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 = 100

Rate of interest = R%

$I = \frac{P \times R \times T}{100} = \frac{100 \times R \times 3}{100} = 3R$

$I = 100 \times 0.24$

$= \frac{24}{3} = 8\%$

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

i) the rate of interest

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

Ans) 1st case

A = ₹4620

I = A - P = 4620 - 3750 = 870

T = 3 years

$R = \frac{100 \times I}{P \times T} = \frac{100 \times 870}{3750 \times 3} = \frac{100 \times 290}{3750} = \frac{4 \times 29}{15}$

$= \frac{116}{15} = 7\frac{11}{5}\%$

2nd case

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

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

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

$= 10 \times 29 \times 11 = 290 \times 11 = ₹3190$

Amount $= 7500 + 3190 = ₹10,690$

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 percent?

Ans: Let the sum of money $= P$

Amount $= 2P$

Time $= 8$ years

$I = \text{Amount} - \text{Principal} = 2P - P = P$

$I = \frac{P \times R \times T}{100}$

$\Rightarrow P = \frac{P \times R \times 8}{100} \Rightarrow 100 = R \times 8 \Rightarrow R = \frac{100}{8} = \frac{25}{2}\%$

(ii) Let the principal $= P$

Amount = 3P

Interest = A − principal = 3P − P = 2P

Rate of interest = $\frac{25}{2}$ %

$\because I = \frac{P \times R \times T}{100}$

$\Rightarrow 2P = P \times \frac{25}{2} \times T$

$\Rightarrow 200P = P \times 25 \times T$

$\Rightarrow T = \frac{200 \times 2}{25} = 16$ years