Aptitude Cheat Sheet: Percentage

1. Basic Concept

Percentage means 'per hundred'. It is a way of expressing a number as a fraction of 100.

Example: 45% = 45/100 = 0.45

2. Important Formulas

1. Percentage (%) = (Value / Total Value) × 100
2. Value = (Percentage × Total Value) / 100
3. Total Value = (Value × 100) / Percentage
4. Increase or Decrease % = ((Change in Value) / Original Value) × 100
5. If the price of an item increases by R%, the reduction in consumption so as not to increase expenditure = (R / (100 + R)) × 100 %
6. If the price decreases by R%, the increase in consumption so as not to decrease expenditure = (R / (100 - R)) × 100 %

3. Common Question Types

1. Finding the percentage of a number.
2. Converting percentage to fraction or decimal.
3. Increase or decrease in percentage.
4. Comparison-based problems (e.g., population growth).
5. Profit, loss, and discount percentage problems.

4. Example Problems

1. Example 1: What is 25% of 240? → (25/100) × 240 = 60
2. Example 2: Increase 400 by 20%. → (20/100) × 400 = 80 → 400 + 80 = 480
3. Example 3: If a number is decreased by 20%, what % increase is required to get back the original number? → (20 / (100 - 20)) × 100 = 25%

5. Tips & Tricks

1. Always convert percentage problems into fraction or ratio form to simplify.
2. Memorize quick conversions (e.g., 50% = 1/2, 25% = 1/4, 12.5% = 1/8).
3. For population, compound interest–type problems apply successive percentage change formula: A = P × (1 + R/100)^n.
4. Successive percentage changes: If a number increases by A% and then decreases by B%, net change = (A - B - (A×B)/100) %.