



**SNS COLLEGE OF TECHNOLOGY**  
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**Coimbatore-35**



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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**23GET275 – VQAR I**

II YEAR/ III SEMESTER

**UNIT 1 – QUANTITATIVE ABILITY I**

**TOPIC 7 :Profit, loss and Discount**

14/9/2024

Profit, loss and Discount/23GET275 – VQAR I/S.SHARMILA/AP/EEE/SNSCT



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## Definition



### **Cost Price:**

The price, at which an article is purchased, is called its cost price, abbreviated as C.P.

### **Selling Price:**

The price, at which an article is sold, is called its selling price, abbreviated as S.P.

### **Profit or Gain:**

If S.P. is greater than C.P., the seller is said to have a profit or gain.

### **Loss:**

If S.P. is less than C.P., the seller is said to have incurred a loss.





## Proportion



1. Gain = (S.P.) - (C.P.)

2. Loss = (C.P.) - (S.P.)

3. Loss or gain is always reckoned on C.P.

4. Gain Percentage: (Gain %)

$$\text{Gain \%} = \left( \frac{\text{Gain} \times 100}{\text{C.P.}} \right)$$





## Fourth Proportional



Loss Percentage: (Loss %)

$$\text{Gain \%} = \left( \frac{\text{Gain} \times 100}{\text{C.P.}} \right)$$

Selling Price: (S.P.)

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





## Comparison of Ratios



**Selling Price: (S.P.)**

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

**Cost Price: (C.P.)**

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

**9. Cost Price: (C.P.)**

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





## Duplicate Ratios



1.If an article is sold at a gain of say 35%, then S.P. = 135% of C.P.

2.If an article is sold at a loss of say, 35% then S.P. = 65% of C.P.

3.When a person sells two similar items, one at a gain of say  $x\%$ , and the other at a loss of  $x\%$ , then the seller always incurs a loss given by:

$$\text{Loss \%} = \left[ \frac{\text{Common Loss and Gain \%}}{10} \right]^2 = \left[ \frac{x}{10} \right]^2.$$

4. If a trader professes to sell his goods at cost price, but uses false weights, then

$$\text{Gain \%} = \left[ \frac{\text{Error}}{(\text{True Value}) - (\text{Error})} \times 100 \right] \%$$





## Variations



1. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

Ⓐ  $4\frac{4}{7}\%$

Ⓑ  $5\frac{5}{11}\%$

Ⓒ 10%

Ⓓ 12%

**Answer:** Option Ⓑ

**Explanation:**

Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500.

Selling Price (S.P.) = Rs. 5800.

Gain = (S.P.) - (C.P.) = Rs. (5800 - 5500) = Rs. 300.

$$\text{Gain \%} = \left( \frac{300}{5500} \times 100 \right) \% = 5\frac{5}{11}\%$$





## Example



2. The cost price of 20 articles is the same as the selling price of  $x$  articles. If the profit is 25%, then the value of  $x$  is:

1. 15
2. 16
3. 18
4. 25

**Answer:** Option

**Explanation:**

Let C.P. of each article be Re. 1 C.P. of  $x$  articles = Rs.  $x$ .

S.P. of  $x$  articles = Rs. 20.

Profit = Rs.  $(20 - x)$ .

$$\therefore \left( \frac{20 - x}{x} \times 100 = 25 \right)$$

$$\Rightarrow 2000 - 100x = 25x$$

$$125x = 2000$$

$$\Rightarrow x = 16.$$







## Example



3.If selling price is doubled, the profit triples. Find the profit percent.

1. 6623
2. 100
3. 10513
4. 120

**Answer:** Option **(B)**

**Explanation:**

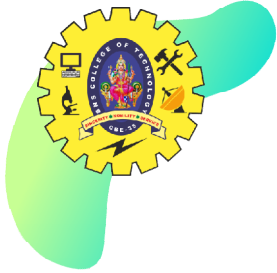
Let C.P. be Rs.  $x$  and S.P. be Rs.  $y$ .

Then,  $3(y - x) = (2y - x) \Rightarrow y = 2x$ .

Profit = Rs.  $(y - x) = \text{Rs. } (2x - x) = \text{Rs. } x$ .

$$\therefore \text{Profit \%} = \left( \frac{x}{x} \times 100 \right) \% = 100\%$$





# THANK YOU

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