

Ratio

A comparison of two quantities.

The order in which the numbers are written is important.

Written three ways: 3 boys to 5 girls. $\frac{3}{5}$ 3 to 5 3:5

Rate

A comparison of two quantities with different units of measure.

126 miles driven in 2 hours. $\frac{126 \text{ miles}}{2 \text{ hours}}$

Unit Rate

A rate with a comparison of one unit.

Often uses the word per.

Must have a one in the denominator. Must compare different quantities.

units must be different.

36 ounces of juice in 3 bottles. $\frac{\text{ounces}}{\text{bottle}} = \frac{36}{3} = \frac{x}{1}$

Cross Multiply and Solve: $36 = 3x$ $x = 12$

Don't forget to label your answer **12 ounces per bottle**

Proportion

A pair of **equivalent** ratios.

Set up a proportion to find a missing value.

There are 4 boys to every 5 girls. How many boys would you expect if there were 25 girls?

$$\frac{\text{boys}}{\text{girls}} = \frac{4}{5} = \frac{x}{25}$$

Cross Multiply and Solve: $100 = 5x$ $x = 20$

Don't forget to label your answer **20 boys**

Proportion or Not?

- 1) Cross Multiply- Butterfly
- 2) Unit match **across** or **up and down** but not **diagonally**.

Find Unit Rate First then Multiply

Find the unit rate. Use multiplication to find the missing value.

Emily earns \$96 after working for 8 hours.

Find the unit rate: $\frac{\text{dollars}}{\text{hours}} = \frac{96}{8} = \frac{x}{1}$ $8x = 96$ $x = 12$

Cross Multiply and Solve:

How much money would she earn if she worked 20 hours?

\$12 per hour for one hour. Multiply by **20**.

$$20 \times 12 = 204$$

Percent Word Problems

$$\text{Is/of} \quad \frac{\textit{is}}{\textit{of}} = \frac{\%}{100}$$

$$\text{part/whole} \quad \frac{\textit{part}}{\textit{whole}} = \frac{\%}{100}$$

Similar Figures

Same **shape** but not necessarily the same **size**.

Set up a **proportion**.

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

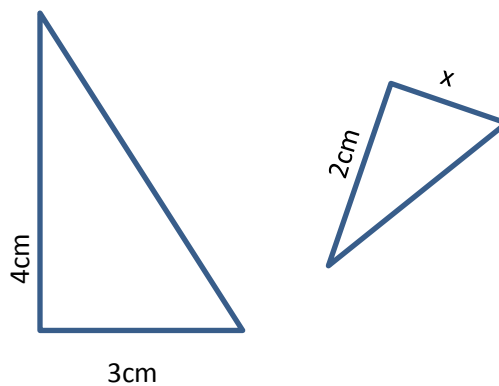
Cross **multiply** to solve.

$$6 = 4x$$

Add units.

$$1.5 = x$$

$$1.5 \text{ cm}$$



Figures can be turned and/or flipped.