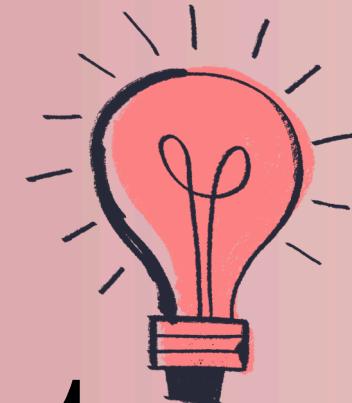


Proportion.



When two ratios are the same, they create a proportion. A proportion shows that two ratios are equal.

In a proportion, there are two terms: the first and last terms are called **extremes**, while the second and third terms are called **means**.

Here's an example:

In the proportion, the cross products of equal ratios are equal.

If $\frac{a}{b} = \frac{c}{d}$, then $ad = bc$.

means

$$a : b = c : d$$

extreme

So, the product of the means is equal to the product of the extremes.

Example 1: Tell whether the ratios form a proportion.

Solution: $\frac{4}{6}$, $\frac{2}{3}$

$$\frac{4}{6} \cancel{\times} \frac{2}{3}$$

$$4 \cdot 3 = 6 \cdot 2$$

$$12 = 12$$

Form cross products
Multiply
The two ratios are
proportion since they are
equal.

Example 2: Find the value of y.

$$4 : 8 = 5 : y$$

$$4 \cdot y = 8 \cdot 5$$

$$\frac{4y}{4} = \frac{40}{4}$$

$$y = 10$$

The value of y is 10

Checked:

$$4 : 8 = 5 : y$$

$$4 : 8 = 5 : 10$$

$$\frac{4}{8} \cancel{\longrightarrow} \frac{5}{10}$$

$$40 = 40$$

The product of means
equals the product of
the extremes.