Solving Multi-Step Equations Cue Cards (with examples)

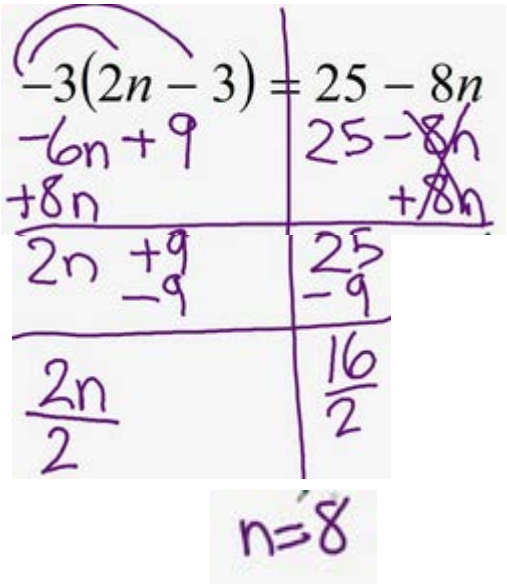
Inverse Operations: (Opposites)	
Addition & Subtraction Positive # & Negative # (ex: 3 & -3)	Multiplication & Division Square & Square Root

Pre-Step for all equations:
Simplify Double Signs!

Rule		Example
Two like signs become a **positive sign**	+(+)	3+(+2) = 3 + 2 = 5
	−(−)	6−(−3) = 6 + 3 = 9
Two unlike signs become a **negative sign**	+(−)	7+(−2) = 7 − 2 = 5
	−(+)	8−(+2) = 8 − 2 = 6

Solving Multi-Step Equations		
Step 1:	Distribute **Multiply** $5(x + 6)$ $5x + 30$	
Step 2:	Combine Like Terms on the **SAME** side of the equal sign **4a + 5 + 2a - 3** **6a + 2**	
Step 3:	Is there a variable on both sides?	
	Yes; Use inverse operations (add or subtract) to move the variable term to the left	**No;** Go to Step 4
Step 4:	Use inverse operations to undo the constant on the **same side of the variable**	
Step 5:	Use inverse operations to undo any multiplication or division	

Example 1:

$$4x+9 = 2x-6$$
$$-2x \quad = \quad -2x$$
$$2x+9 = -6$$
$$-9 \quad = \quad -9$$
$$2x = -15$$
$$\frac{2x}{2} = \frac{-15}{2}$$
$$x = -\frac{15}{2}$$

Example 2: