

A-4 ANSWERS

42. $xy(x + y)(x - 2y)$ 43. $y^n(y^n - 1)(y^{2n} + y^n + 1)$ 44. $x(x^n + x^{n-1} + 1)$
 45. $2x^2 - 2x + 2$ 46. $y^3 - 5y^2 + y$ 47. $(2x + 7y)(2x - 7y)$ 48. $2y - 1$
 49. $(a + b - 2)[(a + b)^2 + 2(a + b) + 4]$ 50. $[a^2 + a - b][a^2 - a(a^2 - b) + (a^2 - b)^2]$
 51. 2,133,333 $\frac{1}{3}$ cubic yards 52. a. $\frac{2xy}{x + y}$ b. 8
 53. a. $2w(w + 4) + 2hw + 2h(w + 4)$ square feet
 b. $2w(w + 4) + 4hw + 4h(w + 4) + 0.8w(w + 4)$
 c. \$588.80
 54. a. $-0.01x^2 + 6x - 700$ b. \$-4700.00

55. a. $200x - 2x^2$ cents, or $2x - 0.02x^2$ dollars b.

Selling Price	Income
10¢	\$18
20¢	\$32
30¢	\$42
40¢	\$48
50¢	\$50
60¢	\$48
70¢	\$42

56. $400 - 80x$ 57. a. $-5x^2 + 375x + 12,500$ dollars b. \$16,280.00
 58. a. $\frac{P}{4}r^2 + Pr + P$; $\frac{P}{8}r^3 + \frac{3P}{4}r^2 + \frac{3P}{2}r + P$ b. \$530.45; \$546.36
 59. a. $4x^3 - 44x^2 + 120x$ cubic inches b. $-4x^2 + 120$ square inches
 60. a. $16\pi r - 64\pi$ square feet; 1005.31 square feet
 b. $\frac{4}{3}\pi b^3 + 4\pi r^2b + 4\pi r b^2$ cubic units; 5.347×10^{10} cubic miles
 61. $2a^{2n} - a^{n+1}$ 62. $3a^{2n} - 7a^n - 6$ 63. $6b^{5n-5}$ 64. b^{6n-3} 67. $2x^n(1 - 2x^n)$
 68. $x^n(2x + 1)(3x - 1)$
 69. $A_1 = x^2 - 2\left(\frac{1}{2}y^2\right) = x^2 - y^2$;
 $A_2 = (x - y)(x + y) = x^2 - y^2$;
 therefore, $A_1 = A_2$.
 70. $A_1 = \pi\left(\frac{2x + 2y}{2}\right)^2 - (\pi y^2 + \pi x^2)$
 $= \pi[(x + y)^2 - (x^2 + y^2)]$
 $= \pi(2xy) = 2\pi xy$;
 $A_2 = 2x(\pi y) = 2\pi xy$;
 therefore, $A_1 = A_2$.

Exercise 2.1 [page 58] 1. $\frac{3}{5}$ 3. $\frac{-3}{7}$ 5. $\frac{3x}{4y}$; undefined for $y = 0$

7. $\frac{-x - 1}{x}$; undefined for $x = 0$ 9. $\frac{y - 7}{3y + 2}$; undefined for $y = \frac{-2}{3}$