Algebra I
Notes Section 5.5
Solve Multi-Step Inequalities

Big Ideas
1. How to rewrite and absolute value equation as two equations and solve each equation separately to solve the absolute value equation.
2. How to determine if an absolute value equation has a solution or no solution.

VOCABULARY

Absolute Value: _____

Absolute Value Equation: _____

EXAMPLE 1 Solve.

a) $|x| = 7$ _____

b) $|x| = 15$ _____

EXAMPLE 2 Solve.

a) $|x - 3| = 8$ b) $|r - 7| = 9$

EXAMPLE 3 Solve.

a) $3|2x - 7| - 5 = 4$ b) $4|t + 9| - 5 = 19$

EXAMPLE 4   Solve, if possible.

a) $|3x + 5| + 6 = -2$ | b) $2|m - 5| + 4 = 2$ | c) $-3|n + 2| - 7 = -10$

absolute deviation: $|x - \text{given value}|$

EXAMPLE 5   Before the start of a professional basketball game, a basketball must be inflated to an air pressure of 8 pounds per square inch (psi) with an absolute error of 0.5 psi. (Absolute error is the absolute deviation of a measured value from an accepted value.) Find the minimum and maximum acceptable air pressures for the basketball.