

Date: _____

Warm-Up 2: Linear Equation Solving

Recall: The **solution** of an equation is the value of the variable which satisfies the equation (makes the equation true)

Ex. Is $x = 3$ the solution to $5x - 3 = 3x + 4$? Ex. Is $y = -2$ the solution to $-5y - 7 = 2y + 7$

$$\begin{array}{r|l} 5x - 3 & 3x + 4 \\ 5(3) - 3 & 3(3) + 4 \\ 15 - 3 & 9 + 4 \\ 12 & 13 \end{array}$$

No $x = 3$ is not

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$$\begin{array}{r|l} -5(-2) - 7 & 2(-2) + 7 \\ 10 - 7 & -4 + 7 \\ 3 & 3 \end{array}$$

Yes, $y = -2$ is a soln

To **solve** an equation we **isolate** the variable by performing opposite operations to both sides of the equation until the variable is by itself on one side and has a coefficient of 1.

Ex. Solve:

a) $2x + 6 = 20$

$$\begin{array}{r} 2x + 6 = 20 \\ -6 \quad -6 \\ \hline 2x = 14 \\ \hline x = 7 \end{array}$$

$$\boxed{x = 7}$$

b) $8x = 3x - 15$

$$\begin{array}{r} 8x = 3x - 15 \\ -3x \quad -3x \\ \hline 5x = -15 \\ \hline x = -3 \end{array}$$

$$\boxed{x = -3}$$

c) $2x + 7 = 6x - 5$

$$\begin{array}{r} 2x + 7 = 6x - 5 \\ -6x \quad -6x \\ \hline -4x = -12 \\ \hline x = 3 \end{array}$$

$$\boxed{x = 3}$$

d) $-9t - 7 = -5 - 8t$

$$\begin{array}{r} -9t - 7 = -5 - 8t \\ +8t \quad +8t \\ \hline -t - 7 = -5 \\ \hline -t = 2 \\ \hline t = -2 \end{array}$$

$$\boxed{t = -2}$$

Practice: WS34/41 – work on separate sheet; attach to worksheet