Graphing Calculator Investigation

A Follow-Up of Lesson 8-10

TI-73

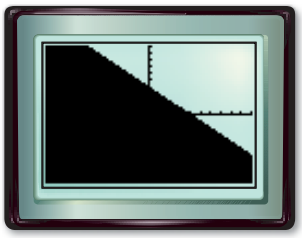
Graphing Inequalities

You can use a TI-73 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 $y \leq -x + 4$.*

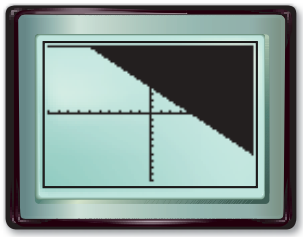
- Clear all functions from the Y= list.
  KEYSTROKES: [Y=] [CLEAR]
- Graph $y \leq -x + 4$ in the standard window.
  KEYSTROKES: [DRAW] 5 [(–)] 10 [,] [(–)] [x] [+] 4 [)] [ENTER]



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: [DRAW] [ENTER]
- Graph $y \geq -x + 4$ in the standard window.
  KEYSTROKES: [DRAW] 5 [(–)] [x] [+] 4 [,] 10 [)] [ENTER]



In this case, the lower boundary is $y = -x + 1$. 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**

1. Compare and contrast the two graphs shown above. **See margin.**

2. a. Graph $y \geq -2x - 6$ in the standard viewing window. Draw the graph on grid paper. **See margin.**

b. What functions do you enter as the lower and upper boundaries?

c. 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