

# 5.24

## Roots of a Quadratic Equation with Leading Coefficient 1

### • Example 1

What are the roots of  $x^2 - 6x + 5 = 0$ ?

Because  $x^2 - 6x + 5 = (x - 5)(x - 1)$ , the values of  $x$  for which  $x^2 - 6x + 5 = 0$  are  $x = 5$  and  $x = 1$ .

These values are the roots of the equation

**Warning.** NOT ALL QUADRATIC EXPRESSIONS CAN BE FACTORED AS  $ax^2 + bx + c = a(x - r_1)(x - r_2)$  WHERE  $r_1$  AND  $r_2$  ARE REAL NUMBERS. WHEN SUCH A FACTORIZATION IS IMPOSSIBLE, THERE ARE NO ROOTS FOR THE QUADRATIC EQUATION.

### ● ● ● CHECK YOURSELF 1

What are the roots of  $x^2 - 2x - 8 = 0$ ?

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### ● ● ● CHECK YOURSELF ANSWER

1. 4, -2.

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# 5.24 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

Solve each of the following quadratic equations.

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

2.  $x^2 + 5x + 4 = 0$

3.  $x^2 - 7x + 6 = 0$

4.  $x^2 + 3x - 10 = 0$

5.  $x^2 + 8x + 15 = 0$

6.  $x^2 - 3x - 18 = 0$

7.  $x^2 + 4x - 21 = 0$

8.  $x^2 - 12x + 32 = 0$