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Graphing Proportional Relationships Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the equation form of a proportional relationship?

Hint: Think about the basic forms of equations.

◯ A) y = mx + b
◯ **B) y = kx** ✓
◯ C) y = x + c
◯ D) y = kx + c

| The correct equation form of a proportional relationship is y = kx.

What is the equation form of a proportional relationship?

Hint: Think about the different forms of equations you have learned.

◯ A) y = mx + b
◯ **A) y = kx** ✓
◯ A) y = x + c
◯ A) y = kx + c

| The correct answer is B) y = kx, which represents a proportional relationship.

What is the equation form of a proportional relationship?

Hint: Think about the different forms of equations you have learned.

◯ A) y = mx + b
◯ **A) y = kx** ✓
◯ A) y = x + c
◯ A) y = kx + c

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The correct answer is B) y = kx, which represents a proportional relationship.

Which of the following are characteristics of a graph representing a proportional relationship?

Hint: Consider the properties of straight lines in graphs.

☐ **A) The graph is a straight line. ✓**
☐ **B) The graph passes through the origin. ✓**
☐ C) The graph has a slope of zero.
☐ **D) The graph has a constant slope. ✓**

A graph representing a proportional relationship is a straight line that passes through the origin and has a constant slope.

Which of the following are characteristics of a graph representing a proportional relationship?

Hint: Consider the properties of straight lines and their slopes.

☐ **A) The graph is a straight line. ✓**
☐ **A) The graph passes through the origin. ✓**
☐ A) The graph has a slope of zero.
☐ **A) The graph has a constant slope. ✓**

The correct answers are A, B, and D.

Which of the following are characteristics of a graph representing a proportional relationship?

Hint: Consider the properties of straight lines and their slopes.

☐ **A) The graph is a straight line. ✓**
☐ **A) The graph passes through the origin. ✓**
☐ A) The graph has a slope of zero.
☐ **A) The graph has a constant slope. ✓**

The correct answers are A, B, and D.

Explain what is meant by the 'constant of proportionality' in a proportional relationship.

Hint: Think about how the variables relate to each other.

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> **The constant of proportionality is the ratio between the two variables in a proportional relationship.**

Explain what is meant by the 'constant of proportionality' in a proportional relationship.

Hint: Think about how the two quantities relate to each other.

> **The constant of proportionality is the ratio between two proportional quantities.**

Explain what is meant by the 'constant of proportionality' in a proportional relationship.

Hint: Think about how one quantity changes in relation to another.

> **The constant of proportionality is the ratio between two proportional quantities.**

Part 2: Understanding and Interpretation

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If a graph of a relationship does not pass through the origin, what can you conclude about the relationship?

Hint: Consider the definition of proportional relationships.

◯ A) It is proportional.

◯ **B) It is not proportional. ✓**

◯ C) It has a constant of proportionality of zero.

◯ D) It has a negative slope.

❘ If a graph does not pass through the origin, the relationship is not proportional.

If a graph of a relationship does not pass through the origin, what can you conclude about the relationship?

Hint: Think about the definition of proportional relationships.

◯ A) It is proportional.

◯ **A) It is not proportional. ✓**

◯ A) It has a constant of proportionality of zero.

◯ A) It has a negative slope.

❘ The correct answer is B) It is not proportional.

If a graph of a relationship does not pass through the origin, what can you conclude about the relationship?

Hint: Think about the definition of proportional relationships.

◯ A) It is proportional.

◯ **A) It is not proportional. ✓**

◯ A) It has a constant of proportionality of zero.

◯ A) It has a negative slope.

❘ The correct answer is B) It is not proportional.

Which of the following tables of values represent a proportional relationship?

Hint: Look for a constant ratio between x and y values.

☐ **A) x: 1, 2, 3; y: 2, 4, 6 ✓**

☐ **B) x: 1, 2, 3; y: 3, 6, 9 ✓**

☐ C) x: 1, 2, 3; y: 1, 3, 5

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☐ D) x: 1, 2, 3; y: 2, 5, 8

❘ Tables A and B represent proportional relationships because they have a constant ratio.

Which of the following tables of values represent a proportional relationship?

Hint: Look for consistent ratios between x and y values.

☐ **A) x: 1, 2, 3; y: 2, 4, 6 ✓**
☐ **A) x: 1, 2, 3; y: 3, 6, 9 ✓**
☐ A) x: 1, 2, 3; y: 1, 3, 5
☐ A) x: 1, 2, 3; y: 2, 5, 8

❘ The correct answers are A and B.

Which of the following tables of values represent a proportional relationship?

Hint: Look for consistent ratios between x and y values.

☐ **A) x: 1, 2, 3; y: 2, 4, 6 ✓**
☐ **A) x: 1, 2, 3; y: 3, 6, 9 ✓**
☐ A) x: 1, 2, 3; y: 1, 3, 5
☐ A) x: 1, 2, 3; y: 2, 5, 8

❘ The correct answers are A and B.

Describe how you would determine the constant of proportionality from a graph.

Hint: Think about the relationship between the coordinates of points on the graph.

❘ **To determine the constant of proportionality from a graph, you can find the slope of the line, which represents the ratio of y to x.**

Describe how you would determine the constant of proportionality from a graph.

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Hint: Think about the slope of the line.

> **You can determine the constant of proportionality by finding the slope of the line on the graph.**

Describe how you would determine the constant of proportionality from a graph.

Hint: Think about the relationship between the coordinates of points on the graph.

> **You can determine the constant of proportionality by finding the ratio of y to x for any point on the line.**

Part 3: Application and Analysis

Given the equation y = 5x, what is the constant of proportionality?

Hint: Identify the coefficient of x in the equation.

○ A) 1
○ **A) 5 ✔**
○ A) 0
○ A) x

> The correct answer is B) 5.

Given the equation y = 5x, what is the constant of proportionality?

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Hint: Identify the coefficient of x in the equation.

○ A) 1

○ **B) 5 ✓**

○ C) 0

○ D) x

❙ The constant of proportionality in the equation y = 5x is 5.

Given the equation y = 5x, what is the constant of proportionality?

Hint: Identify the coefficient of x in the equation.

○ A) 1

○ **A) 5 ✓**

○ A) 0

○ A) x

❙ The correct answer is B) 5.

If a car travels at a constant speed and the distance-time graph is a straight line through the origin, which of the following statements are true?

Hint: Consider the implications of a straight line graph.

☐ **A) The speed is the constant of proportionality. ✓**

☐ **B) The distance is directly proportional to time. ✓**

☐ **C) The graph has a constant slope. ✓**

☐ D) The car's speed changes over time.

❙ The statements A, B, and C are true; they describe the characteristics of a proportional relationship.

If a car travels at a constant speed and the distance-time graph is a straight line through the origin, which of the following statements are true?

Hint: Consider the implications of a straight line graph.

☐ **A) The speed is the constant of proportionality. ✓**

☐ **A) The distance is directly proportional to time. ✓**

☐ **A) The graph has a constant slope. ✓**

☐ A) The car's speed changes over time.

❙ The correct answers are A, B, and C.

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If a car travels at a constant speed and the distance-time graph is a straight line through the origin, which of the following statements are true?

Hint: Consider the implications of a straight line graph.

☐ **A) The speed is the constant of proportionality. ✓**
☐ **A) The distance is directly proportional to time. ✓**
☐ **A) The graph has a constant slope. ✓**
☐ A) The car's speed changes over time.

> The correct answers are A, B, and C.

A recipe calls for 3 cups of flour for every 2 cups of sugar. Write the equation representing the proportional relationship between flour and sugar.

Hint: Think about how to express the relationship mathematically.

> **The equation representing the relationship is y = (3/2)x, where y is the amount of flour and x is the amount of sugar.**

A recipe calls for 3 cups of flour for every 2 cups of sugar. Write the equation representing the proportional relationship between flour and sugar.

Hint: Think about how to express the relationship mathematically.

> **The equation can be written as y = (3/2)x, where y represents flour and x represents sugar.**

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A recipe calls for 3 cups of flour for every 2 cups of sugar. Write the equation representing the proportional relationship between flour and sugar.

Hint: Think about how to express the relationship mathematically.

The equation can be written as f = (3/2)s, where f is flour and s is sugar.

Part 4: Evaluation and Creation

If the slope of a proportional relationship graph is 3, what does this tell you about the relationship?

Hint: Consider how slope relates to changes in x and y.

○ **A) For every 1 unit increase in x, y increases by 3 units. ✓**
○ B) For every 3 unit increase in x, y increases by 1 unit.
○ C) The relationship is not proportional.
○ D) The graph does not pass through the origin.

A slope of 3 means that for every 1 unit increase in x, y increases by 3 units.

If the slope of a proportional relationship graph is 3, what does this tell you about the relationship?

Hint: Consider the meaning of slope in a graph.

○ **A) For every 1 unit increase in x, y increases by 3 units. ✓**
○ A) For every 3 unit increase in x, y increases by 1 unit.
○ A) The relationship is not proportional.
○ A) The graph does not pass through the origin.

The correct answer is A) For every 1 unit increase in x, y increases by 3 units.

If the slope of a proportional relationship graph is 3, what does this tell you about the relationship?

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Hint: Consider the meaning of slope in a graph.

○ **A) For every 1 unit increase in x, y increases by 3 units. ✓**

○ A) For every 3 unit increase in x, y increases by 1 unit.

○ A) The relationship is not proportional.

○ A) The graph does not pass through the origin.

❘ The correct answer is A) For every 1 unit increase in x, y increases by 3 units.

Analyze the following scenarios and identify which ones describe a proportional relationship:

Hint: Look for constant ratios in the scenarios.

☐ **A) The cost of apples is $2 per apple. ✓**

☐ **B) The temperature increases by 5 degrees every hour. ✓**

☐ **C) The number of pages read increases by 10 for every hour spent reading. ✓**

☐ **D) The speed of a car is constant at 60 mph. ✓**

❘ Scenarios A, B, C, and D all describe proportional relationships.

Analyze the following scenarios and identify which ones describe a proportional relationship:

Hint: Look for consistent ratios in the scenarios.

☐ **A) The cost of apples is $2 per apple. ✓**

☐ **A) The temperature increases by 5 degrees every hour. ✓**

☐ **A) The number of pages read increases by 10 for every hour spent reading. ✓**

☐ **A) The speed of a car is constant at 60 mph. ✓**

❘ The correct answers are A, B, C, and D.

Analyze the following scenarios and identify which ones describe a proportional relationship:

Hint: Look for consistent ratios in the scenarios provided.

☐ **A) The cost of apples is $2 per apple. ✓**

☐ **A) The temperature increases by 5 degrees every hour. ✓**

☐ **A) The number of pages read increases by 10 for every hour spent reading. ✓**

☐ **A) The speed of a car is constant at 60 mph. ✓**

❘ The correct answers are A, B, C, and D.

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Which of the following statements best evaluates the nature of a proportional relationship?

Hint: Consider the defining characteristics of proportional relationships.

◯ A) It is a linear relationship with a non-zero y-intercept.

◯ **A) It is a linear relationship with a constant slope and passes through the origin.** ✓

◯ A) It is a non-linear relationship with a constant ratio.

◯ A) It is a relationship where y is always greater than x.

▍ The correct answer is B) It is a linear relationship with a constant slope and passes through the origin.

Which of the following statements best evaluates the nature of a proportional relationship?

Hint: Consider the defining characteristics of proportional relationships.

◯ A) It is a linear relationship with a non-zero y-intercept.

◯ **B) It is a linear relationship with a constant slope and passes through the origin.** ✓

◯ C) It is a non-linear relationship with a constant ratio.

◯ D) It is a relationship where y is always greater than x.

▍ The best evaluation is that a proportional relationship is a linear relationship with a constant slope and passes through the origin.

Which of the following statements best evaluates the nature of a proportional relationship?

Hint: Consider the defining characteristics of proportional relationships.

◯ A) It is a linear relationship with a non-zero y-intercept.

◯ **A) It is a linear relationship with a constant slope and passes through the origin.** ✓

◯ A) It is a non-linear relationship with a constant ratio.

◯ A) It is a relationship where y is always greater than x.

▍ The correct answer is B) It is a linear relationship with a constant slope and passes through the origin.

Create a scenario that represents a proportional relationship. Which of the following elements would you include?

Hint: Think about the key features of proportional relationships.

☐ **A) A constant rate of change.** ✓

☐ **A) A graph that passes through the origin.** ✓

☐ **A) A variable y that is directly proportional to x.** ✓

☐ A) A changing slope.

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The correct answers are A, B, and C.

Create a scenario that represents a proportional relationship. Which of the following elements would you include?

Hint: Think about the key features of proportional relationships.

- ☐ **A) A constant rate of change. ✓**
- ☐ **B) A graph that passes through the origin. ✓**
- ☐ **C) A variable y that is directly proportional to x. ✓**
- ☐ D) A changing slope.

You would include elements such as a constant rate of change, a graph that passes through the origin, and a variable y that is directly proportional to x.

Create a scenario that represents a proportional relationship. Which of the following elements would you include?

Hint: Think about the key features of proportional relationships.

- ☐ **A) A constant rate of change. ✓**
- ☐ **A) A graph that passes through the origin. ✓**
- ☐ **A) A variable y that is directly proportional to x. ✓**
- ☐ A) A changing slope.

The correct answers are A, B, and C.

Design a real-world problem involving a proportional relationship and explain how you would solve it using a graph.

Hint: Consider how to represent the problem visually.

You would create a graph that shows the relationship between the two quantities and use it to find solutions.

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Design a real-world problem involving a proportional relationship and explain how you would solve it using a graph.

Hint: Think about how to set up the problem and what variables to include.

You could design a problem involving speed and distance, and solve it by plotting the distance on the y-axis and time on the x-axis.

Design a real-world problem involving a proportional relationship and explain how you would solve it using a graph.

Hint: Consider how to represent the problem visually.

You would create a graph that shows the relationship between the two quantities and use it to find solutions.

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