

## EXERCISE 8.3

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1. Tell what is the profit or loss in the following transactions. Also find profit per cent or loss per cent in each case.

(a) Gardening shears bought for ₹ 250 and sold for ₹ 325.

**Solution:-**

From the question, it is given that

Cost price of gardening shears = ₹ 250

Selling price of gardening shears = ₹ 325

Since  $(SP) > (CP)$ , so there is a profit

$$\begin{aligned}\text{Profit} &= (SP) - (CP) \\ &= ₹ (325 - 250) \\ &= ₹ 75\end{aligned}$$

$$\begin{aligned}\text{Profit \%} &= \left\{ \frac{\text{Profit}}{\text{CP}} \times 100 \right\} \\ &= \left\{ \frac{75}{250} \times 100 \right\} \\ &= \left\{ \frac{7500}{250} \right\} \\ &= 750/25 \\ &= 30\%\end{aligned}$$

(b) A refrigerator bought for ₹ 12,000 and sold at ₹ 13,500.

**Solution:-**

From the question, it is given that

Cost price of refrigerator = ₹ 12000

Selling price of refrigerator = ₹ 13500

Since  $(SP) > (CP)$ , so there is a profit

$$\begin{aligned}\text{Profit} &= (SP) - (CP) \\ &= ₹ (13500 - 12000) \\ &= ₹ 1500\end{aligned}$$

$$\begin{aligned}\text{Profit \%} &= \left\{ \frac{\text{Profit}}{\text{CP}} \times 100 \right\} \\ &= \left\{ \frac{1500}{12000} \times 100 \right\} \\ &= \left\{ \frac{150000}{12000} \right\} \\ &= 150/12 \\ &= 12.5\%\end{aligned}$$

(c) A cupboard bought for ₹ 2,500 and sold at ₹ 3,000.

**Solution:-**

From the question, it is given that

Cost price of cupboard = ₹ 2500

Selling price of cupboard = ₹ 3000

Since  $(SP) > (CP)$ , so there is a profit

$$\begin{aligned}\text{Profit} &= (SP) - (CP) \\ &= ₹ (3000 - 2500) \\ &= ₹ 500\end{aligned}$$

$$\begin{aligned}\text{Profit \%} &= \{( \text{Profit} / \text{CP} ) \times 100\} \\ &= \{ (500 / 2500) \times 100 \} \\ &= \{ 50000 / 2500 \} \\ &= 500 / 25 \\ &= 20\%\end{aligned}$$

**(d) A skirt bought for ₹ 250 and sold at ₹ 150.**

**Solution:-**

Since  $(SP) < (CP)$ , so there is a loss

$$\begin{aligned}\text{Loss} &= (CP) - (SP) \\ &= ₹ (250 - 150) \\ &= ₹ 100\end{aligned}$$

$$\begin{aligned}\text{Loss \%} &= \{ ( \text{Loss} / \text{CP} ) \times 100 \} \\ &= \{ (100 / 250) \times 100 \} \\ &= \{ 10000 / 250 \} \\ &= 40\%\end{aligned}$$

**2. Convert each part of the ratio to percentage:**

**(a) 3 : 1**

**Solution:-**

We have to find total parts by adding the given ratio =  $3 + 1 = 4$

$$\begin{aligned}1^{\text{st}} \text{ part} &= \frac{3}{4} = \left( \frac{3}{4} \right) \times 100 \% \\ &= 3 \times 25\% \\ &= 75\%\end{aligned}$$

$$\begin{aligned}2^{\text{nd}} \text{ part} &= \frac{1}{4} = \left( \frac{1}{4} \right) \times 100\% \\ &= 1 \times 25 \\ &= 25\%\end{aligned}$$

**(b) 2: 3: 5**

**Solution:-**

We have to find total parts by adding the given ratio =  $2 + 3 + 5 = 10$

$$\begin{aligned}1^{\text{st}} \text{ part} &= 2/10 = (2/10) \times 100 \% \\ &= 2 \times 10\% \\ &= 20\%\end{aligned}$$

$$\begin{aligned}2^{\text{nd}} \text{ part} &= 3/10 = (3/10) \times 100\% \\ &= 3 \times 10 \\ &= 30\%\end{aligned}$$

$$\begin{aligned}3^{\text{rd}} \text{ part} &= 5/10 = (5/10) \times 100\% \\ &= 5 \times 10 \\ &= 50\%\end{aligned}$$

**(c) 1:4**

**Solution:-**

We have to find total parts by adding the given ratio =  $1 + 4 = 5$

$$\begin{aligned}1^{\text{st}} \text{ part} &= (1/5) = (1/5) \times 100 \% \\ &= 1 \times 20\% \\ &= 20\%\end{aligned}$$

$$\begin{aligned}2^{\text{nd}} \text{ part} &= (4/5) = (4/5) \times 100\% \\ &= 4 \times 20 \\ &= 80\%\end{aligned}$$

**(d) 1: 2: 5**

**Solution:-**

We have to find total parts by adding the given ratio =  $1 + 2 + 5 = 8$

$$\begin{aligned}1^{\text{st}} \text{ part} &= 1/8 = (1/8) \times 100 \% \\ &= (100/8) \% \\ &= 12.5\%\end{aligned}$$

$$\begin{aligned}2^{\text{nd}} \text{ part} &= 2/8 = (2/8) \times 100\% \\ &= (200/8) \\ &= 25\%\end{aligned}$$

$$\begin{aligned}3^{\text{rd}} \text{ part} &= 5/8 = (5/8) \times 100\% \\ &= (500/8) \\ &= 62.5\%\end{aligned}$$

**3. The population of a city decreased from 25,000 to 24,500. Find the percentage decrease.**

**Solution:-**

From the question, it is given that

Initial population of the city = 25000

Final population of the city = 24500

$$\begin{aligned}\text{Population decrease} &= \text{Initial population} - \text{Final population} \\ &= 25000 - 24500 \\ &= 500\end{aligned}$$

Then,

$$\begin{aligned}\text{Percentage decrease in population} &= (\text{population decrease}/\text{Initial population}) \times 100 \\ &= (500/25000) \times 100 \\ &= (50000/25000) \\ &= 50/25 \\ &= 2\%\end{aligned}$$

**4. Arun bought a car for ₹ 3,50,000. The next year, the price went upto ₹ 3,70,000. What was the Percentage of price increase?**

**Solution:-**

From the question, it is given that

Arun bought a car for = ₹ 350000

The price of the car in the next year, went up to = ₹ 370000

$$\begin{aligned}\text{Then increase in price of car} &= ₹ 370000 - ₹ 350000 \\ &= ₹ 20000\end{aligned}$$

$$\begin{aligned}\text{The percentage of price increase} &= (\text{₹ } 20000/\text{₹ } 350000) \times 100 \\ &= (2/35) \times 100 \\ &= 200/35 \\ &= 40/7 \\ &= 5\frac{5}{7}\end{aligned}$$

**5. I buy a T.V. for ₹ 10,000 and sell it at a profit of 20%. How much money do I get for it?**

**Solution:-**

From the question, it is given that

Cost price of the T.V. = ₹ 10000

Percentage of profit = 20%

$$\begin{aligned}\text{Profit} &= (20/100) \times 10000 \\ &= ₹ 2000\end{aligned}$$

Then,

$$\begin{aligned}\text{Selling price of the T.V.} &= \text{cost price} + \text{profit} \\ &= 10000 + 2000\end{aligned}$$

$$= ₹ 12000$$

∴ I will get it for ₹ 12000.

**6. Juhi sells a washing machine for ₹ 13,500. She loses 20% in the bargain. What was the price at which she bought it?**

**Solution:-**

From the question, it is given that

Selling price of washing machine = ₹ 13500

Percentage of loss = 20%

Now, we have to find the cost price washing machine

By using the formula, we have:

$$\begin{aligned} \text{CP} &= ₹ \left\{ \left( \frac{100}{100 - \text{loss \%}} \right) \times \text{SP} \right\} \\ &= \left\{ \left( \frac{100}{100 - 20} \right) \times 13500 \right\} \\ &= \left\{ \left( \frac{100}{80} \right) \times 13500 \right\} \\ &= \left\{ \frac{1350000}{80} \right\} \\ &= \left\{ \frac{135000}{8} \right\} \\ &= ₹ 16875 \end{aligned}$$

**7. (i) Chalk contains calcium, carbon and oxygen in the ratio 10:3:12. Find the percentage of carbon in chalk.**

**Solution:-**

From the question it is given that,

The ratio of calcium, carbon and oxygen in chalk = 10: 3: 12

So, total part = 10 + 3 + 12 = 25

In that total part amount of carbon =  $\frac{3}{25}$

Then,

$$\begin{aligned} \text{Percentage of carbon} &= \left( \frac{3}{25} \right) \times 100 \\ &= 3 \times 4 \\ &= 12 \% \end{aligned}$$

**(ii) If in a stick of chalk, carbon is 3g, what is the weight of the chalk stick?**

**Solution:-**

From the question it is given that,

Weight of carbon in the chalk = 3g

Let us assume the weight of the stick be x

Then,

$$12\% \text{ of } x = 3$$

$$(12/100) \times (x) = 3$$

$$X = 3 \times (100/12)$$

$$X = 1 \times (100/4)$$

$$X = 25g$$

∴ The weight of the stick is 25g.

**8. Amina buys a book for ₹ 275 and sells it at a loss of 15%. How much does she sell it for?**

**Solution:-**

From the question, it is given that

Cost price of book = ₹ 275

Percentage of loss = 15%

Now, we have to find the selling price book,

By using the formula, we have:

$$SP = \left\{ \left( \frac{100 - \text{loss \%}}{100} \right) \times CP \right\}$$

$$= \left\{ \left( \frac{100 - 15}{100} \right) \times 275 \right\}$$

$$= \left\{ \left( \frac{85}{100} \right) \times 275 \right\}$$

$$= 23375/100$$

$$= ₹ 233.75$$

**9. Find the amount to be paid at the end of 3 years in each case:**

**(a) Principal = ₹ 1,200 at 12% p.a.**

**Solution:-**

Given: - Principal (P) = ₹ 1200, Rate (R) = 12% p.a. and Time (T) = 3years.

If interest is calculated uniformly on the original principal throughout the loan period, it is called Simple interest (SI).

$$SI = (P \times R \times T)/100$$

$$= (1200 \times 12 \times 3)/ 100$$

$$= (12 \times 12 \times 3)/ 1$$

$$= ₹432$$

Amount = (principal + SI)

$$= (1200 + 432)$$

$$= ₹ 1632$$

**(b) Principal = ₹ 7,500 at 5% p.a.**

**Solution:-**

Given: - Principal (P) = ₹ 7500, Rate (R) = 5% p.a. and Time (T) = 3years.

If interest is calculated uniformly on the original principal throughout the loan period, it is called Simple interest (SI).

$$\begin{aligned} \text{SI} &= (P \times R \times T)/100 \\ &= (7500 \times 5 \times 3)/100 \\ &= (75 \times 5 \times 3)/1 \\ &= ₹ 1125 \end{aligned}$$

$$\begin{aligned} \text{Amount} &= (\text{principal} + \text{SI}) \\ &= (7500 + 1125) \\ &= ₹ 8625 \end{aligned}$$

**10. What rate gives ₹ 280 as interest on a sum of ₹ 56,000 in 2 years?**

**Solution:-**

Given: -  $P = ₹ 56000$ ,  $\text{SI} = ₹ 280$ ,  $t = 2$  years.

We know that,

$$\begin{aligned} R &= (100 \times \text{SI}) / (P \times T) \\ &= (100 \times 280) / (56000 \times 2) \\ &= (1 \times 28) / (56 \times 2) \\ &= (1 \times 14) / (56 \times 1) \\ &= (1 \times 1) / (4 \times 1) \\ &= (1/4) \\ &= 0.25\% \end{aligned}$$

**11. If Meena gives an interest of ₹ 45 for one year at 9% rate p.a. What is the sum she has borrowed?**

**Solution:-**

From the question it is given that,  $\text{SI} = ₹ 45$ ,  $R = 9\%$ ,  $T = 1$  year,  $P = ?$

$$\begin{aligned} \text{SI} &= (P \times R \times T)/100 \\ 45 &= (P \times 9 \times 1)/100 \\ P &= (45 \times 100)/9 \\ &= 5 \times 100 \\ &= ₹ 500 \end{aligned}$$

Hence, she borrowed ₹ 500.