

### 3.4: "Solve Equations with Variables on Both Sides"

"I WILL ...

Solve Variables on Both Sides."

#### I. Steps

- A. Identify where the variables and numbers are
- B. Put the variables on one side by canceling
- C. Put the numbers on other side by canceling
- D. Solve for the variable
- E. Check

#### II. Special Occurrences

A. No Solution,  $\{\emptyset\}$

1. There is no value of  $x$  that could ever make it true
2. There are NO more variables

B. All Real Numbers,  $\{\mathbb{R}\}$

1. Uses the identity property,  $x = x$
2. There are NO more variables

#### III. Model Problems

Ex 1: Solve $5x - 2 = 6x - 1$	Ex 2: Solve $7(5x - 2) = 6(6x - 1)$
Ex 3: Solve $13 - (2x + 2) = 2(x + 2) + 3x$	Your Turn: Solve $3(4y + 2) = 2(1 + 5y) + 8$

Ex 4: Solve  $\frac{1}{2}(2x - 6) = 2x$

Ex 5: Solve  $\frac{2(x+3)}{3} = 6x + 2$

Your Turn:  $\frac{4(x+3)}{3} = 5x - 7$

Ex 6: Solve  $4x - 4 = 4x$

Ex 7: Solve  $24 - 6x = 6(4 - x)$

Your Turn:  $-2(x - 5) + 10 = -3(x + 2) + x$