

Graphing Technology Lab

Graphing Inequalities

You can use a TI-Nspire graphing calculator to investigate the graphs of inequalities.

ACTIVITY 1 Less Than

Graph $y \leq 2x + 5$.

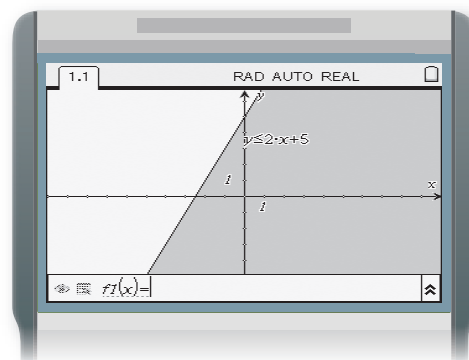
Open a new graph window.

KEYSTROKES: 6: New Document 2: Add Graphs & Geometry

Graph $y \leq 2x + 5$ in the standard window.

KEYSTROKES: 2 5 4: Window
5: Zoom-standard

All ordered pairs for which y is *less than or equal* to $2x + 5$ lie *below or on* the line and are solutions.



ACTIVITY 2 Greater Than

Graph $y - 2x \geq 5$.

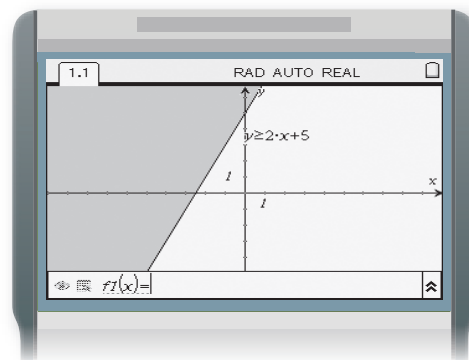
Clear the graph that is currently displayed.

KEYSTROKES:

Rewrite $y - 2x \geq 5$ as $y \geq 2x + 5$ and graph it.

KEYSTROKES: 2 5

All ordered pairs for which y is *greater than or equal* to $2x + 5$ lie *above or on* the line and are solutions.



Exercises

1. Compare and contrast the two graphs shown above.
2. Graph $y \geq -3x + 1$ in the standard viewing window. Using your graph, name four solutions of the inequality.
3. Suppose student water park tickets cost \$16 and adult water park tickets cost \$20. You would like to buy at least 10 tickets but spend no more than \$200.
 - 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.
 - b. Graph the inequalities. Use the viewing window $[0, 20]$ scl: 1 by $[0, 20]$ scl: 1.
 - c. Name four possible combinations of student and adult tickets.