

# Geometry

## Chapter 7 Section 7-1

## Ratios

A ratio is a comparison of two quantities using division.

$a : b$

$a$  to  $b$

$\frac{a}{b}$

\*\*An extended ratio is a comparison of three quantities:  $a : b : c$      $a : b$  with  $b : c$

## Writing Ratios

A baseball team has won 70% of its games. What is the ratio of wins to losses?

$$\frac{7}{3} \quad 7 : 3$$

What is the ratio of losses to games played?

$$\frac{3}{10} \quad 3 : 10$$

## Writing Ratios (Simplest Form)

A toy company makes a six-inch figure of 6'8" LeBron James. Write a ratio of the figure's height to James's height.

$$\frac{6 \text{ in}}{80 \text{ in}} = \frac{3}{40}$$

Write a ratio of the following weights:  
3 pounds and 6 ounces  
15 ounces

$$\frac{54 \text{ oz}}{15 \text{ oz}} = \frac{18}{5}$$

## Using Ratios

The students planning the Valentine's Day dance wants to use 75 red and pink balloons to decorate. They want the ratio of red balloons to pink ones to be 3:2. How many of each color do they need?

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

$$2x + 3x = 75$$

$$5x = 75$$

$$x = 15$$

45 Red

30 Pink

## Using Ratios

The students planning the Valentine's Day dance now want to use 80 red, pink and white balloons with the extended ratio of red to pink to white being 4:3:1. How many of each color do they need?

$$4x + 3x + 1x = 80$$

$$8x = 80$$

$$x = 10$$

40 Red

30 Pink

10 White

# Proportion Rules

A proportion is an equation with a single ratio on either side.

$$\frac{a}{b} = \frac{c}{d}$$

To solve a proportion you can cross multiply.

$$ad = bc$$

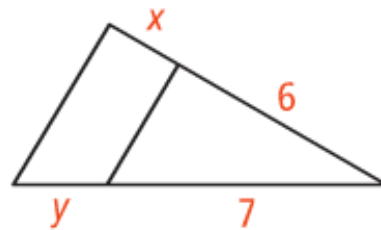
*What is another proportion that could be written using the above statements?*

# Proportions

Assume:  $\frac{x}{6} = \frac{y}{7}$

$$\frac{x}{y} = \frac{?}{?}$$

$$\frac{x + 6}{6} = \frac{?}{?}$$



# Proportion Rules

A proportion is an equation with a single ratio on either side.

$$\frac{1}{2.5} = \frac{x}{10}$$

To solve a proportion you can cross multiply.

$$(1)(10) = 2.5x$$

$$x = 4$$

# Solving Proportions

$$\frac{x + 1}{12} = \frac{2x}{9}$$

$$9(x + 1) = 12(2x)$$

$$9x + 9 = 24x$$

$$9 = 15x$$

$$x = \frac{3}{5}$$

# Homework

**Pages 436 - 437**  
**# 10 - 32 even**