Name:____ Hour: _______________ Date: _______________

NOTES: Section 7.5 – Special Types of Linear Systems

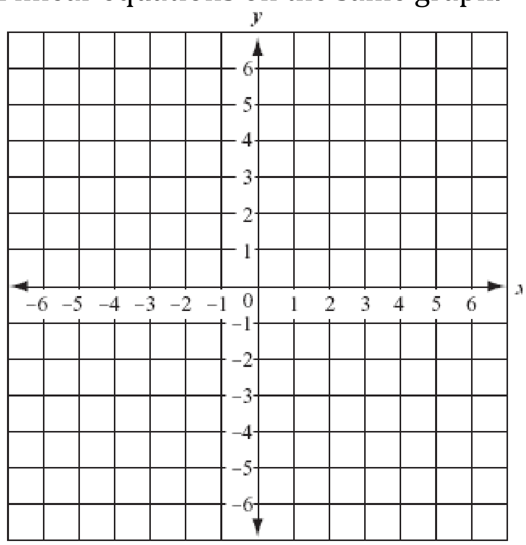
Goals: #1 - I can identify how many solutions a linear system has. 

Homework: Section 7.5 Worksheet

Exploration #1: Work with a partner. Graph both linear equations on the same graph.

$4x + y = 8$

$2x - 3y = 18$



Circle where these lines intersect. Can you check if your answer is correct?

Notes:

A ____, consists of two _______________ equations.

A ______________________________ of a system of linear equations, is an _______________________

(x, y) where the graphs of the equations in a system ______________________________________.

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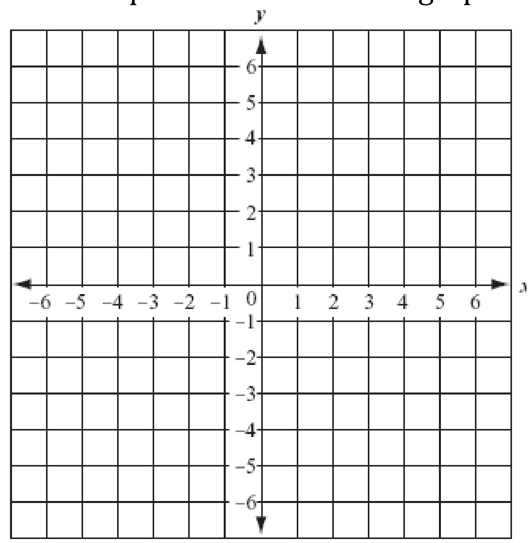
Exploration #2: Work with a partner. Graph both linear equations on the same graph.

$2x + y = 4$

$2x + y = 1$



Circle where these lines intersect. Can you check if your answer is correct?

Notes:

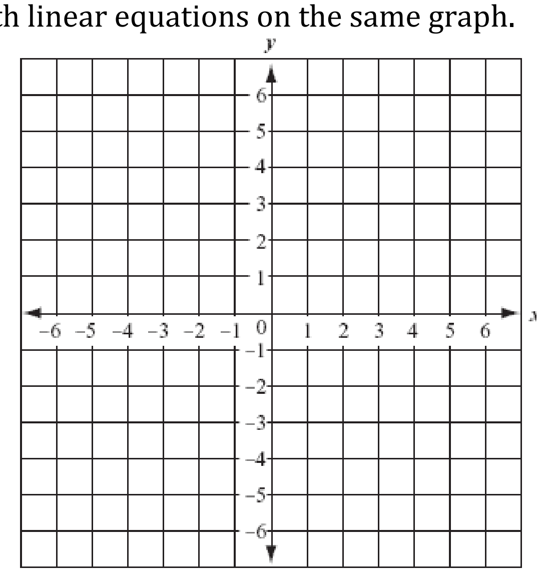
Lines that never intersect are called ____.

Since the graphs of the system do __________ intersect, we have ____________________ to the linear system.

Exploration #3: Work with a partner. Graph both linear equations on the same graph.

$4x - 3y = 6$

$8x - 6y = 12$



Circle where these lines intersect. Can you check if your answer is correct?

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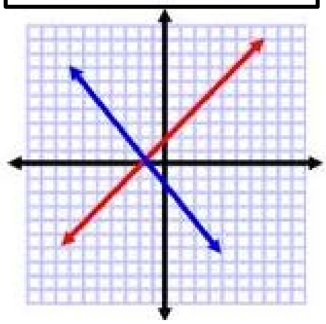
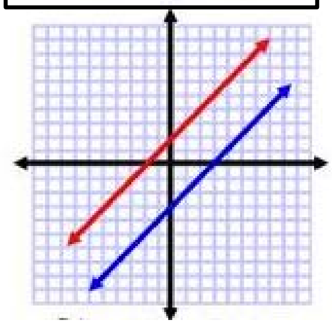
Notes:

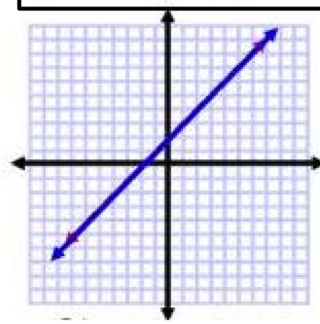
Lines that intersect at every point are ______________________________________.

Since the graphs of the system intersect at ____________ point, we have

____ to our linear system.

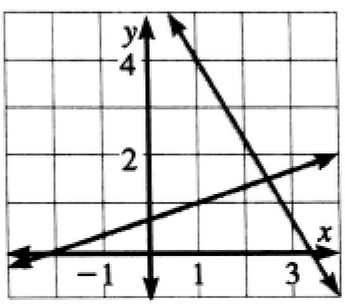




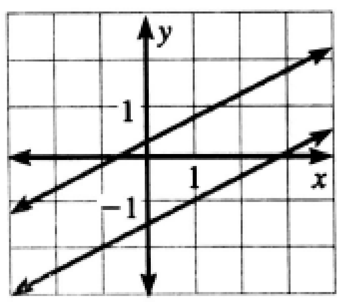


Example #1: Tell how many solutions the system has.

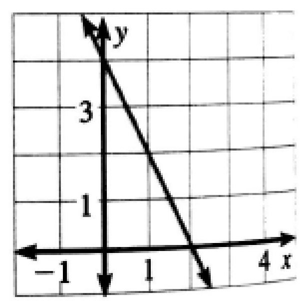
1.



2.



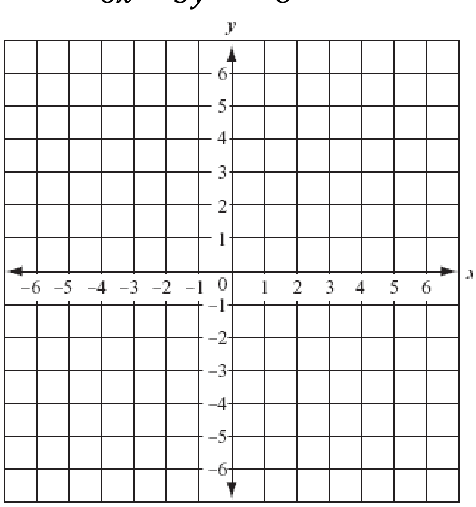
3.



Example #2: Use the graphing method to tell how many solutions the system has.

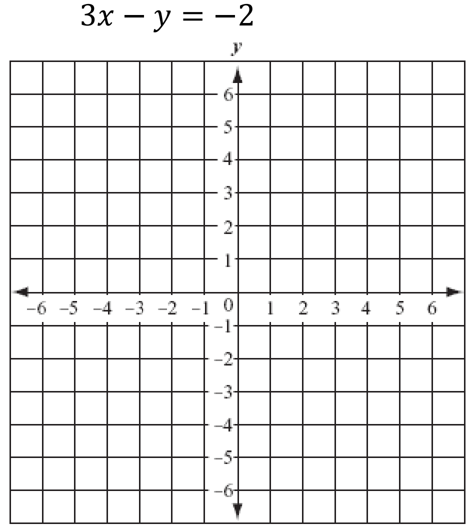
1. $2x + y = 8$

   $-6x - 3y = -8$



2. $2x + y = 7$

   $3x - y = -2$



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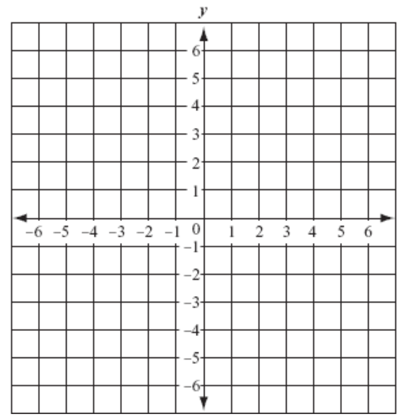
Warm Up: Use the graphing method to tell how many solutions the system has.

1. $-6x + 2y = 4$

   $-9x + 3y = 12$



2. When would a linear system have *infinitely many solutions*?

Review:

We know that when we solve linear systems, we could have _______ solution, _____ solution, or ______________________________ solutions.

What does this look like algebraically?

ONE SOLUTION **NO SOLUTION** **INFINITELY MANY SOLUTIONS**

Example #3: Use substitution or elimination to solve the linear system.

a. $x - 2y = 4$

   $3x - 6y = 8$

b. $3x + y = -1$

   $-9x - 3y = 3$

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Example #4: Use substitution or elimination to solve the linear system. Then describe the graph of the system.

1. $-x + y = 7$

   $2x - 2y = -18$

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

   $-12x + 3y = -24$

3. $-4x + y = -8$

   $2x - 2y = -14$