Profit & Loss and Discount

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Important Terminologies:

- **Cost Price:** The price at which someone buys any article from the seller.
- **Selling Price:** The price at which the seller sells the article to the buyer.
- **Marked price/List Price:** The price that is printed on the article.
- **Profit/Loss** = S.P. – C.P.

If S.P. > C.P. then there will be profit on the sale of the article.
If S.P. < C.P. then there will be loss on the sale of the article.
If S.P. = C.P. then there will be neither loss nor profit on the sale of the article.
Note: Profit or Loss percentage is always calculated on the C.P. of the article.

- **Discount:** An amount of deduction offered on the marked price of the article to the buyer.

Discount = M.P. – S.P.
Discount percentage is always calculated on the M.P. of the article.

- **Commission:** An amount of money that is offered to the seller or to the salesmen upon completing a deal/task usually on the sale of a certain amount of goods and services. It is always calculated on the S.P. of the article.

Important Formulas:

1. Profit/Loss % = $\frac{(Profit\ or\ Loss)}{(C.P.)} \times 100$
2. Discount % = $\frac{Discount}{M.P.} \times 100$
3. S.P. = C.P.(100 + P)%
4. S.P. = C.P.(100 – L)%
5. S.P. = M.P.(100 – D)%
6. $\frac{M.P.}{C.P.} = \frac{(100+P)\%}{(100-D)\%}$

Important Concepts:

1. If two articles are sold each at the same price. And there is **x% profit** on the sale of **1st article** and **x% loss** on the sale of **2nd article** then there will always be a loss % of $\frac{x^2}{100}$% in the overall deal.
2. **Successive Discount:** It is a concept in which the seller offers more than one discount on the marked price of the article to the buyer. Then the resultant discount value is calculated by following formula:

If a seller offers two successive discounts of x% and y% on an article marked at Rs. P. Then **Single Discount Rate = x + y -** $\frac{xy}{100}$ (Use only numerical values of discounts without +/- sign)

Example 1: Find the single discount rate for two successive discounts of 20% and 30%.
Solution:
Single Discount Rate = 20 + 30 - $\frac{20\times30}{100}$ = 44%

Example 2: Find the single discount rate for two successive discounts of 10%, 20% and 30%.
Solution:
First find single discount rate for discounts 10% and 20% .
= 10 + 20 - $\frac{10\times20}{100}$ = 28%
Now simply find Single discount rate for 28% and 30%.
= 28 + 30 - $\frac{28\times30}{100}$ = 58 – 8.4 = 49.6%
Thus, three successive discounts of 10%, 20% and 30% will be equal to a single discount rate of 49.6%.

3. **Dishonest Shopkeeper**: In these types of questions, the dishonest shopkeeper promises to sell the article at the cost price but uses the lighter weights to measure the quantity of the material. Thus, his Profit/Gain % is asked in the question. So,

Profit%(or Gain%) = $\frac{100\times(Original\ weight-Lighter\ weight)}{Lighter\ Weight}$

Example 3: A dishonest shopkeeper promises to sell sugar on the cost price but uses 800gm. weight instead of 1000 gm. weight. Find his Profit %.

Solution:

Profit % = $\frac{100\times(1000-800)}{800}$ = 25%

Basic Method:

Let price of 1000 gm. sugar = Rs.100

Then price of 800 gm. sugar = Rs. 80

But he gives 800gm. sugar and charges for 1000gm. sugar

So, price of 800 gm. sugar = Rs. 100

It means he has sold the sugar of Rs.80 in Rs.100 to the buyer.

Thus, Profit = $\frac{100-80}{80}\times 100$ = 25%