

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.

Warm-Up

1. $\frac{12}{5} = \frac{x}{21}$ $\frac{5x}{5} = \frac{252}{5}$ $x = 50.4$

2. $\frac{12}{17} \neq \frac{5}{x+2}$ $85 = 12x + 24$
 $\begin{array}{r} 85 = 12x + 24 \\ -24 \quad -24 \\ \hline 61 = 12x \\ \frac{61}{12} = \frac{12x}{12} \quad x = 5.1 \end{array}$

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- Setting up a percent proportion:

$$\frac{\text{Part}}{\text{Whole}} = \frac{\%}{100} \quad \text{or} \quad \frac{\text{is}}{\text{of}} = \frac{\%}{100}$$

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?

$$\text{Part} = 200$$

$$\text{Whole} = 2500$$

$$\% = x$$

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

8% of the fish are tagged.

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

$$\frac{100 \cdot 200}{2500} = x \quad \frac{20000}{2500} = 8$$

$$x = 8$$

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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?

Part = 250

Whole = x

% = 11

Handwritten solution:

Proportion setup:

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

Cross-multiplication:

$$250 \times 100 = 11x$$

Solving for x :

$$x = \frac{250 \times 100}{11} = 2273$$

Final answer: About 2273 are in the lake

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Practice

3. What number is 25% of 250?

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

$$\frac{250 \cdot 25}{100}$$

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

62.5 is 25% of 250.

