Name _____ Date _____

LESSON 10.7

Practice B

For use with pages 677–683

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

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

4. $3x^2 - 9x + 8 = 0$ **5.** $10x^2 - 8x + 1 = 0$ **6.** $-4x^2 + 9 = 0$

7. $36x^2 - 9x = 0$ **8.** $3x^2 + 2 = 4x$ **9.** $12 = x^2 - 6x$

10. $\frac{1}{6}x^2 + 3 = x$ **11.** $-8x^2 - 9x = \frac{2}{3}$ **12.** $8x^2 + 12x + 2 = 4x$

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

13. $y = x^2 - 6x - 3$ **14.** $y = 5x^2 - x - 1$ **15.** $y = 6x^2 - 6x + 1$

16. $y = x^2 + x + 6$ **17.** $y = -4x^2 + x + 1$ **18.** $y = 4x^2 + 5x - 1$

19. $y = 2x^2 - 4x + 2$ **20.** $y = 10x^2 - 5x + 1$ **21.** $y = 8x^2 + x + 4$

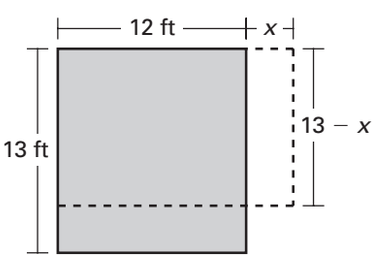
22. $y = -15x^2 + 3x + 5$ **23.** $y = \frac{1}{2}x^2 - 4x + 8$ **24.** $y = \frac{2}{3}x^2 - 5x + 2$

Give a value of *c* for which the equation has (a) two solutions, (b) one solution, and (c) no solution.

25. $x^2 + 10x + c = 0$ **26.** $x^2 - 4x + c = 0$ **27.** $25x^2 + 10x + c = 0$

28. $49x^2 - 14x + c = 0$ **29.** $2x^2 + 4x + c = 0$ **30.** $3x^2 - 18x + c = 0$

31. **Playhouse** You want to build a playhouse for your sister in your backyard. You have blueprints which show that the playhouse is 12 feet long and 13 feet wide. You want to change the dimensions as shown. The new area can be modeled by the function $y = -x^2 + x + 156$.



a. Write an equation that you can use to determine if there is a value of x that gives an area of 150 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 150 square feet.

c. Find the value(s) of x for which the area is 150 square feet.

32. **Tennis** You and your friend are walking around the exterior of a tennis court that has a 12-foot high fence around it. You pick up a ball and try to throw it from a height of 5 feet over the fence. You throw it with an initial vertical velocity of 20 feet per second. Did the ball make it over the fence?