CA Foundation Maths Cheatsheet - Ratios and Proportions

1. Ratio - Basic Concept

A ratio is a comparison between two quantities of the same kind.

General Form: a : b = a / b

Example: If apples = 4 and oranges = 6, then ratio = 4 : 6 = 2 : 3

Important Rule: Both a and b must be in the same units!

2. Properties of Ratios

- Scaling: a : b = ka : kb (k not equal to 0)

- Invertendo: If a : b = c : d, then b : a = d : c

- Alternendo: If a : b = c : d, then a : c = b : d

- Componendo: If a : b = c : d, then (a + b) : b = (c + d) : d

- Dividendo: If a : b = c : d, then (a - b) : b = (c - d) : d

- Componendo and Dividendo: (a + b) / (a - b) = (c + d) / (c - d)

3. Proportion

Proportion means two ratios are equal.

General Form: a : b = c : d implies a × d = b × c (Cross multiplication)

a and d are extremes; b and c are means.

4. Continued Proportion

If a : b = b : c, then a, b, c are in continued proportion.

Then: $b^2 = a \times c$ and $c = b^2 / a$