



Graphing Calculator Investigation

A Follow-Up of Lesson 8-10

Sharp EL-9900

Graphing Inequalities

You can use a Sharp EL-9900 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.

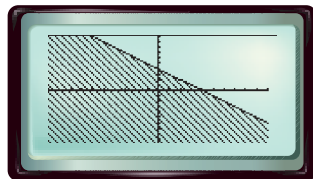
KEYSTROKES: $\boxed{Y=}$ \boxed{CL}

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

KEYSTROKES: $\boxed{2nd F}$ \boxed{DRAW} \boxed{ALPHA} \boxed{A} $\boxed{7}$ $\boxed{(-)}$

$\boxed{10}$ $\boxed{,}$ $\boxed{(-)}$ $\boxed{X/\theta/T/n}$ $\boxed{+}$ $\boxed{4}$ $\boxed{)}$

\boxed{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.

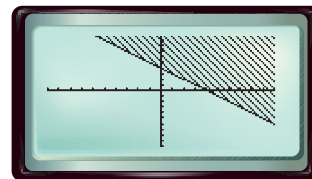
KEYSTROKES: $\boxed{2nd F}$ \boxed{DRAW} \boxed{ENTER} \boxed{ENTER}

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

KEYSTROKES: $\boxed{2nd F}$ \boxed{DRAW} $\boxed{7}$ $\boxed{(-)}$

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

\boxed{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