

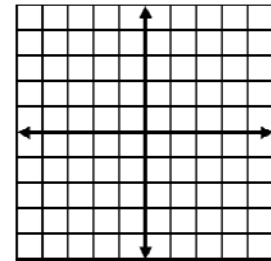
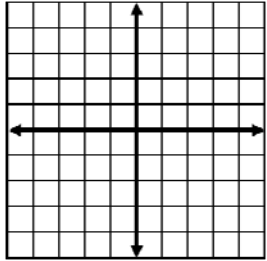
# Lesson 6-1 Solving Systems by Graphing

## Problem 1 Solving a System of Equations by Graphing

What is the solution of the system? Use a graph.

$$y = x + 2$$

$$y = 3x - 2$$



**Got It?** 1. What is the solution of the system? Use a graph. Check your answer.

$$y = 2x + 4$$

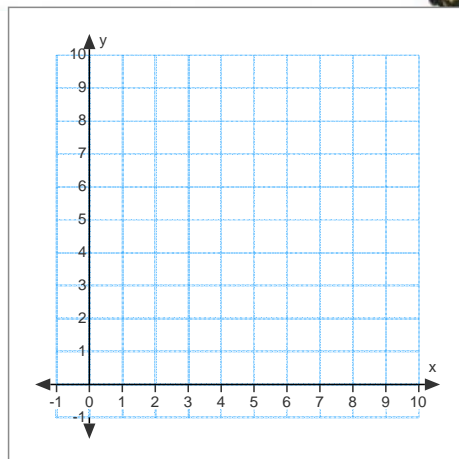
$$y = x + 2$$

## Problem 2 Writing a System of Equations STEM

**Biology** Scientists studied the weights of two alligators over a period of 12 months. The initial weight and growth rate of each alligator are shown below. After how many months did the alligators weigh the same amount?



ALLIGATOR 1	ALLIGATOR 2
Initial Weight: 4 lb	Initial Weight: 6 lb
Rate of Growth: 1.5 lb per month	Rate of Growth: 1 lb per month



A system of equations that has at least one solution is **consistent**. A consistent system can be either *independent* or *dependent*.

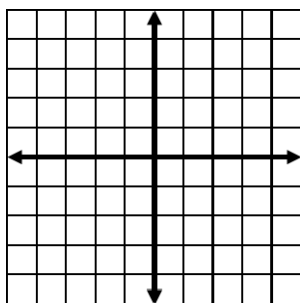
A consistent system that is **independent** has exactly one solution. For example, the systems in Problems 1 and 2 are consistent and independent. A consistent system that is **dependent** has infinitely many solutions.

A system of equations that has no solution is **inconsistent**.

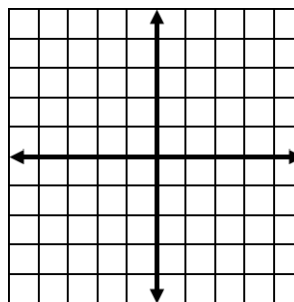
### Problem 3 Systems With Infinitely Many Solutions or No Solution

What is the solution of each system? Use a graph.

**A**  $2y - x = 2$   
 $y = \frac{1}{2}x + 1$

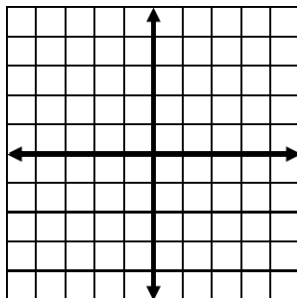


**B**  $y = 2x + 2$   
 $y = 2x - 1$

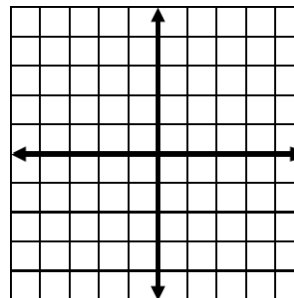


**Got It?** 3. What is the solution of each system in parts (a) and (b)? Use a graph. Describe the number of solutions.

**a.**  $y = -x - 3$   
 $y = -x + 5$



**b.**  $y = 3x - 3$   
 $3y = 9x - 9$



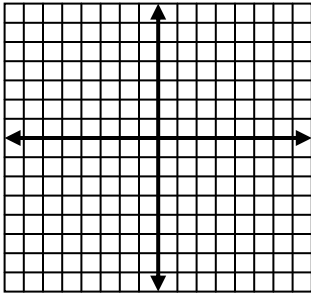
**c. Reasoning** Before graphing the equations, how can you determine whether a system of equations has exactly one solution, infinitely many solutions, or no solution?

## 6-1.C

## Graphing Systems Practice #1

Solve by graphing. Check your answer, if possible.

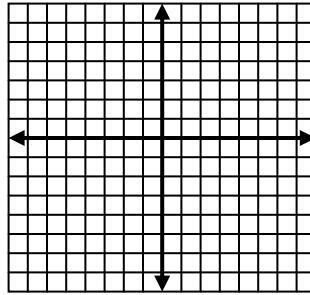
1.  $y = 2x + 7$   
 $y = -\frac{3}{2}x$



Solution: \_\_\_\_\_

Check:

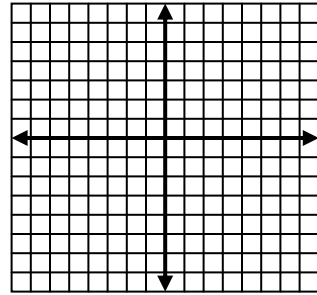
2.  $y = \frac{2}{3}x - 1$   
 $x + 3y = 6$



Solution: \_\_\_\_\_

Check:

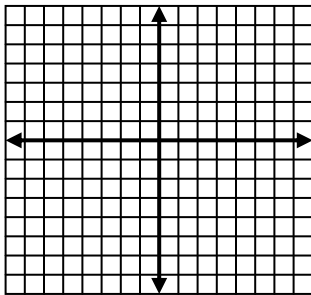
3.  $y = -\frac{1}{2}x + 3$   
 $x + 2y = -2$



Solution: \_\_\_\_\_

Check:

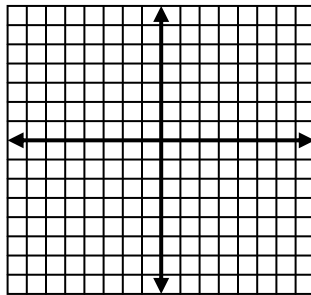
4.  $x - 4y = 12$   
 $x + y = 2$



Solution: \_\_\_\_\_

Check:

5.  $y = 3x - 1$   
 $6x - 2y = 2$



Solution: \_\_\_\_\_

Check: