

# 6.31

## Quadratic Formula

### • Example 1

Solve  $2x^2 - x - 4$  by the quadratic formula.

$$2x^2 - x - 4 = 0$$

$\swarrow$        $\swarrow$        $\swarrow$   
 $a = 2$      $b = -1$     $c = -4$

$$\begin{aligned}
 x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
 &= \frac{-(-1) \pm \sqrt{(-1)^2 - 4(2)(-4)}}{2(2)} \\
 &= \frac{1 \pm \sqrt{1 + 32}}{4} \\
 &= \frac{1 \pm \sqrt{33}}{4}
 \end{aligned}$$

Substitute the values for  $a$ ,  $b$ , and  $c$  into the formula.

### • • • CHECK YOURSELF 1

Solve  $3x^2 = 3x + 4$  by the quadratic formula.

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### • • • CHECK YOURSELF ANSWER

1.  $x = \frac{3 \pm \sqrt{57}}{6}$ .

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# 6.31 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
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10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

Solve each of the following quadratic equations by the quadratic formula.

1.  $x^2 + 9x + 20 = 0$

2.  $x^2 - 9x + 14 = 0$

3.  $x^2 - 4x + 3 = 0$

4.  $x^2 - 13x + 22 = 0$

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

6.  $x^2 - 8x + 16 = 0$

7.  $2x^2 - 3x - 7 = 0$

8.  $x^2 - 5x + 2 = 0$

9.  $x^2 + 2x - 4 = 0$

10.  $x^2 - 4x + 2 = 0$

11.  $x^2 - 2x - 3 = 0$

12.  $x^2 - 6x + 9 = 0$