

Answers for Lesson 2-1, pp. 59–62 Exercises

1. $6 + (-3); 3$ 2. $-1 + (-2); -3$ 3. $-5 + 7; 2$
4. $3 + (-4); -1$ 5. 15 6. -11
7. -19 8. 12.14 9. -4
10. 5 11. -8 12. -42
13. 2.2 14. -0.65 15. -7.49
16. 1.33 17. $\frac{14}{15}$ 18. $-\frac{8}{9}$
19. $6\frac{3}{16}$ 20. $-6\frac{1}{8}$ 21. 0
22. $-\frac{13}{18}$ 23. $5\frac{1}{6}$ 24. $-\frac{13}{14}$
25. $-47 + 12 = -35$, 35 ft below the surface
26. $8 + (-5) = 3$, 3 yd gain
27. $-6 + 13 = 7$, 7°F
28. 8.7 29. -1.7 30. 1.7
31. -8.7 32. 12.6 33. -5.6
34. 5.6 35. -12.6

36–37. Choices of variable may vary.

36. $c =$ change in temp., $-8 + c$
a. -1°F
b. -11°F
c. 11°F
d. -20°F

Answers for Lesson 2-1, pp. 59–62 Exercises (cont.)

37. $c =$ change in amount of money, $74 + c$

- a. \$92
- b. \$45
- c. \$27
- d. \$194

38. $\begin{bmatrix} -1 & 1.4 \\ -21 & 23.2 \end{bmatrix}$

39. $\begin{bmatrix} -18.2 \\ 11.6 \\ 19.1 \end{bmatrix}$

40. $\begin{bmatrix} 0 \\ 25 \\ -12 \end{bmatrix}$

41. $\begin{bmatrix} 1.8 & 22 \\ -\frac{1}{2} & 7 \end{bmatrix}$

42.

a	$a + 5$
-7	-2
-5	0
0	5
3	8

43.

x	$-3 + x$
-2	-5
0	-3
$1\frac{1}{2}$	$-1\frac{1}{2}$
9	6

44.

n	$n + (-7)$
-4	-11
-1	-8
3	-4
6	-1

45. 13.8 million people

46. 6.3 million people

47. Weaving; add the numbers in each column.

48. a. $\frac{100}{442} = \frac{50}{221}$

b. 0.23

c. about 23%

49. 0

50. -2

51. 1

52. -5

53. 7

54. 5

55. -1

56. 1

57. The sum of -227 and 319 ; the sum of -227 and 319 is positive, while the sum of 227 and -319 is negative.

Answers for Lesson 2-1, pp. 59–62 Exercises (cont.)

58. Answers may vary. Sample: Although 20 and -20 are opposite numbers, there is no such thing as opposite temperatures.

59. -0.3

60. -13.7

61. -0.6

62. 8.7

63. 0.1

64. -1.9

65. D

66. Answers may vary. Sample: $\begin{bmatrix} 2 & 0 & 1 \\ -1 & 3 & 0.5 \end{bmatrix}$

67. The matrices are not the same size, so they can't be added.

68. No; time and temperature are different types of quantities and can't be added.

69. a. $\begin{bmatrix} 8 & 3 & 5 & 1 \\ 10 & 2 & 2 & 1 \\ 4 & 1 & 0 & 1 \end{bmatrix}; \begin{bmatrix} 5 & 2 & 1 & 1 \\ 8 & 2 & 0 & 1 \\ 2 & 1 & 0 & 1 \end{bmatrix}$

b. $\begin{bmatrix} 13 & 5 & 6 & 2 \\ 18 & 4 & 2 & 2 \\ 6 & 2 & 0 & 2 \end{bmatrix}$

c. 4 employees

d. 10 employees

e. Answers may vary. Sample: Multiply the entries in each column by the appropriate hourly wage, then by 8, and then add all entries to find the total wages.

f. \$3230

70. \$7

Answers for Lesson 2-1, pp. 59–62 Exercises (cont.)

71. a. 4

b. -4

c. neg.; pos.

72. $\frac{w}{10}$

73. $-\frac{c}{2}$

74. $\frac{58a}{21}$

75. $-\frac{2b}{9}$

76. $\frac{x}{12}$

77. $-\frac{x}{12}$

78. Pos.; if m is neg., $-m$ is pos. and the sum of two pos. is pos.

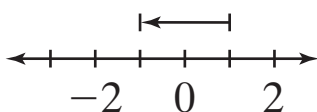
79. Neg.; if n is pos., $-n$ is neg. and the sum of two neg. is neg.

80. Pos.; if m is neg., $-m$ is pos. and the sum of two pos. is pos.

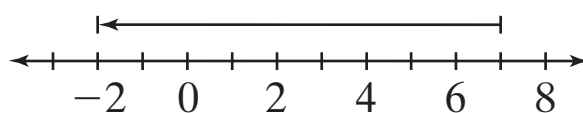
81. Zero; sum of neg. and pos. is the difference of the abs. values. $|n| = |m|$ so $|n| - |m| = 0$.

Answers for Lesson 2-2, pp. 66–68 Exercises

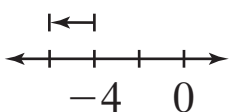
1. -1



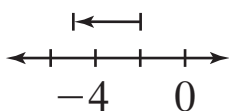
2. -2



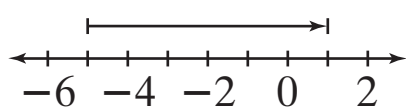
3. -6



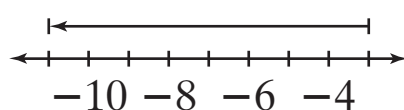
4. -5



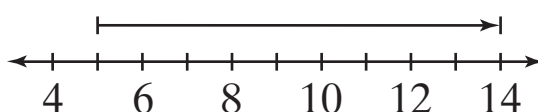
5. 1



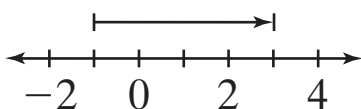
6. -11



7. 14



8. 3



9. -4

10. 11

11. -10

12. -4

13. -2.1

14. -9.2

15. 13.7

16. 3.5

17. $-\frac{1}{6}$

18. $-1\frac{1}{10}$

19. $\frac{11}{12}$

20. $-\frac{19}{60}$

21. 3

22. 8

23. 6

24. 2

25. 13

26. 2

27. 6

28. 3

29. -10

30. 7

31. 1

32. 1

33. 3

34. 0

35. -7

36. -13

37. $\$50.64$

38. -9.5

39. -1.5

40. -2

41. 5.5

Answers for Lesson 2-2, pp. 66–68 Exercises (cont.)

42. 1.5

43. -1

44. 16

45. -16

46. 11

47. 1

48. -2

49. 12.5

50. A

51. Answers may vary. Sample:

$$\begin{bmatrix} 5 & 12 \\ -3 & 7 \end{bmatrix} - \begin{bmatrix} 4 & 6 \\ 5 & 10 \end{bmatrix} = \begin{bmatrix} 1 & 6 \\ -8 & -3 \end{bmatrix}$$

52. false; $-1 - (-7) = 6$, $-1 + (-7) = -8$

53. false; $2 - (-1) = 3$, $3 \not< 2$ and $3 \not< -1$

54. true

55. a. 2000:

$$\begin{bmatrix} 5.5 & 8.2 & 4.9 \\ 1.4 & 3.2 & 3.9 \\ 4.2 & 3.8 & 1.3 \\ 1.6 & 5.2 & 5.1 \end{bmatrix};$$

2005:

$$\begin{bmatrix} 6.8 & 7.9 & 4.9 \\ 1.0 & 1.8 & 1.7 \\ 5.6 & 4.1 & 1.3 \\ 1.8 & 4.9 & 2.9 \end{bmatrix}$$

b.
$$\begin{bmatrix} 1.3 & -0.3 & 0 \\ -0.4 & -1.4 & -2.2 \\ 1.4 & 0.3 & 0 \\ 0.2 & -0.3 & -2.2 \end{bmatrix}$$

c. Answers may vary. Sample: Invest in soccer; it is the only sport that has not lost any participants.

56.
$$\begin{bmatrix} 2 & -2 \\ -9 & 3 \end{bmatrix}$$

57.
$$\left[-\frac{1}{4} \quad 0 \quad -3\right]$$

58.
$$\begin{bmatrix} -\frac{5}{12} \\ -1 \end{bmatrix}$$

Answers for Lesson 2-2, pp. 66–68 Exercises (cont.)

59. a. Yes, answers may vary. Sample: $|1 - (-4)| =$
 $|-4 - 1|, 5 = 5$

b. No, answers may vary. Sample:
 $|1| + |-1| \neq |1 + (-1)|, 2 \neq 0$

60. $-\frac{9}{20}$

61. $\frac{37}{60}$

62. $-12t - m$

63. $|x| - |y|, |x - y|$ and $x - y, |x + y|$

Answers for Lesson 2-3, pp. 73–76 Exercises

- | | | |
|------------------------------|----------------------|---------------------|
| 1. -15 | 2. -15 | 3. 15 |
| 4. 15 | 5. -34.4 | 6. $-2\frac{1}{2}$ |
| 7. -120 | 8. -105 | 9. -80 |
| 10. 80 | 11. -78 | 12. 81 |
| 13. -12 | 14. 12 | 15. -15 |
| 16. 5 | 17. -8 | 18. -13 |
| 19. 48 | 20. 1 | 21. 12 |
| 22. -8 | 23. -432 | 24. 1 |
| 25. -64 | 26. -87 | 27. 4 |
| 28. 24 | 29. 36 | 30. 12 |
| 31. a. -24°F | 32. -1 | 33. 8 |
| b. -75°F | | |
| c. -51°F | | |
| d. -31.5°F | | |
| 34. -25 | 35. 81 | 36. -81 |
| 37. -192 | 38. -5 | 39. 675 |
| 40. -2 | 41. -4 | 42. $5\frac{1}{2}$ |
| 43. 6 | 44. -11 | 45. $12\frac{4}{5}$ |
| 46. -2 | 47. -8 | 48. -1 |
| 49. -7 | 50. $-28\frac{1}{2}$ | 51. 0 |
| 52. $4\frac{2}{3}$ | 53. $3\frac{1}{2}$ | 54. $1\frac{1}{3}$ |
| 55. -15 | 56. $\frac{1}{18}$ | 57. $-\frac{6}{25}$ |

Answers for Lesson 2-3, pp. 73–76 Exercises (cont.)

58.

m	$-5m$
-4	20
-1	5
2	-10
5	-25

59.

p	$\frac{3}{4}p - 5$
-4	-8
-3	$-7\frac{1}{4}$
2	$-3\frac{1}{2}$
4	-2

60.

n	$ 2n-3 $
-5	13
-1	5
0	3
4	5

61. a. i. 1
 ii. -1
 iii. 2
 iv. -6
 v. 24
 vi. -120

b. pos.

c. neg.

d. No; answers may vary. Sample: The sign of the product is not affected by the number of pos. factors, only by the number of neg. factors.

62. a. When a and b are both neg. or both pos.

b. When a is neg. and b is pos., or when a is pos. and b is neg.

63. -6

64. $-4\frac{1}{2}$

65. $-\frac{1}{10}$

66. $\frac{1}{5}$

67–71. Answers may vary. Samples are given.

67. $ac + b$

68. $b - a + c$

69. $ab - c$

70. $-ab + c$

71. $-bc + a$

72. a. 31¢ b. 3

73. Yes; whatever the signs of a and b , $|ab|$, $|a|$, and $|b|$ are pos., and $|ab| = |a| \cdot |b|$.

Answers for Lesson 2-3, pp. 73–76 Exercises (cont.)

- 74.** a. 4, -8, 16, -32 9, -27, 81, -243
b. Pos.; the expression will involve an even number of neg. factors.
c. Neg.; the expression will involve an odd number of neg. factors.
- 75.** 0.1 is the multiplicative inverse of 10 because $0.1(10) = 1$.
(-10 is the opposite of 10.)
- 76.** The opposite of a nonzero number n is $-n$ while the multiplicative inverse is $\frac{1}{n}$.
- 77.** $\begin{bmatrix} -22 & 10 \\ 18 & -12 \\ 8 & -6 \end{bmatrix}$
- 78.** $\begin{bmatrix} -15 & 21 \\ \frac{2}{3} & -9 \end{bmatrix}$
- 79.** $\begin{bmatrix} 4.7 & -1.3 & 0.79 \\ -0.02 & 6.4 & 0 \end{bmatrix}$
- 80.** $[-12 \quad -2\frac{2}{3}]$
- 81.** $\begin{bmatrix} -8 & -10.6 & 4 \\ 6.2 & 0 & 12 \end{bmatrix}$
- 82.** $\begin{bmatrix} -\frac{1}{4} & \frac{3}{16} \\ \frac{2}{9} & 0 \end{bmatrix}$
- 83.** a. 139 ft; 91 ft
b. Less than 4 s; for $t = 4$, $h = 155 - 16t^2 = -101$, so $h = 0$ for some value less than 4 (about 3.1).
- 84.** D

Answers for Lesson 2-3, pp. 73–76 Exercises (cont.)

85. a. $\begin{bmatrix} 180 & 210 & 200 \\ 170 & 230 & 190 \end{bmatrix}$

b. $\begin{bmatrix} 5.8 & 6.8 & 6.5 \\ 5.5 & 7.4 & 6.1 \end{bmatrix}$

c. $\begin{bmatrix} 198 & 231 & 220 \\ 187 & 253 & 209 \end{bmatrix}$

86. $-\frac{1}{8}$

87. $\frac{1}{16}$

88. $-\frac{1}{32}$

89. $\frac{1}{64}$

90. $-\frac{1}{64}$

91. -8

92. $\frac{45}{4}$, or $11\frac{1}{4}$

93. $-\frac{9}{16}$

94. $-\frac{5}{48}$

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

Answers for Lesson 2-4, pp. 82–85 Exercises

1. 2412 2. 663 3. 5489
4. 2448 5. 686 6. 2997
7. 20,582 8. 24,480 9. \$3.96
10. \$11.82 11. \$29.55 12. \$209.51
13. \$98.97 14. \$2.76 15. $7t - 28$
16. $-2n + 12$ 17. $3m + 12$ 18. $b - \frac{4}{5}$
19. $-2x - 6$ 20. $4y + 6$ 21. $1.5q + 8$
22. $18n - 42$ 23. $\frac{5}{2} - \frac{15}{16}r$ 24. $-4.5b + 13.5$
25. $2w + 4$ 26. $-36 + 16n$ 27. $-x - 3$
28. $-x + 3$ 29. $-3 - x$ 30. $-3 + x$
31. $-6k - 5$ 32. $-7x + 2$ 33. $-2 + 7x$
34. $-4 + z$ 35. $-3t$ 36. $20k^2$
37. $7x$ 38. $24w$ 39. $5v^2$
40. $6m$ 41. $-17q$ 42. $-45x$
43. $3(m - 7)$ 44. $-4(4 + w)$ 45. $2(b + 9)$
46. $2(3c + 9)$ 47. 44,982 48. 84.012
49. 14.021 50. $135b + 128$ 51. $18.6 + 15m$
52. $\frac{5}{8}d - 42$
53.

k	$2(k-4)$
-10	-28
-5	-18
2.5	-3
4	0
54.

n	$-(2n+5)$
-3	1
-1	-3
2	-9
5	-15
55.

a	$-3(2-a)$
-4	-18
0	-6
2	0
5	9

Answers for Lesson 2-4, pp. 82–85 Exercises (cont.)

56. $2\frac{1}{4}(5\frac{1}{2} - k)$

57. $6\frac{7}{100}(8 + \frac{4}{3}p)$

58. $\frac{11}{20}(b - \frac{13}{30})$

59. $\frac{17}{z - 34}$

60. $4\frac{1}{3}(x - \frac{11}{12})$

61. A

62. No; $2a \cdot 2b = 4ab$.63. The student did not mult. the second number in parentheses, 10, by 4 to get the correct answer, $12x + 40$.64. Answers may vary. Sample: $2(x + 5) = 2x + 10$

65. $4.78d$

66. $-76p^2 - 20p - 9$

67. $-6.1t^2 + 13.7t$

68. $1.5m - 12.5v$

69. $\frac{71}{42}n + n^3$

70. $-\frac{107}{120}k + \frac{3}{20}h$

71. $7m^2 - mz + 4$

72. $19 - 7t + 6y$

73. $1.4b - 5b^2 + 5c$

74. $-4xyz + 6xy$

75. terms: $-7t, 6v, 7, -19y$, coefficients: $-7, 6, -19$, constant: 7

76. a. $(84 + 10)50 \text{ ft}^2$

b. 4700 ft^2

77. 10 pennies, 7 nickels, 4 quarters, 1 dime

78. $4(1.02) + 3(0.99) + 3(0.52)$; \$8.61

79. $27 + 3t$

80. $-6r + 37$

81. $-3m - 9$

82. $2a + 2ab + abc$

Answers for Lesson 2-4, pp. 82–85 Exercises (cont.)

83. $14b + 42b^2$

84. $5y + 13z$

85. $\frac{3x - 10}{3}$

86. a. 2; 2

b. $-2; -2$

c. Yes; the two expressions are equal for the values of a , b , and c in parts (a) and (b).

87. a. 30; -8

b. 12, -6

c. No; parts (a) and (b) show the expressions are not equal.

Answers for Lesson 2-5, pp. 88–90 Exercises

1. Ident. Prop. of Add.; 0, the identity for addition, is added.
2. Comm. Prop. of Add.; the order of the terms changes.
3. Ident. Prop. of Mult.; 1, the identity for multiplication, is multiplied.
4. Assoc. Prop. of Add.; the grouping of the terms changes.
5. Inv. Prop. of Add.; a number and its inverse are added.
6. Comm. Prop. of Mult.; the order of the factors changes.
7. Dist. Prop.; a number outside parentheses is distributed to the two terms inside the parentheses.
8. Assoc. Prop. of Mult.; the grouping of the factors changes.
9. Inv. Prop. of Mult.; a number and its mult. inverse are multiplied.
10. 100
11. 7400
12. 14.95
13. 4200
14. -5
15. 13
16. \$6.00
17.
 - a. def. of subtr.
 - b. Dist. Prop.
 - c. addition
18.
 - a. Comm. Prop. of Mult.
 - b. Assoc. Prop. of Mult.
 - c. mult.
 - d. mult.
19. $25 \cdot 1.7 \cdot 4$
 $= 25 \cdot 4 \cdot 1.7$ Comm. Prop. of Mult.
 $= (25 \cdot 4) \cdot 1.7$ Assoc. Prop. of Mult.
 $= 100 \cdot 1.7$ mult.
 $= 170$ mult.
20. $-5(7y)$
 $= [-5(7)]y$ Assoc. Prop. of Mult.
 $= -35y$ mult.

Answers for Lesson 2-5, pp. 88–90 Exercises (cont.)

21. $8 + 9m + 7$
 $= 9m + 8 + 7$ Comm. Prop. of Add.
 $= 9m + (8 + 7)$ Assoc. Prop. of Add.
 $= 9m + 15$ add.
22. $12x - 3 + 6x$
 $= 12x + (-3) + 6x$ def. of subtr.
 $= 12x + 6x + (-3)$ Comm. Prop. of Add.
 $= (12 + 6)x + (-3)$ Dist. Prop.
 $= 18x + (-3)$ add.
 $= 18x - 3$ def. of subtr.
23. $29c + (-29c)$
 $= [29 + (-29)]c$ Dist. Prop.
 $= 0 \cdot c$ Inv. Prop. of Add.
 $= 0$ Mult. Prop. of Zero
24. $43\left(\frac{1}{43}\right) + 1 = 1 + 1$ Inv. Prop. of Mult.
 $= 2$ add.
25. $2 + g\left(\frac{1}{g}\right) = 2 + 1$ Inv. Prop. of Mult.
 $= 3$ add.
26. $36jkm - 36mjk$
 $= 36jkm + (-36)mjk$ def. of subtr.
 $= 36jkm + (-36)jmk$ Comm. Prop. of Mult.
 $= 36jkm + (-36)jkm$ Comm. Prop. of Mult.
 $= [36 + (-36)]jkm$ Dist. Prop.
 $= (0)jkm$ Inv. Prop. of Add.
 $= 0$ Mult. Prop. of Zero

Answers for Lesson 2-5, pp. 88–90 Exercises (cont.)

27. $(3^2 - 2^3)(8759)$
 $= (9 - 8)(8759)$ mult.
 $= [9 + (-8)](8759)$ def. of subtr.
 $= 1(8759)$ add.
 $= 8759$ Ident. Prop. of Mult.
28. $(7^6 - 6^5)(8 - 8)$
 $= (7^6 - 6^5)[8 + (-8)]$ def. of subtr.
 $= (7^6 - 6^5) \cdot 0$ Inv. Prop. of Add.
 $= 0$ Mult. Prop. of Zero
29. $4 + 6(8 - 3m)$
 $= 4 + 48 - 18m$ Dist. Prop.
 $= 4 + 48 + (-18m)$ def. of subtr.
 $= (4 + 48) + (-18m)$ Assoc. Prop. of Add.
 $= 52 + (-18m)$ add.
 $= 52 - 18m$ def. of subtr.
30. $5(w - \frac{1}{5}) - w(9)$
 $= 5(w - \frac{1}{5}) - 9w$ Comm. Prop. of Mult.
 $= 5(w) - 5(\frac{1}{5}) - 9w$ Dist. Prop.
 $= 5w - 1 - 9w$ Inv. Prop. of Mult.
 $= 5w + (-1) + (-9w)$ def. of subtr.
 $= 5w + (-9w) + (-1)$ Comm. Prop. of Add.
 $= [5w + (-9w)] + (-1)$ Assoc. Prop. of Add.
 $= [5 + (-9)]w + (-1)$ Dist. Prop.
 $= -4w + (-1)$ add.
 $= -4w - 1$ def. of subtr.

Answers for Lesson 2-5, pp. 88–90 Exercises (cont.)

31. \$52.97 32. no 33. no
34. no 35. yes 36. no
37. no 38. yes 39. yes
40. No; $3 - 5 = -2$, while $5 - 3 = 2$.
41. No; $(5 - 3) - 1 = 2 - 1 = 1$, while
 $5 - (3 - 1) = 5 - 2 = 3$.
42. No; $1 \div 2 = \frac{1}{2}$, while $2 \div 1 = 2$.
43. No; $16 \div (4 \div 2) = 16 \div 2 = 8$, while
 $(16 \div 4) \div 2 = 4 \div 2 = 2$.
44. a. Dist. Prop.
b. Comm. Prop. of Add.
c. Assoc. Prop. of Add.
d. add.
e. Dist. Prop.
f. add.
45. By the Comm. Prop. of Mult.,
 $(b + c)a = a(b + c)$.
By the Dist. Prop.,
 $a(b + c) = ab + ac$.
By the Comm. Prop. of Mult.,
 $ab + ac = ba + ca$, so $(b + c)a = ba + ca$.
46. C
47. Answers may vary. Sample: The sandwich tastes the same whether the peanut butter or the jelly is on top. This is like the Comm. Prop. of Add., because you can add the peanut butter and jelly in either order.

Answers for Lesson 2-5, pp. 88–90 Exercises (cont.)

48. both

49. both

50. both

51. not mult.; $(-2)(-3) = 6$

52. not add.; $1 + 3 = 4$

53. both

Answers for Lesson 2-6, pp. 96–99 Exercises

1. $\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{1}{6}$
4. $\frac{1}{2}$ 5. $\frac{2}{3}$ 6. 0
7. $\frac{1}{3}$ 8. 1 9. $\frac{1}{3}$
10. $\frac{5}{6}$ 11. $\frac{5}{6}$ 12. $\frac{1}{2}$
13. 1 14. 80% 15. 2 : 4 or 1 : 2
16. 2 : 4 or 1 : 2 17. 5 : 1 18. 3 : 3 or 1 : 1
19. 1 : 5 20. 5 : 1 21. 24%
22. 43% 23. 15% 24. 85%
25. 39% 26. 67%
27. a. about 40% b. about 200 oak trees
28. a. 40% b. about 23 families
29. $\frac{1}{6}$ 30. 0 31. $\frac{1}{3}$
32. $\frac{5}{6}$ 33. $\frac{1}{2}$ 34. $\frac{8}{9}$
35. $\frac{1}{450}$ 36. 0 37. $\frac{1}{30}$
38. $\frac{4}{9}$ 39. 90 : 810 or 1 : 9 40. 898 : 2 or 449 : 1
41. 301 : 599 42. 1% 43. C
44. a. Answers may vary. Sample: 20 students, 12 girls and 8 boys: 5%
b. 60%
45. a. 14% b. 15%
46. Answers may vary. Sample: For theoretical probability, all possible outcomes are equally likely to happen, but experimental probability is based on observed outcomes.

Answers for Lesson 2-6, pp. 96–99 Exercises (cont.)

47. $\frac{3}{16}$

48. $\frac{3}{8}$

49. $\frac{7}{16}$

50. $\frac{5}{8}$

51. 1 : 3

52. 5 : 3

53. 4 : 4 or 1 : 1

54. 5 : 3

55. 5 : 3

56. 2 : 6 or 1 : 3

57. Answers may vary. Sample: You can add the numerator and denominator and make the sum the denominator, keeping the numerator the same.

58. $\frac{1}{4}$

59. $\frac{1}{3}$

60. $\frac{7}{20}$

61. a. Check students' work.

b.

1	2	3	4	5	6
2	4	6	8	10	12
3	6	9	12	15	18
4	8	12	16	20	24
5	10	15	20	25	30
6	12	18	24	30	36

c. $\frac{1}{18}, \frac{1}{9}, \frac{1}{9}, \frac{1}{36}$

d. no

e. Answers may vary. Sample: Yes; the more you roll, the closer you get to the theoretical probability.

Answers for Lesson 2-7, pp. 104–106 Exercises

1. $\frac{1}{36}$ 2. $\frac{1}{18}$ 3. $\frac{1}{18}$
4. $\frac{1}{9}$ 5. $\frac{1}{4}$ 6. $\frac{25}{36}$
7. 1 8. 0 9. $\frac{4}{81}$
10. $\frac{2}{27}$ 11. $\frac{1}{9}$ 12. $\frac{16}{81}$
13. $\frac{4}{27}$ 14. $\frac{4}{27}$ 15. $\frac{2}{11}$
16. $\frac{3}{11}$ 17. $\frac{1}{55}$ 18. $\frac{3}{11}$
19. 0 20. 1 21. $\frac{2}{7}$
22. $\frac{3}{22}$ 23. $\frac{1}{6}$ 24. $\frac{2}{9}$
25. $\frac{1}{9}$ 26. $\frac{1}{15}$ 27. 0
28. $\frac{1}{45}$
29. Indep.; you still have 2 choices for each coin with or without the other coin.
30. Dep.; with one name gone, the data set changes.
31. Indep.; the data set hasn't changed.
32. Answers may vary. Sample: For dep. events, the outcome of the first event affects the outcome of the second (example: picking a marble out of a bag, and then picking a second marble without replacing the first one). For independent events, the outcomes do not affect each other (example: picking the second marble after replacing the first).
33. a. 0.58 b. 0.003248
34. a–c. Check students' work.
35. D 36. $\frac{1}{6}$ 37. $\frac{1}{10}$
38. $\frac{1}{12}$ 39. $\frac{1}{5}$ 40. $\frac{1}{15}$

Answers for Lesson 2-7, pp. 104–106 Exercises (cont.)

41. $\frac{1}{18}$

42. a. $\frac{2}{7}$

b. $\frac{15}{77}$

c. $\frac{20}{77}$

d. $\frac{20}{77}$

e. Answers may vary. Sample: $1; \frac{2}{7} + \frac{15}{77} + \frac{20}{77} + \frac{20}{77} = 1$

43. a. 8%

b. 4 customers

44. a. $\frac{2}{5}; \frac{1}{6}$

b. 2

c. $\frac{1}{15}$

d. about 16 or 17

45. a. $\frac{1}{3125}$

b. $\frac{1}{15,625}$

c. 5

46. a. $\frac{1}{36}$

b. $\frac{1}{36}$

c. $\frac{1}{6}$

47. a. 12

b. $\frac{5}{6}$

c. $\frac{1}{3}$