UNIT: 8 COMPARING QUANTITIES:

EXERCISE 8.2

Q1 : A man got a 10% increase in his salary. If his new salary is Rs 1,54,000, find his original salary.

Answer :

Let the original salary be *x*. It is given that the new salary is Rs 1,54,000.

Original salary + Increment = New salary

However, it is given that the increment is 10% of the original salary.

Therefore,

$$x+\frac{10}{100}\times x=154000$$
$$\frac{110x}{100}=154000$$
$$x=\left(154000\times\frac{100}{110}\right)$$
$$x=140000$$

Thus, the original salary was Rs 1,40,000.

Q2 : 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?

Answer :

It is 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

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

$$=\left(\frac{676}{845}\times 100\right)\%$$
$$=80\%$$

Q3 : A shopkeeper buys 80 articles for Rs 2,400 and sells them for a profit of 16%. Find the selling price of one article.

Answer :

It is given that the shopkeeper buys 80 articles for Rs 2,400.

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

Profit percent = 16

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

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

$$\text{Profit } = \text{Rs} \left(\frac{16 \times 30}{100} \right) = \text{Rs } 4.80$$

Selling price of one article = C.P. + Profit = Rs (30 + 4.80) = Rs 34.80

Q4 : The cost of an article was Rs 15,500. Rs 450 were spent on its repairs. If it is sold for a profit of 15%, find the selling price of the article.

Answer :

Total cost of an article = Cost + Overhead expenses

= Rs 15500 + Rs 450

= Rs 15950

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

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

$$\text{Profit} = \text{Rs} \left(\frac{15950 \times 15}{100} \right) = \text{Rs } 2392.50$$

∴Selling price of the article = C.P. + Profit = Rs (15950 + 2392.50)

= Rs 18342.50

Q5 : A VCR and TV were bought for Rs 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.

Answer :

C.P. of a VCR = Rs 8000

The shopkeeper made a loss of 4 % on VCR.

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

When C.P. is Rs 8000, S.P. = $\text{Rs}\left(\frac{96}{100}\times 8000\right)$ = Rs 7680

C.P. of a TV = Rs 8000

The shopkeeper made a profit of 8 % on TV.

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

When C.P. is Rs 8000, S.P. = $\text{Rs}\left(\frac{108}{100}\times 8000\right)$ = Rs 8640

Total S.P. = Rs 7680 + Rs 8640 = Rs 16320

Total C.P. = Rs 8000 + Rs 8000 = Rs 16000

Since total S.P.> total C.P., there was a profit.

Profit = Rs 16320 - Rs 16000 = Rs 320

$$\text{Profit }\% = \frac{\text{Profit}}{\text{C.P.}}\times 100$$
$$= \frac{320}{16000}\times 100 = 2\%$$

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

Q6 : 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 Rs 1450 and two shirts marked at Rs 850 each?

Answer :

Total marked price = Rs (1,450 + 2 × 850) = Rs (1,450 +1,700) = Rs 3,150

Given that, discount % = 10%

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

Also, Discount = Marked price - Sale price

Rs 315 = Rs 3150 - Sale price

∴ Sale price = Rs (3150 - 315) = Rs 2835

Thus, the customer will have to pay Rs 2,835.

Q7 : A milkman sold two of his buffaloes for Rs 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)

Answer :

S.P. of each buffalo = Rs 20000

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

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

C.P. of one buffalo = $\text{Rs}\left(20000\times\frac{100}{105}\right)$ = Rs 19,047.62

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

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

∴C.P. of other buffalo = $\text{Rs}\left(20000\times\frac{100}{90}\right)$ = Rs 22222.22

Total C.P. = Rs 19047.62 + Rs 22222.22 = Rs 41269.84

Total S.P. = Rs 20000 + Rs 20000 = Rs 40000

Loss = Rs 41269.84 - Rs 40000 = Rs 1269.84

Thus, the overall loss of milkman was Rs 1,269.84.

Q8 : The price of a TV is Rs 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,

Answer :

On Rs 100, the tax to be paid = Rs 12

On Rs 13000, the tax to be paid will be $= \text{Rs}\left(\frac{12}{100}\times 13000\right)$

= Rs 1560

Required amount = Cost + Sales Tax = Rs 13000 + Rs 1560

= Rs 14560

Thus, Vinod will have to pay Rs 14,560 for the T.V.

Q9 : Arun bought a pair of skates at a sale where the discount given was 20%. If the amount he pays is Rs 1,600, find the marked price.

Answer :

Let the marked price be x.

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

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

$$\text{Discount} = \frac{20}{100}\times x = \frac{1}{5}x$$

Also,

Discount = Marked price - Sale price

$$\frac{1}{5}x = x - \text{Rs } 1600$$

$$x - \frac{1}{5}x = \text{Rs } 1600$$

$$\frac{4}{5}x = \text{Rs } 1600$$

$$x = \text{Rs}\left(1600\times\frac{5}{4}\right) = \text{Rs } 2000$$

Thus, the marked price was Rs 2000.

Q10 : I purchased a hair-dryer for Rs 5,400 including 8% VAT. Find the price before VAT was added.

Answer :

The price includes VAT.

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

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

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

Thus, the price of the hair-dryer before the addition of VAT was Rs 5,000.

Q11 : I purchased a hair-dryer for Rs 5,400 including 8% VAT. Find the price before VAT was added.

Answer :

The price includes VAT.

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

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

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

Thus, the price of the hair-dryer before the addition of VAT was Rs 5,000.