ACTIVITY 9.4

Using Technology

*Graphing Calculator Activity for use with Lesson 9.4*

# Approximating Solutions by Graphing

**You can use the root or zero feature of a graphing calculator to approximate the solutions, or roots, of a quadratic equation.**

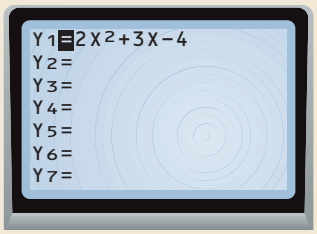
## EXAMPLE

Approximate the roots of $2x^2 + 3x - 4 = 0$.

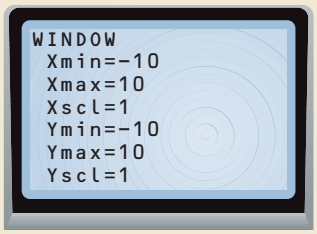
## SOLUTION

The four screens below show the steps in approximating the roots of an equation.

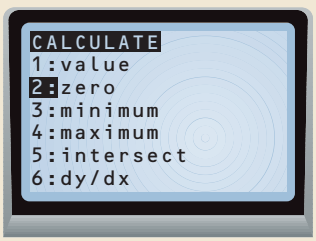
**1** Enter the related function $y = 2x^2 + 3x - 4$ into the graphing calculator.



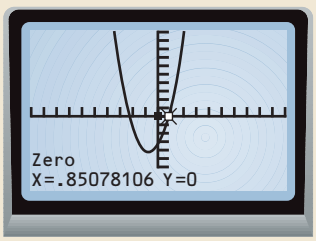

**2** Adjust the viewing window so you can see the graph cross the $x$-axis twice. Graph the function.




**3** Choose the *Root* or *Zero* feature.




**4** Follow your graphing calculator's procedure to find one root.




The approximate positive root is 0.85. Follow similar steps to find the negative root, $-2.35$.

**STUDENT HELP**

INTERNET KEYSTROKE HELP

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

## EXERCISES

**APPROXIMATING ROOTS** **Use a graphing calculator to approximate both roots of the quadratic equation to the nearest hundredth.**

**1.** $3x^2 - 20x + 5 = 0$

**2.** $-4x^2 + 6x + 7 = 0$

**3.** $-x^2 + 5x - 1 = 0$

**4.** $6x^2 + 4x - 5.1 = 0$

**5.** $-1.4x^2 + 5.2x - 4.8 = 0$

**6.** $2.87x^2 - 9.43x - 4.53 = 0$

**7.** $-0.53x^2 + 5x - 10.3 = 0$

**8.** $4.72x^2 + 8x - 7.65 = 0$