1. **10% of 520 = 52.0**
2. **39% of 600 = ?**
   10% of 600 = 60.0
   10% + 10% + 10% + 10% = 60 + 60 + 60 + 60 = 240
   1% of 600 = 6.00
   39% of 600 = 240-6.00 = 234

2. **12% of 52**

10% of 52 = 5.2

1% of 52 = 0.52

5.2 + 0.52 + 0.52 = 6.24

1. Increase or Decrease in Percentage

Question: A product's price increases from ₹50 to ₹65. What is the percentage increase?

Method:

Percentage Change=Change in ValueOriginal Value×100Percentage Change=Original ValueChange in Value ×100

Solution:

Change in Value=65−50=15Change in Value=65−50=15Percentage Increase=1550×100=30%Percentage Increase=5015 ×100=30%

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2. Finding the Original Value

Question: After a 20% discount, the selling price of a product is ₹160. What is the original price?

Method:

Selling Price=Original Price×(1−Discount100)Selling Price=Original Price×(1−100Discount)

Solution:

160=Original Price×(1−0.2)160=Original Price×(1−0.2)160=Original Price×0.8160=Original Price×0.8Original Price=1600.8=200Original Price=0.8160 =200

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3. Percentage of a Mixture

Question: A solution contains 30 liters of alcohol and 70 liters of water. What is the percentage of alcohol in the solution?

Method:

Percentage of Alcohol=Alcohol VolumeTotal Volume×100Percentage of Alcohol=Total VolumeAlcohol Volume ×100

Solution:

Percentage of Alcohol $= \frac{30}{30+70} \times 100 = \frac{30}{100} \times 100 = 30\%$

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4. Successive Percentage Changes

Question: The price of a product increases by 20% and then decreases by 10%. What is the net percentage change?

Method:

$$\text{Net Change} = \text{Increase} + \text{Decrease} + \frac{\text{Increase} \times \text{Decrease}}{100}$$

Solution:

$$\text{Net Change} = 20 - 10 + \frac{20 \times (-10)}{100}$$
$$\text{Net Change} = 20 - 10 - 2 = 8\%$$

The net change is an **8% increase**.

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5. Profit and Loss Using Percentages

Question: A shopkeeper buys an item for ₹500 and sells it for ₹600. What is the profit percentage?

Method:

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

Solution:

$$\text{Profit} = 600 - 500 = 100$$
$$\text{Profit \%} = \frac{100}{500} \times 100 = 20\%$$

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6. Population Growth

Question: A town's population is 20,000. It increases by 5% annually. What will the population be after 2 years?

Method:

$$\text{New Population} = \text{Initial Population} \times \left(1 + \frac{\text{Growth Rate}}{100}\right)^n$$

Solution:

$$\text{New Population} = 20{,}000 \times (1 + 0.05)^2$$
$$\text{New Population} = 20{,}000 \times 1.1025 = 22{,}050$$

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7. Comparison of Percentages

Question: A scored 80 out of 100 and B scored 45 out of 50. Who performed better in percentage terms?

Method:

$$\text{Percentage} = \frac{\text{Score}}{\text{Total Marks}} \times 100$$

Solution:

$$\text{A's Percentage} = \frac{80}{100} \times 100 = 80\%$$
$$\text{B's Percentage} = \frac{45}{50} \times 100 = 90\%$$

Result: B performed better.

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8. Percentage Distribution

Question: If a total amount of ₹600 is divided between A, B, and C in the ratio 2:3:5, what percentage of the total amount does each receive?

Method:

$$\text{Percentage of Total} = \frac{\text{Individual Share}}{\text{Total Amount}} \times 100$$

Solution: Total ratio = $2+3+5=10$.

- A's share = $\frac{2}{10} \times 600 = 120$, Percentage = $\frac{120}{600} \times 100 = 20\%$.

- B's share = $\frac{3}{10} \times 600 = 180$, Percentage = $\frac{180}{600} \times 100 = 30\%$.

- C's share = $\frac{5}{10} \times 600 = 300$, Percentage = $\frac{300}{600} \times 100 = 50\%$.

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9. Reverse Percentages

Question: 80% of a number is 64. What is the number?

Method:

$$\text{Number} = \frac{\text{Given Value}}{\text{Percentage Fraction}}$$

Solution:

$$\text{Number} = \frac{64}{0.8} = 80$$

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10. Successive Discounts

Question: A product has two successive discounts of 20% and 10%. What is the effective discount?

Method:

$$\text{Effective Discount} = D1 + D2 - \frac{D1 \times D2}{100}$$

Solution:

Effective Discount $= 20 + 10 - \frac{20 \times 10}{100}$ Effective Discount $= 20 + 10 - \frac{20 \times 10}{100}$ Effective Discount $= 20 + 10 - 2 = 28\%$ Effective Discount $= 20 + 10 - 2 = 28\%$