Name _____ Date _____

LESSON 9.5

Practice B

For use with the lesson "Solve Quadratic Equations by Completing the Square"

Find the value of *c* that makes the expression a perfect square trinomial. Then write the expression as a square of a binomial.

1. $x^2 + 12x + c$ **2.** $x^2 + 50x + c$ **3.** $x^2 - 26x + c$

4. $x^2 - 18x + c$ **5.** $x^2 + 13x + c$ **6.** $x^2 - 9x + c$

7. $x^2 - 11x + c$ **8.** $x^2 + \frac{1}{2}x + c$ **9.** $x^2 - \frac{6}{5}x + c$

Solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

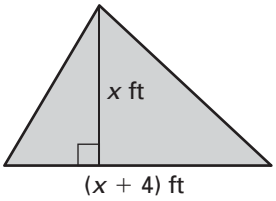
10. $x^2 + 6x = 1$ **11.** $x^2 + 4x = 13$ **12.** $x^2 - 10x = 15$

13. $x^2 + 8x = 10$ **14.** $x^2 - 2x - 7 = 0$ **15.** $x^2 - 12x - 21 = 0$

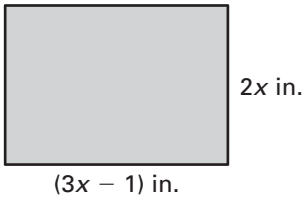
16. $x^2 + 3x - 2 = 0$ **17.** $x^2 + 5x - 3 = 0$ **18.** $x^2 - x = 1$

Find the value of *x*. Round your answer to the nearest hundredth, if necessary.

19. Area of triangle = 30 ft^2



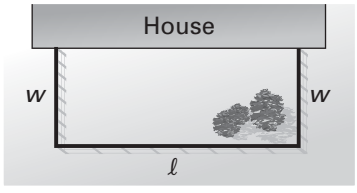
20. Area of rectangle = 140 $in.^2$



21. **Colorado** The state of Colorado is almost perfectly rectangular, with its north border 111 miles longer than its west border. If the state encompasses 104,000 square miles, estimate the dimensions of Colorado. Round your answer to the nearest mile.

22. **Baseball** After a baseball is hit, the height h (in feet) of the ball above the ground t seconds after it is hit can be approximated by the equation $h = -16t^2 + 64t + 3$. Determine how long it will take for the ball to hit the ground. Round your answer to the nearest hundredth.

23. **Fenced-In Yard** You have 60 feet of fencing to fence in part of your backyard for your dog. You want to make sure that your dog has 400 square feet of space to run around in. The back of your house will be used as one side of the enclosure as shown.



a. Write equations in terms of ℓ and w for the amount of fencing and the area of the enclosure.

b. Use substitution to solve the system of equations from part (a). What are the possible lengths and widths of the enclosure?