

## EXERCISE 9A

### **Find the gain or loss percent, if:**

(i) C.P. = ₹ 200 and S.P. = ₹ 224

(ii) C.P. = ₹ 450 and S.P. = ₹ 400

(iii) C.P. = ₹ 550 and gain = ₹ 22

(iv) C.P. = ₹ 216 and loss = ₹ 72

(v) S.P. = ₹ 500 and loss = ₹ 100

**Solution:**

(i) C.P. = ₹ 200 and S.P. = ₹ 224

We know that

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

So we get

$$= 224 - 200$$

$$= ₹ 24$$

So we get

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

Substituting the values

$$= (24 \times 100) / 200$$

$$= 12\%$$

(ii) C.P. = ₹ 450 and S.P. = ₹ 400

We know that

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

So we get

$$= 450 - 400$$

$$= ₹ 50$$

So we get

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

Substituting the values

$$= (50 \times 100) / 450$$

$$= 100/9$$

$$= 11 \frac{1}{9}\%$$

(iii) C.P. = ₹ 550 and gain = ₹ 22

We know that

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

So we get

$$= 550 + 22$$

$$= ₹ 572$$

So we get

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

Substituting the values

$$= (22 \times 100) / 550$$

$$= 4\%$$

(iv) C.P. = ₹ 216 and loss = ₹ 72

We know that

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

So we get

$$= 216 - 72$$

$$= ₹ 144$$

So we get

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

Substituting the values

$$= (72 \times 100) / 216$$

$$= 100/3$$

$$= 33 \frac{1}{3}\%$$

(v) S.P. = ₹ 500 and loss = ₹ 100

We know that

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

So we get

$$= 500 + 100$$

$$= ₹ 600$$

So we get

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

Substituting the values

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

$$= 50/3$$

$$= 16 \frac{2}{3} \%$$

**2. Find the selling price, if:**

**(i) C.P. = ₹ 500 and gain = 25%**

**(ii) C.P. = ₹ 60 and loss =  $12 \frac{1}{2} \%$**

**Solution:**

(i) C.P. = ₹ 500 and gain = 25%

We know that

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

Substituting the values

$$= [500 (100 + 25)] / 100$$

We get

$$= (500 \times 125) / 100$$

$$= ₹ 625$$

(ii) C.P. = ₹ 60 and loss =  $12 \frac{1}{2} \%$

We know that

$$\text{Loss} = 12 \frac{1}{2} \% = 25/2\%$$

Here

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

Substituting the values

$$= [60 (100 - 25/2)] / 100$$

So we get



$$= [60 (200 - 25/2)] / 100$$

We can write it as

$$= (60 \times 175) / (2 \times 100)$$

$$= ₹ 105/2$$

$$= ₹ 52.50$$

**3. Rohit bought a tape-recorder for ₹ 1,500 and sold it for ₹ 1,800. Calculate his profit or loss percent.**

**Solution:**

It is given that

$$\text{C.P of tape-recorder} = ₹ 1,500$$

$$\text{S.P of tape-recorder} = ₹ 1,800$$

We know that

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

$$= 1800 - 1500$$

$$= ₹ 300$$

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

Substituting the values

$$= (300 \times 100) / 1500$$

$$= 20\%$$

**4. An article bought for ₹ 350 is sold at a profit of 20%. Find its selling price.**

**Solution:**

It is given that

$$\text{C.P of an article} = ₹ 350$$

$$\text{Profit} = 20\%$$

We know that

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

Substituting the values

$$= [350 (100 + 20)] / 100$$

So we get

$$= (350 \times 120) / 100$$

$$= ₹ 420$$

**5. An old machine is bought for ₹ 1,400 and is sold at a loss of 15%. Find its selling price.**

**Solution:**

It is given that

$$\text{C.P. of the old machine} = ₹ 1,400$$

$$\text{Loss percent} = 15\%$$

We know that

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

Substituting the values

$$= [1400 (100 - 15)] / 100$$

By further calculation

$$= (1400 \times 85) / 100$$

$$= ₹ 1190$$

**6. Oranges are bought at 5 for ₹ 10 and sold at 6 for ₹ 15. Find profit or loss as percent.**

**Solution:**

We know that  
LCM of 5 and 6 = 30

Consider that 30 oranges are bought  
So the C.P of 30 oranges =  $(30 \times 10) / 5 = ₹ 60$   
S.P of 30 oranges =  $(30 \times 15) / 6 = ₹ 75$

Gain = S.P – C.P  
Substituting the values  
=  $75 - 60$   
= ₹ 15

Gain percent =  $(\text{gain} \times 100) / \text{C.P}$   
Substituting the values  
=  $(15 \times 100) / 60$   
= 25%

**7. A certain number of articles are bought at 3 for ₹ 150 and all of them are sold at 4 for ₹ 180. Find the loss or gain as percent.**

**Solution:**

We know that  
LCM of 3 and 4 = 12

Consider that 12 articles are bought  
So the C.P of 12 articles =  $(150 \times 12) / 3 = ₹ 600$   
S.P of 12 articles =  $(180 \times 12) / 4 = ₹ 540$

Loss = C.P – S.P  
Substituting the values  
=  $600 - 540$   
= ₹ 60

Loss percent =  $(\text{loss} \times 100) / \text{C.P}$   
Substituting the values  
=  $(60 \times 100) / 600$   
= 10%

**8. A vendor bought 120 sweets at 20 p each. In his house, 18 were consumed and he sold the remaining at 30p each. Find his profit or loss as percent.**

**Solution:**

No. of sweets bought = 120  
C.P of 120 sweets =  $(120 \times 20) / 100 = ₹ 24$   
No. of sweets consumed = 18  
So the balance sweets =  $120 - 18 = 102$   
S.P of 102 sweets =  $(102 \times 30) / 100 = ₹ 30.60$

$$\begin{aligned}\text{Gain} &= \text{S.P} - \text{C.P} \\ \text{Substituting the values} \\ &= 30.60 - 24 \\ &= ₹ 6.60\end{aligned}$$

$$\begin{aligned}\text{Gain percent} &= (\text{gain} \times 100) / \text{C.P} \\ \text{Substituting the values} \\ &= (6.60 \times 100) / 24 \\ \text{Multiplying both numerator and denominator by 100} \\ &= (660 \times 100) / (100 \times 24) \\ &= 55/2 \\ &= 27.5\%\end{aligned}$$

**9. The cost price of an article is ₹ 1,200 and selling price is  $5/4$  times of its cost price.**

**Find:**

**(i) Selling price of the article,**

**(ii) Profit or loss as percent.**

**Solution:**

It is given that  
C.P of an article = ₹ 1,200  
We know that  
S.P =  $5/4$  of C.P  
Substituting the values  
S.P =  $5/4 \times 1200 = ₹ 1,500$

$$\begin{aligned}\text{Gain} &= \text{S.P} - \text{C.P} \\ \text{Substituting the values} \\ &= 1500 - 1200 \\ &= ₹ 300\end{aligned}$$

$$\begin{aligned}\text{Gain percent} &= (\text{gain} \times 100) / \text{C.P} \\ \text{Substituting the values} \\ &= (300 \times 100) / 1200 \\ &= 25\%\end{aligned}$$

**10. The selling price of an article is ₹ 1,200 and cost price is  $5/4$  times of its selling price.**

**Find:**

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

**(ii) profit or loss as percent.**

**Solution:**

(i) S.P of an article = ₹ 1,200  
We know that  
C.P =  $5/4$  of S.P  
Substituting the values  
=  $5/4 \times 1200$   
= ₹ 1,500

(ii) Loss = C.P – S.P

Substituting the values  
= 1500 – 1200  
= ₹ 300

Loss percent = (loss × 100)/ C.P  
Substituting the values  
= (300 × 100)/ 1500  
So we get  
= 100/5  
= 20%



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