

Select The Correct Answer.What Is The Slope Of The Line In This Graph?A. 5/9B. 5/7C. 7/5D. 9/7

Select The Correct Answer.What Is The Slope Of The Line In This Graph?A. 5/9B. 5/7C. 7/5D. 9/7

Understanding the slope of a line is a fundamental concept in algebra and coordinate geometry. It helps us analyze the steepness and direction of a line on a graph. Whether you're a student preparing for exams, a teacher designing lessons, or simply someone interested in math, knowing how to determine the slope accurately is essential. In this article, we will explore what the slope of a line is, how to interpret it from a graph, and specifically analyze the question: "What is the slope of the line in this graph?" with the options provided: A. 5/9, B. 5/7, C. 7/5, D. 9/7.

What Is the Slope of a Line?

Definition of Slope

The slope of a line measures how steep the line is. It is a ratio that compares the vertical change to the horizontal change between two points on the line. Mathematically, the slope (usually denoted as 'm') is calculated as:

$$m = \frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x}$$

where:

- Δy is the change in the y-coordinate
- Δx is the change in the x-coordinate

Importance of Slope in Graphing

Understanding the slope helps in:

- Predicting the behavior of a line
- Interpreting real-world data
- Solving linear equations
- Analyzing trends in data

How to Find the Slope of a Line from a Graph

Step-by-Step Process

To determine the slope from a graph, follow these steps:

1. Identify Two Points on the Line:

- Choose two clear, precise points where the line intersects grid points.
- Label them as (x_1, y_1) and (x_2, y_2) .

2. Calculate the Change in Y and X:

- $\Delta y = y_2 - y_1$
- $\Delta x = x_2 - x_1$

3. Compute the Slope:

- Use the formula $m = \frac{\Delta y}{\Delta x}$.

4. Simplify the Result:

- Reduce the fraction to its simplest form.

Example

Suppose the line passes through points (2, 3) and (5, 8):

- $\Delta y = 8 - 3 = 5$

- $\Delta x = 5 - 2 = 3$

- Slope $m = \frac{5}{3}$

Analyzing the Given Multiple-Choice Options

The question provides four options for the slope:

- A. $\frac{5}{9}$
- B. $\frac{5}{7}$
- C. $\frac{7}{5}$
- D. $\frac{9}{7}$

Let's analyze what each option implies about the line's steepness and direction.

Understanding Each Slope

- A. $\frac{5}{9}$: A relatively gentle positive slope; the line rises slowly as x increases.

- B. $\frac{5}{7}$: Slightly steeper than $\frac{5}{9}$, still a gentle upward trend.
- C. $\frac{7}{5}$: A steeper positive slope; the line rises more sharply.
- D. $\frac{9}{7}$: Slightly less steep than $\frac{7}{5}$ but still significant.

Interpreting the Graph to Find the Slope

Since the specific graph isn't provided here, let's discuss how one would typically interpret such a question.

Key observations to consider

- Direction of the line: Is it ascending (positive slope) or descending (negative slope)?
- Steepness: How sharply does the line incline?
- Points on the line: Are there clear grid points that the line passes through?
- Rise over Run: How many units does the line go up or down for a given horizontal movement?

Common Scenarios

- If the line passes through (1, 1) and (3, 4):

- $\Delta y = 4 - 1 = 3$

- $\Delta x = 3 - 1 = 2$

- Slope $m = \frac{3}{2} = 1.5$

- If the line passes through (0, 0) and (7, 5):

- $\Delta y = 5 - 0 = 5$

- $\Delta x = 7 - 0 = 7$
- Slope $(m = \frac{5}{7})$

In this case, the slope would be $5/7$, matching option B.

Practical Applications and Importance of Understanding Slope

Real-World Examples of Slope

Understanding slope isn't just for academic exercises; it has practical applications in various fields:

1. Engineering and Construction:

- Designing roads and ramps with appropriate inclines.

2. Economics and Business:

- Analyzing cost and revenue trends.

3. Physics:

- Calculating velocities and accelerations.

4. Statistics:

- Understanding relationships between variables in linear regression.

Why Mastering Slope Matters

- It enhances problem-solving skills.
- It aids in interpreting graphs accurately.

- It provides foundational knowledge for calculus and advanced mathematics.

Conclusion: How to Determine the Correct Slope

To identify the correct answer for the slope of a given line in a graph:

- Always select two clear points on the line.
- Calculate the change in y and x between these points.
- Simplify the resulting fraction to compare with the options provided.
- Recognize the pattern of the line's steepness and direction.

Given the options A. $\frac{5}{9}$, B. $\frac{5}{7}$, C. $\frac{7}{5}$, D. $\frac{9}{7}$, and assuming the line passes through points that reflect these ratios, the most accurate choice aligns with the calculated slope from the graph.

Final Thoughts

Mastering the concept of slope is crucial for success in algebra and related disciplines. Whether you're analyzing a simple line or interpreting complex data, understanding how to compute and interpret the slope empowers you to make meaningful insights from graphs. Remember, the key steps involve identifying two points, calculating the change in y and x, and simplifying the ratio to match the options provided. Practice with different graphs will enhance your intuition and accuracy, making you proficient in this fundamental skill.

Keywords for SEO optimization:

- what is the slope of a line
- how to find slope from graph
- slope calculation examples
- understanding line steepness
- algebra slope formulas
- interpreting graph slopes
- multiple choice slope questions
- basic geometry concepts

Frequently Asked Questions

What is the slope of the line shown in the graph if it rises 5 units over 7 units run?

B. $\frac{5}{7}$

If a line passes through points (0, 0) and (7, 5), what is its slope?

B. $\frac{5}{7}$

Looking at the graph, which of the following is the correct slope if the line goes from (0, 0) to (9, 7)?

D. $\frac{9}{7}$

The graph shows a line with a rise of 7 and a run of 5. What is the slope of this line?

C. $\frac{7}{5}$

Identify the slope of the line in the graph that moves from (0, 0) to (7, 5).

B. $\frac{5}{7}$

Additional Resources

Select The Correct Answer. What Is The Slope Of The Line In This Graph? A. $\frac{5}{9}$ B. $\frac{5}{7}$ C. $\frac{7}{5}$ D. $\frac{9}{7}$

Understanding the slope of a line is fundamental in the study of algebra and coordinate geometry. The slope indicates the steepness and direction of a line on a graph, providing insight into the relationship between the variables involved. When faced with a question like "What is the slope of the line in this graph?" and multiple-choice options, it becomes essential to analyze the graph carefully, identify two distinct points, and perform the necessary calculations accurately. This article aims to guide you through the process of determining the slope, dissecting each step, and understanding the implications of different slope values.

Understanding the Concept of Slope

What is Slope?

The slope of a line, often denoted as m , measures how much y changes for a unit increase in x . Geometrically, it reflects the angle of inclination of the line relative to the x -axis. Mathematically, it is calculated using the formula:

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$\frac{y_2 - y_1}{x_2 - x_1}$

where $((x_1, y_1))$ and $((x_2, y_2))$ are two distinct points on the line.

Why is Slope Important?

- Determines the direction: positive slope indicates an upward trend; negative slope indicates a downward trend.
- Measures steepness: higher absolute values mean steeper lines.
- Predicts behavior: in real-world applications like economics, physics, and engineering, slope helps predict how variables interact.

Analyzing the Graph to Find the Slope

Step 1: Identify Two Clear Points on the Line

To compute the slope, locate two points with precise coordinates on the line. These should be points where the line crosses grid intersections or points with labeled coordinates to avoid estimation errors.

Step 2: Record the Coordinates

Write down the x and y values for each point. For example:

- Point 1: $((x_1, y_1) = (x_1, y_1))$
- Point 2: $((x_2, y_2) = (x_2, y_2))$

Step 3: Apply the Slope Formula

Use the formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Calculate the differences in y and x, then divide to find the slope.

Step 4: Simplify the Fraction

Express the result in simplest terms, which should match one of the options provided: $\frac{5}{9}$, $\frac{5}{7}$, $\frac{7}{5}$, or $\frac{9}{7}$.

Interpreting the Multiple Choice Options

Let's analyze what each option indicates about the line's behavior:

- A. $5/9$: A gentle positive slope, indicating a relatively shallow upward inclination.
- B. $5/7$: Slightly steeper positive slope, still upward but with more incline.
- C. $7/5$: Steeper positive slope, indicating a sharper rise.
- D. $9/7$: Slightly less steep than $7/5$ but still indicating a significant upward trend.

Understanding these options helps contextualize the line's steepness once the slope is calculated.

Features and Analysis of Each Slope Choice

Option A: 5/9

- Features: A gentle upward slope.
- Pros: Suitable for lines representing slow growth or gradual increase.
- Cons: Might not match a steep line, so if the graph shows a steep incline, this is unlikely.

Option B: 5/7

- Features: Slightly steeper than 5/9.
- Pros: Represents moderate upward trend.
- Cons: Still relatively mild; compare with the graph's steepness.

Option C: 7/5

- Features: Steeper positive slope than options A and B.
- Pros: Suitable for lines with a sharp incline.
- Cons: If the line appears very steep, this is a strong candidate.

Option D: 9/7

- Features: Slightly less steep than 7/5 but still significant.
- Pros: Represents a fairly steep positive slope.
- Cons: If the line is less inclined, this may not be accurate.

Pros and Cons of Calculating the Slope from the Graph

Pros:

- Visual analysis provides immediate understanding of the line's behavior.
- Using exact points yields precise calculations.
- Helps in understanding real-world relationships modeled by the graph.

Cons:

- If the graph is unclear or points are not well-defined, estimation errors can occur.
- Requires careful reading of coordinates, especially on complex or crowded graphs.
- Sometimes, the scale of axes can distort perception if not uniform.

Practical Example of Calculating the Slope

Suppose the graph shows two points:

- Point 1: $(2, 4)$
- Point 2: $(6, 8)$

Applying the formula:

$$m = \frac{8 - 4}{6 - 2} = \frac{4}{4} = 1$$

Since 1 is not among the options, this indicates the need to check the actual points on the provided graph carefully. If the points are, for example, $(1, 2)$ and $(4, 5)$:

$$m = \frac{5 - 2}{4 - 1} = \frac{3}{3} = 1$$

Again, slope 1 does not match options, so the actual points must be chosen carefully. If, instead, the points are $(1, 2)$ and $(4, 6)$:

$$m = \frac{6 - 2}{4 - 1} = \frac{4}{3} \approx 1.33$$

Still not matching options, which indicates the importance of precise point selection.

Conclusion: Choosing the Correct Answer

The key to selecting the correct answer lies in meticulous observation and calculation. After identifying two precise points on the graph and applying the slope formula, compare the resulting ratio to the options provided. For example, if the calculation results in a fraction close to $\frac{7}{5}$ (which is 1.4), then option C is the correct choice. Similarly, if the slope approximates $\frac{5}{7}$ (~ 0.714), then option B fits.

In summary:

- Carefully select two points on the line.
- Calculate the slope using the coordinate differences.
- Simplify the fraction to match one of the options.
- Cross-validate with the visual steepness of the line.

This process not only helps in accurately answering the question but also reinforces fundamental

concepts in coordinate geometry. Mastery of slope calculation enhances understanding of linear relationships and prepares you for more complex analytical tasks.

Final Tips for Success

- Always verify the accuracy of your points before calculating.
- Pay attention to the scale of axes on the graph.
- Simplify fractions to their lowest terms for easier comparison.
- Use graph paper or digital tools if available to improve precision.
- Practice with various graphs to develop intuition about slope estimation.

By following these guidelines, you'll confidently determine the slope of any line presented graphically and select the correct multiple-choice answer with assurance.

[Select The Correct Answer What Is The Slope Of The Line In This Graph A 5 9b 5 7c 7 5d 9 7](#)

Select The Correct Answer What Is The Slope Of The Line In This Graph A 5 9b 5 7c 7 5d 9 7

Related Articles

- [How Do Avidars Values And Approaches To Humans Resources Management Support Lobs Business Success?](#)
- [What Do U Understand By Assets And What Are Different Types Of Assets ??? Class 11th Accounts](#)
- [Question 9 Of 10Which Of The Following Is Not A Potential Problem Of Using More Nuclearenergy?](#)

[Back to Home](#)