

INSTRUCTOR'S
SOLUTIONS MANUAL

BEVERLY FUSFIELD

BASIC COLLEGE
MATHEMATICS
TENTH EDITION

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CHAPTER 1 WHOLE NUMBERS

1.1 Reading and Writing Whole Numbers

1.1 Margin Exercises

1. (a) 342
4 is in the *tens* place.
- (b) 714
4 is in the *ones* place.
- (c) 479
4 is in the *hundreds* place.
2. The place value of each digit:
 - (a) 14,218
 - 1: ten-thousands
 - 4: thousands
 - 2: hundreds
 - 1: tens
 - 8: ones
 - (b) 460,329
 - 4: hundred-thousands
 - 6: ten-thousands
 - 0: thousands
 - 3: hundreds
 - 2: tens
 - 9: ones
3. The digits in each period (group) of 3,251,609,328:
 - (a) 3 is in the billions period.
 - (b) 251 is in the millions period.
 - (c) 609 is in the thousands period.
 - (d) 328 is in the ones period.
4. (a) 18 is eighteen.
- (b) 36 is thirty-six.
- (c) 418 is four hundred eighteen.
- (d) 902 is nine hundred two.
5. (a) 3104 is three thousand, one hundred four.
- (b) 95,372 is ninety-five thousand, three hundred seventy-two.
- (c) 100,075,002 is one hundred million, seventy-five thousand, two.
- (d) 11,022,040,000 is eleven billion, twenty-two million, forty thousand.
6. (a) One thousand, four hundred thirty-seven is 1437.
- (b) Nine hundred seventy-one thousand, six is 971,006.
- (c) Eighty-two million, three hundred twenty-five is 82,000,325.
7. (a) The U.S. population in the 2015 column is 325 million and is written in digits as 325,000,000.
- (b) The estimated U.S. population in the 2020 column is 341 million and is written in digits as 341,000,000.
- (c) The household income in 2010 was \$46,326 and is written in words as forty-six thousand, three hundred twenty-six dollars.
- (d) The estimated average yearly salary in 2020 is \$36,169 and is written in words as thirty-six thousand, one hundred sixty-nine dollars.

1.1 Section Exercises

1. The digit in the hundreds place in the whole number 3065 is 0. (c)
2. The digit in the ten-thousands place in the whole number 134,681 is 3. (b)
3. 18,015; ten-thousands: 1; hundreds: 0
4. 86,332; ten-thousands: 8; ones: 2
5. 7,628,592,183; millions: 8; thousands: 2
6. 1,700,225,016; billions: 1; millions: 0
7. The digits in the thousands period in the whole number 552,687,318 are 687.
8. The digits in the millions period in the whole number 974,321,876,528 are 321.
9. 3,561,435; millions: 3; thousands: 561; ones: 435
10. 100,258,100,006; billions: 100; millions: 258; thousands: 100; ones: 6
11. Evidence suggests that this is true. It is common to count using fingers.

2 Chapter 1 Whole Numbers

12. No doubt there is a relationship here. One answer might be that people could count using their fingers and toes and, therefore, thought of them as numbers or digits.
13. 23,115 is twenty-three thousand, one hundred fifteen. The statement is *false* (no "and").
14. 37,886 is thirty-seven thousand, eight hundred eighty-six. The statement is *true*.
15. 346,009 is three hundred forty-six thousand, nine.
16. 218,033 is two hundred eighteen thousand, thirty-three.
17. 25,756,665 is twenty-five million, seven hundred fifty-six thousand, six hundred sixty-five.
18. 999,993,000 is nine hundred ninety-nine million, nine hundred ninety-three thousand.
19. Sixty-three thousand, one hundred sixty-three is 63,163.
20. Ninety-five thousand, one hundred eleven is 95,111.
21. Ten million, two hundred twenty-three is 10,000,223.
22. One hundred million, two hundred is 100,000,200.
23. Seventy-nine million, six hundred eighty thousand in digits is 79,680,000.
24. Two hundred forty-three thousand in digits is 243,000.
25. Fifty million, fifty-one thousand, five hundred seven in digits is 50,051,507.
26. Fifty-two thousand, eight hundred in digits is 52,800.
27. Fifty-four million, seven hundred fifty thousand in digits is 54,750,000.
28. Two hundred twenty-one thousand in digits is 221,000.
29. Eight hundred trillion, six hundred twenty-one million, twenty thousand, two hundred fifteen in digits is 800,000,621,020,215.
30. 2,353,896,448 is two billion, three hundred fifty-three million, eight hundred ninety-six thousand, four hundred forty-eight.

31. The least used method of transportation is public transportation. 6,069,589 in words is six million, sixty-nine thousand, five hundred eighty-nine.
32. From the table, "drive alone" is the method of transportation most used. 84,215,298 written out is eighty-four million, two hundred fifteen thousand, two hundred ninety-eight.
33. The number of people who walk to work or work at home is 7,894,911. In words, 7,894,911 is written as seven million, eight hundred ninety-four thousand, nine hundred eleven.
34. From the table, the number of people who carpool is 15,377,634. Written in words, 15,377,634 is fifteen million, three hundred seventy-seven thousand, six hundred thirty-four.

1.2 Adding Whole Numbers

1.2 Margin Exercises

1. (a) $2 + 6 = 8$; $6 + 2 = 8$
(b) $9 + 5 = 14$; $5 + 9 = 14$
(c) $4 + 7 = 11$; $7 + 4 = 11$
2. (a)
$$\begin{array}{r} 3 \\ 8 \quad 3 + 8 = 11 \\ 5 \quad 11 + 5 = 16 \\ 4 \quad 16 + 4 = 20 \\ + 6 \quad 20 + 6 = 26 \\ \hline 26 \end{array}$$

(b)
$$\begin{array}{r} 5 \\ 6 \quad 5 + 6 = 11 \\ 3 \quad 11 + 3 = 14 \\ 2 \quad 14 + 2 = 16 \\ + 4 \quad 16 + 4 = 20 \\ \hline 20 \end{array}$$

(c)
$$\begin{array}{r} 9 \\ 6 \quad 9 + 6 = 15 \\ 8 \quad 15 + 8 = 23 \\ 7 \quad 23 + 7 = 30 \\ + 3 \quad 30 + 3 = 33 \\ \hline 33 \end{array}$$

(d)
$$\begin{array}{r} 3 \\ 8 \quad 3 + 8 = 11 \\ 6 \quad 11 + 6 = 17 \\ 4 \quad 17 + 4 = 21 \\ + 8 \quad 21 + 8 = 29 \\ \hline 29 \end{array}$$

3. (a)
$$\begin{array}{r} 26 \\ + 73 \\ \hline 99 \end{array}$$
 (b)
$$\begin{array}{r} 534 \\ + 265 \\ \hline 799 \end{array}$$

(c)
$$\begin{array}{r} 42,305 \\ + 11,563 \\ \hline 53,868 \end{array}$$

4. (a)
$$\begin{array}{r} 1 \\ 66 \\ + 27 \\ \hline 93 \end{array}$$
 6 ones and 7 ones = 13 ones

(b)
$$\begin{array}{r} 1 \\ 58 \\ + 33 \\ \hline 91 \end{array}$$
 8 ones and 3 ones = 11 ones

(c)
$$\begin{array}{r} 1 \\ 56 \\ + 37 \\ \hline 93 \end{array}$$
 6 ones and 7 ones = 13 ones

(d)
$$\begin{array}{r} 1 \\ 34 \\ + 49 \\ \hline 83 \end{array}$$
 4 ones and 9 ones = 13 ones

5. (a)
$$\begin{array}{r} 1\ 21 \\ 162 \\ 4\ 271 \\ 372 \\ + 8\ 976 \\ \hline 13,781 \end{array}$$

(b)
$$\begin{array}{r} 2\ 21 \\ 7\ 821 \\ 435 \\ 72 \\ 305 \\ + 1\ 693 \\ \hline 10,326 \end{array}$$

6. (a)
$$\begin{array}{r} 816 \\ 363 \\ 17 \\ 2 \\ 5 \\ + 7654 \\ \hline 8857 \end{array}$$

(b)
$$\begin{array}{r} 15,829 \\ 765 \\ 78 \\ 15 \\ 9 \\ 7 \\ + 13,179 \\ \hline 29,882 \end{array}$$

7. The shortest route from Lake Buena Vista to Conway is as follows:

- 4 Lake Buena Vista to Resort Area
- 6 Resort Area to Pine Castle
- 3 Pine Castle to Belle Isle
- + 6 Belle Isle to Conway
- 19 miles

8. The next shortest route from Orlando to Clear Lake is as follows:

- 5 Orlando to Pine Hills
- 8 Pine Hills to Altamonte Springs
- 5 Altamonte Springs to Casselberry
- 6 Casselberry to Bertha
- 7 Bertha to Winter Park
- + 7 Winter Park to Clear Lake
- 38 miles

9.
$$\begin{array}{r} 22 \\ 526 \\ 297 \\ 526 \\ + 297 \\ \hline 1646 \text{ feet} \end{array}$$

The amount of fencing needed is 1646 feet, which is the perimeter of (distance around) the project.

10. (a)
$$\begin{array}{r} 63 \\ 4 \\ 9 \\ + 28 \\ \hline 104 \text{ correct} \end{array}$$

(b)
$$\begin{array}{r} 927 \\ 395 \\ 64 \\ + 251 \\ \hline 1637 \text{ correct} \end{array}$$

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$$\begin{array}{r} \text{(c)} \quad 79 \\ 218 \\ 7 \\ + 639 \\ \hline 943 \end{array} \text{ (953 is incorrect.)}$$

$$\begin{array}{r} \text{(d)} \quad 21,892 \\ 11,746 \\ + 43,925 \\ \hline 77,563 \end{array} \text{ (79,563 is incorrect.)}$$

1.2 Section Exercises

$$\begin{array}{r} 1. \quad 43 \\ + 54 \\ \hline 97 \end{array}$$

$$\begin{array}{r} 2. \quad 18 \\ + 11 \\ \hline 29 \end{array}$$

$$\begin{array}{r} 3. \quad 56 \\ + 33 \\ \hline 89 \end{array}$$

$$\begin{array}{r} 4. \quad 83 \\ + 15 \\ \hline 98 \end{array}$$

$$\begin{array}{r} 5. \quad 317 \\ + 572 \\ \hline 889 \end{array}$$

$$\begin{array}{r} 6. \quad 574 \\ + 325 \\ \hline 899 \end{array}$$

$$\begin{array}{r} 7. \quad 318 \\ 151 \\ + 420 \\ \hline 889 \end{array}$$

$$\begin{array}{r} 8. \quad 135 \\ 253 \\ + 410 \\ \hline 798 \end{array}$$

$$\begin{array}{r} 9. \quad 6310 \\ 252 \\ + 1223 \\ \hline 7785 \end{array}$$

$$\begin{array}{r} 10. \quad 121 \\ 5705 \\ + 3163 \\ \hline 8989 \end{array}$$

11. Line up the numbers in columns. Then start at the right and add the ones digits. Add the ten digits next, and, finally, the hundreds digits.

$$\begin{array}{r} 932 \\ 44 \\ + 613 \\ \hline 1589 \end{array} \text{ correct}$$

$$\begin{array}{r} 12. \text{ Line up:} \quad 517 \\ 131 \\ + 250 \\ \hline 898 \end{array} \text{ (1098 is incorrect.)}$$

$$\begin{array}{r} 13. \text{ Line up:} \quad 1251 \\ 4311 \\ + 2114 \\ \hline 7676 \end{array} \text{ (7686 is incorrect.)}$$

$$\begin{array}{r} 14. \text{ Line up:} \quad 3241 \\ 1513 \\ + 2014 \\ \hline 6768 \end{array} \text{ correct}$$

$$\begin{array}{r} 15. \text{ Line up:} \quad 12,142 \\ 43,201 \\ + 23,103 \\ \hline 78,446 \end{array}$$

$$\begin{array}{r} 16. \text{ Line up:} \quad 41,124 \\ 12,302 \\ + 23,500 \\ \hline 76,926 \end{array}$$

$$\begin{array}{r} 17. \text{ Line up:} \quad 3213 \\ + 5715 \\ \hline 8928 \end{array}$$

$$\begin{array}{r} 18. \text{ Line up:} \quad 6344 \\ + 1655 \\ \hline 7999 \end{array}$$

$$\begin{array}{r} 19. \text{ Line up:} \quad 38,204 \\ + 21,020 \\ \hline 59,224 \end{array}$$

$$\begin{array}{r} 20. \text{ Line up:} \quad 63,251 \\ + 36,305 \\ \hline 99,556 \end{array}$$

$$\begin{array}{r} 21. \quad \frac{1}{87} \\ + 63 \\ \hline 150 \text{ correct} \end{array}$$

$$\begin{array}{r} 22. \quad \frac{1}{19} \\ + 92 \\ \hline 111 \text{ (101 is incorrect.)} \end{array}$$

$$\begin{array}{r} 23. \quad \frac{1}{86} \\ + 69 \\ \hline 155 \text{ correct} \end{array}$$

$$\begin{array}{r} 24. \quad \frac{1}{37} \\ + 85 \\ \hline 122 \text{ (132 is incorrect.)} \end{array}$$

$$\begin{array}{r} 25. \quad \frac{1}{47} \\ + 74 \\ \hline 121 \text{ (111 is incorrect.)} \end{array}$$

$$\begin{array}{r} 26. \quad \frac{1}{97} \\ + 79 \\ \hline 176 \end{array}$$

$$\begin{array}{r} 27. \quad \frac{1}{67} \\ + 78 \\ \hline 145 \end{array}$$

$$\begin{array}{r} 28. \quad \frac{1}{96} \\ + 47 \\ \hline 143 \end{array}$$

$$\begin{array}{r} 29. \quad \frac{1}{73} \\ + 29 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 30. \quad \frac{1}{68} \\ + 37 \\ \hline 105 \end{array}$$

$$\begin{array}{r} 31. \quad \frac{1}{746} \\ + 905 \\ \hline 1651 \end{array}$$

$$\begin{array}{r} 32. \quad \frac{1}{621} \\ + 359 \\ \hline 980 \end{array}$$

$$\begin{array}{r} 33. \quad \frac{1}{306} \\ + 848 \\ \hline 1154 \end{array}$$

$$\begin{array}{r} 34. \quad \frac{11}{798} \\ + 206 \\ \hline 1004 \end{array}$$

$$\begin{array}{r} 35. \quad \frac{11}{278} \\ + 135 \\ \hline 413 \end{array}$$

$$\begin{array}{r} 36. \quad \frac{1}{172} \\ + 156 \\ \hline 328 \end{array}$$

$$\begin{array}{r} 37. \quad \frac{1}{928} \\ + 843 \\ \hline 1771 \end{array}$$

$$\begin{array}{r} 38. \quad \frac{11}{686} \\ + 726 \\ \hline 1412 \end{array}$$

$$\begin{array}{r} 39. \quad \frac{11}{526} \\ + 884 \\ \hline 1410 \end{array}$$

$$\begin{array}{r} 40. \quad \frac{11}{116} \\ + 897 \\ \hline 1013 \end{array}$$

$$\begin{array}{r} 41. \quad \frac{1}{3574} \\ + 2817 \\ \hline 6391 \end{array}$$

$$\begin{array}{r} 42. \quad \frac{1}{6871} \\ + 7528 \\ \hline 14,399 \end{array}$$

$$\begin{array}{r} 43. \quad \frac{111}{7896} \\ + 3728 \\ \hline 11,624 \end{array}$$

$$\begin{array}{r} 44. \quad \frac{1}{9382} \\ + 7586 \\ \hline 16,968 \end{array}$$

$$\begin{array}{r} 45. \quad \frac{111}{9625} \\ + 7986 \\ \hline 17,611 \end{array}$$

6 Chapter 1 Whole Numbers

$$\begin{array}{r}
 46. \quad \overset{1}{5} \overset{1}{7} \overset{1}{1} 8 \\
 \quad \quad 5 \ 6 2 3 \\
 \quad \quad + \ 7 \ 4 3 6 \\
 \hline
 \quad \quad 18,777
 \end{array}$$

$$\begin{array}{r}
 47. \quad \overset{2}{9} \overset{2}{0} \overset{2}{5} 6 \\
 \quad \quad \quad 7 8 \\
 \quad \quad 6 \ 0 8 9 \\
 \quad \quad + \ 7 3 1 \\
 \hline
 \quad \quad 15,954
 \end{array}$$

$$\begin{array}{r}
 48. \quad \overset{1}{4} \overset{1}{0} \overset{1}{2} 2 \\
 \quad \quad \quad 7 0 9 \\
 \quad \quad 8 \ 6 2 1 \\
 \quad \quad + \ 3 7 \\
 \hline
 \quad \quad 13,389
 \end{array}$$

49. *Step 1:* Add the digits in the ones column.

Step 2: Add the digits in the tens column, including the regrouped 2.

Step 3: Add the hundreds column, including the regrouped 1.

Step 4: Add the thousands column, including the regrouped 1.

$$\begin{array}{r}
 \quad \quad \overset{1}{1} \overset{1}{1} 2 \\
 \quad \quad \quad \overset{1}{1} 8 \\
 \quad \quad \quad 7 0 8 \\
 \quad \quad 9 \ 2 8 6 \\
 \quad \quad + \ 6 3 6 \\
 \hline
 \quad \quad 10,648
 \end{array}$$

$$\begin{array}{r}
 50. \quad \overset{2}{1} \overset{1}{1} \overset{1}{7} 0 8 \\
 \quad \quad \quad 3 2 1 \\
 \quad \quad \quad 6 1 \\
 \quad \quad + \ 8 \ 9 2 6 \\
 \hline
 \quad \quad 11,016
 \end{array}$$

$$\begin{array}{r}
 51. \quad \overset{1}{1} \overset{1}{1} \overset{1}{4} 2 2 \\
 \quad \quad 6 \ 0 7 4 \\
 \quad \quad 4 3 5 \\
 \quad \quad + \ 8 \ 6 6 3 \\
 \hline
 \quad \quad 15,594
 \end{array}$$

$$\begin{array}{r}
 52. \quad \overset{1}{6} \overset{2}{5} \overset{1}{0} 5 \\
 \quad \quad \quad 1 7 3 \\
 \quad \quad 7 \ 0 4 4 \\
 \quad \quad + \ 1 6 8 \\
 \hline
 \quad \quad 13,890
 \end{array}$$

$$\begin{array}{r}
 53. \quad \overset{1}{1} \overset{1}{3} \overset{1}{2} 1 \\
 \quad \quad 9 \ 6 0 3 \\
 \quad \quad \quad 8 \\
 \quad \quad \quad 2 1 \\
 \quad \quad + \ 1 \ 6 0 4 \\
 \hline
 \quad \quad 11,557
 \end{array}$$

$$\begin{array}{r}
 54. \quad \overset{2}{7} \overset{1}{6} \overset{1}{3} 1 \\
 \quad \quad 5 \ 9 8 3 \\
 \quad \quad \quad 7 \\
 \quad \quad \quad 3 6 \\
 \quad \quad + \ 5 0 5 \\
 \hline
 \quad \quad 14,162
 \end{array}$$

$$\begin{array}{r}
 55. \quad \overset{1}{2} \overset{1}{1} \overset{1}{0} 9 \\
 \quad \quad \quad 6 3 \\
 \quad \quad \quad 1 6 \\
 \quad \quad \quad 3 \\
 \quad \quad + \ 9 \ 8 8 7 \\
 \hline
 \quad \quad 12,078
 \end{array}$$

$$\begin{array}{r}
 56. \quad \overset{1}{3} \overset{1}{3} \overset{1}{2} 2 \\
 \quad \quad 6 5 0 8 \\
 \quad \quad \quad 9 3 \\
 \quad \quad \quad 7 4 5 \\
 \quad \quad \quad 1 8 \\
 \quad \quad + \ 2 0 0 5 \\
 \hline
 \quad \quad 9 6 9 1
 \end{array}$$

$$\begin{array}{r}
 57. \quad \overset{2}{5} \overset{3}{5} \overset{3}{5} 3 \\
 \quad \quad \quad 9 7 \\
 \quad \quad 2 7 7 2 \\
 \quad \quad \quad 4 3 7 \\
 \quad \quad \quad 6 3 \\
 \quad \quad + \ 3 2 8 \\
 \hline
 \quad \quad 4 2 5 0
 \end{array}$$

$$\begin{array}{r}
 58. \quad \overset{2}{3} \overset{2}{3} \overset{1}{1} 8 7 \\
 \quad \quad 8 1 0 \\
 \quad \quad 5 2 7 \\
 \quad \quad 7 6 \\
 \quad \quad 2 6 6 5 \\
 \quad \quad + \ 3 1 7 \\
 \hline
 \quad \quad 7 5 8 2
 \end{array}$$

59.
$$\begin{array}{r} 212 \\ 413 \\ 85 \\ 9919 \\ 602 \\ 31 \\ + 1218 \\ \hline 12,268 \end{array}$$

60.
$$\begin{array}{r} 332 \\ 576 \\ 7934 \\ 60 \\ 781 \\ 5968 \\ + 371 \\ \hline 15,690 \end{array}$$

61. Add up to check addition.

$$\begin{array}{r} 2091 \\ \hline 832 \\ 468 \\ + 791 \\ \hline 2091 \text{ correct} \end{array}$$

62. Add up to check addition.

$$\begin{array}{r} 769 \\ \hline 179 \\ 214 \\ + 376 \\ \hline 759 \text{ incorrect; should be 769} \end{array}$$

63. Add up to check addition.

$$\begin{array}{r} 1857 \\ \hline 326 \\ 852 \\ + 679 \\ \hline 1857 \text{ correct} \end{array}$$

64. Add up to check addition.

$$\begin{array}{r} 1120 \\ \hline 17 \\ 296 \\ 713 \\ + 94 \\ \hline 1220 \text{ incorrect; should be 1120} \end{array}$$

65. Add up to check addition.

$$\begin{array}{r} 5420 \\ \hline 4713 \\ 28 \\ 615 \\ + 64 \\ \hline 5420 \text{ correct} \end{array}$$

66. Add up to check addition.

$$\begin{array}{r} 11,583 \\ \hline 3628 \\ 72 \\ 564 \\ + 7319 \\ \hline 11,583 \text{ correct} \end{array}$$

67. Add up to check addition.

$$\begin{array}{r} 11,577 \\ \hline 678 \\ 7952 \\ 56 \\ 718 \\ + 2173 \\ \hline 11,377 \text{ incorrect; should be 11,577} \end{array}$$

68. Add up to check addition.

$$\begin{array}{r} 11,212 \\ \hline 516 \\ 8760 \\ 24 \\ 189 \\ + 1723 \\ \hline 11,212 \text{ correct} \end{array}$$

69. Add up to check addition.

$$\begin{array}{r} 14,332 \\ \hline 4714 \\ 27 \\ 77 \\ 8878 \\ + 636 \\ \hline 14,332 \text{ correct} \end{array}$$

8 Chapter 1 Whole Numbers

70. Add up to check addition.

$$\begin{array}{r} 16,709 \\ \underline{6715} \\ 283 \\ 9617 \\ 13 \\ + 81 \\ \hline \end{array}$$

16,719 incorrect; should be 16,709

71. Changing the order in which two numbers are added does not change the sum. You can add two numbers from bottom to top when checking addition.

72. Changing the grouping of the addends in an addition problem does not change the sum. For example, you can add pairs of numbers that add to 10.

73. The shortest route between Southtown and Rena is through Thomasville.

$$\begin{array}{r} 21 \text{ Southtown to Thomasville} \\ + 12 \text{ Thomasville to Rena} \\ \hline 33 \text{ miles} \end{array}$$

74. The shortest route from Elk Hill to Oakton is through Thomasville.

$$\begin{array}{r} 18 \text{ Elk Hill to Thomasville} \\ + 17 \text{ Thomasville to Oakton} \\ \hline 35 \text{ miles} \end{array}$$

75. The shortest route between Thomasville and Murphy is through Rena and Austin.

$$\begin{array}{r} 12 \text{ Thomasville to Rena} \\ 15 \text{ Rena to Austin} \\ + 11 \text{ Austin to Murphy} \\ \hline 38 \text{ miles} \end{array}$$

76. The shortest route from Murphy to Thomasville is through Austin and Rena.

$$\begin{array}{r} 11 \text{ Murphy to Austin} \\ 15 \text{ Austin to Rena} \\ + 12 \text{ Rena to Thomasville} \\ \hline 38 \text{ miles} \end{array}$$

77. To find the total amount raised, add the amounts raised at each event.

$$\begin{array}{r} \$3,482 \text{ flea market} \\ + 12,860 \text{ annual auction} \\ \hline \$16,342 \text{ total amount raised} \end{array}$$

$$\begin{array}{r} 185 \text{ hot dogs} \\ + 129 \text{ hamburgers} \\ \hline 314 \text{ total items sold} \end{array}$$

$$\begin{array}{r} 413 \text{ women} \\ + 286 \text{ men} \\ \hline 699 \text{ total people} \end{array}$$

$$\begin{array}{r} 283 \text{ employees} \\ + 218 \text{ employees} \\ \hline 501 \text{ total employees} \end{array}$$

$$\begin{array}{r} 13,786 \text{ on-campus day} \\ 3,497 \text{ on-campus night} \\ + 2,874 \text{ on-line} \\ \hline 20,157 \text{ total students} \end{array}$$

$$\begin{array}{r} 33 \\ 887 \\ 223 \\ 465 \\ 683 \\ 597 \\ 214 \\ + 1817 \\ \hline 4886 \text{ total tornadoes} \end{array}$$

83. To find the perimeter, add the lengths of the 4 sides in any order.

$$\begin{array}{r} 325 \\ 160 \\ 325 \\ + 160 \\ \hline 970 \text{ feet} \end{array}$$

970 feet is the total distance around the lot.

84. To find the perimeter, add the lengths of the 4 sides in any order.

$$\begin{array}{r} 48 \\ 32 \\ 48 \\ + 32 \\ \hline 160 \text{ feet} \end{array}$$

Maria will need 160 feet of gutters.

85. To find the perimeter, add the lengths of the 3 sides in any order.

$$\begin{array}{r} 30 \\ 24 \\ + 18 \\ \hline 72 \text{ feet} \end{array}$$

Martin will need 72 feet of lumber.

86. To find the perimeter, add the lengths of the 4 sides in any order.

$$\begin{array}{r} 465 \\ 573 \\ 498 \\ + 573 \\ \hline 2109 \end{array} \text{ meters}$$

2109 meters of fencing will be needed.

87. The largest four-digit number possible, using the digits 4, 1, 9, and 2 each once, will begin with the largest digit in the thousands place and the remaining digits will descend in size until the smallest digit is in the ones place. Therefore, the largest four-digit number possible is 9421.
88. The smallest four-digit number possible, using the digits 4, 1, 9, and 2 each once, will begin with the smallest digit in the thousands place and the remaining digits will ascend in size until the largest digit is in the ones place. Therefore, the smallest four-digit number possible is 1249.
89. The largest five-digit number possible, using the digits 6, 2, and 7 at least once, will use the largest digit in the ten-thousands, thousands, and hundreds place and the remaining digits will descend in size until the smallest digit is in the ones place. Therefore, the largest five-digit number possible is 77,762.
90. The smallest five-digit number possible, using the digits 6, 2, and 7 at least once, will use the smallest digit in the ten-thousands, thousands, and hundreds place and the remaining digits will ascend in size until the largest digit is in the ones place. Therefore, the smallest five-digit number possible is 22,267.
91. The largest seven-digit number possible is 9,994,433.
92. The smallest seven-digit number possible is 3,334,499.
93. To write the largest seven-digit number possible, using the digits 4, 3, and 9, and using each digit at least twice, write the largest digits on the left, and use the smaller digits as you move right.
94. To write the smallest seven-digit number possible, using the digits 4, 3, and 9, and using each digit at least twice, write the smallest digits on the left, and use the larger digits as you move right.

1.3 Subtracting Whole Numbers

1.3 Margin Exercises

1. (a) $8 + 2 = 10$:
 $10 - 2 = 8$ or $10 - 8 = 2$
- (b) $7 + 4 = 11$:
 $11 - 7 = 4$ or $11 - 4 = 7$
- (c) $15 + 22 = 37$:
 $37 - 15 = 22$ or $37 - 22 = 15$
- (d) $23 + 55 = 78$:
 $78 - 55 = 23$ or $78 - 23 = 55$
2. (a) $7 - 5 = 2$:
 $7 = 5 + 2$ or $7 = 2 + 5$
- (b) $9 - 4 = 5$:
 $9 = 4 + 5$ or $9 = 5 + 4$
- (c) $21 - 15 = 6$:
 $21 = 15 + 6$ or $21 = 6 + 15$
- (d) $58 - 42 = 16$:
 $58 = 42 + 16$ or $58 = 16 + 42$
3. (a) $\begin{array}{r} 74 \\ - 43 \\ \hline 31 \end{array}$ 4 ones $-$ 3 ones = 1 one
7 tens $-$ 4 tens = 3 tens
- (b) $\begin{array}{r} 68 \\ - 24 \\ \hline 44 \end{array}$ 8 ones $-$ 4 ones = 4 ones
6 tens $-$ 2 tens = 4 tens
- (c) $\begin{array}{r} 429 \\ - 318 \\ \hline 111 \end{array}$
- (d) $\begin{array}{r} 3927 \\ - 2614 \\ \hline 1313 \end{array}$
4. (a) $\begin{array}{r} 76 \\ - 45 \\ \hline 31 \end{array}$ *Subtraction problem* $\begin{array}{r} 45 \\ + 31 \\ \hline 76 \end{array}$ *Addition problem*
Match: 31 is correct.
- (b) $\begin{array}{r} 53 \\ - 22 \\ \hline 21 \end{array}$ *Subtraction problem* $\begin{array}{r} 22 \\ + 21 \\ \hline 43 \end{array}$ *Addition problem*
Not a match: 21 is incorrect.

(continued)