



# Graphing Calculator Investigation

A Follow-Up of Lesson 3-3

TI-73

## Systems of Linear Inequalities

You can graph systems of linear inequalities with a TI-73 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

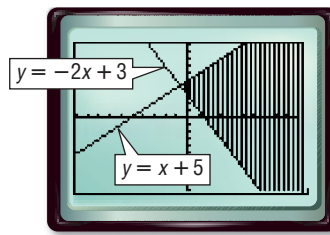
- Enter  $-2x + 3$  as Y1. Since  $y$  is greater than  $-2x + 3$ , shade above the line.  
**KEYSTROKES:**  $-2$   $x$   $+$   $3$
- Use the left arrow key to move your cursor as far left as possible. Highlight the graph style icon. Press **ENTER** until the shade above icon,  $\text{■}$ , appears.

### Step 2

- Enter  $x + 5$  as Y2. Since  $y$  is less than  $x + 5$ , shade below the line.  
**KEYSTROKES:**  $x$   $+$   $5$
- Use the arrow and **ENTER** keys to choose the shade below icon,  $\text{■}$ .

### Step 3

- Display the graphs by pressing **ZOOM** 6. Notice the shading pattern above the line  $y = -2x + 3$  and the shading pattern below the line  $y = x + 5$ . The intersection of the graphs is the region where the patterns overlap. This region includes all the points that satisfy the system  $y \geq -2x + 3$  and  $y \leq x + 5$ .



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**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)