**Profit & Loss**

The price at which a person buys a product is the cost price of the product, known as CP

The price at which a person sells a product is the Sales price of the product, known as SP.

If SP>CP, the difference, SP-CP is known as profit or gain.

Profit = SP-CP

Profit % = (Profit/CP)\*100 (see example 1)

SP = CP\*[(100+Profit%)/100]

CP = (100\*SP)/(100+Profit%)

If however, SP<CP, then the difference, CP-SP is Loss.

Loss = CP-SP

Loss % = (Loss/CP)\*100

SP = CP\*[(100-Loss%)/100]

CP = (100\*SP)/(100-Loss%)

**Important Points**

1. IF an article is sold at a profit of x%

SP = (100+x)% of CP

2. IF an article is sold at a loss of y%

SP = (100-x)% of CP

3. When a person sells 2 items of same cost as 1 at a profit of x% and other at a loss of x%, He will always incur loss.

Loss% = x2/100

4. If a shopkeeper sells his goods at C.P., but uses false weight of x kg, his profit is:

Profit% = [True weight - False weight)/False weight]\*100

5. While selling goods, adding a certain percentage on the cost price is known as marked price, And this % addition is known as percentage mark up.

Marked Price = CP + Mark up

Marked Price = CP + % Mark up on CP

If discount is also given on this,

Selling Price = Marked Price - % discount.

6. If goods are sold as buy x get y free then

Discount % = [y/(x+y)]\*100

7. If 2 successive discounts x% and y% is given then,

Effective discount = [(x+y) - xy/100]%

Examples:

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| Example 1 | A car dealer buys a 1996 model small car and sells it the next day for sixty thousand rupees, after doing a minor painting job costing one thousand rupees. If he earned 20% profit on the deal,what was the purchase price? |
| Solution | Let the purchase price of the car for the dealer be Rs x.  His total cost is x + 1000  From the formula for profit we have, 20 =  Solving this, we get the purchase price x to be Rs 49,000. |

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| Example 2 | A shopkeeper cheats to the extent of 10% while buying as well as selling, by using his false weights. His total gain is? |
| Solution | Let cost price of 1 kg of material be 1Re. While buying, he has bought 1.1 kg of material for 1Re. While selling, he sells 0.9kg of material at 1Re. Hence, he would sell 1.1kg of material at 1.1/0.9 Rs = 11/9 Rs. Total gain = (11/9 - 1)/1 = 2/9 Rs = 200/9 % = 22.22% |