Name _____ Date _____

LESSON 8.6

Practice C

For use with the lesson "Factor $ax^2 + bx + c$"

Factor the trinomial.

1. $-x^2 - 11x + 180$
2. $-2m^2 + 19m - 24$
3. $-3p^2 + 26p + 40$
4. $8r^2 + 26r + 15$
5. $14b^2 + 38b - 12$
6. $10y^2 - 36y + 18$

Solve the equation.

7. $-32x^2 - 28x + 15 = 0$
8. $-8n^2 - 16n - 6 = 0$
9. $-15s^2 + 4s + 4 = 0$
10. $-6p^2 - 17p - 5 = 0$
11. $63m^2 - 31m - 10 = 0$
12. $40r^2 - 42r + 9 = 0$
13. $16a^2 - 2a - 3 = 0$
14. $-15d^2 - 2d + 8 = 0$
15. $-6y^2 + 32y - 10 = 0$

Find the zeros of the polynomial function.

16. $f(x) = -16x^2 + 50x - 25$
17. $h(x) = -20x^2 + 44x - 21$
18. $h(x) = 20x^2 + 18x - 44$
19. $g(x) = -36x^2 - 30x - 6$
20. $f(x) = 12x^2 + 8x - 15$
21. $g(x) = 21x^2 + 14x - 7$

Multiply each side of the equation by an appropriate power of 10 to obtain integer coefficients. Then solve the equation.

22. $0.2x^2 - 0.3x - 3.5 = 0$
23. $r^2 + 0.6r - 0.4 = 0$
24. $0.8m^2 + m - 0.3 = 0$
25. $-0.5x^2 + 1.2x = 0.4$
26. $1.2(p^2 + 1) = 2.5p$
27. $-0.36n^2 + 0.6n - 0.25 = 0$

28. **Baseball** A baseball player releases a baseball at a height of 7 feet with an initial velocity of 54 feet per second. How long will it take the ball to reach the ground?

29. **Rocket Launch** A miniature rocket is launched off a roof 20 feet above the ground with an initial velocity of 22 feet per second. How much time will elapse before the rocket reaches the ground?

30. **Frog Jump** A frog jumps from the ground into the air with an initial vertical velocity of 8 feet per second.
    - **a.** Write an equation that gives the frog's height (in feet) as a function of the time (in seconds) since it left the ground.
    - **b.** After how many seconds is the frog 12 inches above the ground?
    - **c.** Does the frog go any higher than 12 inches? *Explain* your reasoning using your answer from part (b).
    - **d.** Suppose the frog now jumps from 4 feet above the ground with the same initial vertical velocity. Write an equation that gives the frog's height (in feet) as a function of the time (in seconds) since it left the ground.
    - **e.** Should the frog reach the ground in the same time in both jumps? *Explain* why or why not.