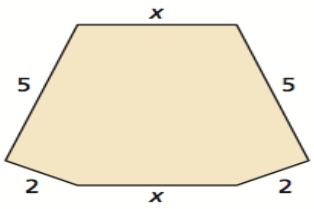
Name: _____ Date: _____

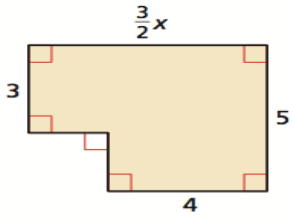
1.3 Solving Equations with Variables on Both Sides

Essential Question: _____

_____

Exploration: The following two polygons have the same perimeter (perimeter is the sum of all the sides). Use this information to write and solve an equation and then find the perimeter of each polygon. (Do this in the space to the right of the polygons).





How to solve equations with variables on both sides:

1. _____ both sides of the _____.
    a. First _____and then combine _____ terms.
2. Then use _____ _____ to isolate the _____ terms on one side and the _____ terms on the other.

EXAMPLE 1 **Solving an Equation with Variables on Both Sides**

Solve $10 - 4x = -9x$. Check your solution.

EXAMPLE 2 Solving an Equation with Grouping Symbols

Solve $3(3x - 4) = \frac{1}{4}(32x + 56)$.

Special Solutions of Linear Equations

Sometimes equations can have _____ solutions or ____ solutions at all.

EXAMPLE 3 Identifying the Number of Solutions

Solve each equation.

a. $3(5x + 2) = 15x$

b. $-2(4y + 1) = -8y - 2$