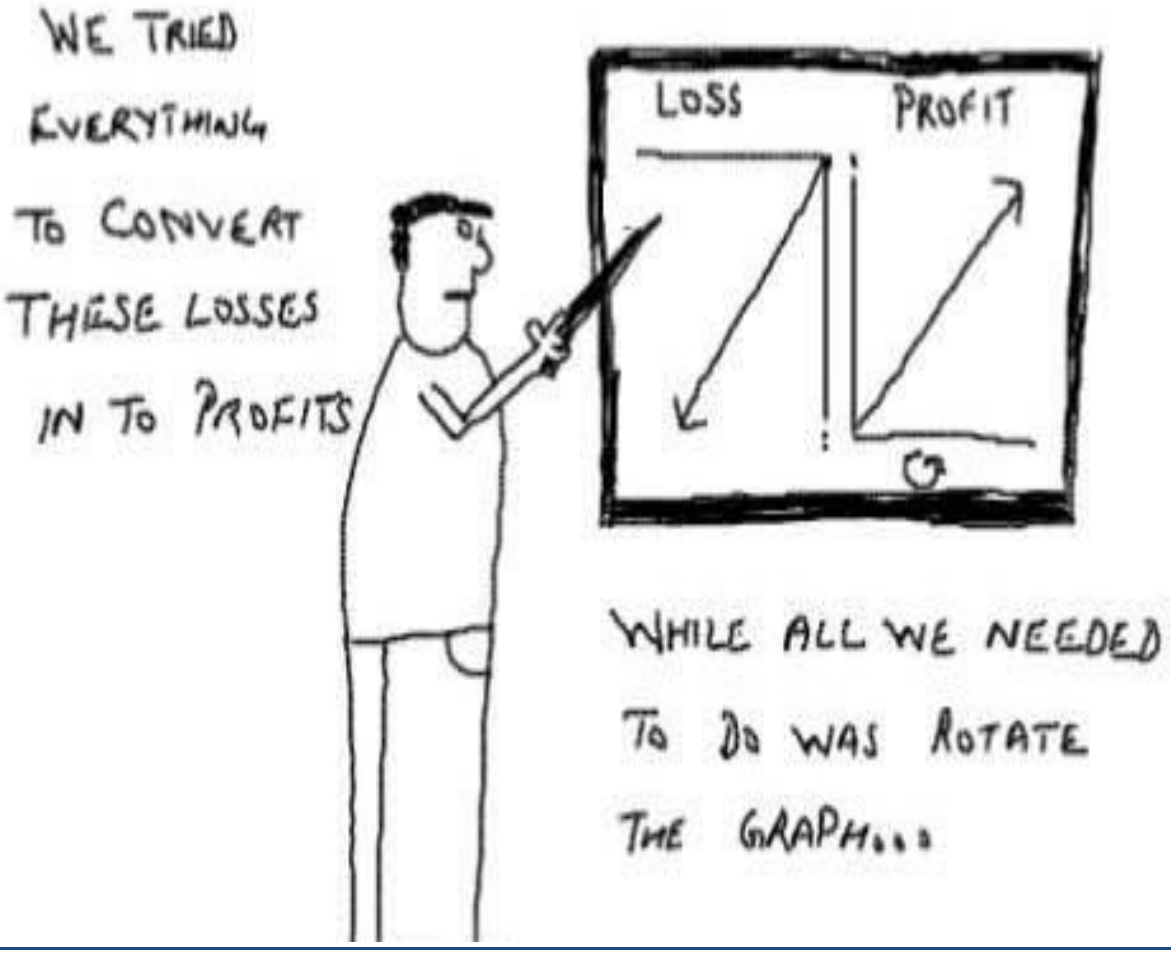
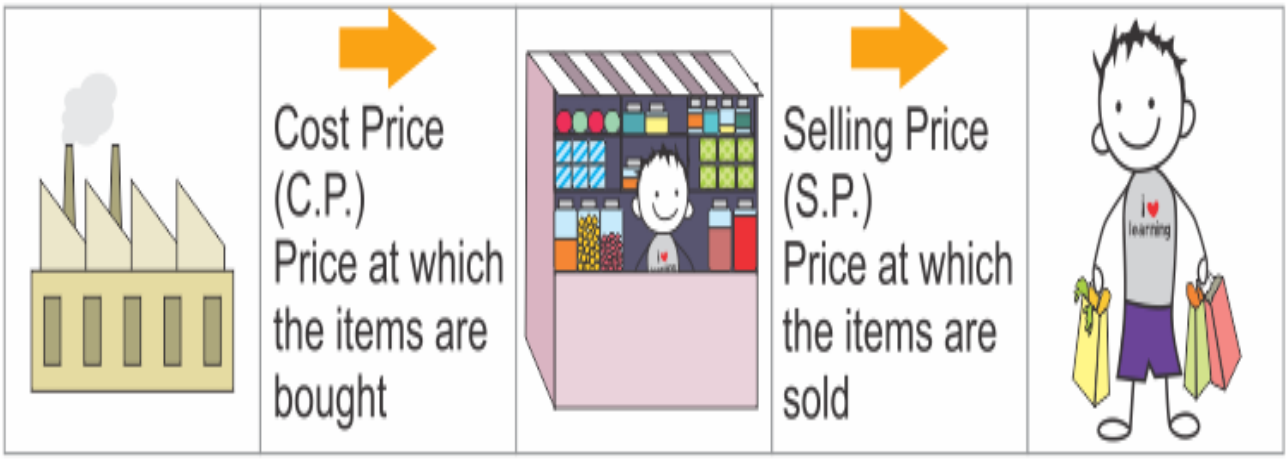
Profit And Loss





Profit (If S.P > C.P.)

Profit = **S.P. – C.P.**

$$\textbf{Profit\%} = \frac{(\text{Profit} \times 100)}{\text{C.P.}}$$

Loss (If S.P < C.P.)

Loss= **C.P. – S.P.**

$$\textbf{Loss\%} = \frac{(\text{Loss} \times 100)}{\text{C.P.}}$$

SP = CP×MF

If MF >1 then there is profit.

If MF < 1 then there is loss.

Note: Profit% and loss% both are calculated on CP.

Q. If CP is 240 and profit is 15% then find profit and SP?

Soln: Profit = 15% of CP = 15% of 240 = 36

SP = 240+36 = 276 or

SP = 240×(1+.15) = 276

Q. If CP is 340 and loss is 5% then find SP?

Soln: SP = 340× (1-.05) = 323

Q. If SP is 735 and loss is 2% then find CP?

Soln: SP = CP×MF

735 = CP×(1-.02)

⇨ CP = 750

Q. A salesman sold a pen in ₹750 at 16.66% loss then find SP of the same pen if it is sold at 22.22% profit?

Soln: $750 = CP\times\frac{5}{6}, \Rightarrow CP = 900$

SP when profit is 22.22%

$SP = 900\times(1+\frac{2}{9}) = 1100$

Q. CP of a pen is 320. Then find the increase in SP if profit % is changed from 8% to 13%.

Soln: $SP_1 = 1.08 \times CP$, $SP_2 = 1.13 \times CP$

$SP_2 - SP_1 = (1.13-1.08) \times 320 = 16$

Or

Difference between both the SP = 5% of CP = 5% of 320 =16

Q. CP of 30 pens is equal to SP of M pens and loss is 9.09% then find M?

Soln: $CP \times 30 = SP \times M$ and $MF = \frac{10}{11}$

⇨ $MF = \frac{SP}{CP} = \frac{30}{M} = \frac{10}{11}$

⇨ $M = 33$

Q. A salesman bought every 5 articles for ₹4 and sold them every 4 articles for ₹5. Then find his profit %?

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Soln: CP of 1 article $= \frac{4}{5}$

SP of 1 article $= \frac{5}{4}$

$$\frac{SP}{CP} = MF = \frac{5/4}{4/5} = \frac{25}{16} = 1 + \frac{9}{16}$$

P = 56.25%

Q. A salesman sold 2 articles. On 1st article there is profit of 40% and on 2nd there is loss of 40% and SP of both articles is same. Find overall loss% ?

Soln: Let CP of first = 100-40 = 60

SP of first = 60 ×(1+.4) = 84

Let CP of second = 100+40 =140

SP of second = 140(1-.4) = 84

Total CP = 200 and Total SP = 84+84 = 168

Overall loss% = $\frac{32}{200}\times 100=16\%$

Note: If a salesman sold 2 articles 1^{st} at x% profit and 2^{nd} at x% loss such that SP of the both articles is same then overall

$\frac{x^2}{100}\%loss$

Marked Price and Cost Mark Up

Marked Price (MP) = **Cost Price (CP)** X (100% + **Mark Up%**)

CP = $1000

Mark Up = 80%

MP

MP = CP x (100 + **Mark Up %**)

MP = $1000 x (100 + **80%**)

MP = 1000 x (180 / 100) = **$1800** ✓

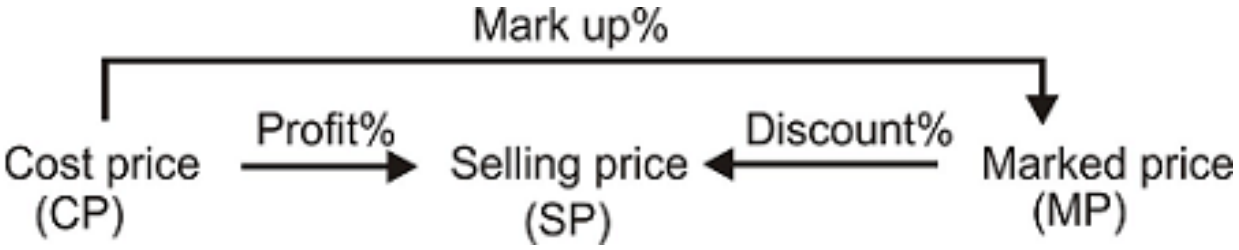
Discount

- **Marked Price > Selling Price**

$$Discount = Marked\ Price - Selling\ Price$$

$$Discount\ \% = \frac{Discount}{Marked\ Price} \times 100\%$$

DISCOUNT IS ALWAYS CALCULATED ON MP.



Q. If CP is 110 and mark up is 36.36%. Find MP?

Soln: MP = CP×(1 + Mark-up %)

$$36.36\% = \frac{4}{11}$$

$$MP = 110 \times \left(1 + \frac{4}{11}\right) = 150$$

Q. A shopkeeper increased the CP of a pen and marked the price as 160, then allowed a discount of 20%. Find SP of pen?

Soln: MP- Discount = SP

SP = 160×(1-.2) = 128

Q. A showroom offers buy 3 get 2 free and marked price is same for all then find the discount %?

Soln: $\text{Discount\%} = \frac{2}{(2+3)} = \frac{2}{5} = 40\%$

Q. If mark-up is 200% and discount is 40% then find profit %?

Soln: Let CP = 100, then MP = 100×(1+2) = 300

SP = MP×(1-Discount%) = 300×(1-0.4) = 180

Profit is 80 on 100, therefore p% = 80.

Q. If mark-up is 70% and profit is 19% then find discount%?

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Soln: Let CP = 100, then MP = 100×(1+.7) = 170

Profit = 19%, then SP = 100+ 19 = 119

Discount = MP-SP = 170-119 = 51

Discount of 51 on 170, therefore discount % = 30.

$$\frac{51}{170} = \frac{3}{10} = 30\%$$

Q. 2 Successive discounts of 50% and 20% is equivalent to a single discount of :

Soln: (1-.5)×(1-.2) = .4 = 1-.6

Overall discount is 60%

Or Let MP is 100

After first discount it is 50. After second discount 50-10 = 40.

100 becomes 40 implies 60% discount/decrease.

Q. A milkman mixes 30% water in the pure milk and sells at CP then find his profit% and also find his profit % if he sells at 10% less than CP?

Soln: (i) 30%

(ii) $1.3\times(1-.1) = 1.17 = 1+.17$

Profit = 17%

Margin

MARGIN is always calculated on SP

$$\text{Profit\%} = \frac{P}{CP} \times 100$$

$$\text{Margin\%} = \frac{P}{SP} \times 100$$

.

Q. If margin is 60% then find profit %?

Soln: $\frac{P}{SP}=\frac{3}{5}=60\%,\text{ then }\frac{P}{CP}=\frac{3}{2}=150\%$

Q. A salesman sold 44 articles and his profit is equal to SP of 8 articles then find profit%?

Q. A salesman sold 44 articles and his profit is equal to SP of 8 articles then find profit%?

Soln: Let SP of 1 article = 1

SP of 44 articles = 44

Profit = 8

CP = SP-P= 44- 8 = 36

$$P\% = \frac{8}{36} \times 100 = 22.22\%$$

Or

$$\frac{P}{SP} = \frac{8}{44} = \frac{2}{11}$$

Then $\frac{P}{CP} = \frac{2}{11\text{-}2} = \frac{2}{9}$

P = 22.22%

1. (i) If CP is 240 and profit is 15% then find SP?

(ii) If SP is 535 and CP is 500 then find profit %?

(iii) If CP is 340 and loss is 5% then find SP?

(iv) If SP is 735 and loss is 2% then find CP?

2. When an article is sold at certain price then there is profit of 28%. When CP and SP both are increased by 42% then find new profit %?

3. (i) If markup is x% and discount is x%

Quantity A Quantity B

CP SP

(ii) If markup is x% and discount is y% & profit is z% (x,y,z are positive)

Quantity A Quantity B

x y

4. Salesman sold a pen in ₹750 at 16.66% loss then find SP if profit is 22.22% ?

5. CP of a pen is 320. Then find the increase in SP if profit % is changed from 8% to 13%.

6. If CP of 10 pens is equal to SP of 12 pens then find profit or loss %?

7. CP of 30 pens is equal to SP of x pens and loss is 9.09% then find x?

8. A salesman sold 44 articles and his profit is equal to SP of 8 articles then find profit%?

9. A man purchased 2 pens in ₹70 and ₹150 respectively. He sold first pen at 40% profit and second at 4% loss. Find his overall profit or loss %?

10. If profit is 14.28% then find margin %?

11. If margin is 60% then find profit %?

12. If CP is 110 and mark up is 36.36%. Find MP?

13. A shopkeeper increased the CP of a pen and marked the price as 160, then allowed a discount of 20%. Find SP of pen?

14. If MP is 270 and SP is 240 then find discount %?

15. If mark-up is 200% and discount is 40% then find profit %?

16. If mark-up is 70% and profit is 19% then find discount%?

17. If mark-up is 40% then find discount % if profit is 0%?

18. Two successive discounts of 20% and 35% are equivalent to a single discount of what %?

19. Salesman gives discount of 30% and still able to manage profit of 33% then find his markup %?

20. A milkman mixes 30% water in the pure milk and sells at CP then find his profit% and also find his profit % if he sells at 10% less than CP?

21. Betal sold an article to Birbal at 20% profit and Birbal sold same article to Chatur at 30% profit and Chatur sold same article to Tenali at 20% loss. If CP of Tenali is 1040 then find the CP of Birbal.

22. A salesman bought every 5 articles for ₹4 and sold them every 4 articles for ₹5. Then find his profit %?

23. A salesman sold 2 articles. On 1st article there is profit of 40% and on 2nd there is loss of 40% and SP of both articles is same. Find overall loss%?

24. A showroom offers buy 3 get 2 free and marked price is same for all then find the discount %?

25. Ashok made a loss of 15% by selling 96 apples

for `2040. How many apples must he sell for 2600 to make a 30% gain?

(A) 80

(B) 100

(C) 65

(D) 104

Profit and Loss

1. 276,7%,323,750	2. 28%	3. D,A	4. 1100	5. 16
6. 16.66	7. 33	8. 22.22	9. 10	10.12.5
11. 150	12. 150	13. 128	14. 11.11	15. 80
16. 30	17. 28.56	18. 48	19. 90	20. 30%,17%
21. 1000	22. 56.25	23. 16	24. 40	25. 80