

# Discount

**Discount** refers to the condition of the price of a bond that is lower than the face value. The discount equals the difference between the price paid for and its par value.

Discount is a kind of reduction or deduction in the cost price of a product. It is mostly used in consumer transactions, where people are provided with discounts on various products. The discount rate is given in percentage.

$$\text{Discount} = \text{ListPrice} - \text{SellingPrice}$$

Therefore

$$\text{SellingPrice} = \text{ListPrice} - \text{Discount}$$

$$\text{ListPrice} = \text{SellingPrice} + \text{Discount}$$

**Discount Percentage Formula**

$$\text{Rate of Discount} = \text{Discount} \% = \frac{\text{Discount}}{\text{ListPrice}} \times 100$$

$$\text{SellingPrice} = \text{ListPrice} (100 - \text{discount} \% 100)$$

$$\text{ListPrice} = \frac{\text{SellingPrice}}{(100 - \text{discount} \% 100)}$$

**1. The marked price on an item was Rs 2000/- but the shopkeeper offered a double discount of 20% and 15%. How much did he finally sell the item for?**

- a. Rs. 640
- b. Rs. 1300
- c. Rs. 1360
- d. Rs. 1600

**Answer:** c. Rs. 1360

First discount = 20%

∴ Price after First discount =  $100 - 20\% = 80\%$  of M.P =  $80\% * 2000 =$  Rs. 1600

Second discount = 15%

∴ Price after Second discount =  $100 - 15\% = 85\%$  of new price =  $85\%$  of 1600  
**= Rs. 1360/-**

**So, the item was finally sold for Rs. 1360/-**

**2. One shopkeeper was offering two successive discounts of 15% and 10% on an item while the second one is offering flat 25% discount on the same item. Which shopkeeper should I buy the item from?**

- a. First Shopkeeper
- b. Second Shopkeeper
- c. Any of them; both are same
- d. Data Insufficient

**Answer:** b. Second Shopkeeper

Single equivalent of 2 discounts = ADD -  $\frac{\text{MULTIPLY}}{100}$

$$\begin{array}{l} \text{ADD} = 15 + 10 = 25 \\ \text{MULTIPLY} \quad 15 \times 10 = \\ \hline 100 \quad \quad \quad = \quad \frac{\quad}{100} \quad 1.5 \end{array}$$

**∴ Single equivalent = 25 - 1.5 = 23.5%**

The single equivalent discount offered by first shopkeeper is 23.5%.

Second shopkeeper is offering it at 25%, which makes the item cheaper for the buyer.

**3. Find the single equivalent discount of 10%, 15% and 20%.**

- a. 38.8%
- b. 45%
- c. 61.2%
- d. None of the above

**Answer:** a. 38.8%

Take Value = 100

For 1<sup>st</sup> discount of 10%, 1<sup>st</sup> value = (100-10)% of 100 = 90% of 100 = 90

For 2<sup>nd</sup> discount of 15%, 2<sup>nd</sup> value = (100-15)% of 90 = 85% of 90 = 76.5

For 3<sup>rd</sup> discount of 20%, Final value = (100-20)% of 76.5 =  $\frac{80}{100} \times 76.5 = 61.2$

**So, Discount = 100 - 61.2 = 100 - 61.2 = 38.8%**

Single equivalent of 3 discounts = (1 - MULTIPLY) x 100

$$100 - 10\% = 90\% = \frac{90}{100}; 100 - 15\% = 85\% = \frac{85}{100};$$

$$100 - 20\% = 80\% = \frac{80}{100}$$

$$\text{MULTIPLY} = 90\% \times 85\% \times 80\% = \frac{90}{100} \times \frac{85}{100} \times \frac{80}{100}$$

$$\therefore (1 - \text{MULTIPLY}) \times 100 = \left( 1 - \frac{90}{100} \times \frac{85}{100} \times \frac{80}{100} \right) \times 100 = 38.8\% = \text{Single equivalent}$$

**4. The cost price of the goods for a shopkeeper was X. He marked them at a 20% higher price than the Cost Price. Finally he sold the goods at 30% discount. Did he earn a profit or incur a loss? How much?**

- a. 5% Profit
- b. 5.5% Profit
- c. 10% Loss
- d. 16% Loss

**Answer:** d. 16% Loss

Let CP = Rs. 100

Marked Price = 20% more than CP

∴ MP = Rs. 120

Discount = 30% on marked price

∴ SP = (100-30)% of MP

$$\begin{aligned} \therefore \text{SP} &= \frac{70}{100} \times 120 = \text{Rs. } 84 \\ = & \end{aligned}$$

$$\text{Loss\%} = \frac{100-84}{100} \times 100 = \mathbf{16\%}$$

**5. The marked price of a chair was Rs 12,800/-. The shopkeeper was offering it for a discount of 20% but on further bargaining agreed to offer a successive discount and finally sold the chair for Rs 9,216/- What was the second discount offered by him?**

- a. 5%
- b. 10%
- c. 20%
- d. 25%

**Answer:** b. 10%

Price after 1<sup>st</sup> discount of 20% = (100-20)% = 80% of Marked Price

$$\therefore \text{Price} = \frac{80}{100} \times 12800 = \text{Rs. } 10,240$$

SP = (100-Discout) % of Price

$$\therefore 9216 = \frac{100-\text{Discoun}}{100} \times 10240$$

$$\therefore \frac{t}{100} = \frac{9216}{10240} \text{ -----> Converting discount percent to normal fraction}$$

**$\therefore$  Discount = 10% = This is the percent of 2<sup>nd</sup> discount offered.**

**6. What will be the difference between a single discount of 30% on Rs. 2000 and 2 successive discounts of 15% and 15%?**

- a. Rs. 0
- b. Rs. 10
- c. Rs. 45
- d. Rs. 150

**Answer:**

30% discount = 30% of 2000 = Rs. 600

Now, if you offer two successive discount of 15% each, it works out to

First discount of 15% = 15% of 2000 = Rs. 300

After discount value = Rs. 2000 - Rs.300 = Rs. 1700

Second discount of 15% = 15% of Rs. 1700 =  $\frac{15}{100} \times 1700 = \text{Rs. } 255$

**Difference = 600 - (300+255) = Rs. 45**

**7. A man wanted to sell his bat at 5% discount. His brother who was a cricketer wanted to buy that bat so the man sells it at 8% discount. In this deal, the man makes Rs 60/- less in profit. How much was the marked price of the bat?**

- a. Rs. 1800
- b. Rs. 2000
- c. Rs. 6000
- d. Rs. 9000

**Answer:**

Difference in discount =  $8\% - 5\% = 3\%$

Due to this 3% man makes Rs. 60 less in profit

That means 3% of Marked Price = 60

$$\therefore \frac{3}{100} \times \text{MP} = 60$$

$$\therefore \text{MP} = \text{Rs. 2000}$$



**8. While selling a jug online, the seller offered a discount of 23% but managed to make a profit of 10% which translates into Rs 77/-. What was the list price of the jug?**

- a. Rs. 770
- b. Rs. 847
- c. Rs. 1100
- d. Rs. 1120

**Answer:**

**List Price (LP) > Selling Price (SP) > Cost price (CP)**

The seller manages to make 10% profit.

Value of this 10% profit = Rs. 77

$$\% \text{ Profit} = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$

$$\therefore 10 = \frac{77}{\text{CP}} \times 100$$

$$\therefore \text{CP} = \text{Rs. } 770$$

$$\text{And SP} = 770 + 77 = \text{Rs. } 847$$

Price after Commission = Selling Price = (100-23)% of LP = 77% of LP

$$\therefore 847 = \frac{77}{100} \times \text{LP}$$

$$\therefore \text{LP} = \text{List Price} = \text{Rs. } 1100$$

**9. The cost of a watch is Rs. 900. To make the deal attractive to its customers, the shop sells it at a discount of 12% and still makes a profit of 10%. What is the advertised price?**

- a. Rs. 812.5
- b. Rs. 1050
- c. Rs. 1125
- d. Rs. 1225

**Answer :**

$$\text{Since profit of 10\% is there, } \therefore \text{SP} = (100+10)\% \text{ of CP} \quad \frac{110}{100} \times 900 = \text{Rs. 990}$$

Discount = 12%

So, SP = (100-12)% of List Price

$$\therefore 990 = \frac{88}{100} \times \text{LP}$$

**$\therefore \text{LP} = \text{Rs. 1125}$**

**(List price = Advertised Price = Marked Price)**

**10. By what percentage should the cost price of an article be increased, so as to earn a profit of 20% even after allowing a discount of 40% on the price marked on the article?**

- a. 33.33%
- b. 50%
- c. 66.67%
- d. 100%

**Answer:**

Discount = 40%

SP = (100-40)% of MP = 60% of MP

Profit = 20%

∴ SP = (100+20)% of CP

∴ 60% x MP = 120% of CP

$$\begin{aligned} \therefore \text{CP} &= \frac{1}{2} \text{MP} \\ &= \frac{1}{2} \text{P} \end{aligned}$$

∴ MP = 2CP

Since, MP should be twice of CP to fit into the criteria, we need to **increase CP by 100%** to make it MP.