WARM UP

Solve each equation for x.

1. $y = x + 3$
2. $y = 3x - 4$

Simplify each expression.

1. $2(x - 5)$
2. $12 - 3(x + 1)$

Evaluate each expression for the given value of x.

1. $2/3x + 8$ for $x = 6$
2. $3(x - 7)$ for $x = 10$

WARM UP

Solve each equation for x.

1. $y = x + 3$

2. $y = 3x - 4$

WARM UP

Simplify each expression.

1. 2(x - 5)

2. 12 - 3(x + 1)

What property do we need here?

WARM UP

Evaluate each expression for the given value of x.

1. 2/3x + 8 for x = 6

2. 3(x - 7) for x = 10

Buttermilk Pancakes

flour
eggs
buttermilk
baking soda

Buttermilk

milk
lemon juice

Buttermilk Pancakes =
flour + eggs + buttermilk + baking soda

Buttermilk = milk + lemon juice

Big Idea

A system of linear equations is a set of two or more linear equations containing two or more variables.

A solution of a system of linear equations with two variables is an ordered pair that satisfies each equation in the system.

If (3, 1) is the soluiton to the system $\begin{cases} y = 2x - 5 \\ y = -x + 4 \end{cases}$

then (3, 1) will make both equations _____.

Solve the system by substitution:

$$\begin{cases} 2x + y = 5 \\ y = x - 4 \end{cases}$$

RECALL: Solving equations in one variable.

GOAL: Reduce the system to one equation that only has one variable.

CIRCLE and SWITCH

Solve the system by substitution:

$$\begin{cases} 2x + y = 5 \\ y = x - 4 \end{cases}$$

Find a variable to isolate

$$\begin{cases} 2x + y = 5 \\ y = x - 4 \end{cases}$$

Circle and Switch

$$2x + (x - 4) = 5$$
$$2x + x - 4 = 5$$
$$3x - 4 = 5$$
$$3x = 9$$
$$x = 3$$

Substitute in for y and solve algegraically

$$y = x - 4$$
$$y = (3) - 4$$
$$y = -1$$
$$(3, -1)$$

Substitute x into original equation

Example 1

$$\begin{cases} y = 2x \\ y = x + 5 \end{cases}$$

Example 2

$$\begin{cases} y = x + 3 \\ y = 2x + 4 \end{cases}$$

Example 3

$$\begin{cases} y = x + 5 \\ 4x + y = 20 \end{cases}$$

Example 4

$$\begin{cases} 4y - 5x = 9 \\ x - 4y = 11 \end{cases}$$

Example 5

$$\begin{cases} x + 4y = 6 \\ x + y = 3 \end{cases}$$

$$\begin{cases} 2x + 4y + 3z = 14 \\ y + 3z = 11 \\ z = 4 \end{cases}$$

Solve by Substitution

$$\begin{cases} x = 2y - 4 \\ x + 8y = 16 \end{cases}$$

EXIT TICKET