

$$\text{S.P.} = \left(\frac{100 + \text{Profit \%}}{100} \right) \times \text{Cost Price}$$

$$\text{S.P.} = \left(\frac{100 + 30}{100} \right) \times 800 = 130 \times 8 = 1040$$

So the selling price of the bag will be Rs.1040 i.e. option (d).

If a shopkeeper sold a showpiece at 20% profit and another piece at 20% loss. Does he gets profit or loss and how much (in %).

(a) Profit, 2%

(b) Loss, 2%

(c) Profit, 4%

(d) Loss, 4%

To solve this: Profit % = Loss % = 20%

In these cases, the shopkeeper will always incur loss which will be = $\left(\frac{x}{10} \right)^2 \%$

$$\text{Loss \%} = \left(\frac{20}{10} \right)^2 \% = 4\%$$

❖ INTEREST

- The extra money paid or received when money is borrowed or lent is called interest.
- The base amount is called Principal (P) which is lent or borrowed.
- The time for which the money is borrowed or lent is called Time (T).
- The proportion of a loan that is charged as interest to the borrower, typically expressed as an annual percentage of the loan outstanding is called the Interest Rate (R).
- There are two types of interest:
 - Simple Interest (S.I.):
 - $\text{S.I.} = (P \times R \times T) \div 100$
 - Total Payable Amount = Principal Amount + Simple Interest
 - Compound Interest (C.I.):

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- $C.I. = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$
- Total Payable Amount = $P \left(1 + \frac{R}{100} \right)^T$

- Generally the interest rates are given annually, but if they are given as:
 - Half Yearly – Take rate R as $\frac{R}{2}$ and time T as 2T.
 - Quarterly – Take rate R as $\frac{R}{4}$ and time T as 4T.
 - Monthly – Take rate R as $\frac{R}{12}$ and time T as 12T.

Find the simple interest if Rs.80000 is borrowed at a rate of 4% per quarter for 2 years.

- | | |
|--------------------|--------------------|
| (a) Rs.3500 | (b) Rs.5400 |
| (c) Rs.6400 | (d) Rs.8000 |

To solve this: Principal (P) = Rs.80000, Time (T) = 2 years, Rate (R) = 4% per quarter

Since rate of interest is not per annum, hence $R = \frac{R}{4} = \frac{4}{4} = 1\%$ per annum and $T = 4T = 8$ years

Now, S.I. = $\frac{P \times R \times T}{100} = \frac{80000 \times 1 \times 8}{100} = 800 \times 8 = \text{Rs.6400}$

Find the total payable amount if the initial amount is Rs.60000 charged with a compound interest at a rate of 3% per annum for 2 years.

- | | |
|---------------------|---------------------|
| (a) Rs.65000 | (b) Rs.54566 |
| (c) Rs.64363 | (d) Rs.63654 |

To solve this: P = Rs.60000, R = 3%, T = 2 years

Total Payable Amount = $P \left(1 + \frac{R}{100} \right)^T = 60000 \left(1 + \frac{3}{100} \right)^2 = 60000 \times \frac{10609}{10000} = 6 \times 10609$

Total Payable Amount = Rs.63654 i.e. option (d)

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❖ **DISCOUNT**

- It is a deduction from the usual cost of something.
- The original or non – discounted price is called the Market Price or List Price.
- The discounted price is called the Selling Price.
- Discount = Market Price – Selling Price

- $\text{Discount (\%)} = \frac{\text{Discount}}{\text{Market Price}} \times 100 = \frac{\text{Market Price} - \text{Selling Price}}{\text{Market Price}} \times 100$

- For successive discounts like 50%+30%, the equivalent discount is \neq 80%

- For 2 successive discounts = $\left[(D1 + D2) - \left(\frac{D1 \times D2}{100} \right) \right] \%$

- For 3 successive discounts = $\left[1 - \left(1 - \frac{D1}{100} \right) \left(1 - \frac{D2}{100} \right) \left(1 - \frac{D3}{100} \right) \right] \times 100\%$

If the list price of a watch is Rs.1500 but after discount it is sold at Rs.1200. Find the discount (in %).

(a) 10%

(b) 20%

(c) 15%

(d) 18%

To solve this: Market Price = Rs.1500, Selling Price = Rs.1200

So Discount = 1500 – 1200 = Rs.300

Therefore, $\text{Discount (\%)} = \frac{\text{Discount}}{\text{Market Price}} \times 100 = \frac{300}{1500} \times 100 = 20\%$

In a Grand Sale of a Mall, a store was offering a discount of '50% + 30%'. What is the actual discount they are offering?

(a) 80%

(b) 70%

(c) 65%

(d) 58%

To solve this: $D_1 = 50\%$, $D_2 = 30\%$

For 2 successive discounts = $\left[(D1 + D2) - \left(\frac{D1 \times D2}{100} \right) \right] \%$

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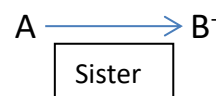
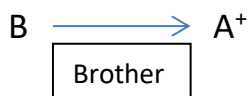
$$\text{Discount (\%)} = \left[(50 + 30) - \left(\frac{50 \times 30}{100} \right) \right] = \left[80 - \frac{1500}{100} \right] = 80 - 15 = 65\% \text{ i.e. option (c).}$$

❖ BLOOD RELATIONS

- Questions based on relations and their analyses to answer it.
- Drawing a relation on the paper helps in solving it quickly. Also note that we should always draw the relation generation wise.
- Use arrows to point out towards the person whose relation is given.

For e.g.: A is the brother of B

B is the sister of A



- In cases like A and B are brothers/sisters then we can use both sided arrow.
- We can mark the names or persons or symbols using a '+' for males and '-' for females or any other marking you like.
- Let's see some basic important relations:

S.no	Relationship	Commonly Used Terms
1	Father's son (or) mother's son	Brother
2	Father's daughter (or) mother's daughter	Sister
3	Father's brother	Uncle (Paternal Uncle)
4	Father's sister	Aunt (Paternal Aunt)
5	Mother's brother	Uncle (Maternal Uncle)
6	Mother's sister	Aunt (Maternal Aunt)
7	Son's wife	Daughter-in-law
8	Daughter's husband	Son-in-law
9	Sister's husband	Brother-in-law
10	Husband's brother (or) wife's brother	Brother-in-law
11	Brother's wife	Sister-in-law
12	Husband's sister (or) wife's sister	Sister-in-law

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