

### Objective

Use a graphing calculator to solve systems of equations.

You can use a Sharp EL-9900C graphing calculator to solve systems of equations. You can use the Y= menu to graph each equation on the same set of axes.

### EXAMPLE Intersection of Two Graphs

Graph the system of equations in the standard viewing window.

$$3x + y = 9$$

$$x - y = -1$$

Clear the calculator memory first.

KEYSTROKES:  $\boxed{2\text{ndF}}$   $\boxed{[\text{OPTION}]}$   $\boxed{[\text{ALPHA}]}$   $\boxed{[E]}$   $\boxed{2}$   $\boxed{[\text{CL}]}$   $\boxed{[\text{ENTER}]}$

**Step 1** Write each equation in the form  $y = mx + b$ .

$$3x + y = 9$$

$$x - y = 1$$

$$y = -3x + 9$$

$$-y = -x - 1$$

$$y = x + 1$$

**Step 2** Enter  $y = -3x + 9$  as Y1 and  $y = x + 1$  as Y2. Then graph the lines.

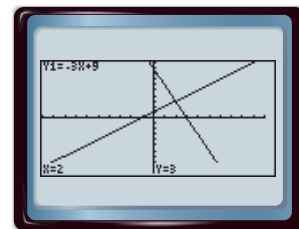
KEYSTROKES:  $\boxed{Y=}$   $\boxed{(-)}$   $\boxed{3}$   $\boxed{[X/\theta/T/n]}$   $\boxed{+}$   $\boxed{9}$   $\boxed{[\text{ENTER}]}$   $\boxed{[X/\theta/T/n]}$

$\boxed{+}$   $\boxed{1}$   $\boxed{[\text{ENTER}]}$   $\boxed{ZOOM}$   $\boxed{5}$

**Step 3** Find the intersection of the lines.

KEYSTROKES:  $\boxed{2\text{ndF}}$   $\boxed{[\text{CALC}]}$   $\boxed{2}$ : Intsct

The solution is (2, 3).



$[-10, 10]$  scl: 1 by  $[-10, 10]$  scl: 1

### Exercises

Use a graphing calculator to solve each system of equations.

1.  $2x + 4y = 36$   
 $10y - 5x = 0$

2.  $2y - 3x = 7$   
 $5x = 4y - 12$

3.  $4x - 2y = 16$   
 $7x + 3y = 15$

4.  $2x + 4y = 4$   
 $x + 3y = 13$

5.  $5x + y = 13$   
 $3x = 15 - 3y$

6.  $4y - 5 = 20 - 3x$   
 $4x - 7y + 16 = 0$

7.  $\frac{1}{4}x + y = \frac{11}{4}$   
 $x - \frac{1}{2}y = 2$

8.  $3x + 2y = -3$   
 $x + \frac{1}{3}y = -4$

9.  $3x - 6y = 6$   
 $2x - 4y = 4$

10.  $6x + 8y = -16$   
 $3x + 4y = 12$