

Extra Questions

6. Financial planning

1) Sameera spent 90% of her income and donated 3% for socially useful causes. If she was left with Rs. 1750 at the end of the month, what was her actual income? (3M)

Solⁿ : Let the actual income of Sameera be Rs. x

Sameera spent 90% her income and donated 3%

$\therefore$ Sameera's total expenditure

= (3% + 90%) of x

= 93% of x

= $\frac{93}{100} \times x$

= $0.93x$

Now, saving = Income – expenditure

$\therefore 1750 = x - 0.93x$

$\therefore 1750 = 0.07x$

$\therefore x = \frac{1750}{0.07} = \frac{1750 \times 100}{0.07 \times 100}$

$$= \frac{175000}{7} = 25000$$

∴ The actual income of sameera is Rs. 25000

2) Pooja invested Rs. 75,000 in a bank at 7% compound interest.

What will be the total amount after 2 years?

Ans : Principal, $p = \square$ 75,000

Rate of interest , $r = 7\%$

Number of years, $n = 2$ years.

$$\begin{aligned} \text{Amount, } A &= p \left[1 + \frac{r}{100} \right]^n \\ &= 75,000 \left[1 + \frac{7}{100} \right]^2 \\ &= 75,000 \left[\frac{107}{100} \right]^2 \\ &= 75,000 \times \frac{107}{100} \times \frac{107}{100} \end{aligned}$$

$$\therefore A = 85867.50$$

∴ Pooja will get $\square$ 85867.50 after 2 years.

3) Nikhil spent 5% of his monthly income on his children's education invested 14% in shares deposited 3% in a bank and used 40% for his daily expenses. He was left with a balance of 19,000. what was his income that month? (3M)

Ans : Let the monthly income of Nikhil be $\square x$.

Nikhil's total expenditure and investments

= (5+ 14 + 3 + 40)% of monthly income

= 62% of monthly income

Amount left with Nikhil after expenditure and investments.

= (100 – 62)% of monthly income.

But, $\square 19,000$ is left with Nikhil after expenditure and investment (Given)

$\therefore 38\% \text{ of } x = \square 19,000$

4) Mr. Shah invested Rs. 3,20, 000 in a bank at 10% compound interest. He also invested Rs. 2,40,000 in mutual 3,05,000 after 2 years. How much did he gain? Which of his investments was more profitable? (4M)

Ans : i) we shall first calculate the compound interest on the money invested in the bank.

Compound interest = amount – principal.

That is, $I = A - P$

$$= P \left[1 + \frac{r}{100} \right]^n - p$$

$$= P \left[\left[1 + \frac{r}{100} \right]^n - 1 \right]$$

$$= 3, 20, 000 \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right]$$

$$= 3, 20, 000 [(1.1)^2 - 1]$$

$$= 3, 20, 000 [1.21 - 1]$$

$$= 3,20,000 \times 0.21$$

$$= 67, 200 \text{ Rupees.}$$

Mr. Shah invested Rs. 3.20,000 in the bank and got Rs. 67, 200 as interest.

Let, us see percentage of interest obtained on the investment.

$$\text{Percentage of interest} = \frac{100 \times 67,200}{3,20,000}$$

$$= 21$$

∴ The investment in the bank gave a profit of 21%

ii) The amount Mr. Shah got at the end of 2 years from the mutual fund = 3, 05, 000

The gain from the mutual fund = 3, 05, 000 – 2, 40,000

$$= 65, \text{ rupees.}$$

$$\therefore \text{percentage gain} = \frac{65,000 \times 100}{2,40,000}$$

$$= 27.08$$

The investment in the mutual fund yielded a profit of 27.08%

It is clear that Mr. Shah's investment in the mutual fund was more profitable.

5) The ratio of Mr. Anil's monthly income to expenditure is 5:4, for Mr. Aman the same figure is 3:2 Also, 4% of Aman's monthly income is equal to 7% of Anil's monthly income If Anil's monthly expenditure is 96,000 rupees.i) find Aman's annual income ii) Saving made by Mr. Anil and Mr. Aman (5Mark)

Ans : we know that,

saving = Income - expenditure.

Ratio of Anil's monthly income to expenditure is 5:4

Suppose Anil's income is $5x$

Anil's expenditure is $4x$

Ratio of Aman's monthly income to expenditure is 3:2

Suppose Aman's income is $3y$.

Anil monthly income is 9600 rupees.

$$\therefore 5x = 9600$$

$$x = 1920$$

$$\begin{aligned}\text{Monthly expenditure} &= 4x = 4 \times 1920 \\ &= 7680 \text{ rupees.}\end{aligned}$$

Anil monthly expenditure is 7680 rupees.

$\therefore$ Anil saving is 1920 rupees.

4% of Aman's income = 7% Anil's income

$$\therefore \frac{4}{100} \times 3y = 9600 \times \frac{7}{100}$$

$$\therefore 12y = 9600 \times 7$$

$$\therefore y = \frac{9600 \times 7}{12}$$

$$\therefore y = 5600$$

$$\text{Aman's income} = 3y = 3 \times 5600$$

$$= 16,800 \text{ rupees.}$$

$$\text{Aman's expenditure} = 2y = 2 \times 5600$$

$$= 11,200 \text{ rupees.}$$

$$\therefore \text{Aman's saving} = 16,800 - 11,200$$

$$= 5,600 \text{ rupees.}$$

Aman's monthly income is Rs. 16,800 and Aman's saving is Rs. 5,600

Anil monthly saving is 1,920 rupees.