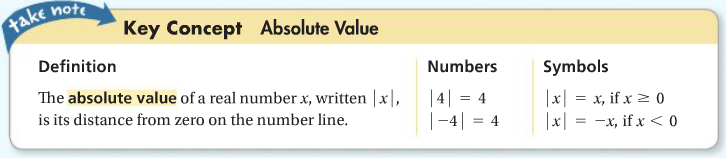
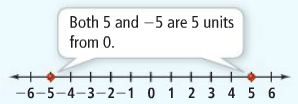
**Section 1–6A: Absolute Value Equations**

Before we start, you should know that an absolute value quantity is nonnegative. Since opposites have the same absolute value, an absolute value equation can have **two** solutions.

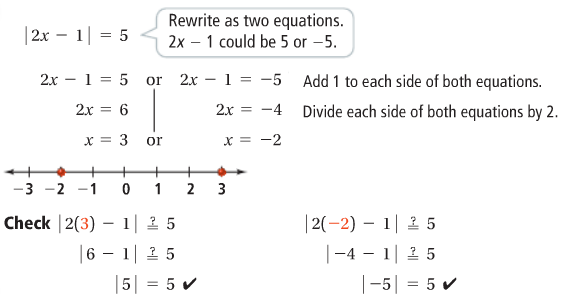


An absolute value equation has a variable within the absolute value sign. For example, . Here, the value of can be or since and both equal 5.



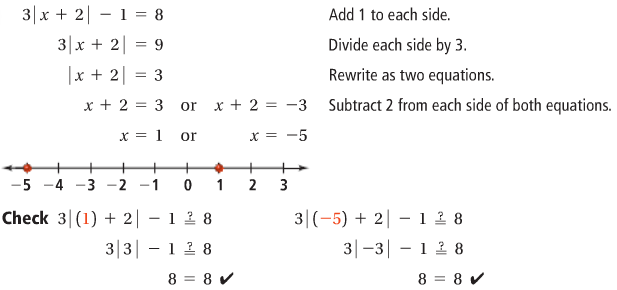
**Example 1: Solving an Absolute Value Equation**

What is the solution of ? Graph the solution.



**Example 2: Solving a Multi-Step Absolute Value Equation**

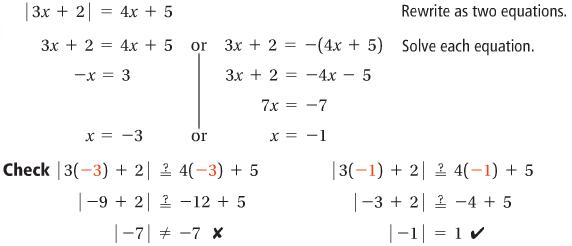
What is the solution of ? Graph the solution.



Distance from 0 on the number line cannot be negative. Therefore, some absolute value equations, such as , have no solution. **It is important to check the possible solutions of an absolute value equation.** One or more of the possible solutions may be *extraneous*. An **extraneous solution** is a solution derived from an original equation that is ***not*** a solution of the original equation.

**Example 3: Checking for Extraneous Solutions**

What is the solution of ? Check for extraneous solutions.



Since does not satisfy the original equation, is an extraneous solution. The only solution to the equation is .