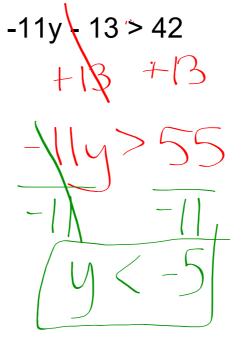# Solving Multi-Step Inequalities

Clear Learning Target

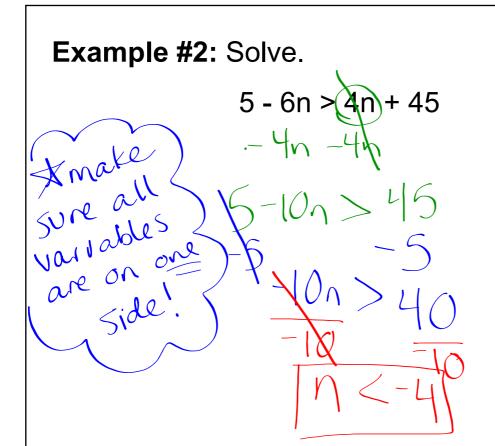*You will be able to solve multi-step algebraic inequalities using properties of inequalities.*

Example #1: Solve.

$$-11y - 13 > 42$$

$$+13 \qquad +13$$

$$-11y > 55$$

$$\frac{-11}{} \qquad \frac{-11}{}$$

$$y < -5$$

You Try! Solve.

$$43 > -4y + 11$$

$$-11 \qquad -11$$

$$\frac{32}{-4} > \frac{-4y}{-4}$$

$$-8 < y$$

$$y > -8$$

Example #2: Solve.

$$5 - 6n > 4n + 45$$

$$-4n \quad -4n$$

$$5 - 10n > 45$$

$$-5 \qquad -5$$

$$-10n > 40$$

$$\frac{-10n}{-10} \qquad \frac{40}{-10}$$

$$\boxed{n < -4}$$

make sure all variables are on one side!

You Try! Solve.

$$3b - 6 \geq 15 + 24b$$

$$-24b \qquad\qquad -24b$$

$$-21b - 6 \geq 15$$

$$+6 \qquad +6$$

$$-21b \geq 21$$

$$\frac{-21b}{-21b} \qquad \frac{21}{-21b}$$

$$\boxed{b \leq -1}$$

Example #3: Solve.

$$3(a - 7) \leq 12$$

You Try! Solve.

$$-6 \leq 3(5v - 2)$$