

### EXERCISE 9B

1. Find the cost price, if:

(i) S.P. = ₹ 21 and gain = 5%

(ii) S.P. = ₹ 22 and loss = 12%

(iii) S.P. = ₹ 340 and gain = ₹ 20

(iv) S.P. = ₹ 200 and loss = ₹ 50

(v) S.P. = ₹ 1 and loss = 5 p

**Solution:**

(i) S.P. = ₹ 21 and gain = 5%

We know that

$$C.P. = (S.P. \times 100) / (100 + \text{gain percent})$$

Substituting the values

$$= (21 \times 100) / (100 + 5)$$

$$= (21 \times 100) / 105$$

So we get

$$= ₹ 20$$

(ii) S.P. = ₹ 22 and loss = 12%

We know that

$$C.P. = (S.P. \times 100) / (100 - \text{loss percent})$$

Substituting the values

$$= (22 \times 100) / (100 - 12)$$

$$= (22 \times 100) / 88$$

So we get

$$= ₹ 25$$

(iii) S.P. = ₹ 340 and gain = ₹ 20

We know that

$$C.P. = S.P. - \text{Gain}$$

Substituting the values

$$= 340 - 20$$

$$= ₹ 320$$

(iv) S.P. = ₹ 200 and loss = ₹ 50

We know that

$$C.P. = S.P. + \text{loss}$$

Substituting the values

$$= 200 + 50$$

$$= ₹ 250$$

(v) S.P. = ₹ 1 and loss = 5 p

We know that

$$C.P. = S.P. + \text{Loss}$$

Substituting the values

$$= ₹ 1 + 5 \text{ p}$$

$$= ₹ 1.05$$

2. By selling an article for ₹ 810, a loss of percent is suffered. Find its cost price.

**Solution:**

It is given that

S.P of an article = ₹ 810

Loss percent = 10 %

We know that

$$C.P. = (S.P. \times 100) / (100 - \text{loss percent})$$

Substituting the values

$$= (810 \times 100) / (100 - 10)$$

So we get

$$= (810 \times 100) / 90$$

$$= ₹ 900$$

**3. By selling a scooter for ₹ 9,200, a man gains 15%. Find the cost price of the scooter.**

**Solution:**

It is given that

S.P. of the scooter = ₹ 9,200

Gain percent = 15%

We know that

$$C.P. = (S.P. \times 100) / (100 + \text{gain percent})$$

Substituting the values

$$= (9200 \times 100) / (100 + 15)$$

$$= (9200 \times 100) / 115$$

So we get

$$= ₹ 8000$$

**4. On selling an article for ₹ 2,640, a profit of 10 percent is made.**

**Find:**

**(i) cost price of the article.**

**(ii) new selling price of it, in order to gain 15%.**

**Solution:**

It is given that

S.P. of an article = ₹ 2,640

Gain percent = 10%

(i)  $C.P. = (S.P. \times 100) / (100 + \text{gain percent})$

Substituting the values

$$= (2640 \times 100) / (100 + 10)$$

$$= (2640 \times 100) / 110$$

So we get

$$= ₹ 2400$$

(ii) Gain percent = 15%

$$S.P. = [C.P. (100 + \text{gain percent})] / 100$$

Substituting the values

$$= [2400 (100 + 15)] / 100$$

So we get

$$= (2400 \times 115) / 100$$

= ₹ 2760

**5. A T.V. set is sold for ₹ 6,800 at a loss of 15%.**

**Find:**

**(i) cost price of the T.V. set.**

**(ii) new selling price of it, in order to gain 12%.**

**Solution:**

It is given that

S.P. of the T.V. set = ₹ 6,800

Loss percent = 15%

(i) C.P. =  $(\text{S.P.} \times 100) / (100 - \text{loss percent})$

Substituting the values

=  $(6800 \times 100) / (100 - 15)$

So we get

=  $(6800 \times 100) / 85$

= ₹ 8000

(ii) Gain percent = 12%

We know that

S.P. =  $[\text{C.P.} (100 + \text{gain percent})] / 100$

Substituting the values

=  $[8000 (100 + 12)] / 100$

So we get

=  $(8000 \times 112) / 100$

= ₹ 8960

**6. A fruit seller bought mangoes at ₹ 90 per dozen and sold them at a loss of 8 percent. How much will a customer pay for:**

**(i) one mango**

**(ii) 40 mangoes**

**Solution:**

It is given that

C.P. of 1 dozen mangoes = ₹ 90

Loss percent = 8%

Here the S.P of 1 dozen mangoes =  $[\text{C.P.} (100 - \text{loss percent})] / 100$

Substituting the values

=  $[900 (100 - 8)] / 100$

So we get

=  $(90 \times 92) / 100$

= ₹ 82.80

(i) S.P. of one mango =  $82.80 / 12 = ₹ 6.90$

(ii) S.P. of 40 mangoes =  $6.90 \times 40 = ₹ 276$

**7. By selling two transistors for ₹ 600 each, a shopkeeper gains 20 percent on one transistor and loses 20**

percent on the other.

**Find:**

(i) C.P. of each transistor.

(ii) total C.P. and total S.P. of both the transistors.

(iii) profit or loss percent on the whole.

**Solution:**

It is given that

S.P of first transistor = ₹ 600

Gain percent = 20%

(i)  $C.P = (S.P. \times 100) / (100 + \text{gain percent})$

Substituting the values

$$= (600 \times 100) / (100 + 20)$$

$$= (600 \times 100) / 120$$

So we get

$$= ₹ 500$$

S.P of the second transistor = ₹ 600

Loss percent = 20%

So the C.P of the other transistor =  $(S.P. \times 100) / (100 - \text{loss percent})$

Substituting the values

$$= (600 \times 100) / (100 - 20)$$

So we get

$$= (600 \times 100) / 80$$

$$= ₹ 750$$

Hence, C.P of the two transistors are ₹ 500 and ₹ 750.

(ii) Total C.P of both the transistors =  $500 + 750 = ₹ 1250$

Total S.P of both the transistors =  $600 + 600 = ₹ 1200$

(iii) We know that

Total loss = C.P – S.P

Substituting the values

$$= 1250 - 1200$$

$$= ₹ 50$$

So the loss percent =  $(\text{loss} \times 100) / C.P$

Substituting the values

$$= (50 \times 100) / 1250$$

$$= 4\%$$

**8. Mangoes are bought at 20 for ₹ 60. If they are sold at a profit of  $33 \frac{1}{3}$  percent, find:**

(i) selling price of each mango.

(ii) S.P. of 8 mangoes.

**Solution:**

It is given that

C.P of 20 mangoes = ₹ 60

$$\text{Gain percent} = 33 \frac{1}{3} \% = 100/3 \%$$

$$\text{S.P of 20 mangoes} = [\text{C.P.} (100 + \text{gain percent})]/ 100$$

$$\begin{aligned} \text{Substituting the values} \\ = [60 (100 + 100/3)]/ 100 \end{aligned}$$

So we get

$$\begin{aligned} &= (60 \times 400)/ (100 \times 3) \\ &= ₹ 80 \end{aligned}$$

$$\text{(i) S.P of one mango} = 80/20 = ₹ 4$$

$$\text{(ii) S.P of 8 mangoes} = 4 \times 8 = ₹ 32$$

**9. Find the cost price of an article, which is sold for ₹ 4,050 at a loss of 10%. Also, find the new selling price of the article which must give a profit of 8%.**

**Solution:**

It is given that

$$\text{S.P of an article} = ₹ 4,050$$

$$\text{Loss percent} = 10\%$$

$$\text{(i) C.P of the article} = (\text{S.P.} \times 100)/ (100 - \text{loss percent})$$

$$\begin{aligned} \text{Substituting the values} \\ = (4050 \times 100)/ (100 - 10) \end{aligned}$$

So we get

$$\begin{aligned} &= (4050 \times 100)/ 90 \\ &= ₹ 4500 \end{aligned}$$

$$\text{(ii) Gain percent} = 8\%$$

$$\text{S.P of the article} = [\text{C.P.} (100 + \text{gain percent})]/ 100$$

$$\begin{aligned} \text{Substituting the values} \\ = [4500 (100 + 8)]/ 100 \end{aligned}$$

So we get

$$\begin{aligned} &= (4500 \times 108)/ 100 \\ &= ₹ 4860 \end{aligned}$$

**10. By selling an article for ₹ 825, a man losses an amount equal to 1/3 of its selling price. Find:**

**(i) the cost price of the article.**

**(ii) the profit percent or the loss percent made, if the same article is sold for ₹ 1,265.**

**Solution:**

It is given that

$$\text{S.P of an article} = ₹ 825$$

$$\text{Loss} = 1/3 \text{ of S.P} = 1/3 \times 825 = ₹ 275$$

$$\text{(i) C.P} = \text{S.P} + \text{Loss}$$

Substituting the values

$$\begin{aligned} &= 825 + 275 \\ &= ₹ 1100 \end{aligned}$$

(ii) S.P = ₹ 1265

We know that

$$\text{Gain} = \text{S.P} - \text{C.P}$$

Substituting the values

$$= 1265 - 1100$$

$$= ₹ 165$$

$$\text{Gain percent} = (\text{gain} \times 100) / \text{C.P}$$

Substituting the values

$$= (165 \times 100) / 1100$$

$$= 15\%$$

**11. Find the loss or gain as percent, if the C.P. of articles, all of the same kind, is equal to S.P. of 8 articles.**

**Solution:**

$$\text{Consider C.P of 10 articles} = \text{S.P of 8 articles} = ₹ 80$$

$$\text{So the C.P of 1 article} = 80/10 = ₹ 8$$

$$\text{S.P of 1 article} = 80/8 = ₹ 10$$

We know that

$$\text{Gain} = \text{S.P} - \text{C.P}$$

Substituting the values

$$= 10 - 8$$

$$= ₹ 2$$

$$\text{Gain percent} = (\text{gain} \times 100) / \text{C.P}$$

Substituting the values

$$= (2 \times 100) / 8$$

$$= 25\%$$

**12. Find the loss or gain as percent, if the C.P. of 8 articles, all of the same kind, is equal to S.P. of 10 articles.**

**Solution:**

$$\text{Consider C.P of 8 articles} = \text{S.P of 10 articles} = ₹ 80$$

$$\text{So the C.P of 1 article} = 80/8 = ₹ 10$$

$$\text{S.P of 1 article} = 80/10 = ₹ 8$$

We know that

$$\text{Loss} = \text{C.P} - \text{S.P}$$

Substituting the values

$$= 10 - 8$$

$$= ₹ 2$$

$$\text{Loss percent} = (\text{loss} \times 100) / \text{C.P}$$

Substituting the values

$$= (2 \times 100) / 10$$

$$= 20\%$$

**13. The cost price of an article is 96% of its selling price. Find the loss or the gain as percent on the whole.**

**Solution:**

Consider S.P = ₹ 100

We know that

C.P = 96% of S.P

So we get

$$= 96/100 \times 100$$

$$= ₹ 96$$

$$\text{Gain} = 100 - 96 = ₹ 4$$

$$\text{Gain percent} = (\text{gain} \times 100) / \text{C.P}$$

Substituting the values

$$= 4/96 \times 100\%$$

$$= 25/6 \text{ or } 4 \frac{1}{6}\%$$

**14. The selling price of an article is 96% of its cost price. Find the loss or the gain as percent on the whole.**

**Solution:**

Consider C.P = ₹ 100

S.P = 96% of C.P

So we get

$$= 96/100 \times 100$$

$$= ₹ 96$$

$$\text{Loss} = 100 - 96 = ₹ 4$$

$$\text{Loss percent} = (\text{loss} \times 100) / \text{C.P}$$

Substituting the values

$$= 4/100 \times 100\%$$

$$= 4\%$$

**15. Hundred oranges are bought for ₹ 350 and all of them are sold at the rate of ₹ 48 per dozen. Find the profit percent or loss percent made.**

**Solution:**

It is given that

$$\text{C.P of one orange} = 350/100 = ₹ 3.50$$

$$\text{S.P of one orange} = 48/12 = ₹ 4$$

$$\text{Gain} = 4 - 3.50 = ₹ 0.50$$

$$\text{Gain percent} = (\text{gain} \times 100) / \text{C.P}$$

Substituting the values

$$= 0.50/3.50 \times 100\%$$

$$= 14 \frac{2}{7} \%$$