



# Graphing Calculator Investigation

A Follow-Up of Lesson 8-10

TI-82

## Graphing Inequalities

You can use a TI-82 graphing calculator to investigate the graphs of inequalities. Since the graphing calculator only shades between two functions, enter a lower boundary as well as an upper boundary for each inequality.

Graph two different inequalities on your graphing calculator.

### Step 1 Graph $y \leq -x + 4$ .

- Clear all functions from the Y= list.

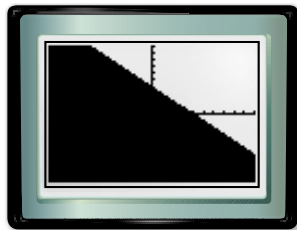
KEYSTROKES:  $\boxed{Y=}$   $\boxed{\text{CLEAR}}$

- Graph  $y \leq -x + 4$  in the standard window.

KEYSTROKES:  $\boxed{2\text{nd}}$   $\boxed{[\text{DRAW}]}$   $\boxed{7}$   $\boxed{(-)}$   $\boxed{10}$   $\boxed{,}$

$\boxed{(-)}$   $\boxed{X,T,\theta}$   $\boxed{+}$   $\boxed{4}$   $\boxed{)}$

$\boxed{\text{ENTER}}$



Ymin or  $-10$  is used as the lower boundary and  $y = -x + 4$  as the upper boundary. All ordered pairs in the shaded region satisfy the inequality  $y \leq -x + 4$ .

### Step 2 Graph $y \geq -x + 4$ .

- Clear the current drawing displayed.

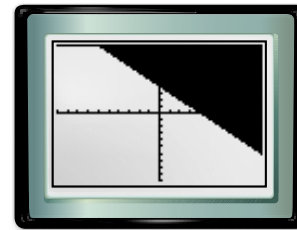
KEYSTROKES:  $\boxed{2\text{nd}}$   $\boxed{[\text{DRAW}]}$   $\boxed{\text{ENTER}}$

- Graph  $y \geq -x + 4$  in the standard window.

KEYSTROKES:  $\boxed{2\text{nd}}$   $\boxed{[\text{DRAW}]}$   $\boxed{7}$   $\boxed{(-)}$

$\boxed{X,T,\theta}$   $\boxed{+}$   $\boxed{4}$   $\boxed{,}$   $\boxed{10}$   $\boxed{)}$

$\boxed{\text{ENTER}}$



In this case, the lower boundary is  $y = -x + 4$ . The upper boundary is Ymax or  $10$ . All ordered pairs in the shaded region satisfy the inequality  $y \geq -x + 4$ .

### Exercises 2b. lower bound: $-2x - 6$ ; upper bound: Ymax or 10

- Compare and contrast the two graphs shown above. **See margin.**
- Graph  $y \geq -2x - 6$  in the standard viewing window. Draw the graph on grid paper. **See margin.**
  - What functions do you enter as the lower and upper boundaries?
  - Use the graph to name four solutions of the inequality.  
**Sample answer: (0, 0), (1, 5), (-1, 4), (-2, 2)**

Use a graphing calculator to graph each inequality. Draw each graph on grid paper. **3-10. See pp. 431A-431H.**

3.  $y \leq x - 3$

4.  $y \leq -1$

5.  $x + y \geq 6$

6.  $y \geq 3x$

7.  $y \leq 0$

8.  $y + 3 \leq -x$

9.  $x + y \leq 5$

10.  $2y - x \geq 2$

[www.pre-alg.com/other\\_calculator\\_keystrokes](http://www.pre-alg.com/other_calculator_keystrokes)