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Absolute Value Worksheets

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Part 1: Building a Foundation

What is the absolute value of -7?

Hint: Remember that absolute value measures distance from zero.

○ -7
○ 0
○ 7
○ -14

Which of the following statements about absolute value are true? (Select all that apply)

Hint: Consider the properties of absolute value.

☐ The absolute value of a number is always positive.
☐ The absolute value of zero is zero.
☐ Absolute value measures the distance from zero on a number line.
☐ Absolute value can be negative.

Explain in your own words what the absolute value of a number represents.

Hint: Think about distance and direction on a number line.

Provide the absolute values for the following numbers:

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Hint: Calculate the absolute value for each number listed.

1. a) -15

[   ]

2. b) 8

[   ]

3. c) 0

[   ]

Part 2: comprehension and Application

Which of the following equations correctly represents the absolute value equation |x| = 5?

Hint: Think about the definition of absolute value.

○ x = 5 or x = -5
○ x = 5
○ x = -5
○ x = 0

If |x| < 3, which of the following could be the value of x? (Select all that apply)

Hint: Consider the range of values that satisfy the inequality.

☐ -4
☐ 2
☐ 0
☐ -2

Describe how you would graph the solution to the inequality |x| > 4 on a number line.

Hint: Think about the regions that satisfy the inequality.

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Solve the equation |2x - 3| = 7. What is one possible value of x?

Hint: Consider both cases for the absolute value.

○ 5
○ -2
○ 2
○ 3

Which of the following represent solutions to the inequality |x + 1| ≤ 4? (Select all that apply)

Hint: Think about the range of values that satisfy the inequality.

☐ 3
☐ -5
☐ 0
☐ -2

Solve the absolute value equation |3x + 2| = 8 and provide both solutions.

Hint: Consider both cases for the absolute value.

Part 3: Analysis, Evaluation, and Creation

Consider the function f(x) = |x - 2|. What is the value of f(x) when x = -1?

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Hint: Substitute -1 into the function and calculate.

○ 1
○ 3
○ -1
○ 2

Which of the following inequalities describe the solution set for |x - 4| > 6? (Select all that apply)

Hint: Think about the regions that satisfy the inequality.

☐ x > 10
☐ x < -2
☐ x < 10
☐ x > -2

Analyze the inequality |2x + 5| < 9 and describe the solution set in interval notation.

Hint: Consider the range of values that satisfy the inequality.

If the absolute value equation |x - 3| = |x + 2| is true, what can be concluded about x?

Hint: Think about the implications of the equality of two absolute values.

○ x = 0
○ x = 1
○ x = -0.5
○ x = -2.5

Which of the following real-world scenarios can be modeled using absolute value? (Select all that apply)

Hint: Consider situations involving distance or deviation.

☐ Calculating the distance between two points on a map.
☐ Determining the deviation from a target temperature.
☐ Finding the sum of two numbers.

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☐ Measuring the height of a building.

Create a real-world problem that involves solving an absolute value equation or inequality. Provide a detailed explanation of how to solve it.

Hint: Think about a scenario that requires distance or deviation.

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