Name _____ Date _____

LESSON 4.4

Practice A

For use with pages 259–265

Factor the expression. If the expression cannot be factored, say so.

1. $2x^2 + 5x + 2$
2. $2x^2 + 3x + 1$
3. $3x^2 + 5x - 2$
4. $2x^2 - 3x + 1$
5. $4x^2 + 2x - 2$
6. $6x^2 - 7x - 3$
7. $5x^2 + x - 4$
8. $9x^2 - 3x - 6$
9. $4x^2 + 13x + 3$
10. $6x^2 + 2x - 4$
11. $4x^2 - 9$
12. $4x^2 - 4$
13. $2x^2 - 10x + 12$
14. $3x^2 - 9x - 12$
15. $27x^2 - 3$
16. $8x^2 - 20x - 12$
17. $8x^2 + 24x + 18$
18. $30x^2 + 5x - 10$

Solve the equation.

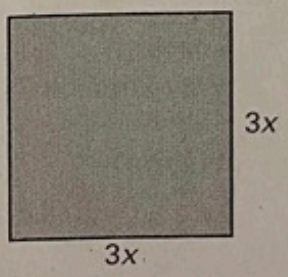
19. $2x^2 - 3x + 1 = 0$
20. $2x^2 + 5x + 3 = 0$
21. $6x^2 - 7x + 2 = 0$
22. $3x^2 - 8x - 3 = 0$
23. $4x^2 - 7x + 3 = 0$
24. $4x^2 - 4x - 15 = 0$
25. $2x^2 - 2x - 12 = 0$
26. $6x^2 - 15x - 9 = 0$
27. $12x^2 + 4x - 8 = 0$

Find the zeros of the function by rewriting the function in intercept form.

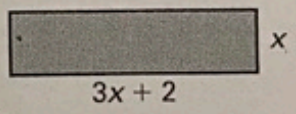
28. $y = 2x^2 - 6x + 4$
29. $y = 3x^2 + 6x - 9$
30. $f(x) = 5x^2 + 10x - 40$
31. $y = 4x^2 - 12x + 9$
32. $g(x) = 18x^2 - 2$
33. $y = 16x^2 + 64x + 60$

Find the value of *x*.

34. Area of the square = 81



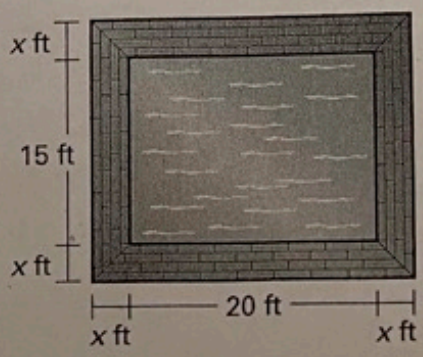
35. Area of the rectangle = 16



36. **Multiple Choice** What are all the solutions to $2x^2 + 3x + 6 = x^2 + 3x + 15$?

A. 3 **B.** $-3, 3$ **C.** -3 **D.** $2, 4$

37. **Pool** A pool deck of uniform width is going to be built around a rectangular pool that is 20 feet long and 15 feet wide. After the deck is built, a total of 414 square feet will be occupied. How wide is the deck encompassing the pool?



In Exercises 1–6, factor the polynomial completely.

1. $x^3 - x^2 - 12x$
2. $9p^7 - 36p^5$
3. $3n^6 - 33n^5 + 72n^4$
4. $2k^4 - 242k^2$
5. $2w^4 - 7w^3 - 15w^2$
6. $3q^6 - 17q^5 - 28q^4$

In Exercises 7–9, factor the polynomial completely.

7. $x^3 + 27$
8. $y^3 + 1000$
9. $w^3 - 125$

In Exercises 10–13, factor the polynomial completely.

10. $y^3 - 3y^2 + 4y - 12$
11. $q^3 - 2q^2 + 9q - 18$
12. $2d^3 + 10d^2 + 3d + 15$
13. $x^3 - 6x^2 - 9x + 54$

In Exercises 14–16, factor the polynomial completely.

14. $36p^4 - 25$
15. $n^4 + 11n^2 + 28$
16. $y^4 - 16$

In Exercises 17–20, determine whether the binomial is a factor of $f(x)$.

17. $f(x) = 3x^3 + 7x^2 - 8x - 5;\ x + 5$
18. $f(x) = 2x^3 + 15x^2 - 23x + 36;\ x + 9$
19. $f(x) = 6x^5 - 8x^4 - 6x^3 - 4x^2;\ x - 2$
20. $f(x) = 12x^3 - 69x^2 + 39x + 30;\ x - 6$
21. Fill in the blank of the divisor so that the remainder is 0. Justify your answer.

    $f(x) = x^3 + 5x^2 - 6x;\ (x - \_\_\_)$
22. What is the value of k such that $x - 6$ is a factor of $f(x) = 3x^3 - 17x - kx + 18$? Justify your answer.
23. Factor each polynomial completely.

    a. $5a^2c - 3a^2d + 5b^2c - 3b^2d$

    b. $x^{2n} + 6x^n + 9$