

LESSON
44 **Practice A**
For use with pages 259–265

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

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|-----------------------|-----------------------|-----------------------|
| 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.

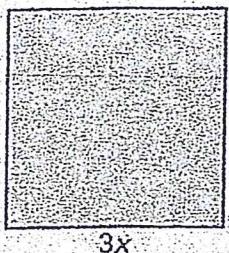
- | | | |
|--------------------------|--------------------------|--------------------------|
| 19. $2x^2 - 3x + 1 = 0$ | 20. $2x^2 + 5x + 3 = 0$ | 21. $6x^2 - 7x + 2 = 0$ |
| 22. $3x^2 - 8x - 3 = 0$ | 23. $4x^2 - 7x + 3 = 0$ | 24. $4x^2 - 4x - 15 = 0$ |
| 25. $2x^2 - 2x - 12 = 0$ | 26. $6x^2 - 15x -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

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

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|--------------------------|-------------------------|------------------------------|
| 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 .

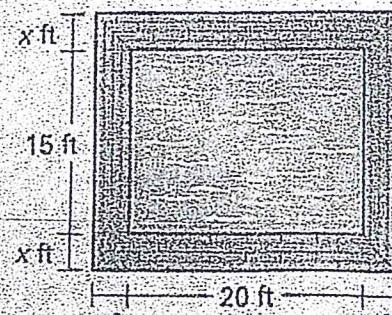
34. Area of the square = 81



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.

$$f(x) = x^3 + 5x^2 - 6x; (x - \underline{\hspace{2cm}})$$

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