Solving Proportions Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is a proportion?

undefined. A) A comparison of two numbers

undefined. B) An equation stating two ratios are equivalent ✓

undefined. C) A method for solving equations

undefined. D) A type of fraction

A proportion is an equation stating that two ratios are equivalent.

Which of the following are components of a proportion?

undefined. A) Ratios ✓

undefined. B) Terms ✓

undefined. C) Equations

undefined. D) Variables

The components of a proportion include ratios and terms.

Explain the method of cross-multiplication used in solving proportions.

Cross-multiplication involves multiplying the numerator of one ratio by the denominator of the other ratio and setting the products equal to each other.

List the four terms in the proportion a/b = c/d.

1. What is the first term?

a

2. What is the second term?

b

3. What is the third term?

c

4. What is the fourth term?

d

The four terms are a, b, c, and d.

Which of the following is a property of equivalent proportions?

undefined. A) Their sum is always equal
undefined. B) Their cross products are equal ✓
undefined. C) They have the same numerators
undefined. D) They are always fractions

The property of equivalent proportions is that their cross products are equal.

Part 2: Understanding and Interpretation

What does it mean if two quantities are in direct proportion?

undefined. A) As one increases, the other decreases
undefined. B) They are always equal
undefined. C) As one increases, the other increases at the same rate ✓
undefined. D) They have different units

If two quantities are in direct proportion, as one increases, the other increases at the same rate.

Which of the following scenarios involve proportions?

undefined. A) Scaling a recipe ✓
undefined. B) Calculating interest
undefined. C) Converting units ✓
undefined. D) Solving quadratic equations

Scaling a recipe and converting units are examples of scenarios that involve proportions.

Describe a real-life situation where you might use proportions to solve a problem.

A real-life situation could be adjusting a recipe based on the number of servings needed.

Part 3: Application and Analysis

If a recipe requires 2 cups of flour for 3 cups of sugar, how much flour is needed for 9 cups of sugar?

undefined. A) 3 cups
undefined. B) 4 cups
undefined. C) 6 cups ✓
undefined. D) 9 cups

To maintain the same ratio, 6 cups of flour are needed for 9 cups of sugar.

Which of the following can be solved using proportions?

undefined. A) Determining the height of a tree using its shadow ✓
undefined. B) Calculating the speed of a car
undefined. C) Finding the area of a rectangle
undefined. D) Estimating the time needed for a trip ✓

Determining the height of a tree using its shadow and estimating the time needed for a trip can be solved using proportions.

Solve the proportion 5/x = 10/20 and explain your steps.

To solve for x, cross-multiply to get 5 * 20 = 10 * x, leading to x = 10.

What is the relationship between the terms in the proportion 3/4 = 6/8?

undefined. A) They are inversely proportional
undefined. B) They are equivalent ratios ✓
undefined. C) They are unequal
undefined. D) They have different units

The terms in the proportion are equivalent ratios.

Analyze the following statements and identify which are true about inverse proportions:

undefined. A) As one quantity increases, the other decreases ✓
undefined. B) The product of the quantities remains constant ✓
undefined. C) They can be represented by a straight line graph
undefined. D) They have the same scale factor

True statements about inverse proportions include that as one quantity increases, the other decreases and the product of the quantities remains constant.

Break down the steps to verify if the proportion 7/9 = 14/18 is true.

To verify, cross-multiply: 7 * 18 and 9 * 14, and check if the products are equal.

Part 4: Evaluation and Creation

Which of the following best evaluates the accuracy of a solved proportion?

undefined. A) The solution matches the original problem statement
undefined. B) The cross products are equal ✓
undefined. C) The numerators are the same
undefined. D) The denominators are different

The best way to evaluate is to check if the cross products are equal.

Evaluate the following methods for solving proportions and select the effective ones:

undefined. A) Cross-multiplication ✓
undefined. B) Graphical representation ✓
undefined. C) Substitution
undefined. D) Guess and check

Effective methods for solving proportions include cross-multiplication and graphical representation.

Create a real-world problem that can be solved using proportions and provide a detailed solution.

An example could be calculating the amount of paint needed for a room based on its dimensions.

Propose two different scenarios where proportions could be used to solve a problem, and briefly describe how you would approach each.

1. What is the first scenario?

Adjust a recipe for more servings.

2. What is the second scenario?

Calculate distances on a map.

One scenario could be adjusting a recipe, and another could be calculating distances on a map.