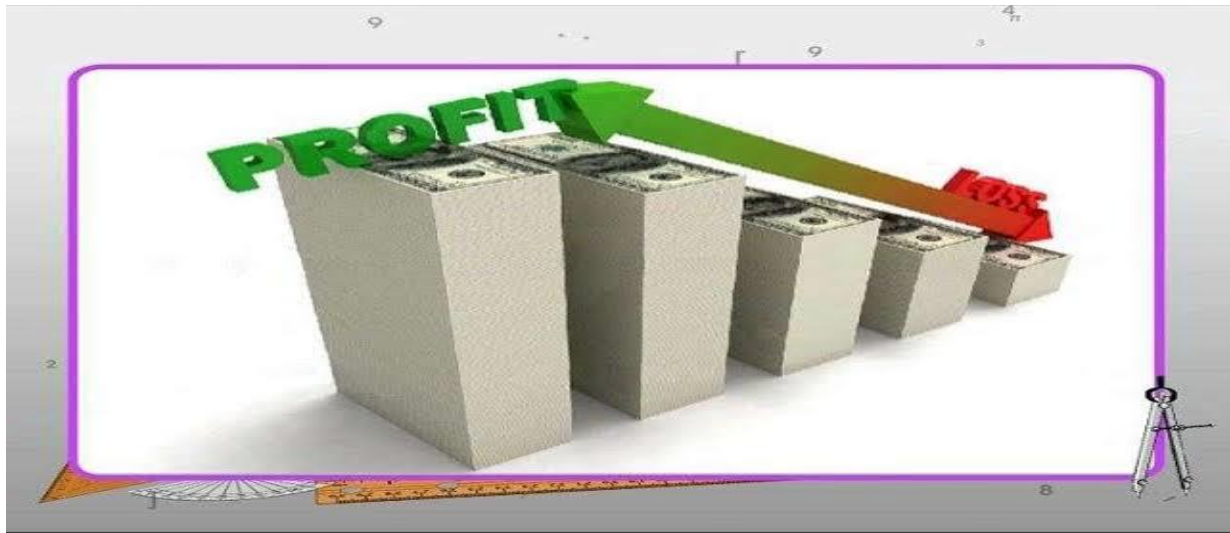


*When we buy and sell things in business, we normally gain or loss money.*



***Profit:*** If a selling price is more than its cost price, then it is called profit.

***Loss:*** If a cost price is more than its selling price, then it is called loss.

**Percentage profit (Profit %) or percentage loss (Loss %) is always calculated on the cost price.**

## Formula

1. Profit = S.P. – C.P.

2. Loss = C.P. – S.P.

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

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

5. **For profit:**

$$\text{S.P.} = \left[ \frac{(100 + \text{profit \%})}{100} \times \text{C.P.} \right]$$

6. **For Loss:**

$$\text{S.P.} = \left[ \frac{(100 - \text{Loss \%})}{100} \times \text{C.P.} \right]$$

7. **For Profit:**

$$\text{C.P.} = \left[ \frac{100}{(100 + \text{profit \%})} \times \text{S.P.} \right]$$

8. **For Loss:**

$$\text{C.P.} = \left[ \frac{100}{(100 - \text{Loss \%})} \times \text{S.P.} \right]$$

Cost Price = C.P.  
Selling Price = S.P.

## Word Problem

1. *If a pen is bought at 50 Taka, and sold at 56 Taka, then what is the profit %?*

**Solution:**

Given,

Cost price = 50 Taka

Selling price = 56 Taka

Profit = Selling price – Cost price

= (56 – 50) tk

= 6 tk

We know,

$$\begin{aligned}\text{Profit \%} &= \frac{\text{Profit}}{\text{Cost price}} \times 100\% \\ &= \frac{6}{50} \times 100\% \\ &= \frac{6 \times 100}{50} \% \\ &= 12 \%\end{aligned}$$

**Ans:** 12%

**2. If a notebook is bought at 15 Taka and sold at 12 Taka, then what is the loss %?**

**Solution:**

Given,

Cost Price = 15 Taka

Selling Price = 12 Taka

Loss = Cost Price – Selling price

$$= (15 - 12) \text{ tk}$$

$$= 3 \text{ tk}$$

We know,

$$\begin{aligned}\text{Loss \%} &= \frac{\text{Loss}}{\text{Cost price}} \times 100\% \\ &= \frac{3}{15} \times 100\% \\ &= 20\%\end{aligned}$$

**Ans:** 20 %

**3. A seller purchased a machine from a factory and sold it at 55200 Taka with the profit of 15%. How much was the cost price?**

**Solution:**

Given,

$$\text{Selling price} = 55200 \text{ tk}$$

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

We know,

$$\begin{aligned} \text{Cost Price} &= \left[ \frac{100}{(100 + \text{profit}\%)} \times \text{Selling price} \right] \\ &= \left[ \frac{100}{(100 + 15)} \times 55200 \right] \text{ tk} \\ &= \left( \frac{100 \times 55200}{115} \right) \text{ tk} \\ &= 48000 \text{ tk} \end{aligned}$$

**Ans:** 48000 tk

Rough

$$\begin{array}{r} 480 \\ 115 \overline{) 55200} \\ \underline{460} \\ 920 \\ \underline{920} \\ 0 \end{array}$$

4. A seller laid a table in stock but sold it at 7040 Taka after 12% discount from the cost price. How much was the cost price of the table?

**Solution:**

Given,

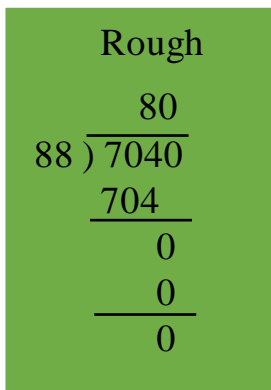
$$\text{Selling price} = 7040 \text{ tk}$$

$$\text{Loss \%} = 12\%$$

We know,

$$\begin{aligned} \text{Cost price} &= \left[ \frac{100}{(100 - \text{loss}\%)} \times \text{Selling price} \right] \\ &= \left[ \frac{100}{(100 - 12)} \times 7040 \right] \text{ tk} \\ &= \left( \frac{100 \times 7040}{88} \right) \text{ tk} \\ &= 8000 \text{ tk} \end{aligned}$$

**Ans:** 8000 tk



Rough

$$\begin{array}{r} 80 \\ 88 \overline{) 7040} \\ \underline{704} \phantom{0} \\ 0 \\ \phantom{0} \\ \underline{\phantom{0}} \\ 0 \end{array}$$

### Exercise (Do yourself)

1. In a shop an item of 1800 Taka was sold at a discount of 20%. How much Taka was the selling price?
2. A seller purchased boxes of vegetables from a farmer and sold them at a market at 6,300 Taka with a profit of 40%. How much was the cost price?