Algebra I - 6-2 VIDEO NOTES

Name_____

6.2 Solving Systems by Substitution

Objectives: To solve systems by substitution
To analyze special types of systems

Solving linear equations using SUBSTITUTION:

SUBSTITUTION METHOD:

- Solve one of the equations for one of the variables (choose one, x or y, it doesn't matter)
- Substitute the expression for the variable into the other equation.

Problem 1: What is a solution of the system? Use substitution.

$$\begin{cases} y = 3x \\ x + y = -32 \end{cases}$$

Problem 2: Using Systems of Equations

A snack bar sells two sizes of snack packs. A large snack pack is $5, and a small snack pack is $3. In one day, the snack bar sold 60 snack packs for a total of $220. How many snack packs did the snack bar sell?

a. Define the variables.

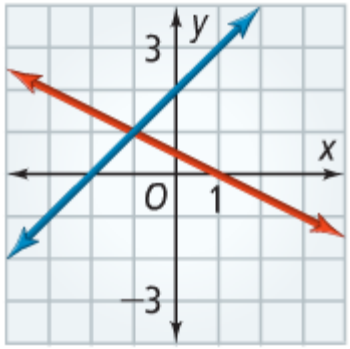
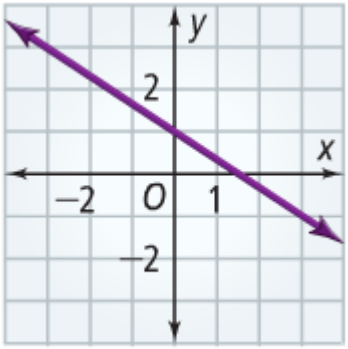
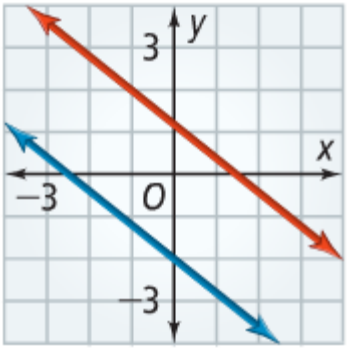
Let x = _____

y = _____

b. Write a system of equations and solve using substitution.

Solution: _____

RECALL the3 Possible Solutions to a LINEAR system:

Graphic Solution			
Number of Solutions	1 solution	Infinite solutions	No solutions
Algebraic Solution	The solution is where the lines cross **(x, y).** In the example above, the solution is (-1, 1)	These lines are the same line so they have every point in common, so there are **infinite solutions**.	These lines are parallel and don't have any points in common, so there is **no solution**.
Type of Solution	**CONSISTENT** - **INDEPENDENT**	**CONSISTENT** - **DEPENDENT**	**INCONSISTENT**

SPECIAL CASES

If you get a true statement (identity), Then the system has infinitely many solutions. ***Examples:***	***If you get a false statement, then the system has no solution.*** ***Examples:***

Problem 3: **Systems with Infinitely Many Solutions or No Solution**

How many solutions does each system have?

a. $\begin{cases} x = -2y + 4 \\ 3.5x + 7y = 14 \end{cases}$

b. $\begin{cases} y = 3x - 11 \\ y - 3x = -13 \end{cases}$

DON'T DO THE LESSON CHECK AT THE VERY END OF THE VIDEO