

LESSON  
2.4**Graphing Calculator Activity:  
Solving a Linear Equation***For use before the lesson "Solve Multi-Step Equations"***QUESTION** How can you use a graphing calculator to solve a linear equation graphically?

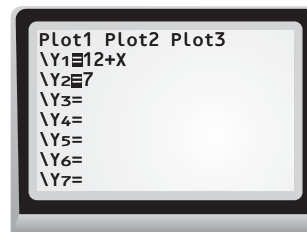
You can solve a linear equation by graphing each side of the equation. The  $x$ -value where the graphs intersect is the solution of the equation.

**EXAMPLE** Solve a linear equation graphically

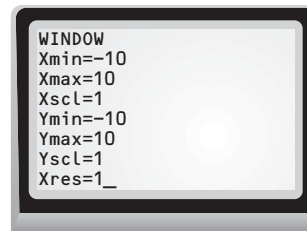
Use a graphing calculator to solve  $12 + x = 7$  graphically.

**STEP 1** Enter each side of the equation.

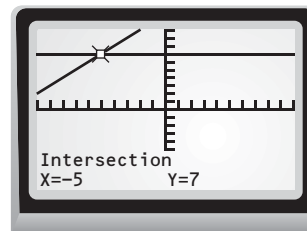
Press **Y=**. Enter the left side of the equation as  $y_1$  and the right side of the equation as  $y_2$ .

**STEP 2** Set window.

The screen is a “window” that lets you look at part of a graph. Press **WINDOW**. A friendly window for  $y_1$  and  $y_2$  is  $-10 \leq x \leq 10$  and  $-10 \leq y \leq 10$ . Note that you can also obtain this window by pressing **ZOOM** 6.

**STEP 3** Graph and solve.

Press **2nd** [CALC] 5 to graph  $y_1$  and  $y_2$  and to find the point of intersection. The  $x$ -value of the point of intersection is the solution of the linear equation. From the graph, you can see that the  $x$ -value is  $-5$ . Check this answer in the original equation.

**PRACTICE** Solve the equation graphically. Use the window given in the example.

1.  $x - 4 = 5$
2.  $2x + 7 = -3$
3.  $7 = 5x - 1 - x$
4.  $-8 = 7x + 22 - 2x$
5.  $5(2x - 7) - 3x = 7$
6.  $5 = 0.5(x + 13)$
7.  $-4x + 3(x - 1) = 6$
8.  $-4.5 = x + 2(4 - 3x)$
9.  $1.2(3 - x) + 7 = 4.6$

**LESSON  
2.4**

# Graphing Calculator Activity: Solving a Linear Equation *continued*

*For use before the lesson "Solve Multi-Step Equations"*

**TI-83 Plus**

**Y=** 12 **+** **X,T,θ,n** **ENTER** 7

**ENTER** **ZOOM** 6 **2nd** **[CALC]** 5

**Casio CFX-9850GC Plus**

From the main menu, choose GRAPH.

12 **+** **X,θ,T** **EXE** 7 **EXE** **SHIFT** **F3**

**F3** **EXIT** **F6** **SHIFT** **F5** **F5**