

Warm Up:

Are the ratios equivalent? Write yes or no.

1. 3 to 5 and 9 to 15
2. 16 : 6 and 8 : 2
3. 6 to 9 and $\frac{8}{12}$
4. 12 : 32 and 6 : 2

Speak Like A Mathematician:

Proportion:

Percent:

Example 1: Solving a Proportion Equation

$$\frac{x}{45} = \frac{15}{25}$$

$$\frac{n+4}{8} = \frac{3}{2}$$

$$\frac{7}{4} = \frac{t-4}{8}$$

Example 2: Solving a Proportion with Variables on Both Sides

$$\frac{x}{9} = \frac{2x-3}{24}$$

$$\frac{m}{12} = \frac{2m-5}{18}$$

$$\frac{4v+7}{15} = \frac{6v+2}{10}$$

Example 3: Writing and Solving Proportion Equations

- **Parts of Mexico City are sinking at a rate of 140 centimeters every 5 years. If this rate remains constant, how many centimeters will the city sink in the next 12 years?**
- **Oscar makes fruit punch to sell from his food truck by mixing 8 parts cranberry juice to 3 parts pineapple juice. How many cups of pineapple juice would Oscar need to mix with 48 cups of cranberry juice to make his punch?**

Example 4: Solve a Percent by Using A Proportion

- A guide company makes a trail mix of raisins and mixed nuts. How many pounds of raisins does the guide company need to mix with 14 pounds of mixed nuts to make the trail mix 30% raisins?

4 Steps to Solving Proportions:

- Step 1: Get your ratios set.
- Step 2: Gotta run a quick check.
- Step 3: Cross Multiply
- Step 4: Now, solve for x.

The Percent Proportion:

$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$