

QUICK REFERENCE SHEET

Percentages, Ratios, and Proportion Cheat Sheet

A compact but richer percentage, ratio, and proportion sheet that keeps base values, equivalent forms, and proportional reasoning visible.

QUICK OVERVIEW

Category: general math

Includes 2 related guide pages.

Links back to 3 calculator tools.

FORMULA HIGHLIGHTS

Percentage of value

$$\text{part} = \text{percentage} \times \text{whole} / 100$$

Percentage change

$$\text{change \%} = (\text{new} - \text{old}) / \text{old} \times 100$$

CORE IDEAS

Percentages describe amounts per hundred, ratios compare linked quantities, and proportional reasoning scales relationships without changing their structure.

FORMULA HIGHLIGHTS

- Percentage of value: $(\text{percent} / 100) \times \text{base}$
- Percentage increase: $(\text{change} / \text{original}) \times 100$
- Simplify ratios only after normalising units
- Equivalent ratios describe the same relationship at different scales

WORKED EXAMPLES

15% of 80 = 12.

Increase from 40 to 50 = 25% increase.

18:24 simplifies to 3:4 because the GCD is 6.

QUICK REMINDERS

- The original value matters in percentage change.
- A 20% fall followed by a 20% rise does not restore the starting value.
- Use ratios for comparison and percentages for part-of-whole statements.