



# Graphing Calculator Investigation

A Follow-Up of Lesson 3-3

Sharp EL-9600c

## Systems of Linear Inequalities

You can graph systems of linear inequalities with a Sharp EL-9600c calculator using the Y= menu. You can choose different graphing styles to shade above or below a line.

**Example** Graph the system of inequalities in the standard viewing window.

$$y \geq -2x + 3$$
$$y \leq x + 5$$

### Step 1

- Enter  $-2x + 3$  as Y1. Since  $y$  is greater than  $-2x + 3$ , the shading is above the line.

**KEYSTROKES:**  $-2$   $X/\theta/T/n$   $+$   $3$   $\text{ENTER}$

### Step 2

- Enter  $x + 5$  as Y2. Since  $y$  is less than  $x + 5$ , the shading is below the line.

**KEYSTROKES:**  $X/\theta/T/n$   $+$   $5$

- Display the graph of both lines by pressing  $\text{ZOOM}$   $5$

### Step 3

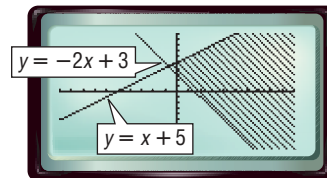
- Complete the graph by selecting the boundaries for the shading.

**KEYSTROKES:**  $2^{\text{nd}}$   $F$   $[\text{DRAW}]$   $\text{ALPHA}$   $[G]$   $1$

with pen, touch Y1  $\blacktriangleright$  with pen,

touch Y2  $\text{GRAPH}$

The shaded region is the intersection of the shading above the line  $y = -2x + 3$  and the shading below the line  $y = x + 5$ . This region includes all the points that satisfy the system  $y \geq -2x + 3$  and  $y \leq x + 5$ .



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

### Exercises 1–8. See pp. 151A–151F.

Solve each system of inequalities. Sketch each graph on a sheet of paper.

1.  $y \geq 4$   
 $y \leq -x$

2.  $y \geq -2x$   
 $y \leq -3$

3.  $y \geq 1 - x$   
 $y \leq x + 5$

4.  $y \geq x + 2$   
 $y \leq -2x - 1$

5.  $3y \geq 6x - 15$   
 $2y \leq -x + 3$

6.  $y + 3x \geq 6$   
 $y - 2x \leq 9$

7.  $6y + 4x \geq 12$   
 $5y - 3x \leq -10$

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



[www.algebra2.com/other\\_calculator\\_keystrokes](http://www.algebra2.com/other_calculator_keystrokes)