# 10.3 EXERCISES

**HOMEWORK KEY**

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 5 and 51

= **TAKS PRACTICE AND REASONING** Exs. 46, 53, 54, and 56

## SKILL PRACTICE

**1. VOCABULARY** Write $2x^2 + 11 = 9x$ in standard form.

**2. WRITING** Is $3x^2 - 2 = 0$ a quadratic equation? *Explain*.

**SOLVING EQUATIONS** **Solve the equation by graphing.**

**EXAMPLES 1, 2, and 3** on pp. 643–644 for Exs. 3–21

**3.** $x^2 - 5x + 4 = 0$ **4.** $x^2 + 5x + 6 = 0$ **5.** $x^2 + 6x = -8$

**6.** $x^2 - 4x = 5$ **7.** $x^2 - 16 = 6x$ **8.** $x^2 - 12x = -35$

**9.** $x^2 - 6x + 9 = 0$ **10.** $x^2 + 8x + 16 = 0$ **11.** $x^2 + 10x = -25$

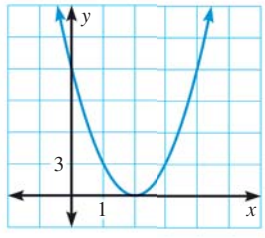
**12.** $x^2 + 81 = 18x$ **13.** $-x^2 - 14x = 49$ **14.** $-x^2 + 16x = 64$

**15.** $x^2 - 5x + 7 = 0$ **16.** $x^2 - 2x + 3 = 0$ **17.** $x^2 + x = -2$

**18.** $\frac{1}{5}x^2 - 5 = 0$ **19.** $\frac{1}{2}x^2 + 2x = 6$ **20.** $-\frac{1}{4}x^2 - 8 = x$

**21. ERROR ANALYSIS** The graph of the function related to the equation $0 = x^2 - 4x + 4$ is shown. *Describe* and correct the error in solving the equation.

> The only solution of the equation $0 = x^2 - 4x + 4$ is 4.




**FINDING ZEROS** **Find the zeros of the function.**

**EXAMPLE 4** on p. 645 for Exs. 22–30

**22.** $f(x) = x^2 + 4x - 5$ **23.** $f(x) = x^2 - x - 12$ **24.** $f(x) = x^2 - 5x - 6$

**25.** $f(x) = x^2 + 3x - 10$ **26.** $f(x) = -x^2 + 8x + 9$ **27.** $f(x) = x^2 + x - 20$

**28.** $f(x) = -x^2 - 7x + 8$ **29.** $f(x) = x^2 - 12x + 11$ **30.** $f(x) = -x^2 + 4x + 12$

**SOLVING EQUATIONS** **Solve the equation by graphing.**

**31.** $2x^2 + x = 3$ **32.** $4x^2 - 5 = 8x$ **33.** $4x^2 - 4x + 1 = 0$

**34.** $x^2 + x = -\frac{1}{4}$ **35.** $3x^2 + 1 = 2x$ **36.** $5x^2 + x + 3 = 0$

**APPROXIMATING ZEROS** **Approximate the zeros of the function to the nearest tenth.**

**EXAMPLE 5** on p. 645 for Exs. 37–46

**37.** $f(x) = x^2 + 4x + 2$ **38.** $f(x) = x^2 - 5x + 3$ **39.** $f(x) = x^2 - 2x - 5$

**40.** $f(x) = -x^2 - 3x + 3$ **41.** $f(x) = -x^2 + 7x - 5$ **42.** $f(x) = -x^2 - 5x - 2$

**43.** $f(x) = 2x^2 + x - 2$ **44.** $f(x) = -3x^2 + 8x - 2$ **45.** $f(x) = 5x^2 + 30x + 30$

**46. TAKS REASONING** Which function has a zero between $-3$ and $-2$?

(A) $f(x) = -3x^2 + 4x + 11$ (B) $f(x) = 4x^2 - 3x - 11$

(C) $f(x) = 3x^2 + 4x - 11$ (D) $f(x) = 3x^2 + 11$