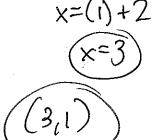
Warm-Up

Solve the following system of equations using the Substitution Method.

$$x-y=2 \longrightarrow x=y+2$$

$$3x + 2y = 11$$



3y+6+2y=11

3(y+2)+2y=11

Example 1. Using Addition to Eliminate a Variable

$$2x + 5y = -4$$
$$4x - 5y = 22$$

- (a) When the coefficients of one variable are opposites we can eliminate that variable by adding the equations.
- (b) Solve the resulting equation for x.
- (c) Substitute the solution from (b) into either one of the original equations to find the y-value.
- (d) Write the solution to the system as an ordered pair.

Example 2. Multiplying an Equation by Negative 1

$$5x + 6y = 4$$
$$7x + 6y = 8$$

- (a) When the coefficients of one variable are the same we can eliminate that variable by multiplying one equation by -1 and adding the equations.
- (b) Solve the resulting equation for x.
- (c) Substitute the solution to (b) into one of the original equations to find the y-value.
- (d) Write the solution to the system as an ordered pair.

IF GEFFICIENTS ____ AND 2 EQUATIONS ARE opposites

IF COEFFICUENTS > SUBTRACT ARE THE SAME FOR

BY - AND ADD 2 EQUATIONS

$$2x+5y=-4
+ 4x-5y=22
6x = 18
(x=3)
2(3)+5y=-4
-6
5y=-16
(y=-2)$$

(+1)(5x+6y=4) -> -5x-6y=-4
7x+6y=8 + 7x+6y=8

$$2x = 4$$

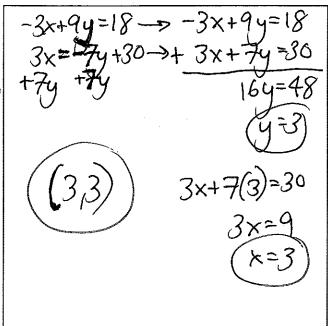
 $x=2$)
 $7(2)+6y=8$
 -14 -14
 $6y=-6$
 $y=-1$)

Example 3. Arranging Like Terms

$$-3x + 9y = 18$$

$$3x = -7y + 30$$

- (a) Rewrite the second equation in Standard Form (line up the x-values and the y-values).
- (b) When the coefficients of one variable are opposites we can **eliminate** that variable by adding the equations.
- (c) Solve the resulting equation for y.
- (d) Substitute the solution to (b) into one of the original equations to find the x-value.
- (e) Write the solution to the system as an ordered pair.



Try It!

Solve each system using Elimination.

$$3x + 2y = 41$$

$$+ 5x - 2y = 15$$

New: Pg. 447 #2, 4, 6, 10, 12, 16, 20, 26, 42

Review:

1.

Use Substitution to solve the linear system.

$$x = 5^{\circ}$$

$$2x + 3y = -13$$

$$y = -2$$

$$x + y = 7$$