

**SUB TOPIC: PROFIT AND LOSS ,TO FIND COST PRICE, DISCOUNT**

**SUBJECT : MATHEMATICS**

**CHAPTER NUMBER: 8**

**CHAPTER NAME :PROFIT, LOSS AND DISCOUNT**

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**CHANGING YOUR TOMORROW**

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## LEARNING OUTCOME

- Students will be able to
- Differentiate selling price, marked price.
- Calculate selling price after analyzing discount.

## PREVIOUS CONNECT

By selling an article for ₹ 825, a man losses an amount equal to  $\frac{1}{3}$  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.

Discount is usually expressed as a certain per cent of the M.P.

$$\text{Discount} = \text{M.P.} - \text{S.P.}$$

$$\text{Rate of Discount} = \text{Discount \%} = \frac{\text{Discount}}{\text{M.P.}} \times 100$$

$$\text{S.P.} = \text{M.P.} \times \left( \frac{100 - \text{Discount \%}}{100} \right)$$

$$\text{M.P.} = \frac{100 \times \text{S.P.}}{100 - \text{Discount \%}}$$





1. A machine is marked at ₹ 5,000 and is sold at a discount of 10%. Find the selling price of the machine.

**Solution:**

It is given that

M.P of the machine = ₹ 5, 000

Rate of discount = 10%

So the amount of discount =  $5000 \times 10/100 = ₹ 500$

S.P = M.P – discount

Substituting the values

= 5000 – 500

= ₹ 4500



A pair of shoes, marked at ₹ 320, are sold at a discount of 15 percent.

**Find:**

- (i) the discount,**
- (ii) the selling price of the shoes.**

**Solution:**

It is given that

M.P of shoes = ₹ 320

Rate of discount = 15%

(i) Amount of discount =  $(320 \times 15) / 100 = ₹ 48$

(ii) S.P = M.P – Discount

Substituting the values

= 320 – 48

= ₹ 272

**4. The list price of an article is ₹ 450 and it is sold for ₹ 360.**

**Find:**

**(i) the discount,**

**(ii) the discount percent.**

**Solution:**

It is given that

M.P of an article = ₹ 450

S.P of an article = ₹ 360

(i) Amount of discount = M.P – S.P

Substituting the values

$$= 450 - 360$$

$$= ₹ 90$$

(ii) Discount percent =  $(\text{discount} \times 100) / \text{M.P}$

Substituting the values

$$= (90 \times 100) / 450$$

$$= 20\%$$

5. A shopkeeper buys an article for ₹ 300. He increases its price by 20% and then gives 10% discount on the new price.

Find:

- (i) the new price (marked price) of the article.
- (ii) the discount given by the shopkeeper.
- (iii) the selling price.
- (iv) the profit percent made by the shopkeeper.

**Solution:**

It is given that

C.P of an article = ₹ 300

Increase in price = 20%

(i) M.P =  $[C.P (100 + \text{increase percent})] / 100$

Substituting the values

=  $[300 (100 + 20)] / 100$

So we get

=  $(300 \times 120) / 100$

= ₹ 360



(ii) Rate of discount = 10%

Amount of discount =  $(360 \times 10) / 100 = ₹ 36$

(iii) S.P = M.P – discount

Substituting the values

$$= 360 - 36$$

$$= ₹ 324$$

(iv) Net profit made by the shopkeeper = S.P –  
C.P

Substituting the values

$$= 324 - 300$$

$$= ₹ 24$$

We know that

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

Substituting the values

$$= (24 \times 100) / 300$$

$$= 8\%$$

**8. A sells his goods at 15% discount. Find the price of an article which is sold for ₹ 680.**

**Solution:**

It is given that

S.P of an article = ₹ 680

Rate of discount = 15%

Consider M.P of the article = ₹ 100

$S.P = 100 - 15 = ₹ 85$

If S.P of the article is ₹ 85 then M.P = ₹ 100

If S.P of the article is ₹ 680 then  $M.P = (100 \times 680) / 85 = ₹ 800$

**11. 40 pens are bought at 4 for ₹ 50 and all of them are sold at 5 for ₹ 80. Find:**

**(i) C.P. of one pen.**

**(ii) S.P. of one pen.**

**(iii) Profit made by selling one pen.**

**(iv) Profit percent made by selling one pen.**

**(v) C.P. of 40 pens.**

**(vi) S.P. of 40 pens.**

**(vii) Profit made by selling 40 pens.**

**(viii) Profit percent made by selling 40 pens.**

**Are the results of parts (iv) and (viii) same?**

**What conclusion do you draw from the above result?**

## **Solution:**

(i) C.P of 4 pens = ₹ 50

C.P of 40 pens =  $(50 \times 40) / 4 = ₹ 500$

So the C.P of 1 pen =  $500 / 40 = 25 / 2 = ₹ 12.50$

(ii) S.P of pens = ₹ 80

So the S.P of one pen =  $80 / 5 = ₹ 16$

(iii) Profit made by selling one pen = S.P – C.P

Substituting the values

=  $16 - 12.50$

= ₹ 3.50

(iv) Profit percent made by selling one pen =  $(\text{profit} \times 100) / \text{C.P}$

Substituting the values

=  $(3.50 \times 100) / 12.50$

Multiplying both numerator and denominator by 100

=  $(350 \times 100) / 1250$

= 28%

(v) C.P of 40 pens =  $40 \times 12.50 = ₹ 500$

(vi) S.P of 40 pens =  $40 \times 16 = ₹ 640$

(vii) Profit made by selling 40 pens = S.P – C.P

Substituting the values

$$= 640 - 500$$

$$= ₹ 140$$

(viii) Profit percent made by selling 40 pens =  $(\text{profit} \times 100) / \text{C.P}$

Substituting the values

$$= (140 \times 100) / 500$$

$$= 28\%$$

Yes, the results of (iv) and (viii) are same.

Here we get to know that the profit of equal number of articles remains the same.

# HOME ASSIGNMENT

- EX9 C

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