



Compound Interest Ex 14.4 Q1

**Answer :**

Here,

$P$  = Initial population = 28,000

$R$  = Rate of growth of population = 5% per annum

$n$  = Number of years = 2

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

$$= 28,000 \left( 1 + \frac{5}{100} \right)^2$$

$$= 28,000(1.05)^2$$

$$= 30,870$$

Hence, the population after two years will be 30,870.

Compound Interest Ex 14.4 Q2

**Answer :**

Here,

$P$  = Initial population = 125,000

Annual birth rate =  $R_1$  = 5.5%

Annual death rate =  $R_2$  = 3.5%

Net growth rate,  $R = (R_1 - R_2) = 2\%$

$n$  = Number of years = 3

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

$$= 125,000 \left( 1 + \frac{2}{100} \right)^3$$

$$= 125,000(1.02)^3$$

$$= 132,651$$

Hence, the population after three years will be 132,651.

Compound Interest Ex 14.4 Q3

**Answer :**

Here,

$P$  = Initial population = 25,000

$R_1$  = 4%

$R_2$  = 5%

$R_3$  = 8%

$n$  = Number of years = 3

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

$$= 25,000 \left( 1 + \frac{4}{100} \right) \left( 1 + \frac{5}{100} \right) \left( 1 + \frac{8}{100} \right)$$

$$= 25,000(1.04)(1.05)(1.08)$$

$$= 29,484$$

Hence, the population after three years will be 29,484.

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