Graphing Calculator Investigation

A Follow-Up of Lesson 6-6

Casio CFX-9850GB Plus

Graphing Inequalities

You can use a Casio CFX-9850GB Plus graphing calculator to investigate the graphs of inequalities. Since graphing calculators only shade between two functions, enter a lower boundary as well as an upper boundary for each inequality.

Graph two different inequalities on your graphing calculator.

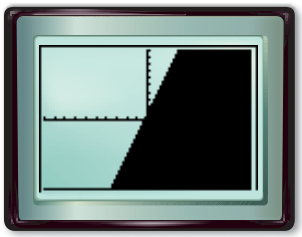
Step 1 Graph $y \leq 3x + 1$.

- Clear all functions from the Y= list.

  KEYSTROKES: MENU 5 F2 F1

- Graph $y \leq 3x + 1$ in the standard window.

  KEYSTROKES: F3 F6 F4 3 X,θ,T + 1 EXE F6



All ordered pairs for which y is *less than or equal to* $3x + 1$ lie *below or on* the line and are solutions.

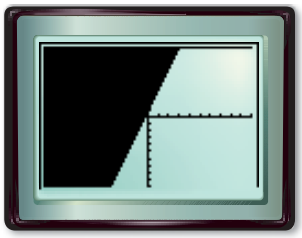
Step 2 Graph $y - 3x \geq 1$.

- Clear the drawing that is currently displayed.

  KEYSTROKES: EXIT ▲ F2 F1

- Rewrite $y - 3x \geq 1$ as $y \geq 3x + 1$ and graph it.

  KEYSTROKES: F3 F6 F3 3 X,θ,T + 1 EXE F6



All ordered pairs for which y is *greater than or equal to* $3x + 1$ lie *above or on* the line and are solutions.

Exercises

2b. Sample answer: {(0, 4), (−1, 7), (2, 6), (4.2, −1.5)}

1. Compare and contrast the two graphs shown above. **See margin.**
2. Graph the inequality $y \geq -2x + 4$ in the standard viewing window.
   a. What functions do you enter as the lower and upper boundaries? **$y = -2x + 4$; Ymax or 10**
   b. Using your graph, name four solutions of the inequality.
3. Suppose student movie tickets cost \$4 and adult movie tickets cost \$8. You would like to buy at least 10 tickets, but spend no more than \$80.
   a. Let x = number of student tickets and y = number of adult tickets. Write two inequalities, one representing the total number of tickets and the other representing the total cost of the tickets. **$x + y \geq 10$; $4x + 8y \leq 80$**
   b. Which inequalities would you use as the lower and upper boundaries? **$y \geq -x + 10$; $y \leq -0.5x + 10$**
   c. Graph the inequalities. Use the viewing window [0, 20] scl: 1 by [0, 20] scl: 1. **See margin.**
   d. Name four possible combinations of student and adult tickets. **Sample answer: {(8, 5), (10, 4), (14, 2), (20, 0)}**

www.algebra1.com/other_calculator_keystrokes