ACTIVITY 3.1

Using Technology

Graphing Calculator Activity for use with Lesson 3.1

Graphing Systems of Equations

In Lesson 3.1 you learned how to *estimate* the solution of a linear system by graphing. With a graphing calculator, you can get an answer that is very close to, and sometimes *exactly* equal to, the actual solution.

EXAMPLE

Solve the linear system using a graphing calculator.

$$5x + 3y = -15$$
$$4x - 2y = 45$$

STUDENT HELP

INTERNET KEYSTROKE HELP

See keystrokes for several models of calculators at www.mcdougallittell.com

SOLUTION

1 Solve each equation for y.

$5x + 3y = -15$

$3y = -5x - 15$

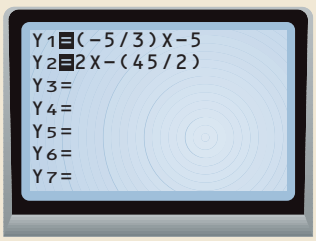
$y = -\frac{5}{3}x - 5$

$4x - 2y = 45$

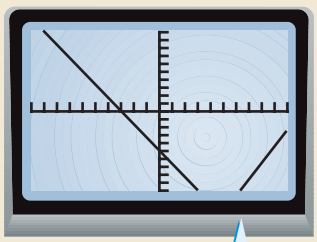
$-2y = -4x + 45$

$y = 2x - \frac{45}{2}$

2 Enter the equations. It's a good idea to use parentheses to enter fractions.

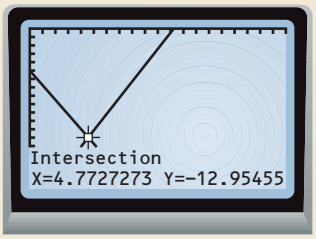


3 Using a standard viewing window, graph the equations.



If the graphs do not intersect on the screen, set a different viewing window.

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



The solution is about $(4.77, -12.95)$.

EXERCISES

Solve the linear system using a graphing calculator.

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

2. $y = -2x + 13$
$y = 6x - 5$

3. $3x - y = 16$
$-5x + 8y = 13$

4. $5x + 2y = 6$
$x - 3y = -5$

5. $6x + 9y = -13$
$-x + 2y = 10$

6. $2x + 8y = -53$
$3x + 4y = 26$