Percentage (प्रतिशत)

- Meaning: Per Cent = Out of 100 (प्रति सौ)
  → e.g., 5% = 5 out of 100 = $\frac{5}{100}$
- Symbol: %

Basic Conversions (आधारभूत रूपांतरण)

1. Fraction to %: Multiply fraction by 100.
   e.g., 1/4 → (1/4) × 100 = 25%
2. % to Fraction: Divide % by 100.
   e.g., 20% → $\frac{20}{100} = \frac{1}{5}$

Important Fraction to % Table (याद रखें!)

Fraction	Percentage	1/5	20%	1/9	11.11%
1/2	50%	1/6	16.66%	1/10	10%
1/3	33.33%	1/7	14.28%	1/11	9.09%
1/4	25%	1/8	12.5%	1/12	8.33%

Core Concepts & Formulas

★ 1. Finding % of a number (किसी संख्या का % निकालना)

$$\left(\frac{x}{100}\right) \times \text{Number}$$

→ e.g., 500 का 20% = $\frac{20}{100} \times 500 = 100$

★ 2. A is what % of B? (A, B का कितना % है?)

$$\left(\frac{A}{B}\right) \times 100$$

Note: 'of B' means B is the base (denominator)

e.g., 20, 50 का कितना % है? → $\frac{20}{50} \times 100 = 40\%$

★ Percentage Increase/Decrease (% वृद्धि/कमी)

$$\left[\frac{(\text{Change})}{\text{Initial Value}}\right] \times 100$$

e.g., Salary 100 → 120. Increase = 20. % Inc. = $\frac{20}{100} \times 100 = 20\%$

★ **SUPER TRICK!** **A% of B = B% of A**

e.g., 64% of 25 = 25% of 64 = $\frac{1}{4} \times 64 = 16$. (Calculation आसान!)

Important Problem Types (महत्वपूर्ण प्रश्न प्रकार)

★ 1. Successive % Change (क्रमागत % परिवर्तन)

Concept: When change happens one after another.

Net Change = $\left[x + y + \left(\frac{xy}{100}\right)\right]\%$

Note: Use + for increase, − for decrease.

e.g., First +10%, then +20%. Net = $10 + 20 + \frac{10\times20}{100} = 32\%$ increase.

★ 2. Price & Consumption (मूल्य और खपत)

Expenditure = Price × Consumption (खर्च = मूल्य × खपत)

Rule: If price ↑ by R%, to keep exp. same, consumption ↓ by by $\left[\frac{R}{100+R}\right] \times 100\ \%$.

e.g., Price ↑ 25%. Cons. ↓ = $\left[\frac{25}{100+25}\right] \times 100 = \frac{25}{125} \times 100 = 20\%$

★ 3. Population Problems (जनसंख्या)

Pop. after 'n' years = $P \times \left(1 + \frac{R}{100}\right)^n$

Simple logic: हर साल R% बढ़ रही है, तो multiply by $\frac{100+R}{100}$.

e.g., Pop. 1000, R=10% p.a. After 2 yrs = $1000 \times \frac{110}{100} \times \frac{110}{100} = 1210$