

Constant Of Proportionality Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the constant of proportionality in the equation $y = 5x$?

undefined. A) 1

undefined. B) 5 ✓

undefined. C) x

undefined. D) y

The constant of proportionality is the coefficient of x, which is 5.

Which of the following statements are true about directly proportional relationships?

undefined. A) The graph is a straight line through the origin. ✓

undefined. B) The ratio y/x is constant. ✓

undefined. C) The line can have any slope.

undefined. D) The graph can be a curve.

The true statements are that the graph is a straight line through the origin and the ratio y/x is constant.

Explain in your own words what it means for two variables to be directly proportional.

Directly proportional means that as one variable increases, the other variable increases at a constant rate.

Identify the constant of proportionality and the dependent variable in the equation $y = 3x$.

1. Constant of Proportionality:

3

2. Dependent Variable:

y

The constant of proportionality is 3, and the dependent variable is y.

Part 2: Comprehension and Application

If the constant of proportionality is 7, what is the equation that represents the relationship between y and x?

undefined. **A) $y = 7x$ ✓**

undefined. B) $y = x + 7$

undefined. C) $y = x/7$

undefined. D) $y = 7 + x$

The equation is $y = 7x$, which shows the direct proportionality.

Which of the following graphs could represent a directly proportional relationship?

undefined. **A) A line passing through (0,0) with a positive slope. ✓**

undefined. **B) A line passing through (0,0) with a negative slope. ✓**

undefined. C) A horizontal line.

undefined. D) A vertical line.

The graphs that pass through the origin with a slope represent directly proportional relationships.

A recipe requires 3 cups of flour for every 2 cups of sugar. Write an equation representing the relationship between flour (f) and sugar (s).

The equation can be expressed as $f = (3/2)s$ or $f = 1.5s$.

If a car travels 60 miles in 1 hour, what is the constant of proportionality between distance and time?

undefined. A) 30

undefined. **B) 60 ✓**

undefined. C) 1

undefined. D) 120

The constant of proportionality is the speed, which is 60 miles per hour.

Part 3: Analysis, Evaluation, and Creation

If the graph of a relationship between x and y is a straight line through the origin with a slope of 2, what is the constant of proportionality?

undefined. A) 0

undefined. B) 1

undefined. C) 2 ✓

undefined. D) 3

The constant of proportionality is the slope of the line, which is 2.

Which of the following scenarios can be modeled by a directly proportional relationship?

undefined. A) The cost of apples is \$2 per apple. ✓

undefined. B) The temperature in Celsius and Fahrenheit.

undefined. C) The number of pages read and time spent reading at a constant speed. ✓

undefined. D) The height of a plant over time with varying growth rates.

The scenarios that can be modeled by directly proportional relationships are those where one quantity increases at a constant rate relative to another.

Analyze the table below and determine if the relationship between x and y is directly proportional. Justify your answer.

The relationship is directly proportional because the ratio of y to x is constant ($y/x = 3$).

Which statement best evaluates the relationship between the variables in the equation $y = 10x$?

undefined. A) y is inversely proportional to x .

undefined. B) y is directly proportional to x with a constant of proportionality of 10. ✓

undefined. C) y is independent of x .

undefined. D) y is directly proportional to x with a constant of proportionality of 1.

The correct statement is that y is directly proportional to x with a constant of proportionality of 10.

Create a scenario where the constant of proportionality is 5. Which of the following could be correct?

undefined. **A) A taxi charges \$5 per mile. ✓**

undefined. **B) A factory produces 5 widgets per hour. ✓**

undefined. **C) A book costs \$5 each. ✓**

undefined. **D) A train travels 5 miles per hour. ✓**

All options represent scenarios where the constant of proportionality is 5.

Design a real-world problem involving a directly proportional relationship. Provide the equation and explain how you would solve it.

An example could be calculating the cost of gas based on the number of gallons purchased, represented by the equation $\text{cost} = \text{price per gallon} * \text{gallons}$.