

Answers for 12.2

For use with pages 806–809

12.2 Skill Practice

1. common difference
2. An arithmetic sequence is a list of numbers that have the same common difference between consecutive terms. An arithmetic series is the sum of the terms of the arithmetic sequence.
3. Arithmetic; there is a common difference of 3 between consecutive terms.
4. Not arithmetic; there is not a common difference between consecutive terms.
5. Arithmetic; there is a common difference of 9 between consecutive terms.
6. Not arithmetic; there is not a common difference between consecutive terms.
7. Arithmetic; there is a common difference of 0.5 between consecutive terms.
8. Not arithmetic; there is not a common difference between consecutive terms.
9. Not arithmetic; there is not a common difference between consecutive terms.
10. Not arithmetic; there is not a common difference between consecutive terms.
11. Arithmetic; there is a common difference of 1.5 between consecutive terms.
12. $a_n = 3n - 2$; 58
13. $a_n = -1 + 6n$; 119
14. $a_n = -5 + 13n$; 255
15. $a_n = -5 + 2n$; 35
16. $a_n = 10 - 4n$; -70
17. $a_n = 36 - 11n$; -184
18. $a_n = -\frac{2}{3} + \frac{2}{3}n$; $\frac{38}{3}$
19. $a_n = \frac{7}{3} - \frac{1}{3}n$; $-\frac{13}{3}$
20. $a_n = -0.6 + 2.1n$; 41.4
21. The equation for an arithmetic sequence is not correct;
$$a_n = a_1 + (n - 1)d,$$
$$a_n = 37 + (n - 1)(-13),$$
$$a_n = 50 - 13n.$$
22. The terms were substituted into the wrong places;
$$37 = (n - 1)(-13),$$
$$a_n = 50 - 13n.$$
23. $a_n = -28 + 5n$
24. $a_n = -70 + 9n$

Answers for 12.2 *continued*

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25. $a_n = 152 - 14n$

26. $a_n = 81 - 7n$

27. $a_n = -5 + \frac{7}{2}n$

28. $a_n = 6 - \frac{1}{2}n$

29. C

30. $a_n = -5 + 9n$

31. $a_n = 9 + 5n$

32. $a_n = -11 + 3n$

33. $a_n = 22 - 4n$

34. $a_n = 17 + 8n$

35. $a_n = 13 + 2n$

36. $a_n = \frac{111}{5} - \frac{13}{5}n$

37. $a_n = \frac{15}{4} + \frac{9}{4}n$

38. $a_n = \frac{12}{5} - \frac{2}{5}n$

39. B

40. 175 41. -96 42. -774

43. 2585 44. 252 45. 315

46. 450 47. 132 48. 161

49. $a_n = -3 + 5n$

50. $a_n = 2 - 3n$

51. $a_n = -1 - 2n$

52. *Sample answer:* The graph of a_n is just points at every integer n and the graph of $f(x)$ is a line. Both graphs have the same rate of change between points.

53. False. *Sample answer:* Doubling the common difference alone does not double the sum.

54. true; $a + c = 2b$

55. 12 56. 8 57. 25

58. 5 59. 15 60. 9

61. 22,500 62. $\frac{2}{3}, -\frac{8}{3}$

12.2 Problem Solving

63. a. $a_n = 6n$

b. 271 cells

64. $a_n = 1 + 2n$; 63 band members

65. a. $a_n = -4 + 8n$

b. 576 blocks

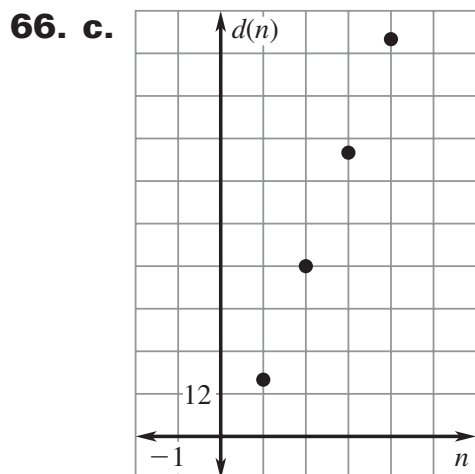
66. a.

n	$d(n)$
1	16
2	48
3	80
4	112

b. $a_n = -16 + 32n$

Answers for 12.2 *continued*

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67. \$100

68. a.

n	d_n (in.)	l_n (in.)
1	2	2π
2	2.0008	2.0008π
3	2.0016	2.0016π
4	2.0024	2.0024π

b. arithmetic;
 $a_n = [2 + 0.0008(n - 1)]\pi$

c. 3750 times; 41,228.7 in.

d. *Sample answer:* \$2.10; a 5 inch roll costs \$1.50 which breaks down to \$.30 per inch, so a 7 inch roll should cost $7 \cdot 0.3$.

69. $a_1 = \frac{2y}{n} - x$

12.2 Mixed Review

70. 16,807

71. 216

72. 32

73. $3\sqrt[3]{9}$

74. 615

75. 259

76. 3

77. about 2.153

78. about 0.314

79. about 0.029

80. 13

81. $\frac{1}{2}$

82. $6\frac{2}{3}$, 6, 6

83. about 40.4, 43, 43

84. 84.625, 82.5, 92

85. about -1.29 , -2 , none

86. about 2.6, 2.6, 1.9

87. about 3.6, 3.8, none

88. 23 hats