

# Homework Review - Story Problems WS

Mr. Bregar weighs 180 pounds and can bench press 275. Maria's weight and strength are proportional to Mr. Bregar's. If Maria weighs 105 pounds, how much can she bench press?

weigh  $\rightarrow$  180 pounds  
lift  $\rightarrow$  275 pounds

$$1.52\bar{7}$$

105 pounds  $\leftarrow$  weight  
x pounds  $\leftarrow$  lift

$$x \approx 160.4 \text{ pounds}$$

How to write a ratio:

(compare one number to another)

3 to 1 (odds)

3:2 (male : female)

$$\frac{2}{3}$$

$$\frac{1}{4}$$

$$\frac{5}{25} = \frac{1}{5}$$

Simplest terms ...

FRACTIONS

$$\frac{4}{6} (?)$$

$$\frac{4}{6} \begin{array}{l} \text{girls} \\ \text{students} \end{array}$$

$$\frac{4 \text{ girls}}{6 \text{ boys}}$$

## How to write and solve a proportion:

An equality that  
compares two ratios:

What is a proportion?

$$\frac{a}{b} = \frac{c}{d} \quad x \cdot \frac{4}{x} = \frac{8}{10} \cdot x$$

$$3 \cdot \frac{x}{3} = \frac{7}{10} \cdot 3 \quad \frac{10}{8} \cdot 4 = \frac{8x}{10} \cdot \frac{10}{8}$$

$$x = \frac{21}{10} \quad \frac{40}{8} = x$$

$$5 = x$$

# Solving Proportions using Cross Products:

$$\frac{3}{x} = \frac{10}{17}$$

$$\text{numerator 1} \times \text{denominator 2} = \text{numerator 2} \times \text{denominator 1}$$

$$\begin{aligned} 3 \cdot 17 &= 10x \\ \frac{51}{10} &= \frac{10x}{10} \\ x &= \frac{51}{10} \end{aligned} \quad \left\{ \begin{aligned} x \cdot \frac{3}{x} &= \frac{10}{17} \cdot x \\ 17 \cdot 3 &= \frac{10}{17} x \cdot 17 \quad \text{It's a shortcut...} \\ 17 \cdot 3 &= 10x \end{aligned} \right.$$

$$\frac{1}{4} \div \frac{2}{5} = \frac{1}{4} \cdot \frac{5}{2}$$

$$\frac{2}{3} \cdot \frac{1}{5} = \frac{2}{15}$$

## Writing (and solving) proportions:

**Music** A music downloading website reports that nearly 5 out of every 7 songs downloaded are classified as pop music. According to this information, predict how many of the next 500 songs downloaded will be pop songs. Round your answer to the nearest whole number.

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

$$\frac{5}{7} = \frac{x}{500}$$

## Homework:

p. 165 26-38 (even), 46, 50, 52a

p. 171 6 - 27 (every 3rd), 34, 36, 39, 40