

ACTIVITY 6.5**Using Technology**

Graphing Inequalities

▶ EXAMPLEGraph the solution of the inequality $x - 2y \leq -6$.**▶ SOLUTION**

- 1**
- Rewrite the inequality so that
- y
- is isolated on the left.

$$x - 2y \leq -6$$

Write original inequality.

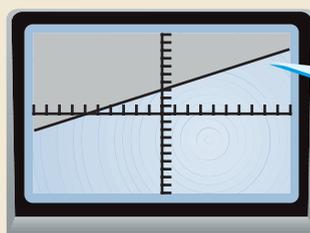
$$-2y \leq -x - 6$$

Subtract x from each side.

$$y \geq \frac{x}{2} + 3$$

Divide each side by -2 and reverse inequality symbol.

- 2**
- Use your calculator's procedure for graphing and shading an inequality. You may need to decide whether the graph of the corresponding equation is part of the solution, because that may not be clear on the screen.



The graph of $y = \frac{x}{2} + 3$ is part of the solution.

- 3**
- The corresponding equation should be shown with a solid line, because in this case the inequality is “less than or equal to.”

▶ EXERCISES

In Exercises 1–12, use a graphing calculator or a computer to graph the inequality. (For Exercises 1–8, use a standard viewing rectangle. For Exercises 9–12, use the indicated viewing rectangle.)

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|--|--|---|--|
| 1. $y < -2x - 3$ | 2. $y > 2x + 2$ | 3. $x + 2y \leq -1$ | 4. $x - 3y \geq 3$ |
| 5. $y > 0.5x + 2$ | 6. $y < 3.2x - 3$ | 7. $\frac{3}{4}x + y \geq 1$ | 8. $\frac{x}{2} - 2y \leq 2$ |
| 9. $y < x + 25$
Xmin = -10
Xmax = 10
Xscl = 1
Ymin = -5
Ymax = 35
Yscl = 5 | 10. $y > -x + 25$
Xmin = -10
Xmax = 10
Xscl = 1
Ymin = -5
Ymax = 35
Yscl = 5 | 11. $y \leq 0.1x$
Xmin = -10
Xmax = 10
Xscl = 1
Ymin = -1
Ymax = 1
Yscl = 0.1 | 12. $y \geq 100x + 2500$
Xmin = 0
Xmax = 100
Xscl = 10
Ymin = 0
Ymax = 15000
Yscl = 1000 |

- 13.** Write an inequality that represents all points that lie above the line $y = x$. Use a graphing calculator or a computer to check your answer.
- 14.** Write an inequality that represents all points that lie below the line $y = x + 2$. Use a graphing calculator or a computer to check your answer.

STUDENT HELP

See keystrokes for several models of calculators at www.mcdougallittell.com