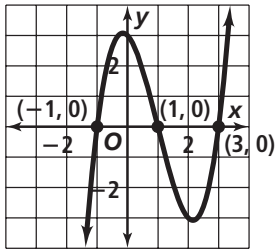
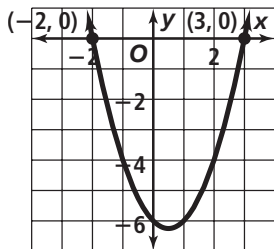


Algebra 2: All-In-One Answers (continued)

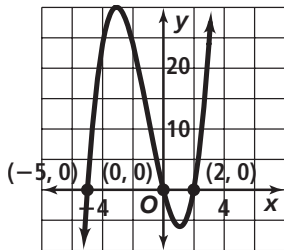
8. $y = -2x^3 + 15x^2 - 22x - 15$
 9. $V = x^3 + 54x^2 + 936x + 5184$
 10. $y = x^3 - 6x^2 + 5x + 12$
 11. $y = x^3 - 4x^2 + 5x - 2$ 12. $y = x^4 - 2x^3 - 15x^2$
 13. $y = x^3 + 6x^2 + 12x + 8$ 14. $x^3 - 2x^2 + x$
 15. $x^3 + 7x^2 + 15x + 9$
 16. $2x^4 + 23x^3 + 60x^2 - 125x - 500$
 17. $y = 2x(x + 2)(x + 3)$
 18. $y = x^2(x + 2)(x - 3)$ 19. $y = -3x(x - 3)^2$
 20. $-1, 1, 3$;



21. $-2, 3$;



22. $-5, 0, 2$;



23. rel. max.: 4.06; rel. min.: -8.21 ; zeros: 0, 2, 5
 24. rel. max.: 16.9; rel. min.: -5.05 ; zeros: $-3, 1, 3$
 25. $x(x + 2)(x - 8)$ 26. $x(x + 3)(x + 4)$
 27. $x(x - 3)(x - 5)$ 28a. $V = x^2(20 - x)$
 28b. about 1185 in.³

Guided Problem Solving 6-2

1. 4 ft 2. The volume will be twice as much. 3. x ft 4. 60 ft³
 5. 120 ft³ 6. $V(x) = (x + 5)(x + 4)(x + 3)$ 7. 1
 8. 1 ft 9. Answers may vary. 10. 2 in.

Practice 6-3

1. yes 2. yes 3. no 4. yes 5. $x^2 - 3x + 2$
 6. $x^2 + 3x - 7$, R 5 7. $-2x^2 + 9x + 5$ 8. $x^2 + 6x + 9$
 9. $x^2 - x + 8$, R -12 10. $x^2 - 7$, R -10 11. $x^3 + x$, R 1
 12. $x^3 + 2x^2 + 6$ 13. $x^3 - x^2 + x + 11$, R 32
 14. $2x^3 + 15x^2 - 125$ 15. -1 16. -13 17. 0 18. 39

19. $x - 16$ 20. $2x + 11$, R 48 21. $x^2 + 6x + 3$, R 2
 22. $3x^2 - 7x + 7$, R -8 23. $(x + 1)(x - 3)(x + 5)$
 24. $(x - 2)(x + 3)(x - 4)$ 25. $2x^2 - 2x - 1$, R 16
 26. $x^3 + 3x^2 + 3x + 4$, R 1 27. $x^3 + 2x^2 - x$, R 1
 28. $x^4 + x^3 + x^2 + x + 1$ 29. $x^3 + 2x^2 + x + 2$, R -6
 30. $3x^2 - 3x + 3$ 31. width: $x - 3$; height: $x - 5$

Guided Problem Solving 6-3

1. $x + 3$ 2. $3x^3 + 10x^2 - x - 12$ 3. 0 4. -3
 5. -3 3 10 -1 -12 6. 0 7. yes

$$\begin{array}{r} -9 \quad -3 \quad 12 \\ 3 \quad 1 \quad -4 \quad 0 \end{array}$$

8. $(x + 3)(3x^2 + x - 4) + 0 = 3x^3 + 10x^2 - x - 12$
 9. $3(-3)^3 + 10(-3)^2 - (-3) - 12 = 0$ 10. no

Practice 6-4

1. $(2x - 3)(4x^2 + 6x + 9)$; $\frac{3}{2}, \frac{-3 \pm 3i\sqrt{3}}{4}$
 2. $(x + 4)(x^2 - 4x + 16)$; $-4, 2 \pm 2i\sqrt{3}$
 3. $2(x + 3)(x^2 - 3x + 9)$; $-3, \frac{3 \pm 3i\sqrt{3}}{2}$
 4. $2(x - 5)(x^2 + 5x + 25)$; $5, \frac{-5 \pm 5i\sqrt{3}}{2}$
 5. $4(x - 2)(x^2 + 2x + 4)$; $2, -1 \pm i\sqrt{3}$
 6. $(3x + 1)(9x^2 - 3x + 1)$; $-\frac{1}{3}, \frac{1 \pm i\sqrt{3}}{6}$
 7. $(4x - 1)(16x^2 + 4x + 1)$; $\frac{1}{4}, \frac{-1 \pm i\sqrt{3}}{8}$
 8. $(x - 3)(x^2 + 3x + 9)$; $3, \frac{-3 \pm 3i\sqrt{3}}{2}$
 9. $(x + 1)(x - 1)(x + 2)(x - 2)$; $-2, -1, 1, 2$
 10. $(x + 1)(x - 1)(x^2 - 11)$; $-1, 1, -\sqrt{11}, \sqrt{11}$
 11. $(x^2 - 2)(x^2 - 8)$; $-\sqrt{2}, \sqrt{2}, -\sqrt{8}, \sqrt{8}$
 12. $(x + 2)^2(x - 2)^2$; $-2, 2$
 13. $(x^2 - 7)(x^2 - 2)$; $-\sqrt{7}, \sqrt{7}, -\sqrt{2}, \sqrt{2}$
 14. $(x^2 + 4)(x^2 + 9)$; $-2i, 2i, -3i, 3i$
 15. $(x + 1)(x - 1)(x + 3)(x - 3)$; $-1, 1, -3, 3$
 16. $(x + 1)(x - 1)(x^2 + 4)$; $-1, 1, -2i, 2i$
 17. 5.52% 18. $-2, 2, -0.71, 0.71$ 19. 0.06, 15.94 20. 0
 21. $-0.59, 0, 0.42$ 22. $-0.67, 0, 1.4$ 23. $-9, 0, 9$
 24. $(n - 1)n(n + 1) = -336$; $-8, -7, -6$
 25. $(x - 5)(x^2 + 5x + 25)$ 26. $(x^2 - 3)(x^2 - 5)$
 27. $(x + 1)(x - 1)(x^2 + 2)$ 28. $(x + 1)(x^2 - x + 1)$
 29. $(x^2 - 6)(x^2 + 4)$ 30. $(x^2 + 1)(x^2 + 9)$
 31. $(x + 3)(x^2 - 3x + 9)$ 32. $(x^2 - 2)(x^2 + 9)$
 33. 0, 1, $\frac{-1 \pm i\sqrt{3}}{2}$ 34. $-1, 1, -\sqrt{6}, \sqrt{6}$
 35. $-\sqrt{14}, \sqrt{14}, -i, i$ 36. $-i\sqrt{2}, i\sqrt{2}, -2i\sqrt{2}, 2i\sqrt{2}$
 37. $-3, 3, -3i, 3i$ 38. $-\sqrt{5}, \sqrt{5}, -i\sqrt{5}, i\sqrt{5}$
 39. 0, $-2, 2, -i\sqrt{3}, i\sqrt{3}$ 40. 0, 2, 6