Slope From A Graph Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

What is the formula for calculating the slope of a line between two points \((x_1, y_1)\) and \((x_2, y_2)\)?

undefined. A) \(m = \frac{x_2 - x_1}{y_2 - y_1}\)

undefined. B) \(m = \frac{y_2 - y_1}{x_2 - x_1}\) ✓

undefined. C) \(m = x_2 + x_1 + y_2 + y_1\)

undefined. D) \(m = y_2 \times y_1 - x_2 \times x_1\)

The correct formula for slope is \(m = \frac{y_2 - y_1}{x_2 - x_1}\).

Which of the following statements about slope are true?

undefined. A) A positive slope means the line rises from left to right. ✓

undefined. B) A negative slope means the line falls from left to right. ✓

undefined. C) A zero slope means the line is vertical.

undefined. D) An undefined slope means the line is horizontal.

A positive slope rises, a negative slope falls, a zero slope is horizontal, and an undefined slope is vertical.

Define what is meant by an "undefined slope" and provide an example of when this occurs on a graph.

An undefined slope occurs when a line is vertical, meaning it has no defined rise over run.

List the four types of slopes and provide a brief description of each.

1. Positive Slope

A line that rises from left to right.

2. Negative Slope

A line that falls from left to right.

3. Zero Slope

A horizontal line with no rise.

4. Undefined Slope

A vertical line with no run.

The four types of slopes are positive, negative, zero, and undefined.

If a line passes through the points (2, 3) and (5, 9), what is the slope of the line?

undefined. A) 2 ✓

undefined. B) 3

undefined. C) 6

undefined. D) 1

The slope is calculated as $m = \frac{9 - 3}{5 - 2} = 2$.

Part 2: Understanding and Interpretation

Explain how you would determine the slope of a line by looking at a graph. What steps would you take?

To determine the slope, identify two points on the line and use the slope formula.

Given a graph with points (1, 2) and (4, 8), calculate the slope and describe the type of line (increasing, decreasing, horizontal, or vertical).

1. Slope Calculation

2

2. Type of Line

Increasing

The slope is $m = \frac{8 - 2}{4 - 1} = 2$, indicating an increasing line.

Which type of line has a slope of zero?

undefined. A) Vertical

undefined. B) Horizontal ✓
undefined. C) Increasing
undefined. D) Decreasing

A horizontal line has a slope of zero.

Part 3: Applying Knowledge and Analyzing Relationships

A car travels from a point (0, 0) to a point (4, 10) on a graph representing distance over time. Calculate the slope and explain what this slope represents in terms of speed.

The slope is $m = \frac{10 - 0}{4 - 0} = 2.5$, representing the speed of the car.

In which of the following scenarios would you expect to find a positive slope?

undefined. A) A car slowing down.
undefined. B) A plane ascending. ✓
undefined. C) A ball rolling down a hill.
undefined. D) A person walking backwards.

A positive slope is expected in scenarios where there is an increase in value.

If the slope of a line representing a company's profit over time is negative, what does this indicate?

undefined. A) The company is making more profit over time.
undefined. B) The company's profit is decreasing over time. ✓
undefined. C) The company's profit remains constant.
undefined. D) The company is breaking even.

A negative slope indicates that the company's profit is decreasing over time.

Analyze a graph where a line passes through points (3, 7) and (6, 7). What is the slope, and what does this tell you about the relationship between the variables?

The slope is zero, indicating that there is no change in the y-values as x changes.

Which of the following best describes the relationship between two variables if the slope of their line is zero?

undefined. A) The variables are directly proportional.

undefined. B) There is no relationship between the variables. ✓

undefined. C) The variables are inversely proportional.

undefined. D) The variables are constant with respect to each other.

A zero slope indicates that there is no relationship between the variables.

Part 4: Synthesis and Reflection

Evaluate the impact of a steep positive slope on a business's sales graph. What might this indicate about the business's performance?

A steep positive slope indicates strong sales growth, suggesting good business performance.

Which of the following scenarios could lead to an undefined slope?

undefined. A) A car moving at a constant speed.

undefined. B) A rocket launching vertically. ✓

undefined. C) A train stopping at a station.

undefined. D) A river flowing downstream.

An undefined slope occurs in vertical lines.

Create a real-world scenario where understanding the slope of a line is crucial. Describe the scenario and explain how slope plays a role in decision-making.

Understanding slope is crucial in scenarios like financial forecasting, where it indicates trends.

Propose two different real-world situations where the slope is positive and negative, respectively, and explain the implications of each.

1. Positive Slope Situation

Increasing sales in a retail store.

2. Negative Slope Situation

Declining profits in a company.

Positive slope could represent increasing sales, while negative slope could indicate declining profits.