EXERCISE 9(B)

1) The interest on a certain sum of money is 0·24 times of itself in 3 years. Find the rate of interest.

Ans) Let the sum borrowed = Rs. 100

Time = 3 years

Let rate of interest = r%.

$\therefore$ Interest $= \frac{100 \times 3 \times r}{100}$ $\left[\because S.I = \frac{P \times R \times T}{100}\right]$

$= 3r = (0.24)(100) = 24$ (Given)

$\Rightarrow r = \frac{24}{3} = 8$

Hence reqd. rate of interest = 8%.

2) If ₹3,750 amount to ₹4,620 in 3 years at simple interest. Find:

(i) the rate of interest

(ii) the amount of Rs. 7,500 in $5\frac{1}{2}$ years at the same rate of interest.

Ans-) (i) In first case:

A = Rs. 4620 P = Rs. 3750

I = A − P = Rs. 4620 − Rs. 3750 = Rs. 870

T = 3 years

$R = \frac{100 \times I}{P \times T} = \frac{100 \times 870}{3750 \times 3} = \frac{100 \times 290}{3750} = \frac{4 \times 29}{15} = \frac{116}{15} = 7\frac{11}{5}\%$.

In second case:

P = Rs. 7500 $R = \frac{116}{15}\%$

$T = 5\frac{1}{2}$ years $= \frac{11}{2}$ years

$\text{Interest} = \frac{P \times T \times R}{100} = \text{Rs. } \frac{7500 \times 11 \times 116}{2 \times 15 \times 100} = \frac{250 \times 116 \times 11}{100}$

$= 10 \times 29 \times 11 = 290 \times 11 = \text{Rs. } 3190$

Amount = Rs. 7500 + 3190 = Rs. 10,690

3) A sum of money, lent out at simple interest, doubles itself in 8 years. Find:

(i) the rate of interest

(ii) in how many years will the sum become triple (three times) of itself at the same rate per cent?

Ans-) Let P = Rs. 100 A = Rs. 200

I = Rs. 200 − Rs. 100 = Rs. 100, T = 8 years

$R = \frac{100 \times I}{P \times T} = \frac{100 \times 100}{100 \times 8} = \frac{100}{8} = \frac{25}{2}\%$.

Now again P = Rs. 100

A = Rs. 300 I = Rs. 300 - Rs. 100

= Rs. 200

$R = \frac{25}{2}\%$

$T = \frac{100 \times I}{P \times R} = \frac{100 \times 200}{100 \times \frac{25}{2}} = \frac{100 \times 200 \times 2}{100 \times 25} = 16$ years

So the given sum of money will become triple in 16 years