LARSON ALGEBRA 2

CHAPTER 1, LESSON 7, EXTRA EXAMPLES

Extra Example 1 Solving an Absolute Value Equation

Solve $|6x - 3| = 15$.

SOLUTION

Rewrite the absolute value equation as two linear equations and solve each linear equation.

$|6x - 3| = 15$		Write original equation.
$6x - 3 = 15$ or $6x - 3 = -15$		Expression can be 15 or −15.
$6x = 18$ or $2x = -12$		Add 3 to each side.
$x = 3$ or $x = -2$		Divide each side by 6.

◗ The solutions are 3 and −2. Check these by substituting each into the original equation.

Extra Example 2 Solving an Inequality of the Form $|ax + b| \leq c$

Solve $|4x - 9| \leq 21$.

SOLUTION

$|4x - 9| \leq 21$	Write original inequality.
$-21 \leq 4x - 9 \leq 21$	Write equivalent compound inequality.
$-12 \leq 4x \leq 30$	Add 9 to each expression.
$-3 \leq x \leq 7.5$	Divide each expression by 4.

◗ The solution is all real numbers greater than or equal to −3 and less than or equal to 7.5. Check this solution using the original inequality. The graph is shown below.