Name _____ Date _____

LESSON 10.7

Practice C

For use with pages 677–683

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

1. $x^2 + x + 5 = 0$ **2.** $100x^2 - 36x = 0$ **3.** $5x^2 + 4 = 6x$

4. $14 = x^2 - 7x$ **5.** $\frac{1}{3}x^2 + 6 = x$ **6.** $-4x^2 - 5x = \frac{3}{4}$

7. $9x^2 + 11x + 1 = 5x$ **8.** $6x^2 + 10 = 3x^2 - 3x + 4$ **9.** $4x^2 + 4 = 12x - 4x^2$

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

10. $y = 5x^2 + 4x - 1$ **11.** $y = 3x^2 - 15x + 5$ **12.** $y = 4x^2 + x + 8$

13. $y = x^2 - 4x - 2$ **14.** $y = 5x^2 - 10x + 5$ **15.** $y = -6x^2 + 5x + 3$

16. $y = 6x^2 + 9x + 1$ **17.** $y = \frac{1}{5}x^2 - 4x - 3$ **18.** $y = \frac{3}{4}x^2 - 4x + 3$

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

19. $x^2 + 12x + c = 0$ **20.** $x^2 - 8x + c = 0$ **21.** $81x^2 + 18x + c = 0$

22. $36x^2 - 12x + c = 0$ **23.** $4x^2 + 24x + c = 0$ **24.** $5x^2 - 45x + c = 0$

Tell whether the vertex of the graph of the function lies above, below, or on the *x*-axis. *Explain* your reasoning.

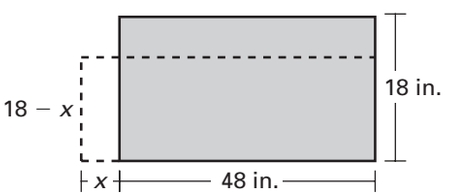
25. $y = x^2 - 9x + 20$ **26.** $y = 4x^2 - 24x + 36$ **27.** $y = 8x^2 - 3x + 5$

28. **Football** You kick a football with an initial upward velocity of 42 feet per second from the ground.

a. Use the vertical motion model to write a function that models the height h (in feet) of the ball after t seconds.

b. Does the ball reach a height of 25 feet? If so, when?

29. **Deck Box** You want to build a deck box for the deck off the back of your house. You have blueprints which show that the base of the deck box is 18 inches wide and 48 inches long. You want to change the dimensions as shown. The area can be modeled by the function $y = -x^2 - 30x + 864$.



a. Can you change the dimensions so that the area is 700 square inches?

b. Can you change the dimensions so that the area is 5 square feet? *Explain* how you got your answer.