

## Absolute Value Equations Worksheet Questions and Answers PDF

Absolute Value Equations Worksheet Questions And Answers PDF

*Disclaimer: The absolute value equations worksheet questions and answers 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](mailto:max@studyblaze.io).*

### Part 1: Building a Foundation

---

**What is the absolute value of -7?**

*Hint: Remember that absolute value represents distance from zero.*

- 7
- 0
- 7 ✓
- 14

■ The absolute value of -7 is 7.

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

*Hint: Consider the properties of absolute value.*

- Absolute value is always positive. ✓
- Absolute value represents the distance from zero. ✓
- Absolute value can be negative.
- 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.**

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

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.

Hint: Calculate the absolute value for each number.

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?

Hint: Look for the correct notation for absolute value.

$x = 4$

$|x| = 4$  ✓

- $x = -4$   
  $|x| = -4$

■ The correct equation is  $|x| = 4$ .

## Part 2: comprehension and Application

---

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

*Hint: Think about the definition of absolute value.*

- 8 only  
 -8 only  
 8 and -8 ✓  
 0

■ The possible values of  $x$  are 8 and -8.

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

*Hint: Consider the properties of absolute value.*

- $|x| = -5$  ✓  
  $|x| = 0$   
  $|x| = 3$   
  $|x| = -1$  ✓

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

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

*Hint: Think about the definition of absolute value and how to isolate  $x$ .*

■ 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  $x$ ?**

*Hint: Consider both positive and negative scenarios for the absolute value.*

- 2 ✓  
 -2  
 3  
 -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)**

*Hint: Remember to consider both cases for the absolute value.*

- 6 ✓  
 -6  
 14  
 -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.**

*Hint: Think about the definition of absolute value and its implications.*

■ The person could be standing at 9 or -9.

### Part 3: Analysis, Evaluation, and Creation

---

Which graph represents the equation  $|x| = 3$ ?

Hint: Consider the shape of the graph for absolute value equations.

- A line at  $y = 3$
- A V-shape opening upwards at  $y = 3$  ✓
- A V-shape opening downwards at  $y = 3$
- 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)

Hint: Think about the values that would make the equation true.

- 0 ✓
- 1
- 5
- 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.

Hint: Consider how to isolate the variable and the two cases for absolute value.

■ 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?

Hint: Think about the implications of absolute value.

- $x$  must be positive.
- $x$  must be negative.

- x can be either positive or negative. ✓
- 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.**

*Hint: Think about how absolute value equations are structured.*

■ 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.**

*Hint: Think about the meaning of the absolute value in this context.*

1. First solution

■ 77

2. Second solution

■ 67

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