8.1 CA ***Name:*** _____

Graphing Systems ***Period:*** _____

Solving Systems of Linear Equations... Graphing Method

Review

Essential Question: How can you determine the number of solutions for a system of equations?

Goal: Students will solve a linear system by graphing.

Steps:

1) Write each equation in Slope-Intercept Form (Solve for *y*)

2) Graph each equation on the same coordinate plane.

3) Identify the ordered pair of the point of intersection (*x* , *y*)

   a. One intersection point → One answer

      i. Graph → Lines intersect once

   b. No Intersection point → No Solution

      i. Graph → Lines are parallel

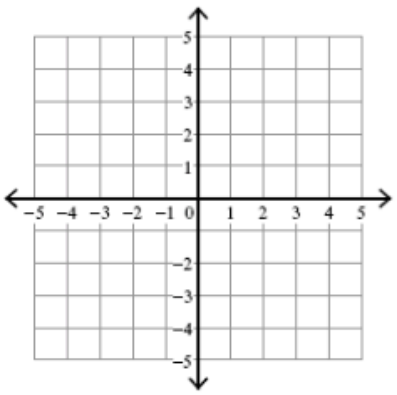
   c. Infinitely Many Intersecting Points → Infinitely Many Solutions

      i. Graph→ Coinciding Lines (the lines are exactly the same)

4) Check your answer into the *original* system of equations.

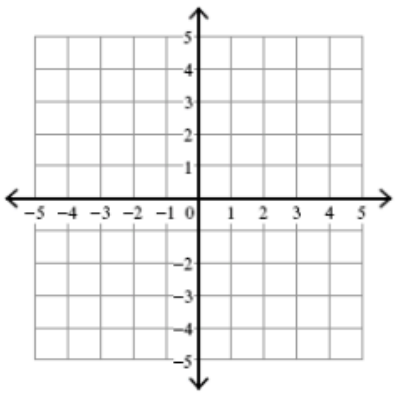
Solve the linear system by graphing.

1) $y = -2$
$x = 3$



Answer:

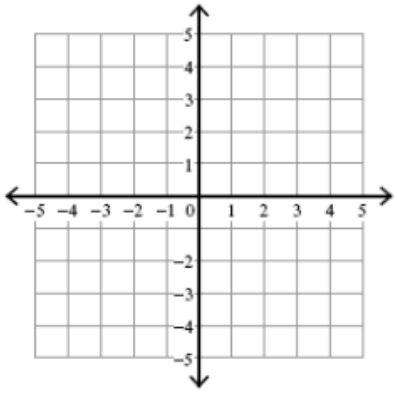
YT 1) $x = -5$
$y = 1$



Answer:

2) $y = 2x + 3$

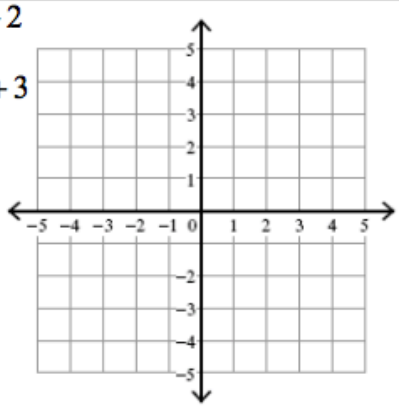
$y = \frac{1}{2}x + 3$



Answer:

YT 2) $y = -x - 2$

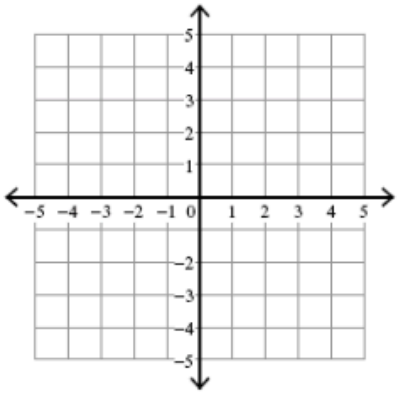
$y = \frac{2}{3}x + 3$



Answer:

3) $-2x + y = 2$

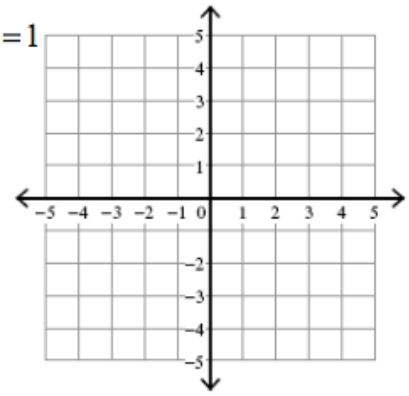
$x + y = -1$



Answer:

YT 3) $x + y = -3$

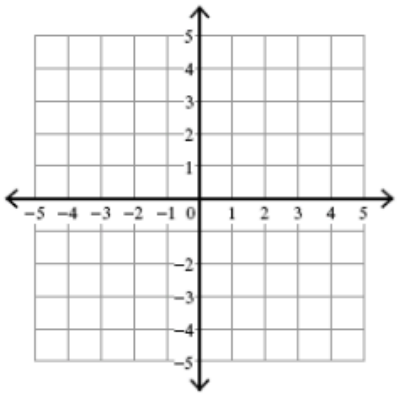
$-x + y = 1$



Answer:

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

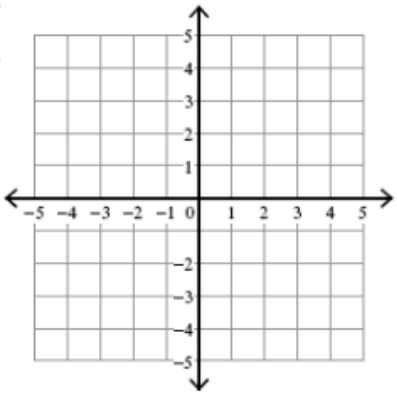
$y - 2 = -\frac{1}{3}x$



Answer:

YT 4) $y - 2x = 4$

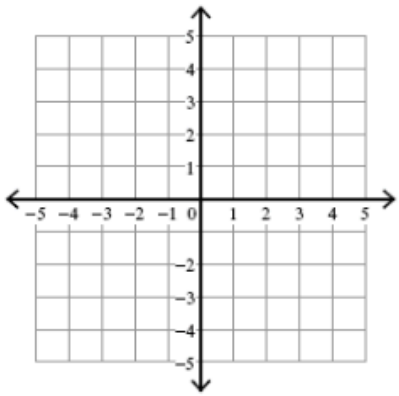
$y = 2x - 2$



Answer:

5) $y = 3x - 2$

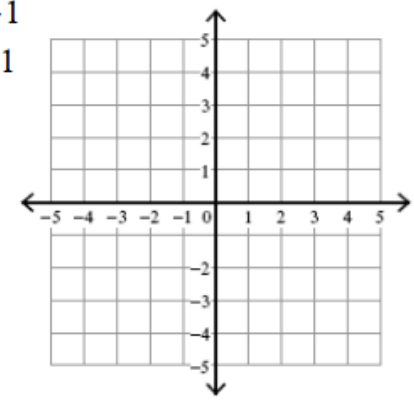
$2y = 6x - 4$



Answer:

YT 5) $-y = x - 1$

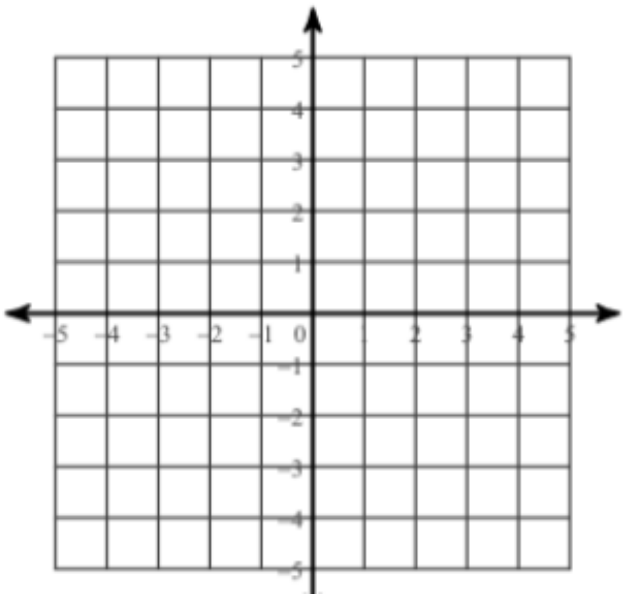
$y = -x + 1$



Answer:

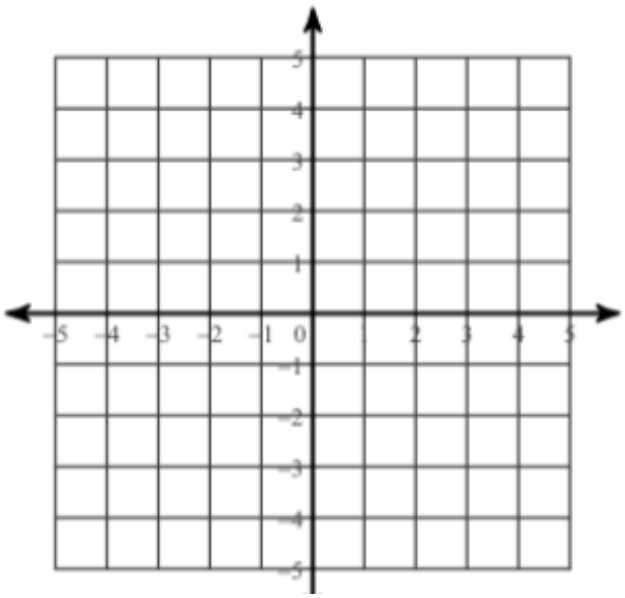
6) $2y + x - 4 = 0$

$2y = -x + 4$



7) $-4 = -2y$

$4 + 6x = -y$



Verify if the given point is a solution to the system of equations.

8) $y = x - 2$

$y = 3x + 4$

Is $(4, 2)$ a solution of the system?

9) $-x + 4y = -9$

$y = -2x + 6$

Is $(2, 3)$ a solution of the system?

10) Solve the following system of equations using your calculator. Write your answers as fractions, if necessary.

a. $y = x + 2.5$
$y - 2x = -0.5$

Solution_____

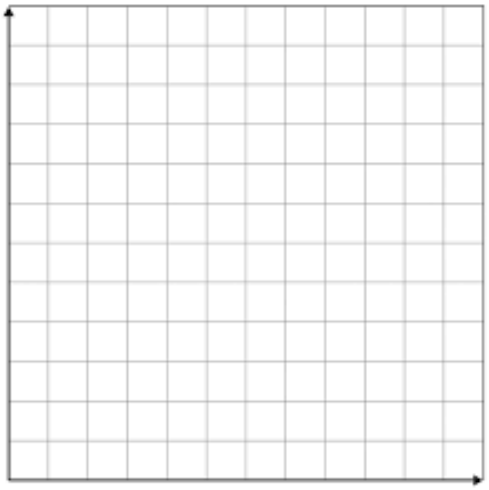
b. $y = 3x + 6$
$-2y = 12x$

Solution_____

11) Solve the system of equations and graphing calculator.

Video club A charges $10 for membership and $3 per movie rental. Video club B charges $15 for membership and $2 per movie rental. For how many movie rentals will the cost be the same at both video clubs? What is that cost?

- Write a systems of equations



- Label the x and y-axis based on the context of the problem.
- Sketch the window on your calculator screen (First Quadrant only)
- Solve

For what number of rentals is Video Club A the best deal? For what number of rentals is Video Club B the best deal?

Lesson Summary:

Explain the relationship between the number of solutions a system has to the number of times its graph intersects.