

Exercise 2(A)

Solution:

From the question, we have

Installment per month (P) = Rs 600

Number of months (n) = 20

Rate of interest (r) = 10% p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= 600 \times \frac{20(20+1)}{2 \times 12} \times \frac{10}{100} \\ &= 600 \times \frac{420}{24} \times \frac{10}{100} \end{aligned}$$

S.I = Rs 1,050

Therefore,

The amount that Manish will be getting at the time of maturity is

= Rs (600 x 20) + 1,050

= Rs 12,000 + 1,050

= Rs 13,050

Solution:

Installment per month (P) = Rs 640

Number of months (n) = 54

Rate of interest (r) = 12% p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= 640 \times \frac{54(54+1)}{2 \times 12} \times \frac{12}{100} \\ &= 640 \times \frac{2970}{24} \times \frac{12}{100} \end{aligned}$$

S.I = Rs 9,504

Therefore,

The amount that Mrs. Mathew will be getting at the time of maturity is

= Rs (640 x 54) + Rs 9,504

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$$\begin{aligned} &= \text{Rs } 34,560 + \text{Rs } 9,504 \\ &= \text{Rs } 44,064 \end{aligned}$$

1. Solution:

Calculating for A:

Installment per month (P) = Rs 1,200

Number of months (n) = 36

Rate of interest (r) = 10% p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= 1,200 \times \frac{36(36+1)}{2 \times 12} \times \frac{10}{100} \\ &= 1,200 \times \frac{1332}{24} \times \frac{10}{100} \end{aligned}$$

$$\text{S.I.} = \text{Rs } 6,660$$

Hence,

The amount that A will be getting at the time of maturity is

$$= \text{Rs } (1,200 \times 36) + \text{Rs } 6,660$$

$$= \text{Rs } 43,200 + \text{Rs } 6,660$$

$$= \text{Rs } 49,860$$

Calculating for B:

Installment per month (P) = Rs 1,500

Number of months (n) = 30

Rate of interest (r) = 10% p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= 1,500 \times \frac{30(30+1)}{2 \times 12} \times \frac{10}{100} \\ &= 1,500 \times \frac{930}{24} \times \frac{10}{100} \end{aligned}$$

$$\text{S.I.} = \text{Rs } 5,812.50$$

Hence,

The amount that B will be getting at the time of maturity is

$$= \text{Rs } (1,500 \times 30) + \text{Rs } 5,812.50$$

$$= \text{Rs } 45,000 + \text{Rs } 5,812.50$$

$$= \text{Rs } 50,812.50$$

Now,

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Difference between both the amounts is = Rs 50,812.50 – Rs 49,860
= Rs 952.50

Therefore, B will get more amount than A by Rs 952.50

2. Ashish deposits a certain sum of money every month in a Recurring Deposit Account for a period of 12 months. If the bank pays interest at the rate of 11% p.a. and Ashish gets Rs 12,715 as the maturity value of this account, what sum of money did he pay every month?

Solution:

Let us assume the installment per month (P) as Rs y

Number of months (n) = 12

Rate of interest (r) = 11%p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= y \times \frac{12(12+1)}{2 \times 12} \times \frac{11}{100} \\ &= y \times \frac{156}{24} \times \frac{11}{100} \end{aligned}$$

S.I = Rs 0.715y

Hence,

The amount at maturity will be = Rs (y x 12) + Rs 0.715y = Rs 12.715y

Given that the maturity value = Rs 12,715

So, on equating we have

Rs 12.715y = Rs 12,715

y = 12,715 / 12.715 = Rs 1,000

Therefore, the sum of money paid by Ashish every month is Rs 1,000

3. A man has a Recurring Deposit Account in a bank for 3½ years. If the rate of interest is 12% per annum and the man gets Rs 10,206 on maturity, find the value of monthly installments.

Solution:

Let's assume that the installment per month (P) = Rs y

Number of months (n) = 42

Rate of interest (r) = 12% p.a.

So,

$$\begin{aligned} \text{S.I.} &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= y \times \frac{42(42+1)}{2 \times 12} \times \frac{12}{100} \\ &= y \times \frac{1806}{24} \times \frac{12}{100} \end{aligned}$$

S.I = Rs 9.03y

Hence,

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The amount at maturity will be = Rs $(y \times 42) + Rs 9.03y = Rs 51.03y$

But given maturity value = Rs 10,206

So, on equating we have

$Rs 51.03y = Rs 10206$

$y = 10206 / 51.03 = Rs 200$

Therefore, the value of monthly installment is Rs 200



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