

# Good Morning!

Today you will need:

- notes sheet ( I will pass out)
- corrected homework
- calculator
- pencil

## 1.4 Keeping Things in Proportion

Scaling to Solve Proportions

In Problem 1.3 you used ratios and scaling to solve problems. When you write two equivalent ratios in fraction form and set them equal to each other, you form a **proportion**.

Otis's strategy for solving a problem involving a ratio of orange concentrate to juice was to write this proportion:

$$\frac{1}{4} = \frac{x}{128}$$

In *Stretching and Shrinking*, you worked with ratios to find missing lengths in similar figures. There are many other situations in which setting up a proportion can help you solve a problem. For example, suppose that among American doctors men outnumber women by a ratio of 12 to 5.

### proportion

ex: a proportion equation used to find a missing value

$$\frac{3}{5} = \frac{x}{10} \quad x = 6$$

*(Note: In the original image, there are arrows and dots indicating that both the numerator and denominator of the right-hand fraction are multiplied by 2 to solve for x.)*

An equation stating that two ratios are equal.

## Solving Proportions

To solve a proportion...

- 1.
- 2.

EX: think about...are you stretching or shrinking?

$$\frac{10}{15} = \frac{x}{3}$$

$x =$

$$\frac{6}{x} = \frac{2}{5}$$

$x =$

## Homework:

Solving Proportions worksheet

### proportion

ex: a proportion equation used to find a missing value

$$\frac{3}{5} = \frac{x}{10} \quad x = 6$$

*(Note: In the original image, there are arrows and dots indicating that both the numerator and denominator of the right-hand fraction are multiplied by 2 to solve for x.)*

An equation stating that two ratios are equal.

# Solving Proportions

To solve a proportion...

1. Determine the scale factor
2. Use the scale factor to find the unknown value

**EX:** think about...are you stretching or shrinking?

$$\frac{10}{15} = \frac{x}{3}$$

$$x = 10 \cdot \frac{1}{5} = 2$$

$$\frac{6}{x} = \frac{2}{5}$$

$$x = 5 \cdot 3 = 15$$