EXAMPLE 2 on p. 253 for Exs. 15–23

FACTORING WITH SPECIAL PATTERNS **Factor the expression.**

15. $x^2 - 36$ **16.** $b^2 - 81$ **17.** $x^2 - 24x + 144$

18. $t^2 - 16t + 64$ **19.** $x^2 + 8x + 16$ **20.** $c^2 + 28c + 196$

21. $n^2 + 14n + 49$ **22.** $s^2 - 26s + 169$ **23.** $z^2 - 121$

EXAMPLE 3 on p. 254 for Exs. 24–41

SOLVING EQUATIONS **Solve the equation.**

24. $x^2 - 8x + 12 = 0$ **25.** $x^2 - 11x + 30 = 0$ **26.** $x^2 + 2x - 35 = 0$

27. $a^2 - 49 = 0$ **28.** $b^2 - 6b + 9 = 0$ **29.** $c^2 + 5c + 4 = 0$

30. $n^2 - 6n = 0$ **31.** $t^2 + 10t + 25 = 0$ **32.** $w^2 - 16w + 48 = 0$

33. $z^2 - 3z = 54$ **34.** $r^2 + 2r = 80$ **35.** $u^2 = -9u$

36. $m^2 = 7m$ **37.** $14x - 49 = x^2$ **38.** $-3y + 28 = y^2$

ERROR ANALYSIS ***Describe*** **and correct the error in solving the equation.**

39.

$x^2 - x - 6 = 0$

$(x - 2)(x + 3) = 0$

$x - 2 = 0$ or $x + 3 = 0$

$x = 2$ or $x = -3$

40.

$x^2 + 7x + 6 = 14$

$(x + 6)(x + 1) = 14$

$x + 6 = 14$ or $x + 1 = 14$

$x = 8$ or $x = 13$

41. **TAKS REASONING** What are the roots of the equation $x^2 + 2x - 63 = 0$?

(A) 7, −9 (B) −7, −9 (C) −7, 9 (D) 7, 9

EXAMPLE 4 on p. 254 for Exs. 42–43

WRITING EQUATIONS **Write an equation that you can solve to find the value of *x*.**

42. A rectangular picnic site measures 24 feet by 10 feet. You want to double the site's area by adding the same distance x to the length and the width.

43. A rectangular performing platform in a park measures 10 feet by 12 feet. You want to triple the platform's area by adding the same distance x to the length and the width.

EXAMPLE 5 on p. 255 for Exs. 44–55

FINDING ZEROS **Find the zeros of the function by rewriting the function in intercept form.**

44. $y = x^2 + 6x + 8$ **45.** $y = x^2 - 8x + 16$ **46.** $y = x^2 - 4x - 32$

47. $y = x^2 + 7x - 30$ **48.** $f(x) = x^2 + 11x$ **49.** $g(x) = x^2 - 8x$

50. $y = x^2 - 64$ **51.** $y = x^2 - 25$ **52.** $f(x) = x^2 - 12x - 45$

53. $g(x) = x^2 + 19x + 84$ **54.** $y = x^2 + 22x + 121$ **55.** $y = x^2 + 2x + 1$

56. **TAKS REASONING** What are the zeros of $f(x) = x^2 + 6x - 55$?

(A) −11, −5 (B) −11, 5 (C) −5, 11 (D) 5, 11

57. **REASONING** Write a quadratic equation of the form $x^2 + bx + c = 0$ that has roots 8 and 11.

58. **TAKS REASONING** For what integers b can the expression $x^2 + bx + 7$ be factored? *Explain*.

= WORKED-OUT SOLUTIONS on p. WS1

= TAKS PRACTICE AND REASONING