Writing Linear Equations Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the standard form of a linear equation?

undefined. y = mx + b

undefined. Ax + By = C ✓

undefined. y - y_1 = m(x - x_1)

undefined. x = my + b

The standard form of a linear equation is represented as Ax + By = C.

Which of the following are components of a linear equation in slope-intercept form?

undefined. Slope ✓

undefined. Y-intercept ✓

undefined. X-intercept

undefined. Quadratic term

The components include the slope and the y-intercept.

Explain what the slope of a linear equation represents in the context of a graph.

The slope represents the rate of change of y with respect to x, indicating how steep the line is.

List the three common forms of linear equations.

1. What is the first form?

Standard form

2. What is the second form?

Slope-intercept form

3. What is the third form?

Point-slope form

The three common forms are standard form, slope-intercept form, and point-slope form.

Part 2: comprehension and Application

If a line has a slope of 2 and a y-intercept of -3, what is the equation of the line in slope-intercept form?

undefined. y = 2x - 3 ✓
undefined. y = -3x + 2
undefined. y = 2x + 3
undefined. y = -2x - 3

The equation of the line is y = 2x - 3.

Which of the following statements are true about the graph of a linear equation?

undefined. It is always a straight line. ✓
undefined. The slope determines the steepness of the line. ✓
undefined. The y-intercept is where the line crosses the x-axis.
undefined. The line can curve depending on the values of m and b.

The true statements include that it is always a straight line and the slope determines the steepness.

Describe how you would convert a linear equation from point-slope form to slope-intercept form.

To convert, you isolate y on one side of the equation.

Given the points (1, 2) and (3, 6), what is the slope of the line passing through these points?

undefined. 2 ✓
undefined. 3
undefined. 4
undefined. 5

The slope of the line is 2.

You are given a linear equation y = 4x + 1. Which of the following points lie on this line?

undefined. (0, 1) ✓
undefined. (1, 5) ✓
undefined. (2, 9) ✓
undefined. (3, 13) ✓

The points (0, 1), (1, 5), (2, 9), and (3, 13) all lie on the line.

Write the equation of a line in point-slope form that passes through the point (4, -2) with a slope of 3.

The equation is y + 2 = 3(x - 4).

Part 3: Analysis, Evaluation, and Creation

Which of the following changes will make the line y = 2x + 3 steeper?

undefined. Changing the slope to 1
undefined. Changing the slope to 3 ✓
undefined. Changing the y-intercept to 5
undefined. Changing the y-intercept to -3

Changing the slope to 3 will make the line steeper.

Analyze the equation 3x + 4y = 12. Which of the following statements are true?

undefined. The slope is -3/4. ✓
undefined. The y-intercept is 3. ✓
undefined. The x-intercept is 4.
undefined. The equation can be rewritten as y = -3/4x + 3. ✓

The slope is -3/4, the y-intercept is 3, and the equation can be rewritten in slope-intercept form.

Break down the process of finding the x-intercept of a linear equation given in standard form.

To find the x-intercept, set y to 0 and solve for x.

If a linear equation models the cost C in dollars of producing x items as C = 5x + 20, what does the y-intercept represent?

undefined. The cost per item

undefined. The total cost for 5 items

undefined. The fixed cost regardless of the number of items ✓

undefined. The variable cost per item

The y-intercept represents the fixed cost regardless of the number of items produced.

Evaluate the following scenarios and identify which ones can be modeled by a linear equation:

undefined. The relationship between distance and time at constant speed. ✓

undefined. The growth of a population over time in a closed environment.

undefined. The cost of buying apples at a fixed price per apple. ✓

undefined. The area of a square as its side length increases.

The scenarios that can be modeled by a linear equation include the relationship between distance and time at constant speed and the cost of buying apples at a fixed price per apple.

Create a real-world problem that can be solved using a linear equation. Provide the equation and explain how it models the situation.

An example could be calculating the total cost of items purchased at a fixed price.