

ACTIVITY 6.4
Using Technology

Graphing Absolute-Value Equations

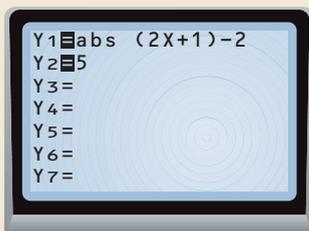
EXAMPLE

Solve the equation $|2x + 1| - 2 = 5$ using a graphing calculator.

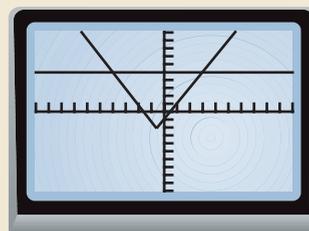
SOLUTION

To solve the equation, graph both sides of the equation and find the intersections.

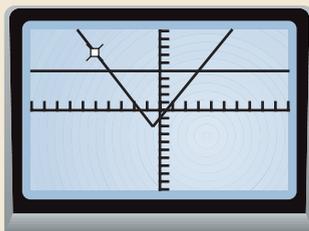
- 1** Enter the equations $y = |2x + 1| - 2$ and $y = 5$.



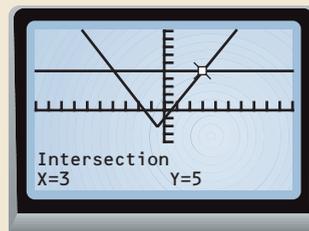
- 2** Using a standard viewing window, graph both equations.



- 3** Use the *Intersect* feature to estimate a point where the graphs intersect. If you need to select a graph, use the direction keys to move the cursor to one of the graphs.



- 4** Move the cursor to the approximate intersection point. Follow your calculator's procedure to display the coordinate values. Repeat the steps to find the other intersection point.



The solutions are 3 and -4.

EXERCISES

Use a graphing calculator or computer to solve the absolute-value equation. Check your solutions algebraically. Use a standard viewing window.

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|-------------------------------|-----------------------------|---------------------------------|
| 1. $ x + 3 - 1 = 3$ | 2. $ 4x - 4 + 1 = 6$ | 3. $ \frac{1}{2}x - 2 + 1 = 8$ |
| 4. $ x - 1.67 - 3.24 = -1.1$ | 5. $ 2x - 60 - 55 = 13$ | 6. $ \frac{1}{3}x + 1 + 2 = 4$ |
| 7. $ x - 4.3 + 2.8 = 5.3$ | 8. $ x - 7.2 - 7.6 = 10.9$ | 9. $ x + 36 + 35 = 49$ |

STUDENT HELP

INTERNET **KEYSTROKE HELP**

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