



# Graphing Calculator Investigation

A Follow-Up of Lesson 6-6

Casio Algebra FX 2.0

## Graphing Inequalities

You can use a Casio Algebra FX 2.0 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.

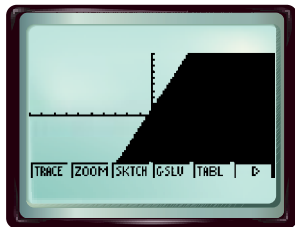
### Step 1 Graph $y \leq 3x + 1$ .

- Clear all functions from the Y= list.

KEYSTROKES: **MENU** 3 **ESC** **▲** **F2** **EXE**

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

KEYSTROKES: **F3** 5 4 3 **X,θ,T** **+** 1  
**EXE** **F5**



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

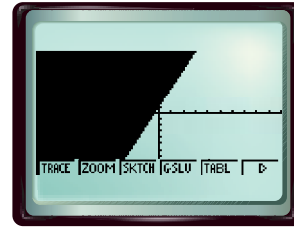
### Step 2 Graph $y - 3x \geq 1$ .

- Clear the drawing that is currently displayed.

KEYSTROKES: **ESC** **▲** **F2** **EXE**

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

KEYSTROKES: **F3** 5 3 3 **X,θ,T** **+** 1  
**EXE** **F5**



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: $\{(0, 4), (-1, 7), (2, 6), (4.2, -1.5)\}$

- Compare and contrast the two graphs shown above. **See margin.**
- Graph the inequality  $y \geq -2x + 4$  in the standard viewing window.
  - What functions do you enter as the lower and upper boundaries?  $y = -2x + 4$ ; **Ymax or 10**
  - Using your graph, name four solutions of the inequality.
- 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.
  - 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.  $x + y \geq 10$ ;  $4x + 8y \leq 80$   $y \geq -x + 10$ ;
  - Which inequalities would you use as the lower and upper boundaries?  $y \leq -0.5x + 10$
  - Graph the inequalities. Use the viewing window  $[0, 20]$  scl: 1 by  $[0, 20]$  scl: 1. **See margin.**
  - 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](http://www.algebra1.com/other_calculator_keystrokes)