COLLEGE ALGEBRA ANSWERS
SEMESTER 1

Sec. R.1 pp. 10-12

34. f, V
36. b, II
38. e, I

Sec. R.3 pp. 32-33

18. $168.75a^{12}b^{6}$
34. $\frac{9}{4}$
50. $-\frac{n^3}{12}$
56. $\frac{7}{4}$
80. $0.7n^2+3n+0.25$

a) $\frac{16f^{14}h^{18}}{9g^{13}}$

b) $\frac{64}{27}$

c) 13

Sec. R.4 pp. 43-45

42b. $\frac{5\sqrt{15n}}{6n^2}$

46. $\frac{4\sqrt{2}-\sqrt{5}}{3}\approx 1.14$

Sec. R.5 pp. 55-57

24. a) prime
b) $(x+3)(x-2)$
c) prime
d) $(x-3)(x+2)$
e) $(x-2)(x-3)$
f) $(x+6)(x-1)$

50. C, D, A, H, I, E, B, G, F

Sec. 1.2 pp. 93-95

44. $(-\infty,\infty)$
46. $(-\infty,2]$
52. $(-\infty,-4)\cup(5,\infty)$

a) $\left(-\infty,-\frac{1}{2}\right]$

b) $\varnothing$

c) $(-\infty,\infty)$ or $\mathbb{R}$

d) $\left[\frac{5}{7},\infty\right)$

Sec. 1.3 pp. 101-103

24. $\left\{-\frac{2}{3},4\right\}$

a) $\left(-\infty,\frac{2}{3}\right)\cup(4,\infty)$

b) $\varnothing$

c) $[-6,10]$

d) $(-\infty,\infty)$ or $\mathbb{R}$

Sec. 1.4 pp. 111-113

a) $-1+3i$

b) $1+9i$

Sec. 1.5 pp. 125-127

40. $v=-\frac{2}{3}$ or $v=1$

62. $\frac{9}{16}$; $\left(x-\frac{3}{4}\right)^2$

68.

$x=4\pm\sqrt{17}$; $x\approx 8.12$ or $x\approx -0.12$

102.

$m=\frac{3}{2}\pm\frac{\sqrt{6}}{2}i$; $m\approx 1.5\pm 1.22i$

Sec. 2.1 pp. 157-161

36. $2\sqrt{13}$

Sec. 2.2 pp. 171-175

26. Graph
76. $v=1.5t+85$ a) \$95.50
b) 10 yr

Sec. 2.3 pp. 185-187

62. $y=-4x-17$
90. F
92. H
94. G
96. E
106. a) $P=8.3t+87.3$
b) threshold increases \$8.3 million per year
c) 178.6 million
d) in the year 2013

Sec. 2.4 pp. 197-201

8. Not a function; Canada & Brazil are each paired with two languages

Sec. 2.6 pp. 232-235

14. a) linear b) negative c) strong
16. a) nonlinear b) positive c) NA
18. a) linear b) negative c) weak
28. b) linear c) positive d) $y\approx 6.83x+8.87$; about 145,400,00 sales
32. b) linear c) 25.173; over 25 billion d) in 2016

Sec. 3.1 pp. 256-259

32. h
34. d
36. f
38. k
40. b
42. a
54. See graphs
56. See graphs
58. See graphs
60. See graphs
62. See graphs
76. $r(x)=-2\sqrt{x+4}+5$
78. $h(x)=-3|x-3|+7$

Sec. 3.2 pp. 270-273

22. See graph (4 in num.)
30. See graph (-3 in num.)
32. $f(x) = \frac{-1}{(x+2)^2} - 2$
34. $f(x) = \frac{-1}{x-1} - 2$
36. $f(x) = \frac{1}{x+2} - 3$

Sec. 3.3 pp. 280-284

64. about =48.8%
66. (a) about 13.47 sec
    (b) about 12.25 hr

Sec. 3.4 pp. 293-297

10. -3/2, 2, 3,
16. See graphs
18. See graphs
44.

$$C(w) = \begin{cases} 0.05w & 0 \le w \le 5000 \\ 0.10w - 250 & w > 5000 \end{cases}$$

Sec. 3.5 pp. 309-312

62. $q(x) = 1 - x^2$
64. $p(x) = \sqrt[3]{x} + 2$ $q(x) = x^2 - 5$
    Other possibilities exist.
84. a) $T(t) = 0.1t^2 + 2t + 3$
    b) $D(t) = 0.1t^2 - 2t + 1$
    c) \$12,000
    d) \$9,000
    e) $P(t) = 10\sqrt{t} - 0.1t^2 - 2t - 3$
    f) fifth month: approx.
    \$6861 (profit);
    10th month: -\$1377 (loss)

Sec. 4.1 pp. 344-348

30. $y = -\frac{1}{4}(x-2)^2 - 1$
44. a) 16 ft. b) approx. 2.32 sec,
    (c) approx. 35.1 ft
46. a) 96 ft. x 48 ft. b) 32 ft. x 48 ft.
50. a) \$8.75/pizza; \$4900
    b) \$10.00/pizza;
    \$7.50/pizza
    a) See graphs
    b) See graphs

Sec. 5.1 pp. 435-437

6. no
8. yes
10. yes
12. no
18. yes
20. no
22. yes
24. yes
44. $f^{-1}(x) = \frac{x-2}{x+1}$
50. $q^{-1}(x) = \sqrt{\frac{4}{x-1}} + 2$
80. $f^{-1}(x) = \left(\frac{x+6}{2}\right)^2 - 9$
    a) no
    b) yes