

Content and Language Objective:

Students will be able to setup proportions to model and solve real-world problems and write about what the solution represents in the real-world.

ENTRY TICKET: Learning Objectives

PROCESS WORDS: What will you do

CONTENT WORDS: What will you learn about?

Setup

What is one new word that you learned this week? Write what you think the definition is.

Proportions

By the end of class I will be able to... _____

Warm Up:

Solve the following proportions: 1. $\frac{4}{9} = \frac{2}{x}$

2. $\frac{6}{a} = \frac{3}{8}$

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Look over retention quiz from last week.

$$\begin{array}{l} 2(8x-3)=10 \\ 16x-6=10 \\ \quad +6 \quad +6 \\ \hline 16x=16 \\ \frac{16x}{16}=\frac{16}{16} \\ x=1 \end{array}$$

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Title: Proportions Word Problems

Date: September 10, 2015

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Vocabulary

Percent Proportion:

A proportion that involves a percent that is written as a ratio

$$52\% = \frac{52}{100}$$

$$.25\% = \frac{.25}{100}$$

$$151\% = \frac{151}{100}$$

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- Setting up a percent proportion: $\frac{\text{Part}}{\text{Whole}} = \frac{\%}{100}$

Part is percent (%) of whole?

- Can be solved by cross-multiplication.

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Practice:

1. The ratio of tagged fish to the total number of fish in a lake is 200 to 2500. What percent of the fish are tagged?

$$\text{Part} = 200$$

$$\text{Whole} = 2500$$

$$\% = x$$

$$\frac{\text{Part}}{\text{Whole}} = \frac{\%}{100}$$

~~$$\frac{200}{2500} = \frac{x}{100}$$~~

$$x = 8\%$$

8% of the fish are tagged

$$2500 \cdot x = 200 \cdot 100$$

$$\frac{2500x}{2500} = \frac{20,000}{2500}$$

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Practice

2. 11% of fish are tagged in a lake. That is 250 tagged fish.
How many fish are in the lake?

$$\text{Part} = 250$$

$$\text{Whole} = x$$

$$\% = 11$$

$$\frac{250}{x} = \frac{11}{100}$$

$$\frac{\cancel{N}x}{11} = \frac{25000}{11}$$

$$x = 2272.72$$

$$x \approx 2273$$

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Practice

3. What number is 25% of 250?

Part is percent of whole

$$\frac{x}{250} = \frac{25}{100}$$

$$25 \cdot 250 = 100 \cdot x$$

$$\frac{6250}{100} = \frac{100x}{100} \quad x = 62.5$$

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Proportion Word Problems not Involving Percents

A car travels 320 miles on 12 gallons of gas. Write and solve a proportion to find how many gallons the car needs to travel 640 miles.

Underline important info first!

Use the info to write to ratios! When writing the ratios your units should be in the same location for both ratios.

Set the ratios equal to each other and solve for the unknown!

$$\frac{320\text{mi}}{12\text{gal}} = \frac{640\text{mi}}{x\text{gal}}$$

$$320x = 12 \cdot 640$$

$$\frac{320x}{320} = \frac{7680}{320} \quad x = 24\text{gal}$$

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A messenger service has determined that they can get all of their deliveries out each day if they have 6 riders for every 40 square miles of area they cover. If they want to offer service to a count of 85 square miles, how many drives must they have?

Underlined info:

Ratios: _____

Proportion:

