

# 5.18

## Factoring the Difference of Two Squares

### • Example 1

Factor  $x^2 - 16$ .

Think  $\begin{matrix} \uparrow & & \uparrow \\ x^2 & - & 4^2 \end{matrix}$

Since  $x^2 - 16$  is a difference of squares, we have

$$x^2 - 16 = (x + 4)(x - 4)$$

### • • • CHECK YOURSELF 1

Factor  $m^2 - 49$ .

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### • Example 2

Factor  $32x^2y - 18y^3$ .

Note that  $2y$  is a common factor, so

$$32x^2y - 18y^3 = 2y(16x^2 - 9y^2)$$

Difference of squares

$$= 2y(4x + 3y)(4x - 3y)$$

### • • • CHECK YOURSELF 4

Factor  $50a^3 - 8ab^2$ .

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### • • • CHECK YOURSELF ANSWERS

1.  $(m + 7)(m - 7)$ .   2.  $2a(5a + 2b)(5a - 2b)$ .

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# 5.18 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

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

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

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

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

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

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

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

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

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

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

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

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

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

Factor the following binomials.

1.  $m^2 - n^2$

2.  $r^2 - 9$

3.  $x^2 - 49$

4.  $c^2 - d^2$

5.  $49 - y^2$

6.  $81 - b^2$

7.  $9b^2 - 16$

8.  $36 - x^2$

9.  $16w^2 - 49$

10.  $4x^2 - 25$

11.  $4s^2 - 9r^2$

12.  $64y^2 - x^2$

13.  $9w^2 - 49z^2$

14.  $25x^2 - 81y^2$

15.  $16a^2 - 49b^2$

16.  $64m^2 - 9n^2$

17.  $x^4 - 36$

18.  $y^6 - 49$

19.  $x^2y^2 - 16$

20.  $m^2n^2 - 64$