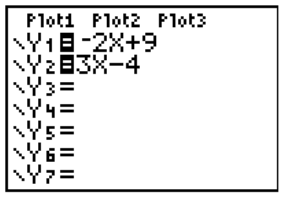
Objective 48

Solve a system of linear equations in two variables by graphing

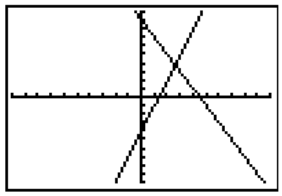
Steps to solving using a graphing calculator:

1. Solve the system: $y = -2x + 9$ and $y = 3x - 4$

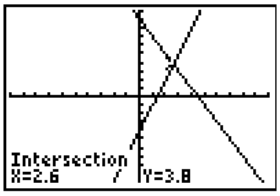
1. Enter the first equation into $\mathbf{Y_1}$.
2. Enter the second equation into $\mathbf{Y_2}$.
3. Hit **GRAPH.**



4. Use the **INTERSECT** option to find where the two graphs intersect (the answer).
   2nd TRACE (CALC) #5 intersect
   Move spider close to the intersection.
   Hit **ENTER** 3 times.



5. Answer: $x = 2.6$ and $y = 3.8$

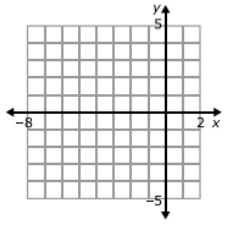


Steps to Solving drawing graphs by hand:

PROBLEM

Graph the equations and use the graph to determine the solution to the system of equations:

$y = x + 3$
$-6y = 4x + 12$

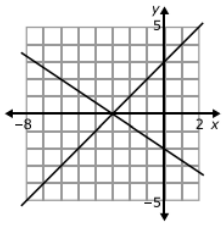


Determine the solution to the system of equations.

The point (−3, 0) is on the graph of both of the equations.

The solution is (−3, 0).

ANSWER

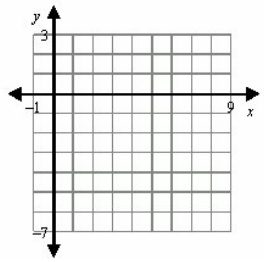


(−3, 0)

Guided Practice:

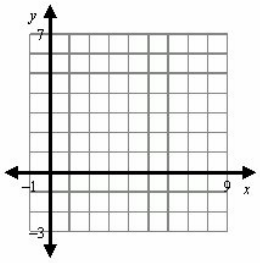
1. $y = -\frac{5}{4}x + 2$

   $y = \frac{3}{4}x - 6$



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

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



Practice:

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

   $y = -\frac{x}{3} + 3$
2. $3x + 3y - 9 = 0$

   $y = x + 1$
3. $x - 2y = 14$

   $x + 3y = 9$