Compound Interest Ex 14.4 Q4

Answer :

Here,

$P = \text{Initial population} = 50,000$

$R_1 = 4\%$

$R_2 = 5\%$

$R_3 = 3\%$

$n = \text{Number of years} = 3$

$\therefore \text{Population after three years} = P\left(1+\frac{R_1}{100}\right)\left(1+\frac{R_2}{100}\right)\left(1+\frac{R_3}{100}\right)$

$= 50,000\left(1+\frac{4}{100}\right)\left(1+\frac{5}{100}\right)\left(1+\frac{3}{100}\right)$

$= 50,000(1.04)(1.05)(1.03)$

$= 56,238$

Hence, the population after three years is $56,238$.

Compound Interest Ex 14.4 Q5

Answer :

$$\text{Population after three years} = P\left(1+\frac{R}{100}\right)^n$$

$$9,261 = P\left(1+\frac{5}{100}\right)^3$$

$$9,261 = P(1.05)^3$$

$$P = \frac{9,261}{1.157625}$$

$$= 8,000$$

Thus, the population three years ago was $8,000$.

Compound Interest Ex 14.4 Q6

Answer :

Let the annual rate of growth be R.

$$\therefore \text{Production of scooters after three years} = P\left(1+\frac{R}{100}\right)^n$$

$$46,305 = 4,000\left(1+\frac{R}{100}\right)^3$$

$$(1+0.01R)^3 = \frac{46,305}{40,000}$$

$$(1+0.01R)^3 = 1.157625$$

$$(1+0.01R)^3 = (1.05)^3$$

$$1+0.01R = 1.05$$

$$0.01R = 0.05$$

$$R = 5$$

Thus, the annual rate of growth is 5%.

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