

Practice B

For use with pages 345–351

Factor the sum or difference of cubes.

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|------------------|-------------------|-------------------|
| 1. $x^3 + 64$ | 2. $x^3 + 216$ | 3. $x^3 - 1000$ |
| 4. $x^3 - 343$ | 5. $8x^3 - 1$ | 6. $8x^3 - 125$ |
| 7. $27x^3 - 8$ | 8. $8x^3 + 1000$ | 9. $27x^3 + 512$ |
| 10. $64x^3 + 27$ | 11. $1000x^3 - 1$ | 12. $125x^3 + 64$ |

Factor the polynomial by grouping.

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| 13. $x^3 - 3x^2 + 5x - 15$ | 14. $x^3 - 4x^2 + 2x - 8$ | 15. $x^3 + 2x^2 + 7x + 14$ |
| 16. $3x^3 - 12x^2 + 2x - 8$ | 17. $5x^3 + 5x^2 + x + 1$ | 18. $2x^3 - 12x^2 + 5x - 30$ |
| 19. $x^3 - 2x^2 - 4x + 8$ | 20. $x^3 - 5x^2 - 9x + 45$ | 21. $x^3 + x^2 - 16x - 16$ |
| 22. $4x^3 - 4x^2 - 9x + 9$ | 23. $16x^3 - 48x^2 - x + 3$ | 24. $9x^3 + 18x^2 - 4x - 8$ |

Factor the polynomial.

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|---------------------|-------------------------|-------------------------|
| 25. $16x^4 - 81$ | 26. $x^4 - 9$ | 27. $x^4 + 5x^2 + 6$ |
| 28. $x^4 + x^2 - 6$ | 29. $x^4 + 5x^2 - 24$ | 30. $x^4 - 7x^2 + 10$ |
| 31. $2x^4 - 200x^2$ | 32. $8x^4 - 18x^2$ | 33. $27x^4 - 3x^2$ |
| 34. $3x^4 - 3$ | 35. $2x^4 + 16x^2 + 24$ | 36. $-x^4 - 10x^2 - 21$ |

Find the real-number solutions of the equation.

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| 37. $x^3 + 6x^2 - 4x - 24 = 0$ | 38. $x^3 - 8 = 0$ | 39. $8x^3 + 27 = 0$ |
| 40. $3x^3 - x^2 + 3x - 1 = 0$ | 41. $x^3 + 7x^2 + 4x + 28 = 0$ | |
| 42. $x^3 - 5x^2 - 9x + 45 = 0$ | 43. $x^4 - x^2 - 12 = 0$ | 44. $x^4 + 6x^2 + 5 = 0$ |
| 45. $x^4 - 10x^2 + 9 = 0$ | 46. $x^4 - 4x^2 - 5 = 0$ | |
| 47. $x^4 - 10x^2 + 24 = 0$ | 48. $x^4 - 10x^2 + 16 = 0$ | |

Aquarium In Exercises 49–52, use the following information.

The aquarium shown at the right holds 5610 gallons of water. Each gallon of water occupies approximately 0.13368 cubic feet.

49. How many cubic feet of water does the aquarium hold? (Round the result to the nearest cubic foot.)
50. Use the result from Exercise 49 to write an equation that represents the volume of the aquarium.
51. Find all real solutions of the equation in Exercise 50.
52. What are the dimensions of the aquarium?

