Name ________________________________

Date ___________________ Pd. __________

Notes: Graphing Systems of Equations Day 2

System of Equations	When ________________equations work together to form a system. A system of equations can have ________ ______________________ of solutions.

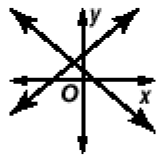
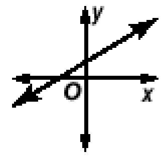
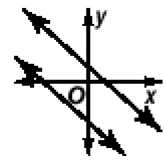
NOTES

Determining the Intersection of Two Graphs on the Calculator

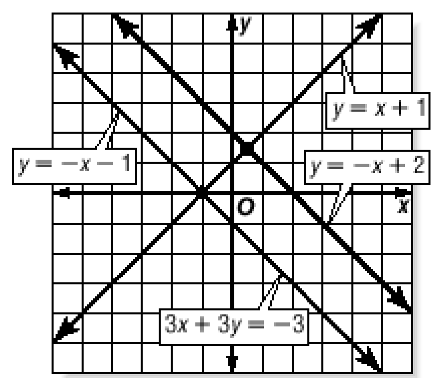
In earlier units, students learned how to graph a line on the calculator by solving a linear equation for *y* and entering the equation using the Y= function. The five function buttons directly below the screen on the calculator are used when graphing functions. The second functions above TRACE and GRAPH,______ and__________ respectively, apply to graphs as well. Students can explore finding the intersection point of two lines using the________option of the ______ function. This will generally give them a more exact answer than using the _______ function to find an intersection point. Students can substitute the values into each equation to verify this solution. This can be done by hand or using the calculator.

You can use graphs or tables on graphing calculators to solve systems of equations. The equations must be solved for *y* to enter them on the Y= screen of a graphing calculator.
If it is not necessary to know the slope and y-intercept, then the equations can be solved for *y* and entered on the Y= screen as shown in the example below.

$2x + 3y = 8$ becomes $y =$ _________________.

Graph of a System	intersecting lines 	same line 	parallel lines 
Number of Solutions			
Terminology			

Example **Use the graph at the right to determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions.**



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

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

c. $3x + 3y = -3$
$y = -x - 1$

Name ________________________________

Date ___________________ Pd. __________

Exit Card: Graphing Systems of Equations Day 2

Jack graphed the system of equations below.

$$y = \frac{3}{4}x + \frac{1}{2}$$
$$y = \frac{3}{4}x - \frac{1}{2}$$

Which of these best describes the relationship between the two lines?

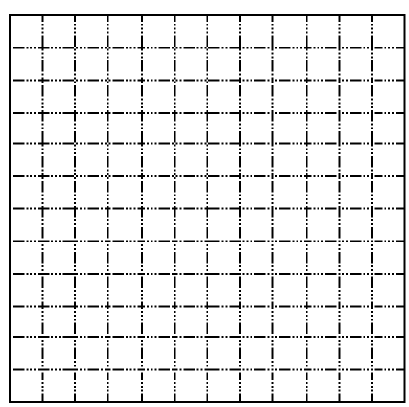
A. They have no point in common.
B. They have exactly one point in common.
C. They have exactly two points in common.
D. They have infinite points in common.

BCR The income (y) for selling x toys is modeled by the equation $y = 8x$ dollars. The production cost (y) for selling x toys is given by the equation $y = 5.5x + 2000$ dollars.

- How many toys must be sold for the income to equal the production cost? Use mathematics to explain your answer. Use numbers, symbols and/or words in your explanation. If you solve the problem graphically, use the grid provided to add to your written response.
(Suggested graphing window: $0 \le x \le 1000, 0 \le y \le 8000$.)

- What is the income and production cost at the point where they are equal?

- The company makes a profit when its income is greater than its production cost. What is the least number of toys the company must sell to make a profit? Use mathematics to justify your answer.

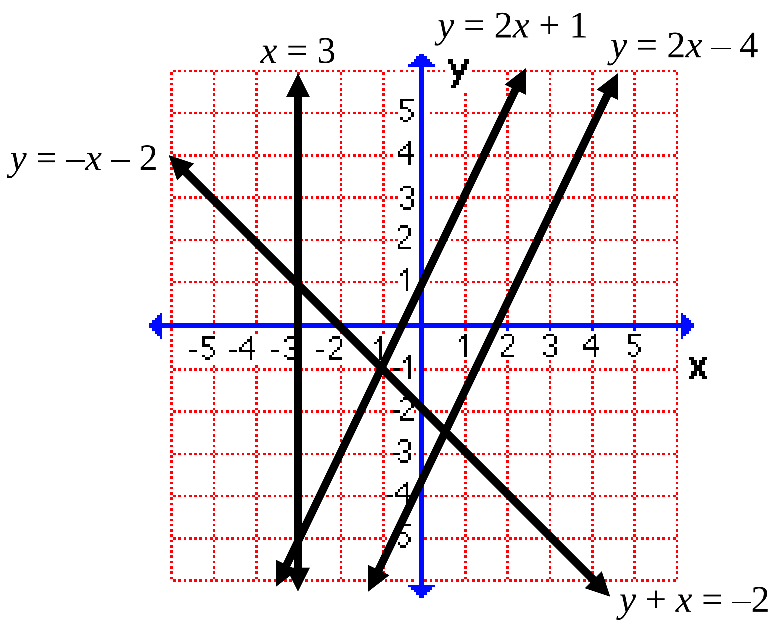


Name ______________________________

Date __________________ Pd. __________

Homework: Pages 372 (15 – 18, 26 – 29)

Use the graph to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.



15. $\begin{cases} x = -3 \\ y = 2x + 1 \end{cases}$

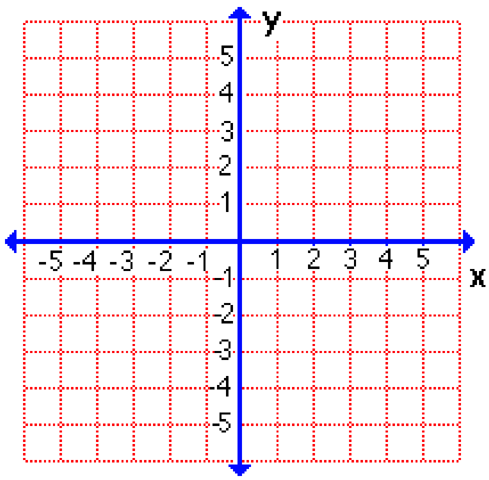
16. $\begin{cases} y = -x - 2 \\ y = 2x - 4 \end{cases}$

17. $\begin{cases} y + x = -2 \\ y = -x - 2 \end{cases}$

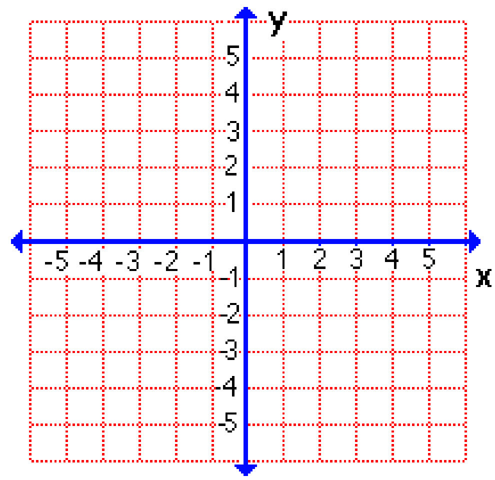
18. $\begin{cases} y = 2x + 1 \\ y = 2x - 4 \end{cases}$

Graph and determine the number of solutions.

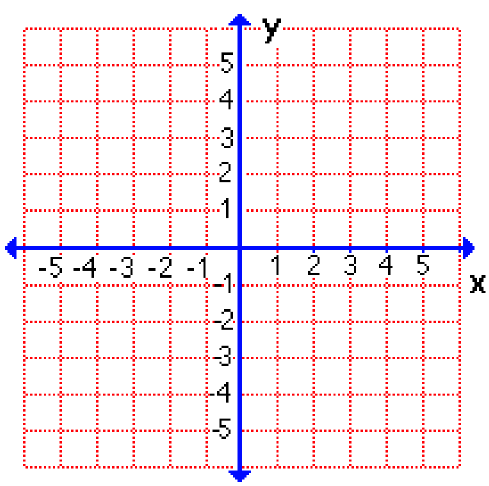
26. $\begin{cases} y = -x \\ y = 2x - 6 \end{cases}$



27. $\begin{cases} y = 3x - 4 \\ y = -3x - 4 \end{cases}$



28. $\begin{cases} y = 2x + 6 \\ y = -x - 3 \end{cases}$



29. $\begin{cases} x - 2y = 2 \\ 3x + y = 6 \end{cases}$