Profit & loss

Points to remember:

1) Cost Price: It is the price at which a product is purchased. It is commonly abbreviated as C.P.

2) Selling Price: It is the price at which a product is sold. It is commonly abbreviated as S.P.

3) Profit or gain: If the selling price of a product is more than the cost price, there will be profit in the deal.

Therefore, Profit or Gain = S.P. - C.P.

4) Loss: If the selling price of a product is less than the cost price, the seller will incur a loss.

Therefore, Loss = C.P. - S.P.

5) Profit or Gain % $= \frac{\text{S.P.- C.P}}{\text{C.P}} * 100 \rightarrow \frac{\text{Profit}}{\text{C.P}} * 100$

6) Loss % $= \frac{\text{C.P.- S.P}}{\text{C.P}} * 100 \rightarrow \frac{\text{Loss}}{\text{C.P}} * 100$

7) If there is a profit or gain in the deal or transaction;

Selling Price (S.P.) $= \frac{(100 + \text{Profit \%})}{100} * 100$

And, the Cost Price (C.P.) $= \frac{100}{(100 + Profit\%)} * \text{S.P.}$

8) If there is a loss in the deal or transaction;

Selling Price (S.P.) $= \frac{(100 - \text{Loss \%})}{100} * \text{C.P.}$

And, the Cost Price (C.P.) $= \frac{100}{(100 - \text{Loss \%})} * \text{S.P.}$

9) If an article is sold at a profit of X%, the selling price would be equal to X% of cost price $(\frac{X}{100} * \text{C.P.})$.

10) If an article is sold at a loss of X%, the selling price would be equal to (100-X)% of cost price $\frac{(100 - X)}{100} * \text{C.P.}$.

11) When a seller sells two similar items one at X% gain and another one at same (X %) loss, the seller always incurs a loss in the deal which is given by:

Loss %$= \frac{(\text{Loss \%} * \text{Gain \%})}{100}$ %

Some quicker methods to solve the problems:

1) If a seller claims that he is selling goods at cost price but uses false weight to earn profit;

$$\% \text{ Profit} = \frac{\text{(True Weight- False Weight)}}{\text{False Weight}} * 100$$

$$\text{Or,\% Profit} = \frac{Error}{(True\ value - Error)} * 100$$

2) If a seller sells a product at X% loss but uses weight Y instead of Z, the % Gain earned or % loss incurred is given by:

$$= (100 - X)\frac{Z}{Y} - 100$$

+ve sign will indicate profit and -ve sign will indicate loss.

3) If a shopkeeper uses weight Y gm instead of 1 kg and incurs an X% loss on cost price, his actual gain or loss % is given by:

$$= (100 - X)\frac{100}{Y} - 100$$

+ve sign will indicate profit and -ve sign will show the loss.

4) If a shopkeeper uses weight Y gm instead of 1 kg and earns a profit of X% on cost price, his actual gain or loss % is given by:

$$= (100 + X)\frac{100}{Y} - 100$$

+ve sign will indicate profit and -ve sign will indicate the loss.

5) If there are two successive profits of X% and Y% in a transaction, the resultant profit is given by:

$$\text{Resultant profit} = (X + Y + \frac{XY}{100})$$

6) If there is a profit of X% and loss of Y% in a transaction, the resultant profit or loss is given by:

$$\text{Resultant profit or loss} = X\ Y - \frac{XY}{100})$$

+ve sign will indicate profit and -ve sign will indicate the loss.

7) A seller sells a product at profit of X%. If he sells it for Rs. Z more, his profit would be Y%. In this case the Cost Price is given by:

$$\text{C.P.} = \frac{More\ gain * 100}{Difference\ in\ percentage\ profit}$$

8) If the cost price and selling price of a product are reduced by same amount (X), the cost price is given by:

$$\text{C.P.} = \frac{\text{(Initial profit \% +Increase in profit \%)} * X)}{\text{Increase in profit \%}}$$

9) If the cost price of P articles is equal to the selling price of Q articles, then profit % or loss % is given by:

% Profit or Loss = $\frac{P-Q}{Q}$ * 100 %

If P > Q, it is % gain and if P < Q it is % loss.

10) If A sells a product to B at a gain or loss of P% and B sells it to C at a gain or loss of Q%, the final gain or loss is given by:

$$(P+Q+\frac{PQ}{100})$$

+ve sign will indicate profit and -ve sign will indicate the loss.

11) If a shopkeeper marks the products at P% above the cost price and gives the customer a discount of Q%, the final profit or loss % is given by = $(P - Q - \frac{PQ}{100})\%$