

# Solving Linear Systems by Graphing



Use appropriate tools strategically.

**QUESTION** How can you use a graphing calculator to solve a linear system?

**EXAMPLE** Solve a linear system

Solve the linear system using a graphing calculator.

$5x + 2y = 6$  Equation 1

$x - 3y = -5$  Equation 2

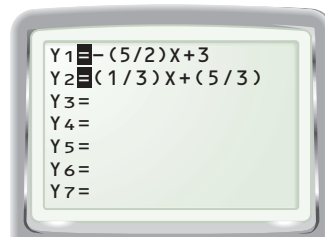
**STEP 1** Rewrite equations

Solve each equation for  $y$ .

Equation 1	Equation 2
$5x + 2y = 6$	$x - 3y = -5$
$2y = -5x + 6$	$-3y = -x - 5$
$y = -\frac{5}{2}x + 3$	$y = \frac{1}{3}x + \frac{5}{3}$

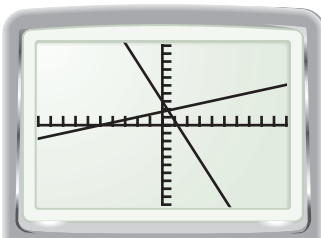
**STEP 2** Enter equations

Press  $\text{Y=}$  and enter the equations.



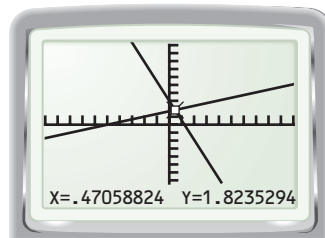
**STEP 3** Display graph

Graph the equations using a standard viewing window.



**STEP 4** Find point of intersection

Use the *intersect* feature to find the point where the graphs intersect.



The solution is about (0.47, 1.8).

**PRACTICE**

Solve the linear system using a graphing calculator.

1.  $y = x + 4$   
 $y = -3x - 2$

2.  $5x + y = -4$   
 $x - y = -2$

3.  $-0.45x - y = 1.35$   
 $-1.8x + y = -1.8$

4.  $-0.4x + 0.8y = -16$   
 $1.2x + 0.4y = 1$