

EXAMPLE 2on p. 354
for Exs. 10–17**SUM OR DIFFERENCE OF CUBES** Factor the polynomial completely.

10. $x^3 + 8$ 11. $y^3 - 64$ 12. $27m^3 + 1$ 13. $125n^3 + 216$
 14. $27a^3 - 1000$ 15. $8c^3 + 343$ 16. $192w^3 - 3$ 17. $-5z^3 + 320$

EXAMPLE 3on p. 354
for Exs. 18–23**FACTORIZING BY GROUPING** Factor the polynomial completely.

18. $x^3 + x^2 + x + 1$ 19. $y^3 - 7y^2 + 4y - 28$ 20. $n^3 + 5n^2 - 9n - 45$
 21. $3m^3 - m^2 + 9m - 3$ 22. $25s^3 - 100s^2 - s + 4$ 23. $4c^3 + 8c^2 - 9c - 18$

EXAMPLE 4on p. 355
for Exs. 24–29**QUADRATIC FORM** Factor the polynomial completely.

24. $x^4 - 25$ 25. $a^4 + 7a^2 + 6$ 26. $3s^4 - s^2 - 24$
 27. $32z^5 - 2z$ 28. $36m^6 + 12m^4 + m^2$ 29. $15x^5 - 72x^3 - 108x$

EXAMPLE 5on p. 355
for Exs. 30–41**ERROR ANALYSIS** Describe and correct the error in finding all real-number solutions.

30.

$$\begin{aligned} 8x^3 - 27 &= 0 \\ (2x + 3)(4x^2 + 6x + 9) &= 0 \\ x &= -\frac{3}{2} \end{aligned}$$

31.

$$\begin{aligned} 3x^3 - 48x &= 0 \\ 3x(x^2 - 16) &= 0 \\ x^2 - 16 &= 0 \\ x &= -4 \text{ or } x = 4 \end{aligned}$$

SOLVING EQUATIONS Find the real-number solutions of the equation.

32. $y^3 - 5y^2 = 0$ 33. $18s^3 = 50s$ 34. $g^3 + 3g^2 - g - 3 = 0$
 35. $m^3 + 6m^2 - 4m - 24 = 0$ 36. $4w^4 + 40w^2 - 44 = 0$ 37. $4z^5 = 84z^3$
 38. $5b^3 + 15b^2 + 12b = -36$ 39. $x^6 - 4x^4 - 9x^2 + 36 = 0$ 40. $48p^5 = 27p^3$

41. **TAKS REASONING** What are the real-number solutions of the equation $3x^4 - 27x^2 + 9x = x^3$?

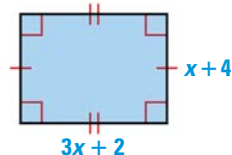
- (A) $-1, 0, 3$ (B) $-3, 0, 3$ (C) $-3, 0, \frac{1}{3}, 3$ (D) $-3, -\frac{1}{3}, 0, 3$

CHOOSING A METHOD Factor the polynomial completely using any method.

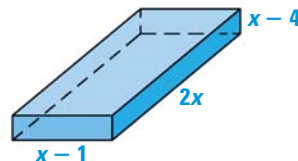
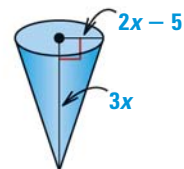
42. $16x^3 - 44x^2 - 42x$ 43. $n^4 - 4n^2 - 60$ 44. $-4b^4 - 500b$
 45. $36a^3 - 15a^2 + 84a - 35$ 46. $18c^4 + 57c^3 - 10c^2$ 47. $2d^4 - 13d^2 - 45$
 48. $32x^5 - 108x^2$ 49. $8y^6 - 38y^4 - 10y^2$ 50. $z^5 - 3z^4 - 16z + 48$

GEOMETRY Find the possible value(s) of x .

51. Area = 48



52. Volume = 40

53. Volume = 125π **CHOOSING A METHOD** Factor the polynomial completely using any method.

54. $x^3y^6 - 27$ 55. $7ac^2 + bc^2 - 7ad^2 - bd^2$ 56. $x^{2n} - 2x^n + 1$

57. **CHALLENGE** Factor $a^5b^2 - a^2b^4 + 2a^4b - 2ab^3 + a^3 - b^2$ completely.