**Profit:**If the selling price (S.P.) of an article is greater than the cost price (C.P), then the difference between the selling price and cost price is called profit.

Thus,**If S. P. > C.P.,**then

**Profit = S. P. – C. P.**

**⇒ S. P. = C. P. + Profit**

**⇒ C. P. = S. P. – Profit.**

**Loss:**If the selling price (S.P.) of an article is less than the cost price (C.P.), then the difference between the cost price (C.P.) and the selling price (S.P.) is called loss.

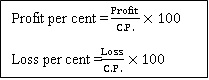
Thus**if S.P. < C.P.,**then

**Loss – C.P. – S.P.**

**⇒ C. P. = S. P. + Loss**

**⇒ S. P. = C. P. – Loss**

**Profit and loss percentage** The profit per cent is the profit that would be obtained for a C.P. of `100.  
Similarly, the loss percent is the loss that would be made for a C.P. of ` 100.



**Example 1:**

Ram buys a book for Rs.100 and sells it for Rs.150. Find his gain or loss percentage.

**Solution:** Cost Price CP =Rs.100 and Selling Price SP = Rs.150  
Here, SP is greater than CP. Therefore, there is profit in the transaction.

Profit = SP – CP = 150 – 100 = Rs. 50

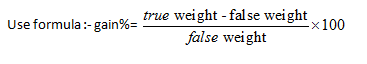
​Profit Percentage = (Profit / CP) x 100%  
Therefore, Profit Percentage = (50 / 100) x 100% = (1/2)x100 % = 50%

**5.****Sale price** :- If there is a profit of P %,  
Cost Price = C  
Then SP = {(100+P)/100}xC

**6.**If there is a **loss of L %,** Cost Price = C  
Then  
SP = {(100-L)/100}xC

**7.****Cost price** :-  
If there is a profit of P %,  
Cost Price = C  
Sale price= SP  
Then C = {100/(100+p)} x SP  
If there is a loss of L %,  
Then  
C = {100/(100-L)}xSP

**8.**A dishonest dealer claims to sell his goods at cost price ,but he uses a weight of lesser weight .Find his gain%.



**Example** 2:

A seller uses a weighing stone of 900gms instead of 1 Kg. Find his real profit percent.

**Solution**:

In question, you will see that the seller uses 900g weight instead of 1000g or 1Kg weight.  
Therefore, Error = 1000 – 900 = 100  
But a true weighing stone will be 1 Kg or 1000g.  
Therefore, True value = 1000

If you apply above values in our**Real Profit % formula**, you will get  
Real Profit % = 100 / (1000 – 100) x 100  
= 100/900 x 100 = 11.11%

**9.**A shopkeeper sells an item at a profit of x % and uses a weight which is y % less .find his total profit



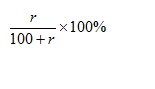
**10.**When dealer sells goods at loss on cost price but uses less weight .



**11.**A dishonest dealer sells goods at x % loss on cost price but uses a gm instead of b gm . his profit or loss percent :-



**.**If the price of an item increases by r%  , then the reduction in consumption so that  expenditure remains the same  ,is



**12.**If the price of a commodity decreases by r% then increase in consumption , so as not to decrease expenditure on this item is



**Example 3:**

If price of sugar increases by 20% ,then the percentage reduction in consumption so that expenditure remains the same will be ?

(20/120)x100=50/3%

**13.**When there are two successive profits of x% and y% then the net percentage profit =[x+y+xy/100]

When there is a profit of x% and loss of y% then net percentage profit or loss = [x – y – xy/100]

**Note: If the final sign in the above expression is positive then there is net profit but if it is negative then there is net loss.**

**Example 4:**

A sells an item at a profit of 20% to B and B sells it to C at a profit of 10%. Find the resultant profit percent .

**Solution:**

When there are two successive profit of x% and y% , net profit percentage

= {x+y+(xy/100)}

= 20+ 10 + {(20 x 10)/100} = 32%

**14.**A sells goods to B at a profit of x% andB sells it to C at a profit of y%. If C pays Rs P for it,then the cost price for A is



**Example 4:**

A sells a good to B at a profit of 20% and B sells it to C at a profit of 25%.If C pays Rs 222 for it, calculate the  cost price for A is

Solution:

(222 x 100 x 100)/(120 x 125)} = Rs. 148

15. If profit percentage and loss percentage are equal, put P=L

=>   %loss = p2 /100

**Example 5:**

Two items are sold for Rs 200.The first one is sold at 20% profit and second one at 20% loss. What is the % loss or gain ?

Solution:

As percentage profit is equal to percentage loss so put P=L, we get,%loss = P2/100

=> %loss = (20)2/100 = 4%

**DISCOUNT:**

Discount = D% of marked price, M  
Discount = Marked Price – Selling Price  
Marked Price – Amount of Discount = Selling Price  
M (1-D%) = Selling Price

Also, Selling Price = Cost Price + Gain  
Thus,  
M (1-D%) = C (1 + G%)  
Or in other words  
Marked Price (1 – Discount%) = Cost Price (1 + Gain%)

**Example 6:**

Natasha offers her customers a discount of 10% on her beauty products and she still makes a profit of 20%. What is the actual cost to her of that beauty product marked Rs. 400?**Solution:** Marked price = Rs. 400  
Discount = 10%  
Profit = 20%  
Therefore, the Selling Price = 90% of 400  
Therefore 400 x 90/100 = Rs. 360  
Selling price = Rs. 360  
Profit = 20%  
Cost price = 100/120 x 360 = Rs. 300

## Concept of successive discounts

successive discounts of x% and y% are allowed on the marked price M of the discount, then, after discount the customer finally ends up paying:  
Selling Price = (1-x%)(1-y%) x Marked Price

**Example 7**:

Pankaj offers a 10% discounts on his goods and he offers a further discount of 5% on the reduced price to those customers who pay cash. What does a customer have to pay in cash for a cricket bat of Rs. 200?**Solution:** Price of the cricket bat = Rs. 200  
After Discount of 10% Marked price would be Rs. 180  
Since he is purchasing the bat by cash, so a discount of 5% is applicable again on the reduced marked price. Thus, the final selling price the cricket bat would be of Rs. 171