**

**Given :**

$$P = \text{Rs } 10,000$$

$$R = 20\% \text{ p. a.}$$

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

$$\begin{aligned} A &= P \left( 1 + \frac{R}{100} \right)^n \\ &= \text{Rs } 10,000 \left( 1 + \frac{20}{100} \right)^2 \\ &= \text{Rs } 10,000 (1.2)^2 \\ &= \text{Rs } 14,400 \end{aligned}$$

When the interest is compounded half – yearly, we have :

$$\begin{aligned} A &= P \left( 1 + \frac{R}{200} \right)^{2n} \\ &= \text{Rs } 10,000 \left( 1 + \frac{20}{200} \right)^4 \\ &= \text{Rs } 10,000 (1.1)^4 \\ &= \text{Rs } 14,641 \end{aligned}$$

$$\begin{aligned} \text{Difference} &= \text{Rs } 14,641 - \text{Rs } 14,400 \\ &= \text{Rs } 241 \end{aligned}$$

Compound Interest Ex 14.2 Q12

**Answer :**

**Given :**

$$P = \text{Rs } 245,760$$

$$R = 12.5\% \text{ p. a.}$$

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

When compounded annually, we have :

$$\begin{aligned} A &= P \left( 1 + \frac{R}{100} \right)^n \\ &= \text{Rs } 245,760 \left( 1 + \frac{12.5}{100} \right)^2 \\ &= \text{Rs } 311,040 \end{aligned}$$

When compounded semi – annually, we have

$$\begin{aligned} A &= P \left( 1 + \frac{R}{200} \right)^{2n} \\ &= \text{Rs } 245,760 \left( 1 + \frac{12.5}{200} \right)^4 \\ &= \text{Rs } 245,760 (1.0625)^4 \\ &= \text{Rs } 313,203.75 \end{aligned}$$

$$\begin{aligned} \text{Romesh's gain} &= \text{Rs } 313,203.75 - \text{Rs } 311,040 \\ &= \text{Rs } 2,163.75 \end{aligned}$$

Compound Interest Ex 14.2 Q13

**Answer :**

**Given :**

$$P = \text{Rs } 8,192$$

$$R = 12.5\% \text{ p. a.}$$

$$n = 1.5 \text{ years}$$

When the interest is compounded half – yearly, we have :

$$\begin{aligned} A &= P \left( 1 + \frac{R}{200} \right)^{2n} \\ &= \text{Rs } 8,192 \left( 1 + \frac{12.5}{200} \right)^3 \\ &= \text{Rs } 8,192 (1.0625)^3 \\ &= \text{Rs } 9,826 \end{aligned}$$

Thus, the required amount is Rs 9,826.

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