

Sol. (b) In such a transaction, there is always a loss.

$$\text{Loss \%} = \left(\frac{\text{Common gain or loss per cent}}{10} \right)^2$$

$$= \left(\frac{5}{10} \right)^2 = 0.25\%$$

Discount

If the shopkeeper gives a some rebate on an article is called discount.

(i) Discount = Marked Price – Sale Price

(ii) Rate of discount = $\frac{\text{Discount}}{\text{MP}} \times 100\%$

☑ Discount is always gives on a marked price.

If marked price of an article be MP and rate of discount is $r\%$, then selling price of an item is given

$$SP = MP \left(\frac{100 - r\%}{100} \right)$$

or $MP = \frac{SP \times 100}{(100 - r\%)}$

Example 8 An item is sold for ₹ 680 by allowing a discount of 15% on its marked price. The marked price of item is

- (a) ₹ 800 (b) ₹ 820
(c) ₹ 750 (d) None of these

Sol. (a) Given $SP = ₹ 680$, discount, $r\% = 15\%$

$$MP = \frac{SP \times 100}{100 - r\%} = \frac{680 \times 100}{100 - 15}$$

$$= \frac{68000}{85}$$

$$= ₹ 800$$

Successive Discount

If the shopkeeper gives $r_1\%$ rebate on print rate, $r_2\%$ on the remaining amount and $r_3\%$ rebate on the amount after two successive discount, then all rebate $r_1\%$, $r_2\%$ and $r_3\%$ are termed as successive discount due to occurrence in successive (i.e. one after other) and obtained as follows

(i) Wholesome discount of first two rebates is given by

$$\left(r_1 + r_2 - \frac{r_1 \times r_2}{100} \right)\% = R \text{ (Say)}$$

(ii) Again wholesome discount of all three rebates is given by

$$\left(R + r_3 - \frac{R \times r_3}{100} \right)\%$$

Example 9 A shopkeeper sells a TV set on discount of 8% of print price and gains 25%. If print price was ₹ 20000, then what was the cost price?

- (a) ₹ 15000 (b) ₹ 16000
(c) ₹ 14000 (d) ₹ 14720

Sol. (d) Given marked price = printed price = ₹ 20000,

$$\text{Discount} = 8\% \text{ of printed price}$$

$$= \frac{8 \times 20000}{100}$$

$$= ₹ 1600$$

$$\therefore SP = MP - \text{Discount} = (20000 - 1600) = ₹ 18400$$

Gain per cent = 25%

$$\therefore \text{Cost price} = \left(\frac{100}{125} \times 18400 \right) = ₹ 14720$$

If a shopkeeper marks his items at $a\%$ above the cost price and allows a discount of $b\%$ for cash, then the profit is $\left(a - b - \frac{ab}{100} \right)\%$ profit or loss according to positive or negative sign respectively.

Example 10 A shopkeeper marks his goods 20% higher than the cost price and allows a discount of 5%. Then, the profit percentage is

- (a) 14% (b) 15%
(c) 13% (d) 12%

Sol. (a) Let the cost price of goods = ₹ 100

$$\therefore \text{Marked price of goods} = \frac{120}{100} \times 100 = ₹ 120$$

$$\text{Selling price of goods} = 120 - \frac{5}{100} \times 120$$

$$= ₹ 114$$

$$\therefore \text{Profit percentage} = (114 - 100) = 14\%$$

By formula, here $a = 20\%$ and $b = 5\%$

$$\text{Then profit \%} = \left(a - b - \frac{ab}{100} \right)\%$$

$$= \left(20 - 5 - \frac{20 \times 5}{100} \right)\% = 14\%$$