

# 5.15

## Factoring a Perfect Square

### • Example 1

Write  $x^2 + 6x + 9$  as the square of a binomial.

Note that the first term,  $x^2$ , and the last term, 9, are both perfect squares, while the middle term,  $6x = 2 \cdot x \cdot 3$ , is twice the product of the expressions that are squared in first and last terms.

$$x^2 + 6x + 9 = x^2 + 2 \cdot 3 \cdot x + 3^2 = (x + 3)^2$$

### ● ● ● CHECK YOURSELF 1

Write  $x^2 + 10x + 25$  as the square of a binomial.

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### ● ● ● CHECK YOURSELF ANSWER

1.  $(x + 5)^2$ .

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# 5.15 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

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

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

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

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

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

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

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

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

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

Write each quadratic as the square of a binomial.

1.  $x^2 + 12x + 36$

2.  $x^2 + 18x + 81$

3.  $x^2 - 2x + 1$

4.  $x^2 - 14x + 49$

5.  $x^2 + 50x + 625$

6.  $x^2 - 6x + 9$

7.  $x^2 + 8x + 16$

8.  $4x^2 + 12x + 9$

9.  $9x^2 + 6x + 1$

10.  $4x^2 - 28x + 49$

11.  $36x^2 - 12x + 1$

12.  $16x^2 - 24x + 9$