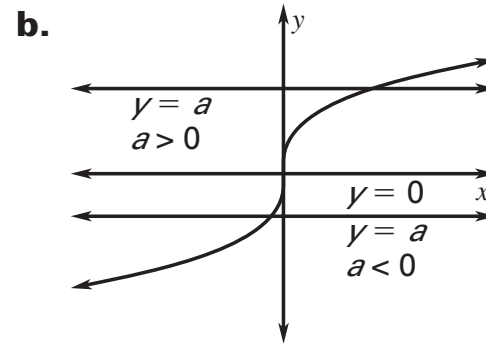


Answers for 6.1

For use with pages 417–419

6.1 Skill Practice

1. index
2. Fourth roots: if $a < 0$, no real roots; if $a = 0$, one real root = 0; if $a > 0$, two real roots; fifth roots: if $a < 0$, one real root; if $a = 0$, one real root = 0; if $a > 0$, one real root.
3. C 4. A 5. D
6. B 7. $12^{1/3}$ 8. $8^{1/5}$
9. $10^{7/3}$ 10. $15^{3/8}$ 11. $\sqrt[4]{5}$
12. $\sqrt[3]{7}$ 13. $(\sqrt[5]{14})^2$ 14. $(\sqrt[4]{21})^9$
15. ± 8 16. -3 17. 0
18. 7 19. no real roots
20. -2 21. ± 2 22. 2
23. 64 24. -5 25. 9
26. -3 27. $\frac{1}{4}$ 28. 256
29. $\frac{1}{128}$ 30. 125 31. $\frac{1}{16}$
32. 27 33. C 34. 8
35. 2.89 36. -1.83 37. 2.10
38. 0.34 39. 12 40. 50.57
41. 0.01 42. 27.86 43. 0.02
44. 8.74 45. -0.18 46. B
47. *Sample answer:* $27^{1/3}$, $81^{1/4}$
48. The cube root of 27 is 3, not 9; $x = 3$.
49. There are two real solutions; $x = \pm 3$.
50. 5 51. 6 52. ± 2
53. 1, 9 54. -2.17 55. ± 1.68
56. -2.47 57. -7.66 58. ± 2.45
59. a. For $a > 0$, the line $y = a$ intersects the graph of $y = x^n$ twice giving two real solutions. For $a = 0$, the line $y = a$ intersects the graph of $y = x^n$ once giving one real solution. For $a < 0$, the line $y = a$ does not intersect the graph of $y = x^n$ giving no real solutions.



6.1 Problem Solving

60. about 6 cm 61. about 4.30 in.
62. butter: 2.7%, chicken: 2.3%,
eggs: 1.8%, sugar: 4.0%
63. $\frac{3}{12,282,500,000}$; about 1800 RPM

Answers for 6.1 *continued*

For use with pages 417–419

64. about 753 ft^3 per sec

65. a. 4096 mm^3

b. tetrahedron: about 32.6 mm,
octahedron: about 20.6 mm,
dodecahedron: about 8.12 mm,
icosahedron: about 12.3 mm

c. It decreases.

66. 2^6 , 10^6 , 100^6

6.1 Mixed Review

67. $-10x^2 - 3x$

68. $-6n^5 + 17n^4$

69. -5 , 7

70. $4 \pm 3i$

71. $-2i$, $2i$, 8

72. -4 , $-5i$, $5i$

73. -5 , -1 , 3 , 6

74. -6 , -3 , -2 , 1

75. $\frac{1}{x^7}$; negative exponent prop.,
product of powers prop.

76. $\frac{1}{x^{12}}$; power of a power prop.,
negative exponent prop.

77. $\frac{1}{27x^6y^3}$; power of a power prop.,
negative exponent prop.

78. $\frac{4}{y^4}$; zero exponent prop.,
negative exponent prop.

79. $\frac{1}{x^7}$; quotient of powers prop.,
negative exponent prop.

80. x^6y^4 ; power of a power prop.,
negative exponent prop.

81. $\frac{2y^9}{5x^2}$; quotient of powers prop.,
negative exponent prop.

82. $\frac{y^2}{3}$; product of powers prop.,
quotient of powers prop., zero
exponent prop.