

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

7/8A

Date: \_\_\_\_\_

Classwork 10.1

## Systems of Equations (Graphically)

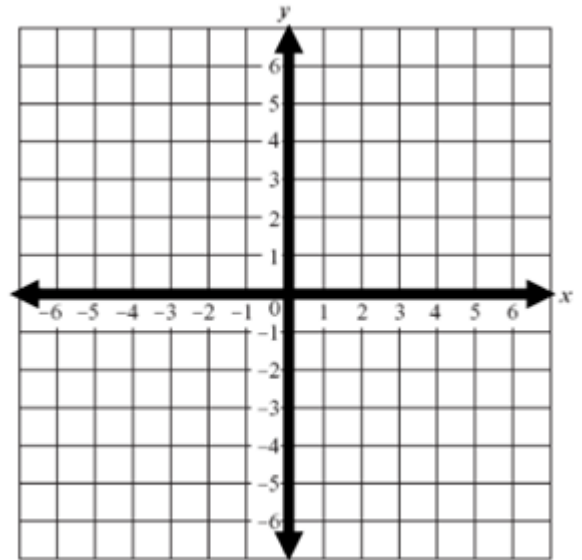
**Aim:** How can we find the solution to multiple linear functions?

- ❖ If two or more equations are given, we call this a **system of equations**. The **solution** to a system of equations consists of the set of all ordered pairs,  $(x, y)$  that satisfy (make true) all of the equations in the system. This point is called the **point of intersection (P.O.I.)**.

**Example 1:** Solve the system of equations below by graphing. Show all work and check your answers.

$$y = x + 3$$

$$y = -2x + 6$$



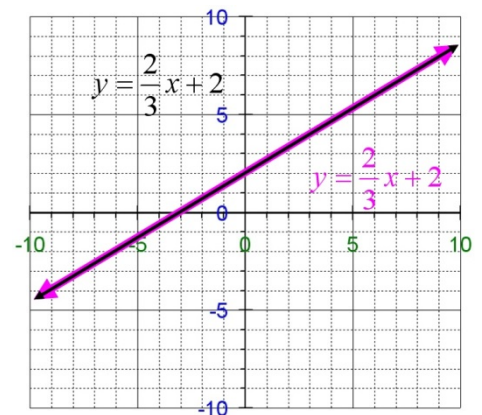
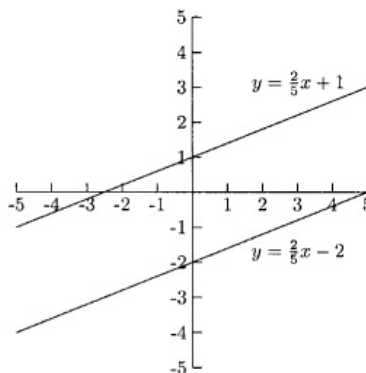
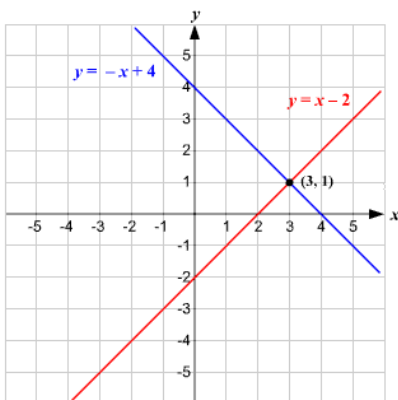
**Step 1:** Graph both linear equations.

**Step 2:** Identify the POI.

**Step 3:** Check that the solution is a point on both lines.

➤ The solution is: \_\_\_\_\_

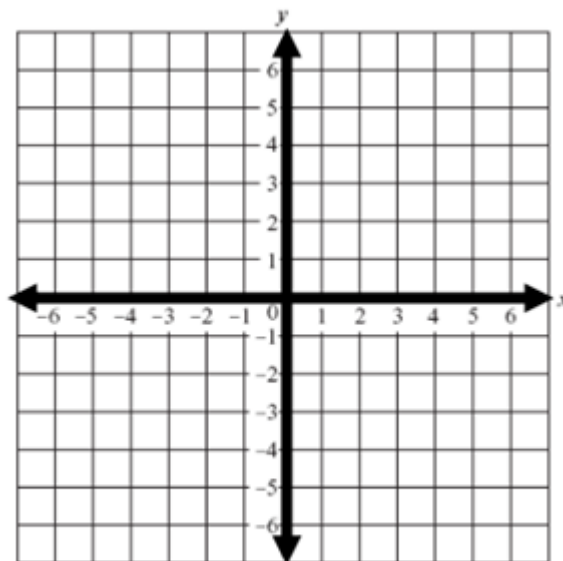
**A system of equations may have one solution, no solution, or infinitely many solutions.**



**Example 2:** Solve the system of equations below by graphing. Show all work and check your answers.

$$y = 3x + 1$$

$$y = 3x - 5$$

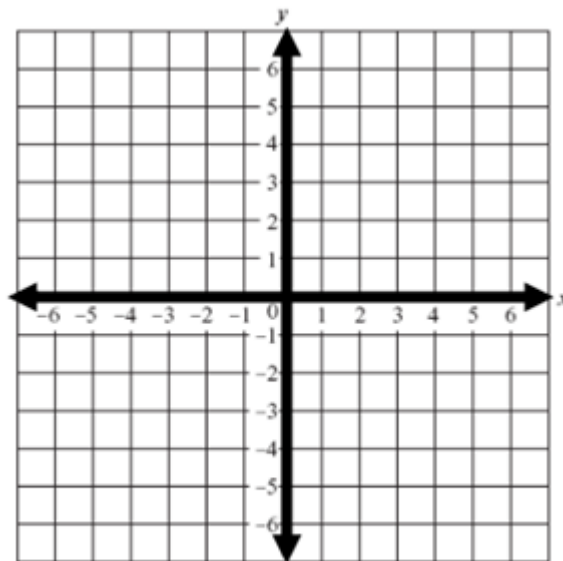


➤ The solution is: \_\_\_\_\_

**Example 3:** Solve the system of equations below by graphing. Show all work and check your answers.

$$y + 2x = 5$$

$$y - 2 = x$$



➤ The solution is: \_\_\_\_\_

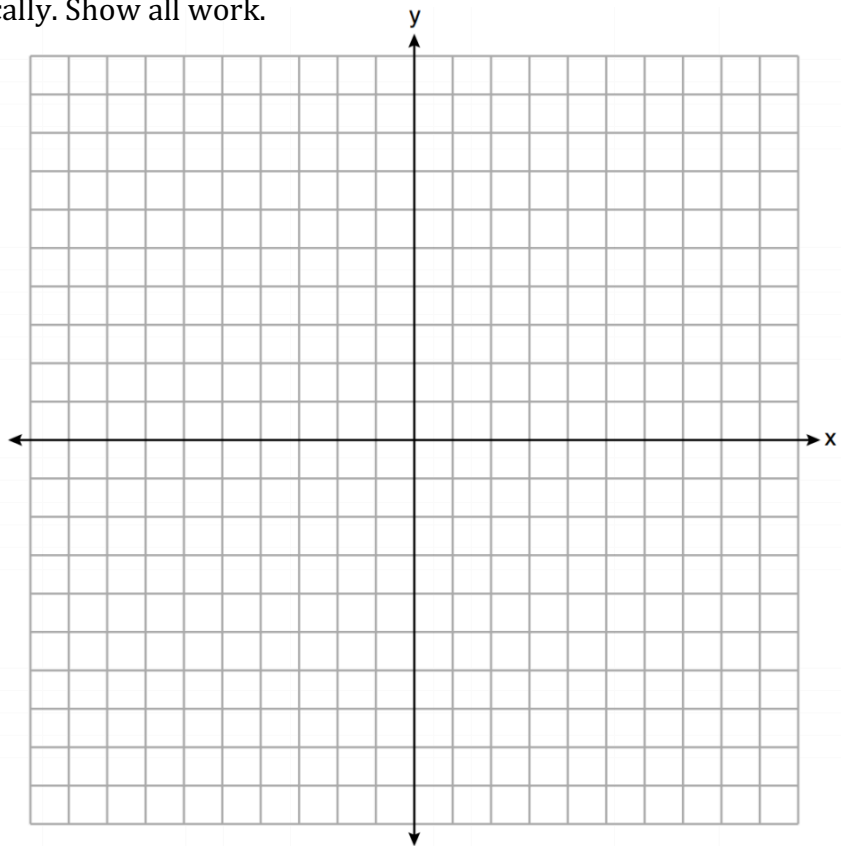
**Example 4:** Which of the following is a **solution** to the system of equations consisting of  $y = 4x + 11$  and  $y = -x + 1$ ?

- a) (0, 11)
- b) (-2, 3)
- c) (3, -2)
- d) (2, 5)

**On your own:**

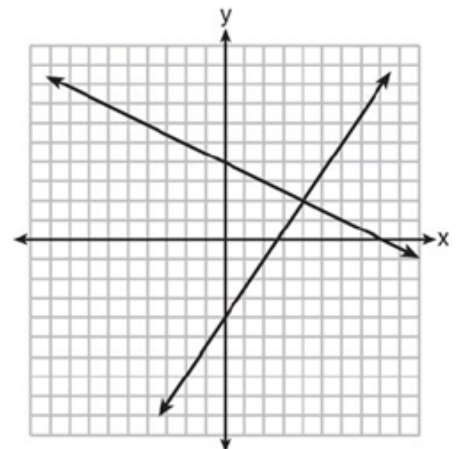
Solve the following systems of equations graphically. Show all work.

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



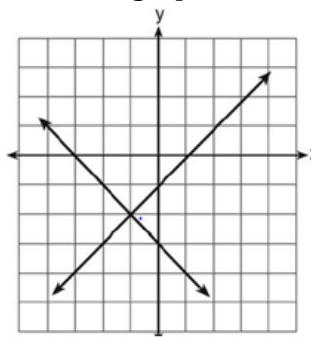
2. A system of equations is graphed on the set of axes to the right. What is the solution to the system?

- a: (0, 4)                      b: (2, 4)
- c: (4, 2)                      d: (8, 0)



3. What is the solution of the system of equations shown in the graph below?

- a: (1, 2)      b: (-1, -2)  
c: (-1, 2)     d: (-2, -1)



4. Solve the following systems of equations graphically. Show all work.

$$x + 3y = 15$$

$$2y - 3x = 10$$

