Coordinate Algebra

Name: Key

Date:_____ Class Period:____

Introduction to Systems of Linear Equations Notes

A system of linear equations consists of 2 or more linear equations that use the same variables.

The Solution to a system of equations is the point or points that make both or all of the equations true.

Remember that a point is represented by an ordered pair (x,y).

Example 1: Determine if the given ordered pair is a solution to the given system:

$$\begin{cases} 3x + 7y = 12 \\ 7x - y = -4 \end{cases} \qquad (-3,3)$$

Example 2: Determine if the given ordered pair is a solution to the given system:

$$\begin{cases} 2x - 7 = -y \\ -5x + 13 = y \end{cases} \qquad (2,3)$$

When you are solving for a system of linear equations, you can have 3 different types of solutions:

1. One Solution
2. No solution
3. Infinitely Many Solutions

Also, there are 3 ways you can solve a system of equations:

1. Graphing
2. Substitution
3. Elimination

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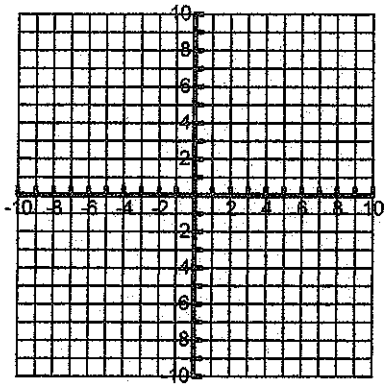
Solving Systems by Graphing Notes

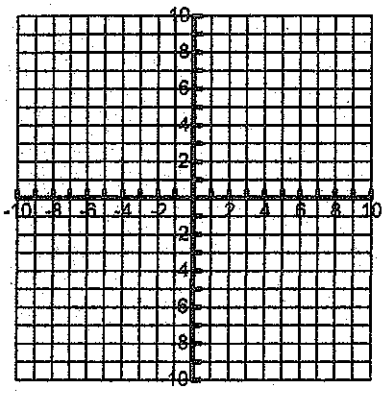
Steps

1. Convert to slope-intercept form
2. State m & b for both equations
3. find point of intersection
4. State answer as ordered pair

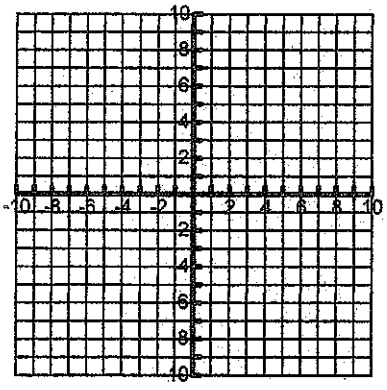
1. $2x - 2y = -8$
   $2x + 2y = 4$



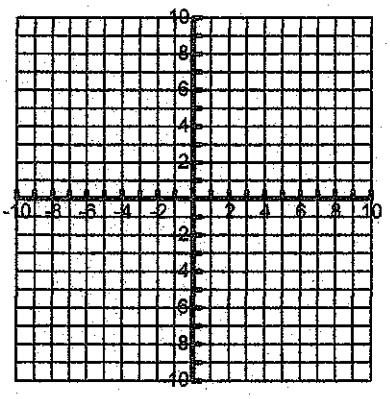
2. $y = -2x + 5$
   $y = -2x + 1$



3. $x + y = -2$
   $2x - 3y = -9$



4. $y = 5$
   $2x + y = 1$



Types of solutions:

- If the lines have the same y-intercept b, and the same slope m, then the system is _____.
- If the lines have the same slope m, but different y-intercepts b, the system is _____.
- If the lines have different slopes m, the system is _____.