

Proportion

Examples & Non-Examples

Example	Example	Non-Example
$\frac{2}{3} = \frac{4}{6}$	$\frac{3}{5} = \frac{12}{20}$	$\frac{2}{3} = \frac{4}{5}$
$2 \times 6 = 12$	$3 \times 20 = 60$	$2 \times 5 = 10$
$3 \times 4 = 12$	$5 \times 12 = 60$	$3 \times 4 = 12$

Definition

A **proportion** is an equation that shows **two ratios are equal**.

For example, $\frac{2}{3} = \frac{4}{6}$

This is a proportion because both ratios represent the same amount.

Example

If a recipe uses 2 cups of flour for every 3 cups of sugar, then doubling the recipe gives:

$$\frac{2}{3} = \frac{4}{6}$$

The relationship stays the same, so the ratios form a proportion.

Key Idea

In a proportion, $\frac{a}{b} = \frac{c}{d}$, the **cross products are equal**: $a \cdot d = b \cdot c$

For example:

$$\frac{3}{5} = \frac{12}{20}$$

Since $3 \times 20 = 60$ and $5 \times 12 = 60$ the ratios are proportional.

