

# 1.1 Solving Linear Equations 8/27/19

**Defn:** Linear Equation is the equation of a straight line and has one variable. Variable is a letter that represents an unknown often seen as x.

How to solve linear equations

Step 1: Simplify each side as needed

$$\begin{array}{l} \text{ex: } 5(x-2) = 15 \\ 5x - 10 = 15 \\ \hline \end{array}$$

Step 2: Use inverse operations to get x by itself

$$\begin{array}{l} 5x = 25 \\ \hline x = 5 \end{array}$$

Step 3: Check your answer (plug in #)

$$\begin{array}{l} 5(5-2) = 15 \\ 5(3) = 15 \\ 15 = 15 \checkmark \end{array}$$

$$\begin{array}{l} \text{ex: } -p + 1 = 9 + p - 1 \\ -p + 1 = 8 + p \\ \hline \end{array}$$

$$\begin{array}{l} \text{ex: } 2(x-1) = 2x - 2 \\ 2x - 2 = 2x - 2 \\ \hline \end{array}$$

$$\begin{array}{l} +2p = 1 \text{ OR } 1 = 8 + 2p \\ -8 \quad \quad -8 \quad -8 \\ \hline \end{array}$$

-2 = -2  
infinitely many solutions

$$\begin{array}{l} \frac{2p}{2} = \frac{-7}{2} \quad \quad \frac{-7}{2} = \frac{2p}{2} \\ p = -3.5 \quad \quad -3.5 = p \end{array}$$

$$\begin{array}{l} \text{ex: } 5 - 2x + 1 = 2(-x + 1) \\ 5 - 2x + 1 = -2x + 2 \\ \hline \end{array}$$

$$\begin{array}{l} 5 - 2x = -2x + 2 \\ \hline 5 = 2 \end{array}$$

no solution.