Name_____ Pd_____ Date_____ **Section 1.D.6**

Solving Inequalities with Variables on Both Sides

Ex. 1	Steps	Analyze Process
$4x - 2 < 2x - 6$ $\underline{-2x \qquad -2x}$ $2x - 2 < -6$ $\underline{+2 \qquad +2}$ $\dfrac{2x}{2} < \dfrac{-4}{2}$ $x < -2$	1) Get rid of the variables on ONE side. Do the SAME to the other side. 2) Solve by using inverse operations. 3) Keep/reverse symbol. 4) Graph your solution.	Why do we subtract $2x$ from both sides instead of add $2x$ and $4x$ together?
Ex. 2A - Left Side Method $5x - 3 > 8x - 6$	Ex. 2B - No Negatives Method $5x - 3 > 8x - 6$	Analyze Process Which method do you prefer? Why?

Solve and Graph the Inequality

You Try 3 $6x + 3 \leq x - 7$	You Try 4 $4x - 1 \geq 6x + 5$

Special Solutions

Ex. 5	Steps	Analyze Process
$2(3x - 1) > 5x - 5 + x$ $6x - 2 > 6x - 5$ $\underline{-6x \qquad - 6x}$ $-2 > -5$	1) Simplify first. 2) Solve by getting rid of the variable on ONE side. Do the SAME to the other side. 3) Decide if your statement is ALWAYS true or ALWAYS false. 4) Describe your solution set - ALL REAL NUMBERS or NO SOLUTION.	1) What simplify processes do you use? 2) What happens when you try to solve? 3) What is your solution set? Why?

Ex. 6	You Try 7	You Try 8
$4 - (8x + 7) > 2 - 8x$	$3x - 3 \geq 5x - 6 - 2x$	$2(x + 1) - 6x > -4x + 5$

Key Ideas
- When you have variables on both sides, _____the variables on one side.
- Then do the SAME to the other side.
- If your variables cancel out and you have a TRUE statement, your solution is:

- If your variables cancel out and you have FALSE statement, your solution is: