Name _____ Date _____

LESSON 10.7

Practice A

For use with pages 677–683

Identify the values of *a*, *b*, and *c* in the quadratic equation.

1. $2x^2 + x - 10 = 0$ **2.** $4x^2 - 5x + 2 = 0$ **3.** $x^2 - 8x + 11 = 0$

4. $-x^2 + 6x - 3 = 0$ **5.** $12 - 3x - x^2 = 0$ **6.** $3x^2 - 4x + 15 = 0$

Find the discriminant of the quadratic equation.

7. $x^2 + 3x + 6 = 0$ **8.** $x^2 - 5x + 12 = 0$ **9.** $x^2 - 2x - 10 = 0$

10. $3x^2 - 4x + 1 = 0$ **11.** $5x^2 + x + 4 = 0$ **12.** $-x^2 + 8x - 3 = 0$

13. $-4x^2 - 6x + 3 = 0$ **14.** $10x^2 - 3x + 7 = 0$ **15.** $2x^2 - 9x - 3 = 0$

Tell whether the equation has *two solutions*, *one solution*, or *no solution*.

16. $3x^2 + x + 1 = 0$ **17.** $-x^2 + 5x + 7 = 0$ **18.** $x^2 - 10x + 8 = 0$

19. $4x^2 + x - 6 = 0$ **20.** $2x^2 - 5x - 8 = 0$ **21.** $-6x^2 - 2x + 7 = 0$

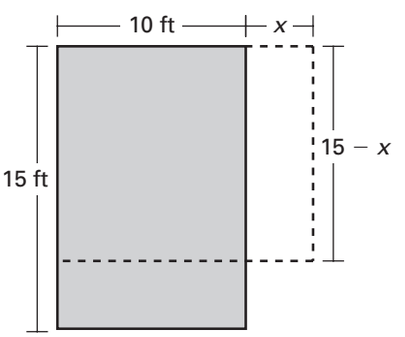
22. $10x^2 + 12x - 1 = 0$ **23.** $8x^2 - x + 15 = 0$ **24.** $3x^2 + 12x + 12 = 0$

Find the number of *x*-intercepts that the graph of the function has.

25. $y = x^2 - 5x - 3$ **26.** $y = 3x^2 - x - 1$ **27.** $y = 4x^2 + 6x + 1$

28. $y = 2x^2 - 7x + 7$ **29.** $y = 8x^2 - 4x + 1$ **30.** $y = x^2 + 2x + 1$

31. **Blueprints** You want to build a shed in your backyard. You have blueprints which show that the shed is 15 feet long and 10 feet wide. You want to change the dimensions as shown. The new area can be modeled by the function $y = -x^2 + 5x + 150$.



a. Write an equation that you can use to determine if there is a value of x that gives an area of 155 square feet.

b. Use the discriminant of your equation from part (a) to show that it is possible to find a value of x for which the area is 155 square feet.

c. Find the value(s) of x for which the area is 155 square feet. Round your answer(s) to the nearest tenth.

32. **House Painting** You are painting a house. While standing on a ladder that is 15 feet above the ground, you ask your friend to toss you a paintbrush. The starting height of the paintbrush is 5.5 feet and its initial vertical velocity is 20 feet per second. Write an equation that you can use to determine whether or not the paintbrush reaches you. Then use the discriminant to determine whether the paintbrush reaches you.