Unit: Systems of Equations
Student Handout 2

Name _____

Date _____Pd_____

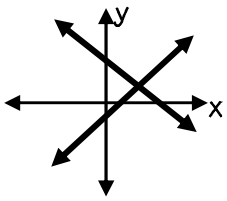
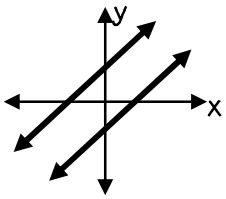
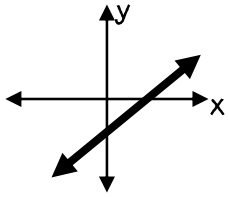
SOLVING SYSTEMS BY GRAPHING

When solving a system of equations by graphing, the solution to the system of equations is the point of _____ on the graph. Brainstorm and answer the following:

Would it be possible to have a system of equations with "no solution"? Explain.

Would it be possible to have a system of equations with infinitely many solutions? Explain.

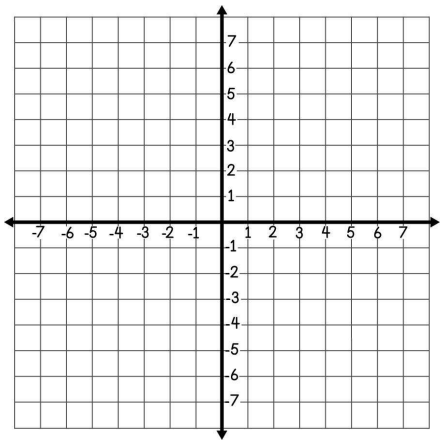
The table below describes the characteristics of the types of solutions on a graph.

_____ SOLUTION	_____ SOLUTION	_____ MANY
Lines have different _____ and intersect at _____ point. 	Lines have the same _____ and different y-intercepts; they do not intersect. 	Lines have the same _____ and same y-intercept. 

For 1-2, solve the system of equations by graphing.

1. $y = \frac{1}{2}x + 1$

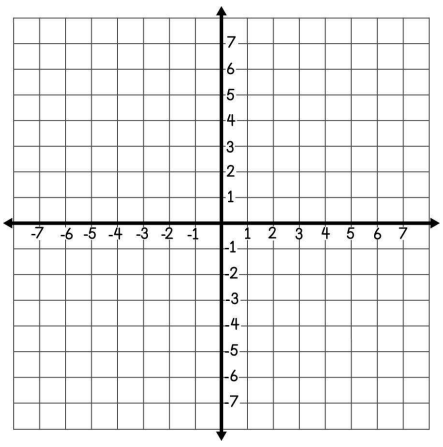
   $y = -x + 7$



Solution:

2. $y = \frac{3}{2}x$

   $y = \frac{1}{2}x - 2$



Solution:

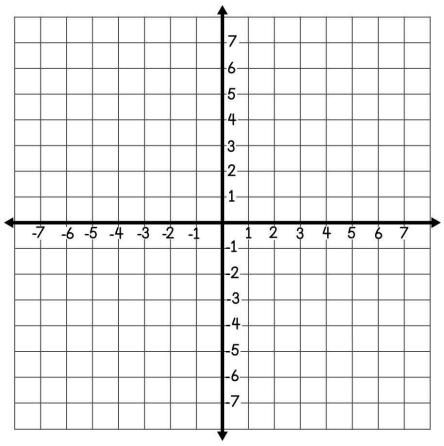
When solving a system of equations by graphing, equations should first be written in _____ - _____ form. Practice rewriting equations A-C in slope-intercept form.

A. $2x + y = 7$	B. $x + 3y = -9$	C. $-4x - 2y = -12$

In 3-6, solve the system of equations by graphing. If necessary, rewrite equations in slope-intercept form first.

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

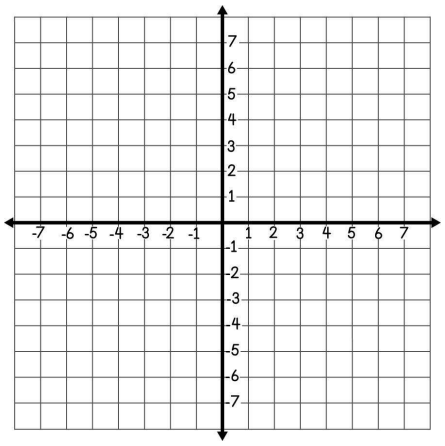
$y = 5$



Solution:

4. $y = 2x + 1$

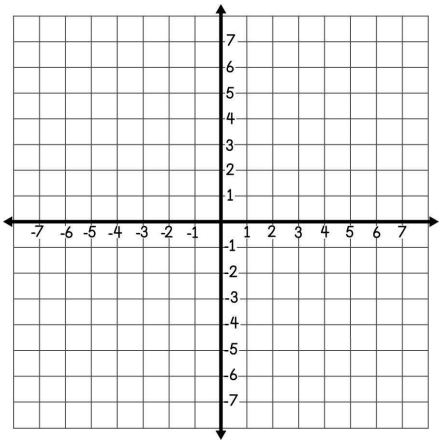
$-2x + y = -2$



Solution:

5. $y = -\frac{2}{3}x - 5$

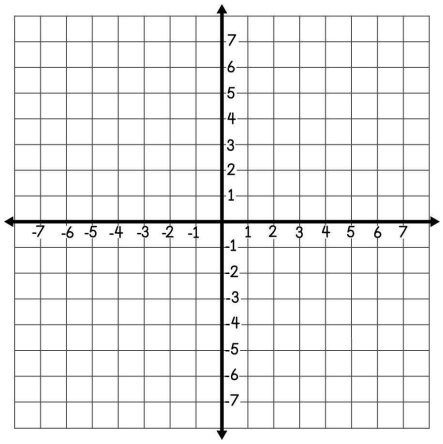
$-2x + 3y = -15$



Solution:

6. $y = \frac{1}{3}x - 2$

$y = -x + 2$



Solution:

7. Constance graphed a system of equations with no solution. If the first equation was $y = 6x - 2$, circle the letter of the equation that could be the second equation in the system. Explain your choice.

A	B	C
$-24x + 4y = 8$	$-12x + 2y = -4$	$18x + 3y = -6$

8. Jude's water balloon is empty but filling up at a rate of 5 mL per second. Ian's water balloon contains 45 mL of water and is losing 10 mL of water per second.

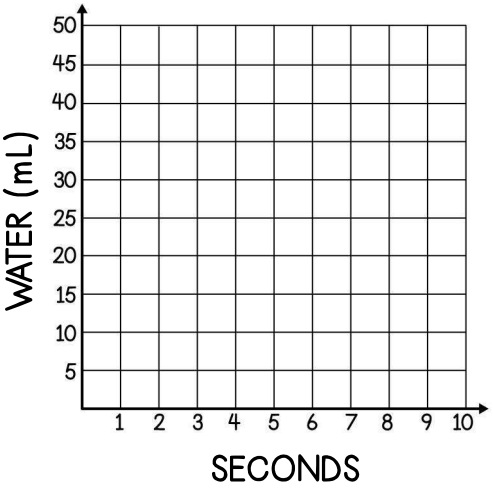
a. Write an equation to represent y, the amount of water in each balloon based on x, the number of seconds.

Jude:

Ian:

b. Graph each equation.

c. What is the solution to the system of equations, and what does it mean in the context of the situation?



Unit: Systems of Equations
Homework 2

Name _____

Date _____Pd_____

SOLVING SYSTEMS BY GRAPHING

Use your knowledge of solving systems by graphing to answer each question below.

1. Ashton graphed a system of equations with infinitely many solutions. What must be true about the equations of the lines?

a. They have the same slope.

b. They have different y-intercepts.

c. The lines are parallel.

d. All of the above.

2. Willa graphed a system of equations on the same coordinate grid. The equations had the same slope, but the y-intercepts were different. Which must be true?

a. The system has infinitely many solutions.

b. The system has one solution.

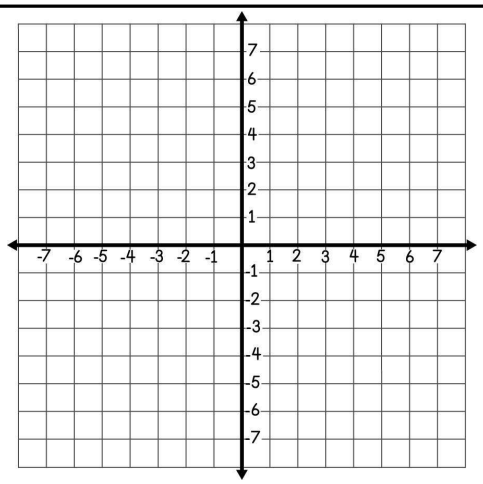
c. The system has no solution.

d. There is not enough information to tell.

Solve each system of equations below by graphing.

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

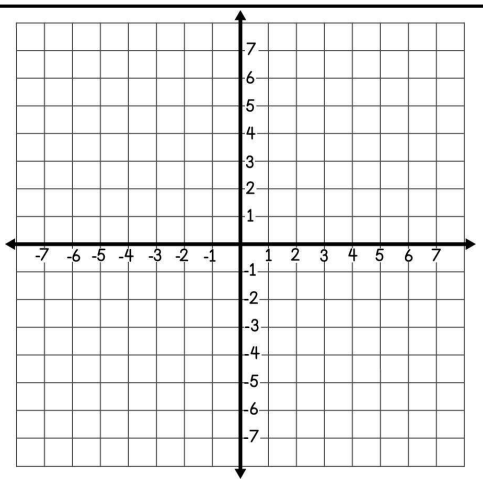
$y = 2x - 5$



Solution:

4. $y = -x + 7$

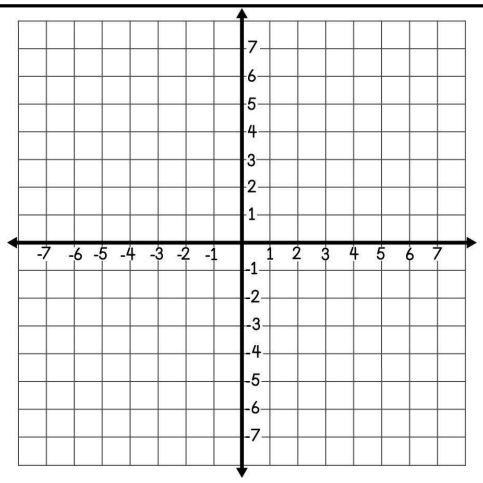
$5x + 5y = 10$



Solution:

5. $y = -\frac{3}{2}x - 2$

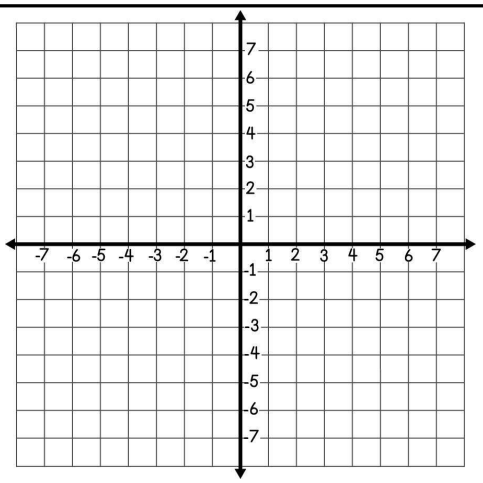
$y = -\frac{1}{4}x + 3$



Solution:

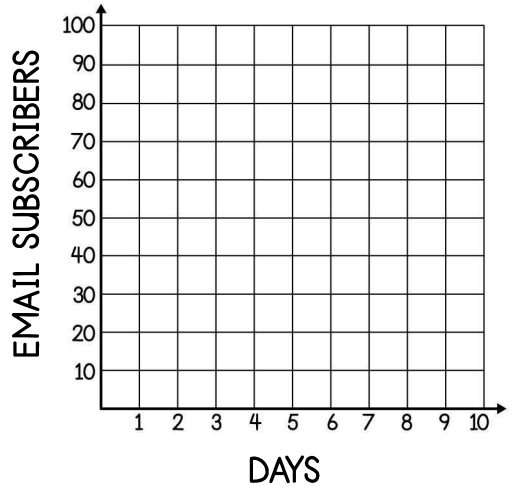
6. $y = -\frac{1}{2}x + 4$

$x + 2y = 8$



Solution:

Mia currently has 10 email subscribers to her blog and gains an average of 10 new subscribers per day. Julie currently has 100 email subscribers to her blog and loses an average of 5 email subscribers per day. Use this information to answer questions 7-10.



7. Write an equation to represent y, the total number of subscribers after x days for each girl.

   Mia:

   Julie:

8. Graph each equation on the grid at the left.

9. What is the solution to the system of equations?

10. What does the solution mean in the context of the situation?