

# 6.26

## Roots of a Product of Polynomials

### • Example 1

Find all solutions for the equation.

$$(x - 3)(x^2 - 6x + 5) = 0$$

Factoring  $x^2 - 6x + 5$ , we obtain

$$x^2 - 6x + 5 = (x - 5)(x - 1)$$

We thus have

$$(x - 3)(x^2 - 6x + 5) = (x - 3)(x - 5)(x - 1) = 0$$

The values satisfying the last equation are  $x = 3$ ,  $x = 5$ , and  $x = 1$ . These are the solutions for the original equation.

### ● ● ● CHECK YOURSELF 1

Find all solutions for the equation.

$$(2x - 10)(x^2 + 5x - 24) = 0$$

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### ● ● ● CHECK YOURSELF ANSWER

1.  $-8, 3, 5$ .

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# 6.26 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

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

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

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

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

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

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

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

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

Find all solutions for the following equations.

1.  $(x - 5)(x^2 + 13x + 42) = 0$

2.  $(3x - 12)(x^2 - x - 30) = 0$

3.  $x(x^2 - 9) = 0$

4.  $18x(x^2 - 22x + 120) = 0$

5.  $(7x - 35)(x^2 + 6x + 8) = 0$

6.  $(2x + 1)(x^2 - 9x + 14) = 0$

7.  $(5x + 5)(2x^2 - 11x + 12) = 0$

8.  $(x + 3)(3x^2 - 11x - 20) = 0$