Name _____ Date _____

9.5 Practice A

$$\textit{Quadratic Formula} \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In Exercises 1–3, write the equation in standard form. Then identify the values of a, b, and c that you would use to solve the equation using the Quadratic Formula.

1. $x^2 = -5x$

2. $x^2 + 3x = -10$

3. $-5x^2 + 2 = 7x$

In Exercises 4–11, solve the equation using the Quadratic Formula. Round your solutions to the nearest tenth, if necessary.

4. $x^2 + 6x + 9 = 0$

5. $x^2 + 5x + 14 = 0$

6. $x^2 + 9x - 10 = 0$

7. $3x^2 - 2x - 1 = 0$

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

9. $4x^2 + 4x + 1 = 0$

10. $6x^2 + 5x = 6$

11. $-5x^2 + 9x = -3$

12. Your friend competes in a high-jump competition at a track meet. The function $h = -16t^2 + 18t$ models the height h (in feet) of your friend after t seconds.

    a. After how many seconds is your friend at a height of 4 feet?

    b. After how many seconds does your friend land on the ground?

In Exercises 13–15, determine the number of real solutions of the equation.

13. $x^2 + 2x + 1 = 0$ **14.** $x^2 - 4x - 7 = 0$ **15.** $3x^2 - 2x = -6$

In Exercises 16–18, find the number of *x*-intercepts of the graph of the function.

16. $y = -x^2 + 3x + 5$ **17.** $y = 3x^2 - 7x + 8$ **18.** $y = 5x^2 - 10x + 1$

In Exercise 19–24, solve the equation using any method. Explain your choice of method.

19. $3x^2 = 12$

20. $3x^2 - 7x + 8 = 0$

21. $x^2 + 8x = 3$

22. $x^2 = 8 - x$

23. $x^2 - 14x + 49 = 0$

24. $4x^2 = 20x$

25. Consider the equation $3x^2 + 5x + 6 = 0$.

   a. Use the discriminant to determine the number of solutions.

   b. Change the sign of b in the equation. Write the new equation.

   c. Use the discriminant to determine the number of solutions of the new equation. Did your answer change? Explain.