Absolute Value Equations Worksheet Answer Key PDF

Absolute Value Equations Worksheet Answer Key PDF

Disclaimer: The absolute value equations worksheet answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

Part 1: Building a Foundation

What is the absolute value of -7?

undefined. -7

undefined. 0

undefined. 7 ✓

undefined. -14

The absolute value of -7 is 7.

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

undefined. Absolute value is always positive. ✓

undefined. Absolute value represents the distance from zero. ✓

undefined. Absolute value can be negative.

undefined. Absolute value is denoted by square brackets.

The true statements are that absolute value is always positive and represents distance from zero.

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

The absolute value of a number represents its distance from zero on the number line, regardless of direction.

Provide the absolute values for the following numbers: -3, 0, 5.

1. -3

3

2. 0

0

3. 5

5

The absolute values are 3, 0, and 5 respectively.

Which equation represents the absolute value of x equals 4?

undefined. x = 4

undefined. |x| = 4 ✓

undefined. x = -4

undefined. |x| = -4

The correct equation is |x| = 4.

Part 2: comprehension and Application

If |x| = 8, what are the possible values of x?

undefined. 8 only

undefined. -8 only

undefined. 8 and -8 ✓

undefined. 0

The possible values of x are 8 and -8.

Which of the following equations have no solution? (Select all that apply)

undefined. |x| = -5 ✓

undefined. |x| = 0

undefined. |x| = 3

undefined. |x| = -1 ✓

The equations |x| = -5 and |x| = -1 have no solutions.

Describe how you would solve the equation |x - 2| = 5 and provide the solutions.

To solve |x - 2| = 5, you set up two equations: x - 2 = 5 and x - 2 = -5, leading to x = 7 and x = -3.

Solve the equation |3x + 1| = 7. What is one of the solutions for x?

undefined. 2 ✓
undefined. -2
undefined. 3
undefined. -3

One of the solutions for x is 2.

Solve the equation |x + 4| = 10. What are the solutions for x? (Select all that apply)

undefined. 6 ✓
undefined. -6
undefined. 14
undefined. -14 ✓

The solutions for x are 6 and -14.

A person is standing at point 0 on a number line. If they walk to a point represented by |x| = 9, where could they be standing? Provide both possible positions.

The person could be standing at 9 or -9.

Part 3: Analysis, Evaluation, and Creation

Which graph represents the equation |x| = 3?

undefined. A line at y = 3
undefined. A V-shape opening upwards at y = 3 ✓
undefined. A V-shape opening downwards at y = 3
undefined. A horizontal line at y = 0

The graph is a V-shape opening upwards at y = 3.

Consider the equation |x - 3| + |x + 2| = 10. Which of the following x-values satisfy the equation? (Select all that apply)

undefined. 0 ✓

undefined. 1

undefined. -5

undefined. 3 ✓

The values that satisfy the equation are 0 and 3.

Analyze the equation |2x - 5| = 9. Break down the steps to solve it and find the solutions.

To solve |2x - 5| = 9, set up two equations: 2x - 5 = 9 and 2x - 5 = -9, leading to x = 7 and x = -2.

If |x| = a and a is a positive number, which statement is true?

undefined. x must be positive.

undefined. x must be negative.

undefined. x can be either positive or negative. ✓

undefined. x must be zero.

The correct statement is that x can be either positive or negative.

Create an absolute value equation that has solutions x = 4 and x = -4. Explain your reasoning.

An example equation is |x| = 4, which has solutions x = 4 and x = -4.

Given the real-world scenario where a temperature gauge shows | T - 72| = 5, what are the possible temperatures? Provide both solutions and explain how you derived them.

1. First solution

77

2. Second solution

67

The possible temperatures are 77 and 67, derived from T - 72 = 5 and T - 72 = -5.