

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## 7.1 Solve systems of linear equations by graphing

Topics to master

Finding solutions of a system of equations by graphing

A \_\_\_\_\_ is a group of two or more equations with \_\_\_\_\_ unknown variables.

$$13x + 8y = -72$$

$$x - 8y = -40$$

A \_\_\_\_\_ of a system of equations (or system for short) is the ordered pair ( \_\_, \_\_ ) that makes all the equations in the system true.

Example: Which ordered pair is the solution to the system below?

$$13x + 8y = -72$$

$$x - 8y = -40, \{(0,0), (9,2), (7,-1), (-8,4)\}$$

(0,0)

( \_\_ , \_\_ )

( \_\_ , \_\_ )

(-8,4)

Example: Which ordered pair is the solution to the system below?

$$x + 3y = 27$$

$$14x - 3y = 18, \{(5,2), (1,-2), (3,8), (-1,4)\}$$

(5,2)

( \_\_ , \_\_ )

( \_\_ , \_\_ )

(-2,4)

How can you find solutions to a system?

There are three ways to solve a system of equations: \_\_\_\_\_, \_\_\_\_\_, & \_\_\_\_\_

In order to solve a system of equations by graphing, graph both equations and find the location where the lines \_\_\_\_\_.

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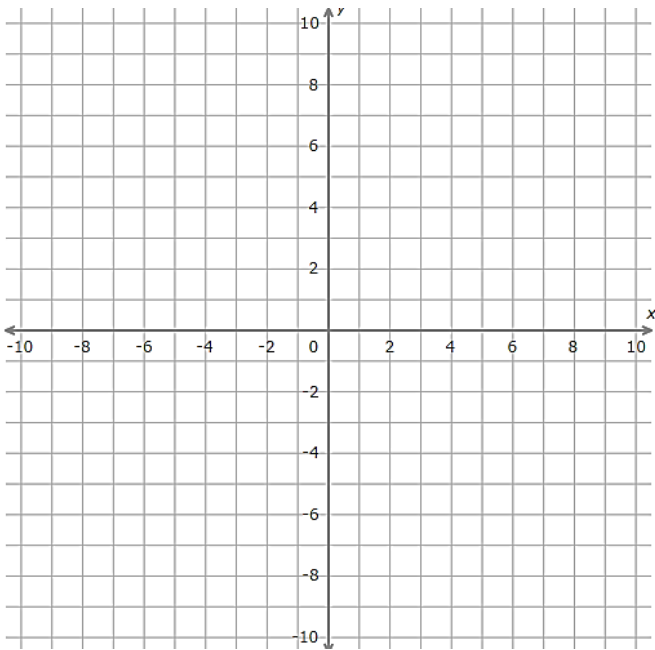
### 7.1 Solve systems of linear equations by graphing

Solve the system of equations by graphing

$$x + 3y = -6$$

$$5x + 3y = 6$$

Step 1: Graph both sets of lines.  
(If the lines are in \_\_\_\_\_, it usually helps to change the equation to \_\_\_\_\_)



Step 2: Find the place where the lines intersect.

( \_\_ , \_\_ )

Step 3: Check the answer by plugging the values for x and y back into the system:

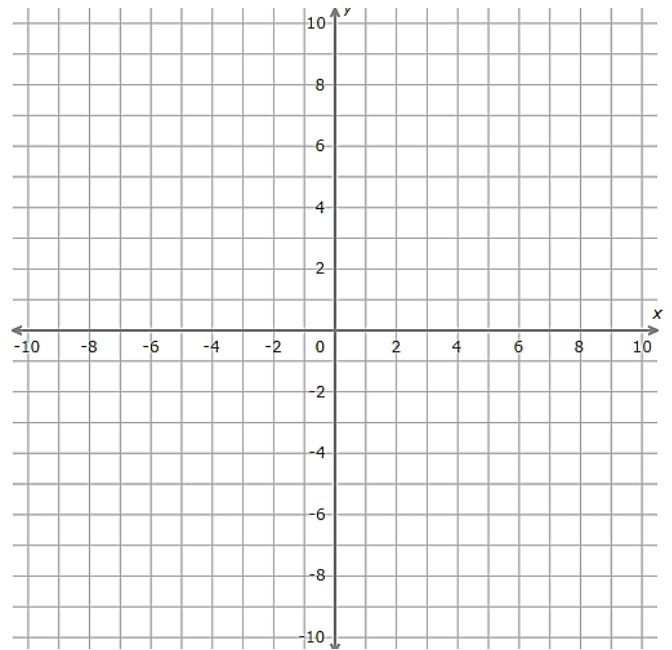
$$\begin{array}{l} \text{?} \qquad \qquad \qquad \text{?} \\ ( \_ ) + 3 ( \_ ) = -6 \qquad 5( \_ ) + 3 ( \_ ) = 6 \end{array}$$

Solve the system of equations by graphing

$$7x + 2y = 8$$

$$x + 2y = -4$$

Step 1: Graph both sets of lines.



Step 2: Find the place where the lines intersect.

( \_\_ , \_\_ )

Step 3: Check the answer by plugging the values for x and y back into the system:

$$\begin{array}{l} \text{?} \qquad \qquad \qquad \text{?} \\ 7( \_ ) + 2 ( \_ ) = 8 \qquad ( \_ ) + 2 ( \_ ) = -4 \end{array}$$

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### 7.1 Solve systems of linear equations by graphing

Using the graphing calculator is another way to solve systems of equations.

$$5x - 2y = 4$$

$$x + 2y = 8$$

To find solutions using the graphing calculator, the equations must be in \_\_\_\_\_

Step 1: Equations must be in slope intercept form.

Step 2: On the calculator, hit the \_\_\_\_\_ button.

*(Draw an arrow to that button)*

Step 3: Type in the equations. Use the (X,T, θ, n) button

Step 3: hit the \_\_\_\_\_ button to view the lines.

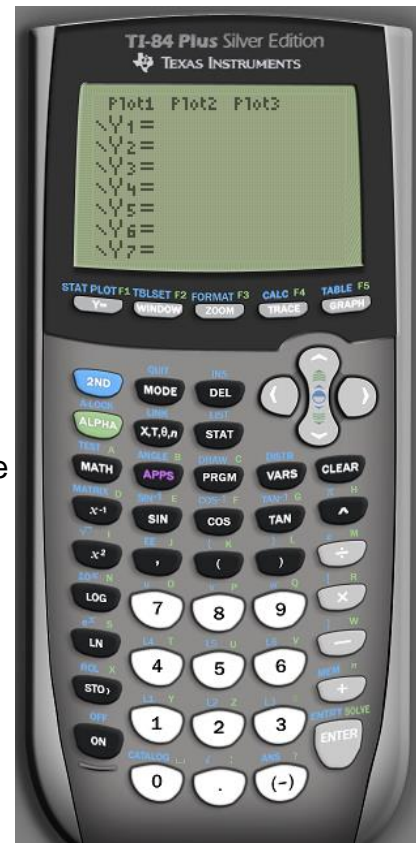
Step 4: Find the intersection by hitting 2<sup>nd</sup> then \_\_\_\_\_

Step 5: scroll down to choice 5. It should say \_\_\_\_\_

Step 6: Move the cursor to the point of intersection and hit \_\_\_\_\_ twice

The solutions to the system is ( \_\_, \_\_ )

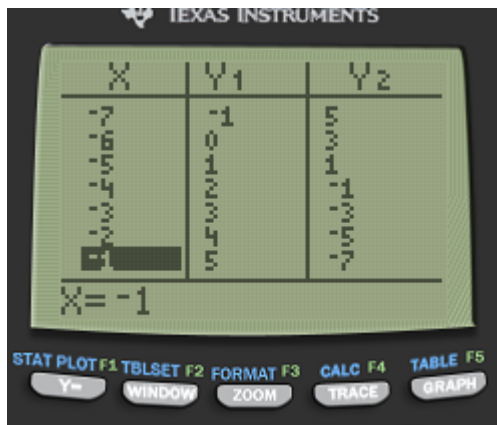
Step 7: Plug the ordered pair back into system to check answer.



Find the solution to the system of equations		
$2x + y = 1$ $2x - y = 3$	$8x + 3y = 12$ $x + 3y = -9$	$x + y = -3$ $8x + y = 4$
( __, __ )	( __, __ )	( __, __ )

The table capabilities

of a graphing calculator can also be used to find a solution. The solution is where the \_\_\_ value has two of the same \_\_\_\_\_.



The solution to this inequality is ( \_\_, \_\_ )