

Exercise 8.2

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1. A man got a 10% increase in his salary. If his new salary is ₹1,54,000, find his original salary.

Solution:

Let the original salary be x .

Given that, the new salary is ₹1,54,000.

Original salary + Increment = New salary

Given that the increment is 10% of the original salary.

$$\therefore, x + \left(\frac{10}{100} \times x\right) = 154000$$

$$x + \frac{x}{10} = 154000$$

$$\frac{11x}{10} = 154000$$

$$x = 154000 \times \frac{10}{11}$$

$$= 140000$$

\therefore , the original salary was ₹ 1,40,000.

2. On Sunday 845 people went to the Zoo. On Monday only 169 people went. What is the per cent decrease in the people visiting the zoo on Monday?

Solution:

Given that on Sunday, 845 people went to the zoo

and on Monday, 169 people went.

Decrease in the number of people = $845 - 169 = 676$

$$\begin{aligned} \text{Percentage decrease} &= \left(\frac{\text{Decrease in the number of people} \times 100}{\text{Number of people who went to zoo on sunday}}\right) \% \\ &= \left(\frac{676 \times 100}{845}\right) \% \\ &= 80\% \end{aligned}$$

3. A shopkeeper buys 80 articles for ₹ 2,400 and sells them for a profit of 16%. Find the selling price of one article.

Solution:

Given that the shopkeeper buys 80 articles for ₹ 2,400.

$$\text{Cost of one article} = \frac{2400}{80} = ₹ 30$$

Profit percent = 16

$$\text{Profit percent} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$16 = \frac{\text{Profit}}{₹ 30} \times 100$$

$$\begin{aligned} \text{Profit} &= \frac{16 \times 30}{100} \\ &= 4.8 \end{aligned}$$

$$\begin{aligned} \therefore, \text{Selling price of one article} &= \text{C.P.} + \text{Profit} \\ &= ₹ (30 + 4.80) \\ &= ₹ 34.80 \end{aligned}$$

4. The cost of an article was ₹ 15,500. ₹ 450 were spent on its repairs. If it is sold for a profit of 15%, find the selling price of the article.

Solution:

$$\begin{aligned} \text{Total cost of an article} &= \text{Cost} + \text{Overhead expenses} \\ &= ₹ 15500 + ₹ 450 \\ &= ₹ 15950 \end{aligned}$$

$$\text{Profit percent} = 15$$

$$\text{Profit percent} = \frac{\text{Profit}}{\text{C.P.}} \times 100$$

$$15 = \frac{\text{Profit}}{₹ 15950} \times 100$$

$$\begin{aligned} \text{Profit} &= \frac{15 \times ₹ 15950}{100} \\ &= 2392.50 \end{aligned}$$

$$\begin{aligned} \therefore, \text{Selling price of the article} &= \text{C.P.} + \text{Profit} \\ &= ₹ (15950 + 2392.50) \\ &= ₹ 18342.50 \end{aligned}$$

5. A VCR and TV were bought for ₹ 8,000 each. The shopkeeper made a loss of 4% on the VCR and a profit of 8% on the TV. Find the gain or loss percent on the whole transaction.

Solution:

$$\text{C.P. of a VCR} = ₹ 8000$$

The shopkeeper made a loss of 4 % on VCR.

This means if C.P. is ₹ 100, then S.P. is ₹ 96.

When C.P. is ₹ 8000,

$$\text{S.P.} = \left(\frac{96}{100} \times 8000 \right) = ₹ 7680$$

$$\text{C.P. of a TV} = ₹ 8000$$

The shopkeeper made a profit of 8 % on TV.

This means that if C.P. is ₹ 100, then S.P. is ₹ 108.

When C.P. is ₹ 8000,

$$\text{S.P.} = \left(\frac{108}{100} \times 8000 \right) = ₹ 8640$$

$$\text{Total S.P.} = ₹ 7680 + ₹ 8640 = ₹ 16320$$

$$\text{Total C.P.} = ₹ 8000 + ₹ 8000 = ₹ 16000$$

Since, total S.P. > total C.P. \Rightarrow profit.

$$\text{Profit} = ₹ 16320 - ₹ 16000 = ₹ 320$$

\therefore , the shopkeeper had a gain of 2% on the whole transaction.

6. During a sale, a shop offered a discount of 10% on the marked prices of all the items. What would a customer have to pay for a pair of jeans marked at ₹ 1450 and two shirts marked at ₹ 850 each?

Solution:

$$\begin{aligned} \text{Total marked price} &= ₹ (1,450 + 2 \times 850) \\ &= ₹ (1,450 + 1,700) \\ &= ₹ 3,150 \end{aligned}$$

Given that, discount percentage = 10%

$$\text{Discount} = ₹ \left(\frac{10}{100} \times 3150 \right) = ₹ 315$$

Also, Discount = Marked price – Sale price

$$₹ 315 = ₹ 3150 - \text{Sale price}$$

$$\begin{aligned} \therefore \text{Sale price} &= ₹ (3150 - 315) \\ &= ₹ 2835 \end{aligned}$$

\therefore , the customer will have to pay ₹ 2,835.

7. A milkman sold two of his buffaloes for ₹ 20,000 each. On one he made a gain of 5% and on the other a loss of 10%. Find his overall gain or loss.
(Hint: Find CP of each)

Solution:

S.P. of each buffalo = ₹ 20000

The milkman made a gain of 5% while selling one buffalo.

This means if C.P. is ₹ 100, then S.P. is ₹ 105.

$$\begin{aligned} \text{C.P. of one buffalo} &= \frac{100}{105} \times 20000 \\ &= ₹ 19,047.62 \end{aligned}$$

Also, the second buffalo was sold at a loss of 10%.

This means if C.P. is ₹ 100, then S.P. is ₹ 90.

$$\begin{aligned} \therefore \text{C.P. of other buffalo} &= \frac{100}{90} \times 20000 \\ &= ₹ 22222.22 \end{aligned}$$

$$\text{Total C.P.} = ₹ 19047.62 + ₹ 22222.22 = ₹ 41269.84$$

$$\text{Total S.P.} = ₹ 20000 + ₹ 20000 = ₹ 40000$$

$$\text{Loss} = ₹ 41269.84 - ₹ 40000 = ₹ 1269.84$$

\therefore , the overall loss of milkman was ₹ 1,269.84.

8. The price of a TV is ₹ 13,000. The sales tax charged on it is at the rate of 12%. Find the amount that Vinod will have to pay if he buys it,

Solution:

On ₹ 100, the tax to be paid = ₹ 12

$$\begin{aligned} \text{Here, on ₹ 13000, the tax to be paid will be} &= \frac{12}{100} \times 13000 \\ &= ₹ 1560 \end{aligned}$$

$$\begin{aligned} \text{Required amount} &= \text{Cost} + \text{Sales Tax} \\ &= ₹ 13000 + ₹ 1560 \\ &= ₹ 14560 \end{aligned}$$

\therefore , Vinod will have to pay ₹ 14,560 for the T.V.

9. Arun bought a pair of skates at a sale where the discount given was 20%. If the amount he pays is ₹ 1,600, find the marked price.

Solution:

Let the marked price be x.

$$\text{Discount percent} = \frac{\text{Discount}}{\text{Marked Price}} \times 100$$

$$20 = \frac{\text{Discount}}{x} \times 100$$

$$\begin{aligned}\text{Discount} &= \frac{20}{100} \times x \\ &= \frac{1}{5}x\end{aligned}$$

Also,

$$\text{Discount} = \text{Marked price} - \text{Sale price}$$

$$\frac{1}{5}x = x - ₹1600$$

$$x - \frac{1}{5}x = ₹1600$$

$$\frac{4}{5}x = ₹1600$$

$$x = ₹1600 \times \frac{5}{4}$$

$$= 2000$$

∴, the marked price was ₹ 2000.

10. I purchased a hair-dryer for ₹ 5,400 including 8% VAT. Find the price before VAT was added.

Solution:

The price includes VAT.

∴, 8% VAT means that if the price without VAT is ₹ 100, then price including VAT will be ₹ 108.

When price including VAT is ₹108, original price = ₹ 100

When price including VAT is ₹5400, original price = ₹ $\left(\frac{100}{108} \times 5400\right)$
= ₹ 5000

∴, the price of the hair-dryer before the addition of VAT was ₹ 5,000.