

NAME _____

Module 6 Solving Absolute Value Equations and Inequalities**Lesson 1** Solving Basic Absolute Value Equations

guided notes

Lesson Objectives

- Understand the geometric and algebraic definitions of absolute value.
- Solve absolute value equations of the form $|ax + b| = k$ by rewriting them as compound equations.
- Identify and solve one solution and no solution absolute value equations.

The absolute value of a number is the distance from **0** _____ to that number on a number line.

The absolute value of any nonzero number is **positive** _____.

The absolute value of 0 is **0** _____.

$$|x| = \begin{cases} x, & \text{if } x \geq 0 \\ -x, & \text{if } x < 0 \end{cases}$$

If $|x| = 0$, then $x = \mathbf{0}$ _____.

1 Solve:

$$|N| = 7$$

$$\mathbf{N = 7 \text{ or } N = -7}$$

Solution Set: $\mathbf{\{7, -7\}}$

2 Solve:

$$|4y| = 12$$

$$\mathbf{y = 3 \text{ or } y = -3}$$

Solution Set: $\mathbf{\{3, -3\}}$

3 Solve:

$$\left| \frac{z}{2} \right| = 1$$

$$z = 2 \text{ or } z = -2$$

Solution Set: $\{2, -2\}$

4 Solve:

$$|2l - 7| = 1$$

$$l = 4 \text{ or } l = 3$$

Solution Set: $\{4, 3\}$

5 Solve:

$$|7M - 1| = -4$$

no solution

Solution Set: \emptyset

6 Solve:

$$|x + 5| = 0$$

$$x = -5$$

Solution Set: $\{-5\}$