Compound Interest Ex 14.2 Q11

Answer :

Given :

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

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

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

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

$$= \mathrm{Rs}\ 10,000\left(1 + \frac{20}{100}\right)^{2}$$

$$= \mathrm{Rs}\ 10,000(1.2)^{2}$$

$$= \mathrm{Rs}\ 14,400$$

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

$$\mathrm{A} = \mathrm{P}\left(1 + \frac{\mathrm{R}}{200}\right)^{2\mathrm{n}}$$

$$= \mathrm{Rs}\ 10,000\left(1 + \frac{20}{200}\right)^{4}$$

$$= \mathrm{Rs}\ 10,000(1.1)^{4}$$

$$= \mathrm{Rs}\ 14,641$$

$$\text{Difference} = \mathrm{Rs}\ 14,641 - \mathrm{Rs}\ 14,400$$

$$= \mathrm{Rs}\ 241$$

Compound Interest Ex 14.2 Q12

Answer :

Given :

$P = Rs\ 245,760$

$R = 12.5\%\ p.a.$

$n = 2\ years$

When compounded annually, we have :

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

$$= Rs\ 245,760\left(1 + \frac{12.5}{100}\right)^2$$

$$= Rs\ 311,040$$

When compounded semi – annually, we have

$$A = P\left(1 + \frac{R}{200}\right)^{2n}$$

$$= Rs\ 245,760\left(1 + \frac{12.5}{200}\right)^4$$

$$= Rs\ 245,760(1.0625)^4$$

$$= Rs\ 313,203.75$$

$$Romesh\text{'s gain} = Rs\ 313,203.75 - Rs\ 311,040$$

$$= Rs\ 2,163.75$$

Compound Interest Ex 14.2 Q13

Answer :

Given :

$P = Rs\ 8,192$

$R = 12.5\%\ p.a.$

$n = 1.5\ years$

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

$$A = P\left(1 + \frac{R}{200}\right)^{2n}$$

$$= Rs\ 8,192\left(1 + \frac{12.5}{200}\right)^3$$

$$= Rs\ 8,192(1.0625)^3$$

$$= Rs\ 9,826$$

Thus, the required amount is $Rs\ 9,826$.

********** END **********