Write your questions and thoughts here!

You will need a graphing calculator for this section. Please plan accordingly!

A _____ consists of two or more linear equations. The

_____ of a system of linear equations is the x and the y values that satisfy each equation

simultaneously. One way to find the solution is by graphing both equations and finding where they

intersect. Here is an example:

Algebra I Section 8.1

Ex. 1   Solve the following linear system by graphing:
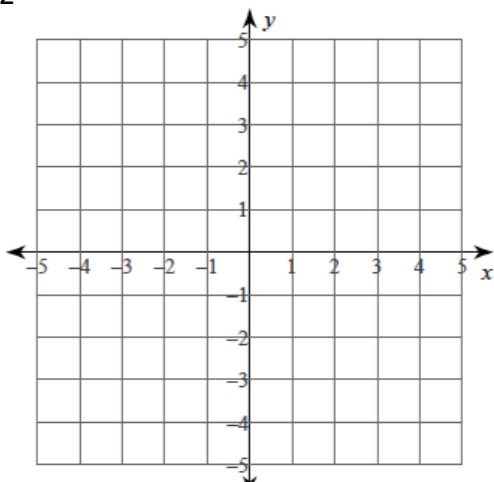
$y + x = -1$
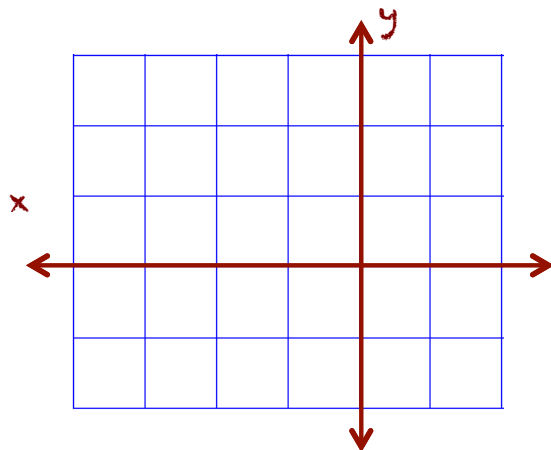
$6y + 2x = 18$

Steps for Solving Linear Systems by Graphing

Step 1
• Write both equations in _____ and graph. (Solve each equation for y.)

Step 2
• Find the coordinates of the _____.

Step 3
• Check your solution by _____ the coordinates back into the _____.

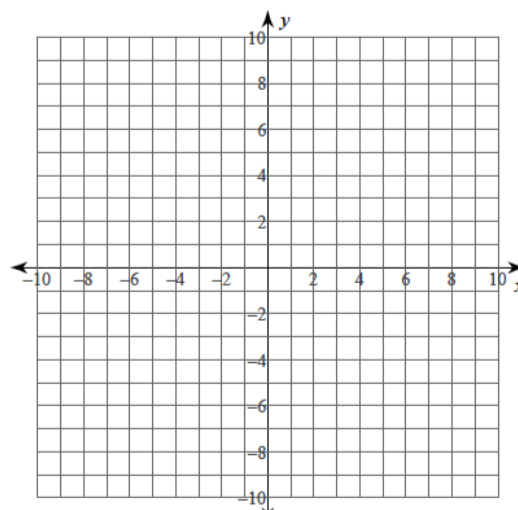**Step 4**
• Write your solution as a _____.
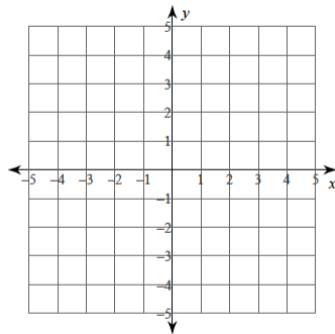
$4x + 3y = -3$
$x + 3y = 6$

Ex 2

$3x + 7y = 14$
$5x - 7y = 42$

Ex 3

Ex 4.

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

Ex 5.

$$x + y = 1$$
$$2x - 3y = 12$$

Ex 6.
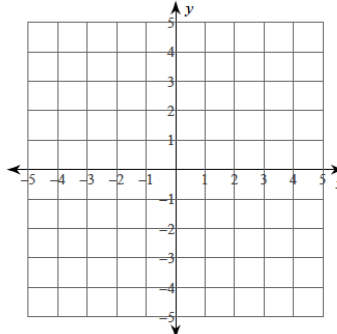
$$3x + 2y = 2$$
$$x = -2$$
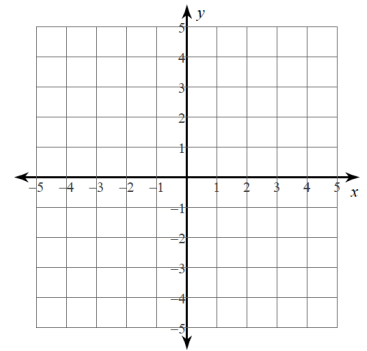
7. Is (4,1) a solution of the following systems of equations?

a. $y = 3x - 11$
   $x - y = -1$

b. $x = 4$
   $2y = x - 2$

Reset your window:
Zoom 6

8. Solve the following systems using your graphing calculator:

a. $44x + 50y = -36$
   $x - y = -176$

b. $4x - y = 12$
   $2y = -24 + 8x$

c. $2x - y = 10$
   $2y - 4x = 2$

d. $-2x + y = -217$
   $12x + 39y = -273$

Don't forget! If the lines are _____, then there is _____.

If the lines are _____, then there are _____.

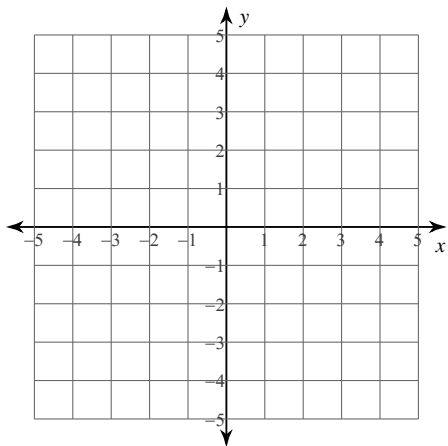*Write your questions and thoughts here!*

Now summarize what you have learned!

Practice 4.1

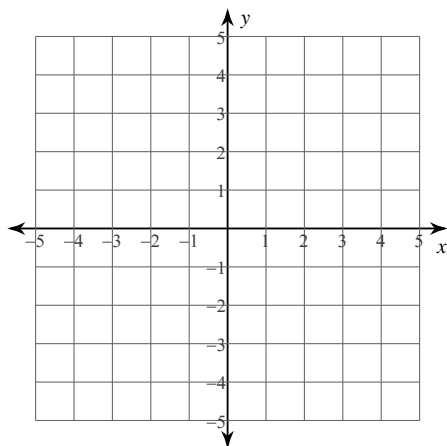**Solve each system by graphing.**
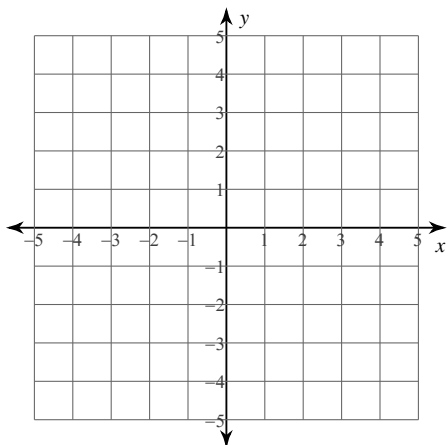
1) $y = -\dfrac{1}{2}x - 3$

   $x = -4$

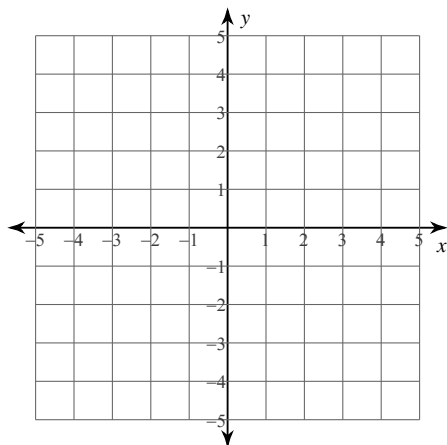2) $y = \dfrac{3}{2}x - 3$

   $y = \dfrac{1}{2}x + 1$

3) $-y = -3$

   $3x + 6 = 3y$

4) $-x - 2 - y = 0$

   $-y + 3 = x$

5) Is (-9,-1) a solution of the following linear system of equations?:
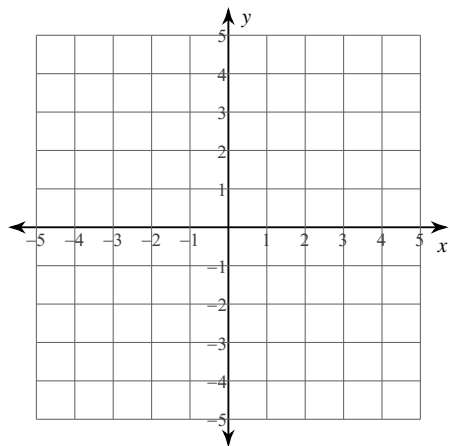
$$8x + 9y = -81$$
$$x - 3y = -12$$

6) Is (9,9) a solution of the following linear system of equations?:
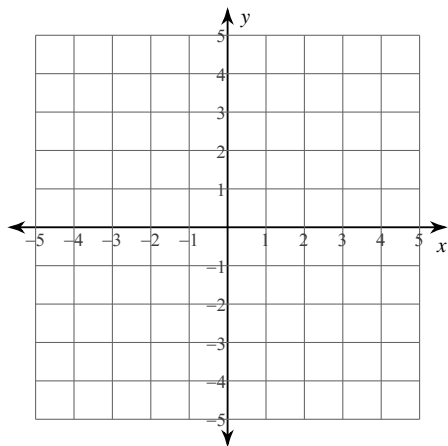
$$17x - 9y = 72$$
$$x - 9y = -72$$

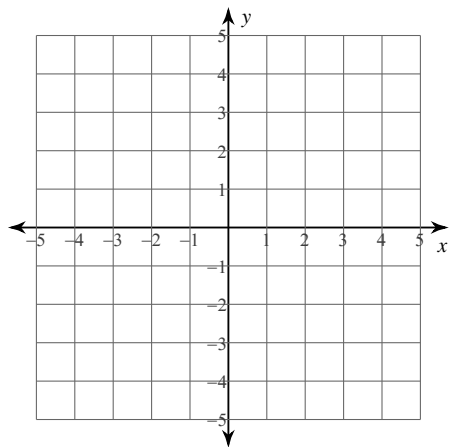**Solve each system by graphing.**

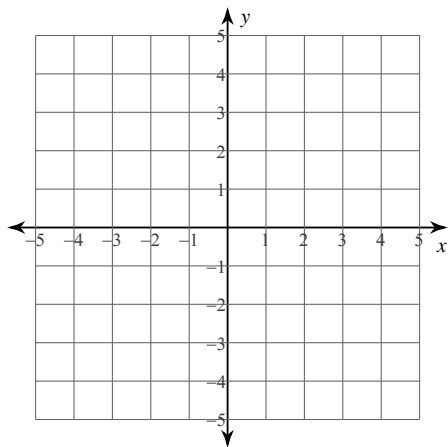7) $x - 3y = 6$
   $x - 3y = 3$

8) $3x + 2y = 4$
   $x - 2y = 4$
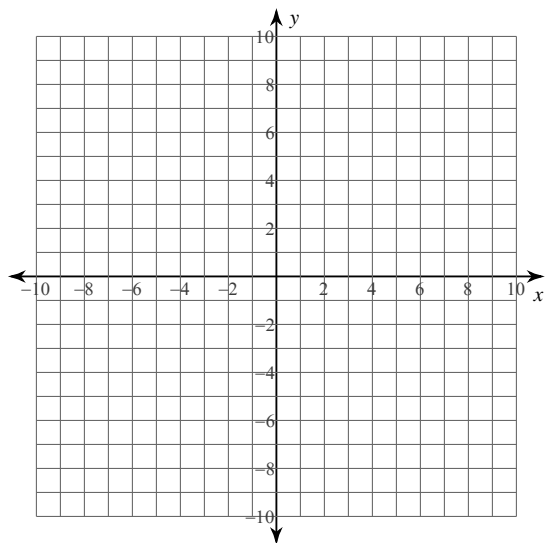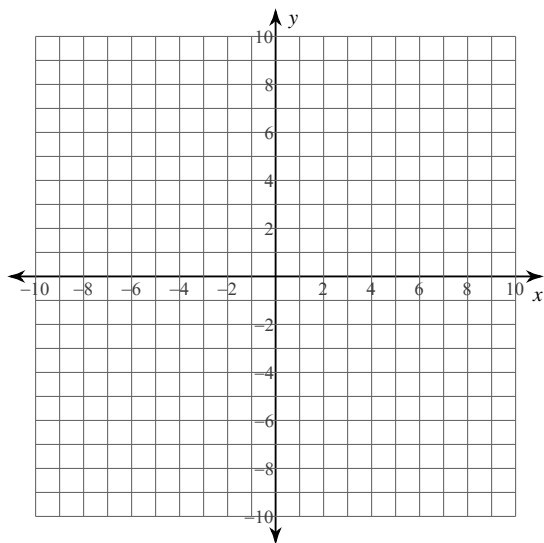
9) $-2x = -3y + 12$
   $3y = -x + 3$

10) $6x = y - 3$
    $-3y + 3x = 6$

11) $2x + 5y = -15$
    $8x + 5y = 15$
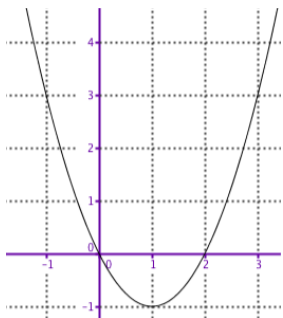
12) $3x - 8y = 72$
    $7x + 8y = 8$

13. Solve the following linear systems using your graphing calculator:

a.   -46x + 72y = -230
     -x + y = 21

b.   4x – y = 12
     2y= -24 + 8x

c.   -3x + y = -51
   29x + 26y = -256

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

ALGEBRA SKILLZ!		
GRAPH	**SIMPLIFY**	**SOLVE:**
a. $f(1) =$ b. y-intercept = c. $f(x) = 3$ when $x =$ d. x-intcepts =	**Simplify the radical** a. $\sqrt{99}$ b. $\sqrt{33}$	**Solve for x.** Hint: Use the LCM!! a. $\frac{3x}{5} + \frac{3x}{4} = 27$ **FACTOR:** b. $x^2 + 4x - 32$

SAT REVIEW

MULITPLE CHOICE	GRID IN
If k + j < k, which of the following must be true? (A) k > 0 (B) k = 0 (C) k < 0 (D) j > 0 (E) j < 0	Five times a number is the same as the number added to five. Find the number.

Application 4.1

1. Solve the following system of equations by graphing:
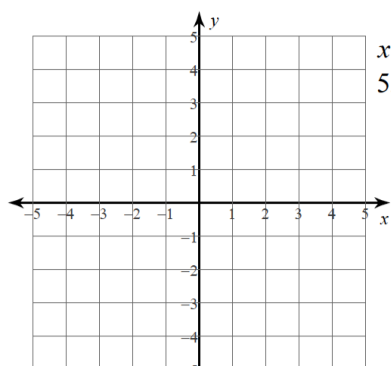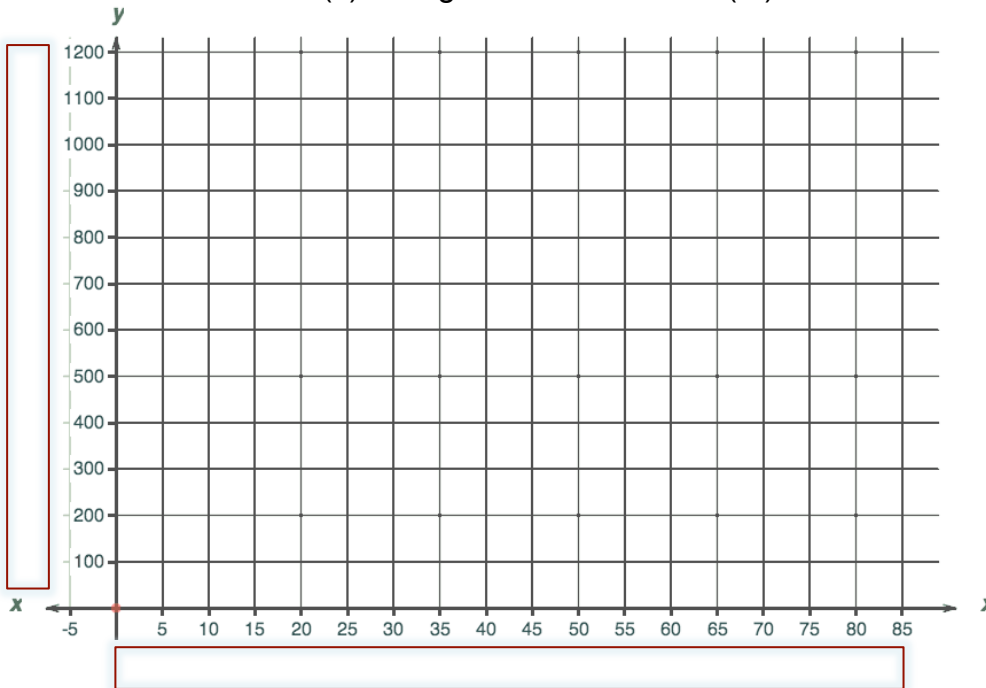
$x + 4y = -12$
$5x + 4y = 4$

2. Solve using your calculator:

9x + y = -158
-30x – 27y = 6

3.   Mr. Brust and Mr. Bean enter the Ramstein Hot-Air Balloon race "Airmageddon," each with a giant balloon replica of their head. When the race begins, Brust's balloon is on the ground while Bean's balloon is 200 ft above the ground. At that time, both Bean and Brust turn their burners on full. Brust's balloon ascends twenty feet per minute while Bean's balloon ascends fifteen feet per minute.

   a.   Fill in the table at the right.
          Let F(x) = height of Balloon Brust (ft)
          while G(x) = height of Balloon Bean (ft.)

Time (min)	F(x) (Brust)	G(x) (Bean)
0	0	200
1	20	215
3		
5		
10		
		240
	500	
		440
	605	
		800
80		

   b.   Graph BOTH FUNCTIONS on the graph above. Be sure to label your axes.
          Hint: Use the table!! Brust's first two coordinate points are (0,0) and (1, 20) while Bean's first two coordinate points are (0, 200) and (1, 215).

   c.   Did you include the units when you labeled your axes?

   d.   The race lasts 60 minutes. Does Brust's balloon ever reach the height of Bean's balloon? When?

4.   Solve the following ***nonlinear*** systems using your calculator:

   a. $y = x^2 - 20$
        $y = 12 - x^2$

   b. $y + 5 = \dfrac{4}{x}$ Hint: Solve for y!
        $\sqrt{x} = y + 6$