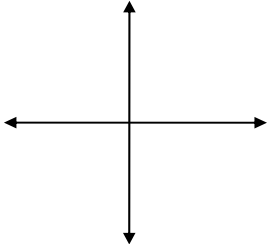
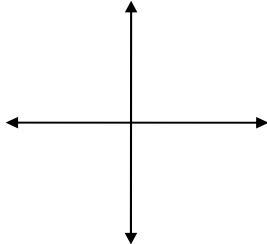
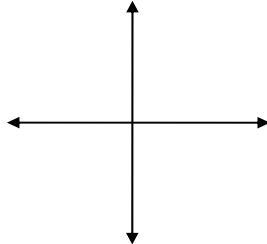


# 3.1 Solving Systems by Graphing

**Systems of Equations:** A set of two or more equations using the same variables.

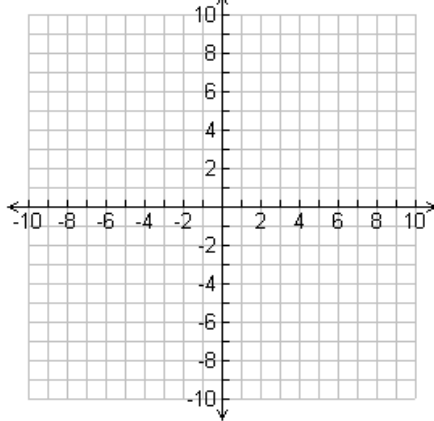
**Solving Systems by Graphing** (two variables only)

You can solve a system of equations with two variables ( $x$  and  $y$ ) by graphing the equations set equal to \_\_\_\_.

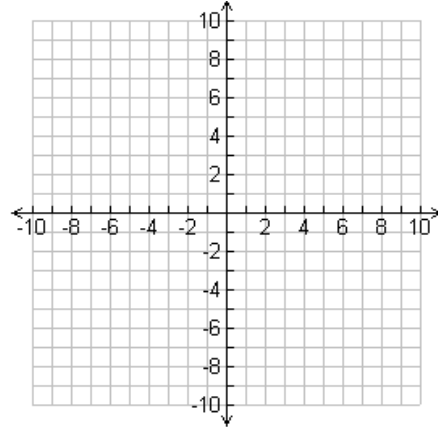
<b>Name:</b>	<b>Name:</b>	<b>Name:</b>
		
<b>Solution:</b>	<b>Solution:</b>	<b>Solution:</b>

## Solving a System of Equations by Graphing

- a) What is the solution of the system? Use a graph.  
 $y = x + 2$   
 $y = 3x - 2$

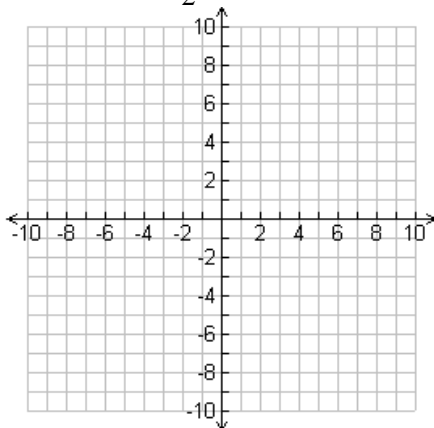


- b) What is the solution of the system? Use a graph.  
 $y = 2x + 4$   
 $y = x + 2$

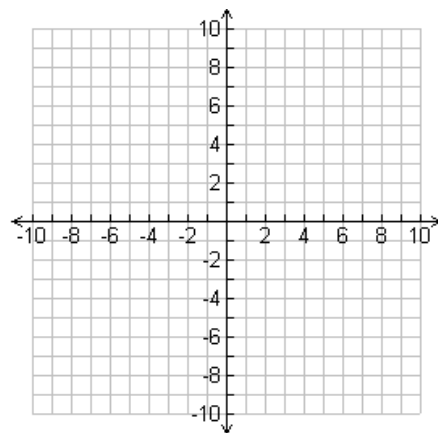


## Systems with Infinitely Many Solutions or No Solutions

- a) What is the solution of the system? Use a graph.  
 $2y - x = 2$   
 $y = \frac{1}{2}x + 1$



- b) What is the solution of the system? Use a graph.  
 $y = 2x + 2$   
 $y = 2x - 1$



### Break Even Word Problems

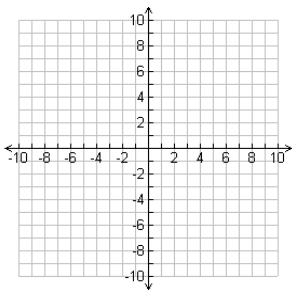
One satellite radio service charges \$10 per month plus an activation fee of \$20. A second service charges \$11 per month plus an activation fee of \$15. For what number of months is the cost of either service the same?

At Comerica ballpark, the Detroit Tigers charge \$5 dollars for each ticket and expects to make \$1400 in concessions. The team must pay its players \$2000 and pay all other workers \$1600. Each fan gets a free bat that costs the team \$3 per bat. How many tickets must be sold to **break even**?

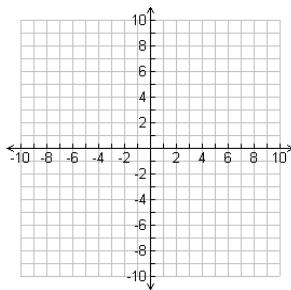
Mr. McDowell invested \$14,000 in equipment to print yearbooks for Ardrey Kell High School. Each yearbook costs \$7 to print and sells for \$35. How many yearbooks must he sell before he **breaks even**?

**Lesson Check:** Solve by graphing.

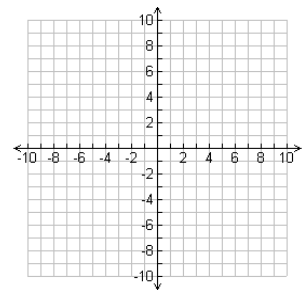
1.  $y = x + 7$   
 $y = 2x + 1$



2.  $y = -x - 4$   
 $4x - y = -1$



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



4. Suppose you invest \$10,410 in equipment to manufacture a new video game. Each game costs \$2.65 to manufacture and sells for \$20. How many games must you make and sell before your business breaks even?
5. The class of 2015 decides to start a T-shirt company. After initial expenses of \$280, they purchase each T-shirt for \$3.99. They sell each T-shirt for \$10.99. How many must they sell to break even?