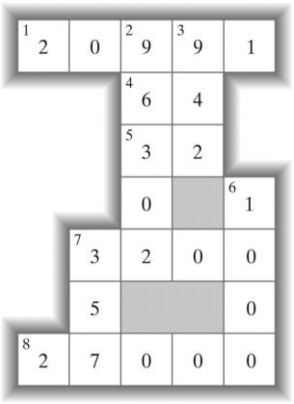
Chapter 1 Whole Numbers

Are You Prepared?



Section 1.1 Study Tips

Group Activity: Becoming a Successful Student

1. Answers will vary.

2. Answers will vary.

3. Answers will vary.

4. Answers will vary.

5. Problem Recognition Exercises: page 114
Chapter Summary: page 123
Chapter Review Exercises: page 125
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Cumulative Review Exercises: page 129

6. Answers will vary.

7. Answers will vary.

8. Answers will vary.

9. Answers will vary.

10. Answers will vary.

Section 1.2 Introduction to Whole Numbers

Section 1.2 Practice Exercises

1. Answers will vary.

2. **(a)** A **digit** is one of the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
(b) A number is written in **standard form** if the position of each digit determines the place value of the digit.
(c) **Periods** are groups of three digits separated by commas in a large number.
(d) A number is written in **expanded form** if each digit is written with its place value units.

3. 8,213,457
7: ones

5: tens
4: hundreds
3: thousands
1: ten-thousands
2: hundred-thousands
8: millions

4. 103,596
6: ones
9: tens
5: hundreds
3: thousands
0: ten-thousands
1: hundred-thousands

5. 3$\underline{2}$1 tens

6. 6$\underline{8}$9 tens

7. 21$\underline{4}$ ones

8. 73$\underline{8}$ ones

9. 8$\underline{7}$10 hundreds

10. 2$\underline{2}$93 hundreds

11. $\underline{1}$430 thousands

12. $\underline{3}$101 thousands

13. $\underline{4}$52,723 hundred-thousands

14. $\underline{6}$55,878 hundred thousands

15. $\underline{1}$,023,676,207 billions

16. $\underline{3}$,111,901,211 billions

17. $\underline{2}$2,422 ten-thousands

18. $\underline{5}$8,106 ten-thousands

19. 5$\underline{1}$,033,201 millions

20. 9$\underline{3}$,971,224 millions

21. $\underline{1}$0,677,881 ten-millions

22. 3$\underline{1}$,820 mi^2 thousands

23. $\underline{7}$,653,468,440 billions

24. $\underline{3}$1,000 ft ten-thousands

25. 5 tens + 8 ones

26. 7 tens + 1 one

27. 5 hundreds + 3 tens + 9 ones

28. 3 hundreds + 8 tens + 2 ones

29. 5 thousands + 2 hundreds + 3 ones

30. 7 thousands + 8 tens + 9 ones

31. 1 ten-thousand + 2 hundreds + 4 tens + 1 one

32. 2 ten-thousands + 8 hundreds + 7 tens + 3 ones

33. 524

34. 318

35. 150

36. 620

37. 1,906

38. 4,201

39. 85,007

40. 26,002

41. ones, thousands, millions, billions

42. ones, tens, hundreds, thousands

43. Two hundred forty-one

44. Three hundred twenty-seven

45. Six hundred three

46. One hundred eight

47. Thirty-one thousand, five hundred thirty

48. Fifty-two thousand, one hundred sixty

49. One hundred thousand, two hundred thirty-four

50. Four hundred thousand, one hundred ninety-nine

51. Nine thousand, five hundred thirty-five

52. One thousand, three hundred seventy-seven

53. Twenty thousand, three hundred twenty

54. One thousand, eight hundred

55. Five hundred ninety thousand, seven hundred twelve

56. Sixty million

57. 6005

58. 4004

59. 672,000

60. 248,000

61. 1,484,250

62. 2,647,520

63. 

64. 

65. Counting on a number line, 10 is 4 units to the right of 6.

66. Counting on a number line, 3 is 8 units to the left of 11.

67. Counting on a number line, 4 is 3 units to the left of 7.

68. Counting on a number line, 5 is 5 units to the right of 0.

69. $8 > 2$
8 is greater than 2, or 2 is less than 8.

70. $6 < 11$
6 is less than 11, or 11 is greater than 6.

71. $3 < 7$
3 is less than 7, or 7 is greater than 3.

72. $14 > 12$
14 is greater than 12, or 12 is less than 14.

73. $6 < 11$

74. $14 > 13$

75. $21 > 18$

76. $5 < 7$

77. $3 < 7$

78. $14 < 24$

79. $95 > 89$

80. $28 < 30$

81. $0 < 3$

82. $8 > 0$

83. $90 < 91$

84. $48 > 47$

85. False; 12 is made up of the digits 1 and 2.

86. False; 26 is made up of the digits 2 and 6.

87. 99

88. 999

89. There is no greatest whole number.

90. 0 is the least whole number.

91. 10,000,000 7 zeros

92. 100,000,000,000 11 zeros

93. 964

94. 840

Section 1.3 Addition and Subtraction of Whole Numbers and Perimeter

Section 1.3 Practice Exercises

1. Answers will vary.

2. **(a)** A **sum** is the result of an addition problem.
(b) The **addends** are the numbers being added.
(c) A **polygon** is a flat figure formed by line segments connected at their ends.
(d) The **perimeter** of a polygon is the distance around the outside of the figure.
(e) The **difference** is the result of a subtraction problem.
(f) The **subtrahend** is the number being subtracted.
(g) The **minuend** is the number being subtracted from.
(h) A **variable** is a letter or symbol that represents a number.

3. 3 hundreds + 5 tens + 1 one

4. 2004

5. 4012

6. 6206

7. Fill in the table. Use the number line if necessary.

+	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

8. $11 + 10 = 21$
Addends: 11, 10
Sum: 21

9. $1 + 13 + 4 = 18$
Addends: 1, 13, 4
Sum: 18

10. $5 + 8 + 2 = 15$
Addends: 5, 8, 2
Sum: 15

11.
$$\begin{array}{r} 42 = 4 \text{ tens} + 2 \text{ ones} \\ +\ 33 = 3 \text{ tens} + 3 \text{ ones} \\ \hline 75 = 7 \text{ tens} + 5 \text{ ones} \end{array}$$

12.
$$\begin{array}{r} 21 = 2 \text{ tens} + 1 \text{ one} \\ +\ 53 = 5 \text{ tens} + 3 \text{ ones} \\ \hline 74 = 7 \text{ tens} + 4 \text{ ones} \end{array}$$

13.
$$\begin{array}{r} 12 = 1 \text{ ten} + 2 \text{ ones} \\ 15 = 1 \text{ ten} + 5 \text{ ones} \\ +\ 32 = 3 \text{ tens} + 2 \text{ ones} \\ \hline 59 = 5 \text{ tens} + 9 \text{ ones} \end{array}$$

14.
$$\begin{array}{r} 10 = 1 \text{ ten} + 0 \text{ ones} \\ 8 = 0 \text{ tens} + 8 \text{ ones} \\ 30 = 3 \text{ tens} + 0 \text{ ones} \\ \hline 48 = 4 \text{ tens} + 8 \text{ ones} \end{array}$$

15.
$$\begin{array}{r} 890 \\ +\,107 \\ \hline 997 \end{array}$$

16.
$$\begin{array}{r} 444 \\ +\,354 \\ \hline 798 \end{array}$$

17.
$$\begin{array}{r} 4 \\ 13 \\ +\,102 \\ \hline 119 \end{array}$$

18.
$$\begin{array}{r} 11 \\ 221 \\ +\;\;5 \\ \hline 237 \end{array}$$

19.
$$\begin{array}{r} {\scriptstyle 1} \\ 76 \\ +\,45 \\ \hline 121 \end{array}$$

20.
$$\begin{array}{r} {\scriptstyle 1} \\ 25 \\ +\,59 \\ \hline 84 \end{array}$$

21.
$$\begin{array}{r} {\scriptstyle 1} \\ 87 \\ +\,24 \\ \hline 111 \end{array}$$

22.
$$\begin{array}{r} {\scriptstyle 1} \\ 38 \\ +\,77 \\ \hline 115 \end{array}$$

23.
$$\begin{array}{r} 658 \\ +\,231 \\ \hline 889 \end{array}$$

24.
$$\begin{array}{r} {\scriptstyle 1} \\ 642 \\ +\,295 \\ \hline 937 \end{array}$$

25.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 152 \\ +\,549 \\ \hline 701 \end{array}$$

26.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 462 \\ +\,388 \\ \hline 850 \end{array}$$

27.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 79 \\ 112 \\ +\,12 \\ \hline 203 \end{array}$$

28.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 62 \\ 907 \\ +\,34 \\ \hline 1003 \end{array}$$

29.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 4980 \\ +\,10223 \\ \hline 15,203 \end{array}$$

30.
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 23112 \\ 892 \\ \hline 24,004 \end{array}$$

31.
$$\begin{array}{r} {\scriptstyle 11\;1\acute{Z}} \\ 10\,223 \\ 25\,782 \\ 4\,980 \\ \hline 40,985 \end{array}$$

32.
$$\begin{array}{r} {\scriptstyle 11\;\;11} \\ 92\,377 \\ 5\,622 \\ 34\,659 \\ \hline 132,658 \end{array}$$

33. $101 + 44 = 44 + 101$

34. $8 + 13 = 13 + 8$

35. $x + y = y + x$

36. $t + q = q + t$

37. $(23 + 9) + 10 = 23 + (9 + 10)$

38. $7 + (12 + 8) = (7 + 12) + 8$

39. $r + (s + t) = (r + s) + t$

40. $(c + d) + e = c + (d + e)$

41. The commutative property changes the order of the addends, and the associative property changes the grouping.

42. The sum of any number and 0 is that number.
(a) $423 + 0 = 423$
(b) $0 + 25 = 25$
(c) $67 + 0 = 67$
(d) $0 + x = x$

43. $12 - 8 = 4$
minuend: 12
subtrahend: 8
difference: 4

44.
$$\begin{array}{r} 9 \\ -\,6 \\ \hline 3 \end{array}$$
minuend: 9
subtrahend: 6
difference: 3

45. $27 - 9 = 18$ because $18 + 9 = 27$.

46. $20 - 8 = 12$ because $12 + 8 = 20$.

47. $102 - 75 = 27$ because $27 + 75 = 102$.

48. $211 - 45 = 166$ because $166 + 45 = 211$.

49. $8 - 3 = 5$ Check: $5 + 3 = 8$

50. $7 - 2 = 5$ Check: $5 + 2 = 7$

51. $4 - 1 = 3$ Check: $3 + 1 = 4$

52. $9 - 1 = 8$ Check: $8 + 1 = 9$

53.
$$\begin{array}{r} 1347 \\ -\,221 \\ \hline 1126 \end{array}$$
Check:
$$\begin{array}{r} 1126 \\ +\,221 \\ \hline 1347 \end{array}$$ ✓

54.
$$\begin{array}{r} 4865 \\ -\,713 \\ \hline 4152 \end{array}$$
Check:
$$\begin{array}{r} 4152 \\ +\,713 \\ \hline 4865 \end{array}$$ ✓

55.
$$\begin{array}{r} 14,356 \\ -\,13,253 \\ \hline 1,103 \end{array}$$
Check:
$$\begin{array}{r} 1\,103 \\ +\,13\,253 \\ \hline 14,356 \end{array}$$ ✓

56.
$$\begin{array}{r} 34,550 \\ -\,31,450 \\ \hline 3100 \end{array}$$
Check:
$$\begin{array}{r} 3\,100 \\ +\,31\,450 \\ \hline 34,550 \end{array}$$ ✓

57.
$$\begin{array}{r} {\scriptstyle 6\,16} \\ \cancel{7}\cancel{6} \\ -\,59 \\ \hline 17 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1} \\ 17 \\ +\,59 \\ \hline 76 \end{array}$$ ✓

58.
$$\begin{array}{r} {\scriptstyle 5\,14} \\ \cancel{6}\cancel{4} \\ -\,48 \\ \hline 16 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1} \\ 16 \\ +\,48 \\ \hline 64 \end{array}$$ ✓

59.
$$\begin{array}{r} {\scriptstyle 10} \\ {\scriptstyle 6\,\cancel{0}\,10} \\ \cancel{7}\cancel{1}\cancel{0} \\ -1\;8\;9 \\ \hline 5\;2\;1 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\,1} \\ 521 \\ +\,189 \\ \hline 710 \end{array}$$ ✓

60.
$$\begin{array}{r} {\scriptstyle 4\;10} \\ 8\cancel{5}\cancel{0} \\ -\,30\,3 \\ \hline 547 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1} \\ 547 \\ +\,303 \\ \hline 850 \end{array}$$ ✓

61.
$$\begin{array}{r} {\scriptstyle 9\;\;9} \\ {\scriptstyle 5\cancel{1}\cancel{0}\cancel{1}12} \\ \cancel{6}\cancel{0}\cancel{0}\cancel{2} \\ -1\;2\;3\;8 \\ \hline 4\;7\;6\;4 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\;1\,1} \\ 4764 \\ +\,1238 \\ \hline 6002 \end{array}$$ ✓

62.
$$\begin{array}{r} {\scriptstyle 9\;\;9} \\ {\scriptstyle 2\cancel{1}\cancel{0}\cancel{1}10} \\ \cancel{3}\;0\;0\;0 \\ -\,2\;3\;5\;6 \\ \hline 6\;4\;4 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\;1\,1} \\ 644 \\ +\,2356 \\ \hline 3000 \end{array}$$ ✓

63.
$$\begin{array}{r} {\scriptstyle 0\,10} \\ \cancel{1}\cancel{0},425 \\ -\,9\;022 \\ \hline 1,403 \end{array}$$
Check:
$$\begin{array}{r} 1\;403 \\ +\,9\;022 \\ \hline 10,425 \end{array}$$ ✓

64.
$$\begin{array}{r} {\scriptstyle 9} \\ {\scriptstyle 1\;13\;8\cancel{1}011} \\ \cancel{2}\cancel{3},\cancel{9}\cancel{0}\cancel{1} \\ -\,8\;0\;6\;4 \\ \hline 15,8\;3\;7 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\quad 1\,1} \\ 15\,837 \\ +\,8\,064 \\ \hline 23,901 \end{array}$$ ✓

65.
$$\begin{array}{r} {\scriptstyle 11}\\ 62\,088\\ -\ 59\,871\\ \hline 2{,}217 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 11}\\ 2\,217\\ +\ 59\,871\\ \hline 62{,}088 \end{array}$$ ✓

66.
$$\begin{array}{r} {\scriptstyle 11\,10\,10}\\ 32{,}112\\ -\ 28{,}334\\ \hline 3\,778 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\ 11}\\ 3\,778\\ +\ 28\,334\\ \hline 32{,}112 \end{array}$$ ✓

67.
$$\begin{array}{r} {\scriptstyle 16\ 9}\\ 3700\\ -\ 29\ 87\\ \hline 713 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\ 1\ 1}\\ 713\\ +\ 2987\\ \hline 3700 \end{array}$$ ✓

68.
$$\begin{array}{r} {\scriptstyle 9\ \ 9}\\ 8000\\ -\ 3788\\ \hline 4212 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 111}\\ 4212\\ +\ 3788\\ \hline 8000 \end{array}$$ ✓

69.
$$\begin{array}{r} {\scriptstyle 13}\\ 32{,}439\\ -\ 1\ 498\\ \hline 30{,}941 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\ \ 1}\\ 30\,941\\ +\ 1\,498\\ \hline 32{,}439 \end{array}$$ ✓

70.
$$\begin{array}{r} {\scriptstyle 1\ 11}\\ 21\,335\\ -\ 4\,123\\ \hline 17{,}212 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1}\\ 17\,212\\ +\ 4\ 123\\ \hline 21{,}335 \end{array}$$ ✓

71.
$$\begin{array}{r} {\scriptstyle 9}\\ 8{,}007{,}234\\ -\ 2{,}345{,}115\\ \hline 5{,}662{,}119 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\ 1\ \ \ 1}\\ 5\,662\,119\\ +\ 2\,345\,115\\ \hline 8{,}007{,}234 \end{array}$$ ✓

72.
$$\begin{array}{r} {\scriptstyle 9}\\ 3{,}045{,}567\\ -\ 1\,871\,495\\ \hline 1{,}174{,}072 \end{array}$$
Check:
$$\begin{array}{r} {\scriptstyle 1\ \ \ 1}\\ 1\,174\,072\\ +\ 1\,871\,495\\ \hline 3{,}045{,}567 \end{array}$$ ✓

73. The expression 7 – 4 means 7 minus 4, yielding a difference of 3. The expression 4 – 7 means 4 minus 7 which results in a difference of –3.

74. Subtraction is not associative. For example, 10 – (6 – 2) = 10 – 4 = 6, and (10 – 6) – 2 = 4 – 2 = 2. Therefore 10 – (6 – 2) does not equal (10 – 6) – 2.

75. 13 + 7
$$\begin{array}{r} {\scriptstyle 1}\\ 13\\ +\ 7\\ \hline 20 \end{array}$$

76. 100 + 42
$$\begin{array}{r} 100\\ +\ 42\\ \hline 142 \end{array}$$

77. 7 + 45
$$\begin{array}{r} {\scriptstyle 1}\\ 7\\ +\ 45\\ \hline 52 \end{array}$$

78. 23 + 81
$$\begin{array}{r} 23\\ +\ 81\\ \hline 104 \end{array}$$

79. 18 + 5
$$\begin{array}{r} {\scriptstyle 1}\\ 18\\ +\ 5\\ \hline 23 \end{array}$$

80. 76 + 2
$$\begin{array}{r} 76\\ +\ 2\\ \hline 78 \end{array}$$

81. 1523 + 90
$$\begin{array}{r} {\scriptstyle 1\acute{Z}}\\ 1523\\ +\ \ 90\\ \hline 1613 \end{array}$$

82. 1320 + 448
$$\begin{array}{r} 1320\\ +\ 448\\ \hline 1768 \end{array}$$

83. 5 + 39 + 81
$$\begin{array}{r} {\scriptstyle 1}\\ 5\\ 39\\ +\ 81\\ \hline 125 \end{array}$$

84.
$$\begin{array}{r} 78 \\ -\ 6 \\ \hline 72 \end{array}$$

85.
$$\begin{array}{r} 422 \\ -\ 100 \\ \hline 322 \end{array}$$

86.
$$\begin{array}{r} 89 \\ -\ 42 \\ \hline 47 \end{array}$$

87.
$$\begin{array}{r} {\scriptstyle 8\ 10} \\ 10\cancel{9}\ \cancel{0} \\ -\ 7\ 2 \\ \hline 101\ 8 \end{array}$$

88.
$$\begin{array}{r} {\scriptstyle 0\ 11} \\ 3\cancel{1}\cancel{1}1 \\ -\ 60 \\ \hline 3051 \end{array}$$

89.
$$\begin{array}{r} {\scriptstyle 4\ 10} \\ \cancel{5}\ \cancel{0} \\ -\ 1\ 3 \\ \hline 3\ 7 \end{array}$$

90.
$$\begin{array}{r} 405 \\ -\ 103 \\ \hline 302 \end{array}$$

91.
$$\begin{array}{r} {\scriptstyle 9\ 13} \\ \cancel{1}\cancel{0}\ \cancel{3} \\ -\ 3\ 5 \\ \hline 6\ 8 \end{array}$$

92.
$$\begin{array}{r} {\scriptstyle 8\ 11} \\ \cancel{9}\ \cancel{1} \\ -\ 1\ 4 \\ \hline 7\ 7 \end{array}$$

93.
$$\begin{array}{r} {\scriptstyle 1\ 2\ \ 1} \\ 26,548,000 \\ 26,930,000 \\ +\ 20,805,000 \\ \hline 74,283,000 \end{array}$$

The shows had a total of 74,283,000 viewers.

94.
$$\begin{array}{r} {\scriptstyle 3\ 3} \\ 38 \\ 54 \\ 44 \\ 61 \\ 97 \\ 103 \\ +\ 124 \\ \hline 521 \end{array}$$

521 deliveries were made.

95.
$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 115 \\ 104 \\ 93 \\ +\ 111 \\ \hline 423 \end{array}$$

423 desks were delivered.

96.
$$\begin{array}{r} {\scriptstyle 1} \\ \$60 \\ 82 \\ +\ 58 \\ \hline \$200 \end{array}$$

The total amount is $200.

97.
$$\begin{array}{r} {\scriptstyle 1\ 10\ 2\ 11\ 10} \\ \cancel{2}0,\cancel{3}\cancel{2}0\ \text{ft} \\ -\ 14,246\ \text{ft} \\ \hline 6,074\ \text{ft} \end{array}$$

Denali is 6074 ft higher than White Mountain Peak.

98.
$$\begin{array}{r} {\scriptstyle 4\ 15} \\ \cancel{5}\ \cancel{5} \\ -\ 3\ 9 \\ \hline 1\ 6 \end{array}$$

16 DVDs are left.

99.
$$\begin{array}{r} {\scriptstyle 9\ \ 9} \\ {\scriptstyle 7\ 10\ 10\ 10} \\ 2\ 39\cancel{8}\ 0\ 0\ 0 \\ -\ 2\ 390\ 2\ 5\ 2 \\ \hline 7\ 7\ 4\ 8 \end{array}$$

The difference is 7748 marriages.

100.
$$\begin{array}{r} 2,398,000 \\ -\ 2,248,000 \\ \hline 150,000 \end{array}$$

The decrease is 150,000 marriages.

101.
$$\begin{array}{r} {\scriptstyle 13} \\ 3\,\not{3}\,{\scriptstyle 13} \\ 2\,\not{4}\,\not{4}\,\not{3}\;489 \\ -\;2\,2\,4\,8\;\;000 \\ \hline 1\,9\,5,4\,8\,9 \end{array}$$
The difference is 195,489 marriages.

102.
$$\begin{array}{r} 2,398,000 \\ -\;2,336,000 \\ \hline 62,000 \end{array}$$
The greatest increase occurred between 1995–2000; the increase was 62,000 marriages.

103.
$$\begin{array}{r} {\scriptstyle 1\,1\,1\;\;1\,1} \\ 100,052 \\ 675,038 \\ +\;45,934 \\ \hline 821,024 \end{array}$$
There are 821,024 nonteachers.

104.
$$\begin{array}{r} {\scriptstyle 1\;\;1\,1} \\ \$7\;329 \\ 9\;560 \\ 1\;248 \\ +\;3\;500 \\ \hline \$21,637 \end{array}$$
The total cost is $21,637.

105.
$$\begin{array}{r} 6288 \\ -\;2032 \\ \hline 4256 \end{array}$$
Mt. Washington is 4256 ft higher than the Pinkham Notch Visitor Center.

106.
$$\begin{array}{r} {\scriptstyle 9\;\;1\,3} \\ 3\,\not{1}\,\not{0}\;\not{1}\,\not{4}\;{\scriptstyle 1\,3} \\ \not{4}\;\not{0}\;\not{4}\;\not{3} \\ -\;2\;\;0\;\;6\;\;4 \\ \hline 1\;9\;7\;9 \end{array}$$
The Lion King had been performed 1979 more times.

107.
$$\begin{array}{r} {\scriptstyle 1} \\ 26,960 \\ +\;2\;600 \\ \hline 29,560 \end{array}$$
Jeannette will pay $29,560 for 1 year.

108.
$$\begin{array}{r} 11\not{2}\not{2} \\ 138 \\ +\;96 \\ \hline 234 \end{array}$$
They are 234 miles apart.

109.
$$\begin{array}{r} {\scriptstyle 1} \\ 35\text{ cm} \\ 35\text{ cm} \\ +\;34\text{ cm} \\ \hline 104\text{ cm} \end{array}$$

110.
$$\begin{array}{r} {\scriptstyle 1} \\ 27\text{ in.} \\ 13\text{ in.} \\ +\;20\text{ in.} \\ \hline 60\text{ in.} \end{array}$$

111.
$$\begin{array}{r} {\scriptstyle 2} \\ 6\text{ yd} \\ 10\text{ yd} \\ 11\text{ yd} \\ 3\text{ yd} \\ 5\text{ yd} \\ +\;7\text{ yd} \\ \hline 42\text{ yd} \end{array}$$

112.
$$\begin{array}{r} {\scriptstyle 2\,3} \\ 200\text{ yd} \\ 136\text{ yd} \\ 142\text{ yd} \\ 98\text{ yd} \\ 58\text{ yd} \\ +\;38\text{ yd} \\ \hline 672\text{ yd} \end{array}$$

113.
$$\begin{array}{r} 94\text{ ft} \\ 94\text{ ft} \\ 50\text{ ft} \\ +\;50\text{ ft} \\ \hline 288\text{ ft} \end{array}$$

114.
$$\begin{array}{r} 90\text{ ft} \\ 90\text{ ft} \\ 90\text{ ft} \\ +\;90\text{ ft} \\ \hline 360\text{ ft} \end{array}$$

115.
$$\begin{array}{r} 14\text{ m} \\ +\;12\text{ m} \\ \hline 26\text{ m} \end{array} \qquad \begin{array}{r} 39\text{ m} \\ -\;26\text{ m} \\ \hline 13\text{ m} \end{array}$$
The missing length is 13 m.

116.
$$\begin{array}{r} {\scriptstyle 11} \\ 139 \text{ cm} \\ 87 \text{ cm} \\ +\ 201 \text{ cm} \\ \hline 427 \text{ cm} \end{array} \qquad \begin{array}{r} 547 \text{ cm} \\ -\ 427 \text{ cm} \\ \hline 120 \text{ cm} \end{array}$$
The missing length is 120 cm.

117.
$$\begin{array}{r} 45,418 \\ 81,990 \\ 9\,063 \\ +\ 56,309 \\ \hline 192,780 \end{array}$$

118.
$$\begin{array}{r} 9,300,050 \\ 7,803,513 \\ 3,480,009 \\ +\ 907,822 \\ \hline 21,491,394 \end{array}$$

119.
$$\begin{array}{r} 3,421,019 \\ 822,761 \\ 1,003,721 \\ +\ 9,678 \\ \hline 5,257,179 \end{array}$$

120.
$$\begin{array}{r} 4,905,620 \\ -\ 458,318 \\ \hline 4,447,302 \end{array}$$

121.
$$\begin{array}{r} 953,400,415 \\ -\ 56,341,902 \\ \hline 897,058,513 \end{array}$$

122.
$$\begin{array}{r} 82,025,160 \\ -\ 79,118,705 \\ \hline 2,906,455 \end{array}$$

123.
$$\begin{array}{r} 103,718 \text{ mi}^2 \\ -\ 54,310 \text{ mi}^2 \\ \hline 49,408 \text{ mi}^2 \end{array}$$
The difference in land area between Colorado and Wisconsin is $49,408 \text{ mi}^2$.

124.
$$\begin{array}{r} 41,217 \text{ mi}^2 \\ -\ 24,078 \text{ mi}^2 \\ \hline 17,139 \text{ mi}^2 \end{array}$$
Tennessee has $17,139 \text{ mi}^2$ more than West Virginia.

125.
$$\begin{array}{r} 1\,045 \text{ mi}^2 \\ 41,217 \text{ mi}^2 \\ +\ 54,310 \text{ mi}^2 \\ \hline 96,572 \text{ mi}^2 \end{array}$$
The combined land area of Rhode Island, Tennessee, and Wisconsin is $96,572 \text{ mi}^2$.

126.
$$\begin{array}{r} 1\,045 \text{ mi}^2 \\ 41,217 \text{ mi}^2 \\ 24,078 \text{ mi}^2 \\ 54,310 \text{ mi}^2 \\ +\ 103,718 \text{ mi}^2 \\ \hline 224,368 \text{ mi}^2 \end{array}$$
The combined land area of the five states is $224,368 \text{ mi}^2$.

Section 1.4 Rounding and Estimating

Section 1.4 Practice Exercises

1. Answers will vary

2. **Rounding** a number allows us to give an approximation of the number to a specific place value.

3.
$$\begin{array}{r} 59 \\ -\ 33 \\ \hline 26 \end{array}$$

4.
$$\begin{array}{r} {\scriptstyle 0\,12\,10} \\ \not{1}\not{3}\not{0} \\ -\ 9\ 8 \\ \hline 3\ 2 \end{array}$$

5.
$$\begin{array}{r} {\scriptstyle 1\ 11} \\ 4009 \\ +\ 998 \\ \hline 5007 \end{array}$$

6.
$$\begin{array}{r} 12,033 \\ +\ 23,441 \\ \hline 35,474 \end{array}$$

7. Ten-thousands

8. Hundreds

9. If the digit in the tens place is 0, 1, 2, 3, or 4, then change the tens and ones digits to 0. If the digit in the tens place is 5, 6, 7, 8, or 9, increase the digit in the hundreds place by 1 and change the tens and ones digits to 0.

10. If the digit in the ones place is 0, 1, 2, 3, or 4, then change the ones digits to 0. If the digit in the ones place is 5, 6, 7, 8, or 9, increase the digit in the tens place by 1 and change the ones digit to 0.

11. $342 \approx 340$

12. $834 \approx 830$

13. $725 \approx 730$

14. $445 \approx 450$

15. $9384 \approx 9400$

16. $8363 \approx 8400$

17. $8539 \approx 8500$

18. $9817 \approx 9800$

19. $34{,}992 \approx 35{,}000$

20. $76{,}831 \approx 77{,}000$

21. $2578 \approx 3000$

22. $3511 \approx 4000$

23. $9982 \approx 10{,}000$

24. $7974 \approx 8000$

25. $109{,}337 \approx 109{,}000$

26. $437{,}208 \approx 437{,}000$

27. $489{,}090 \approx 490{,}000$

28. $388{,}725 \approx 390{,}000$

29. $\$148{,}431{,}020 \approx \$148{,}000{,}000$

30. $\$33{,}050 \approx \$33{,}000$

31. $238{,}863 \text{ mi} \approx 239{,}000 \text{ mi}$

32. $492{,}000 \text{ m}^2 \approx 500{,}000 \text{ m}^2$

33.
$$\begin{array}{rcr} 57 & \rightarrow & 60 \\ 82 & \rightarrow & 80 \\ +\ 21 & \rightarrow & +\ 20 \\ \hline & & 160 \end{array}$$

34.
$$\begin{array}{rcr} 33 & \rightarrow & 30 \\ 78 & \rightarrow & 80 \\ +\ 41 & \rightarrow & +\ 40 \\ \hline & & 150 \end{array}$$

35.
$$\begin{array}{rcr} 639 & \rightarrow & 640 \\ -\ 422 & \rightarrow & -\ 420 \\ \hline & & 220 \end{array}$$

36.
$$\begin{array}{rcr} 851 & \rightarrow & 850 \\ -\ 399 & \rightarrow & -\ 400 \\ \hline & & 450 \end{array}$$

37.
$$\begin{array}{rcr} 892 & \rightarrow & 900 \\ +\ 129 & \rightarrow & +\ 100 \\ \hline & & 1000 \end{array}$$

38.
$$\begin{array}{rcr} 347 & \rightarrow & 300 \\ +\ 563 & \rightarrow & +\ 600 \\ \hline & & 900 \end{array}$$

39.
$$\begin{array}{rcr} 3412 & \rightarrow & 3400 \\ -\ 1252 & \rightarrow & -\ 1300 \\ \hline & & 2100 \end{array}$$

40.
$$\begin{array}{rcr} 9771 & \rightarrow & 9800 \\ -\ 4544 & \rightarrow & -\ 4500 \\ \hline & & 5300 \end{array}$$

41.
$$\begin{array}{rcr} & & {\scriptstyle 1} \\ 97,404,576 & \rightarrow & 97,000,000 \\ +\ 53,695,428 & \rightarrow & +\ 54,000,000 \\ \hline & & 151,000,000 \end{array}$$
$151,000,000 was brought in by Mars.

42.
$$\begin{array}{rcr} & & {\scriptstyle 1} \\ 81,296,784 & \rightarrow & 81,000,000 \\ 54,391,268 & \rightarrow & 54,000,000 \\ +\ 38,168,580 & \rightarrow & +\ 38,000,000 \\ \hline & & 173,000,000 \end{array}$$
$173,000,000 was brought in by Hershey.

43.
$$\begin{array}{rcr} 71,339,710 & \rightarrow & 71,000,000 \\ -\ 59,684,076 & \rightarrow & -\ 60,000,000 \\ \hline & & 11,000,000 \end{array}$$
Neil Diamond earned $11,000,000 more.

44.
$$\begin{array}{rcr} 4844 & \rightarrow & 5000 \\ -1190 & \rightarrow & -1000 \\ \hline & & 4000 \end{array}$$
4000 more women gave birth.

45.
$$\begin{array}{rcr} & & {\scriptstyle 1} \\ \$3,316,897 & \rightarrow & \$3,300,000 \\ 3,272,028 & \rightarrow & 3,300,000 \\ +\ 3,360,289 & \rightarrow & +\ 3,400,000 \\ \hline & & \$10,000,000 \end{array}$$

46.
$$\begin{array}{rcr} \$3,470,295 & \rightarrow & \$3,500,000 \\ 3,173,050 & \rightarrow & 3,200,000 \\ +\ 1,970,380 & \rightarrow & +\ 2,000,000 \\ \hline & & \$8,700,000 \end{array}$$

47. **(a)** 2003; $3,470,295 → $3,500,000

(b) 2005; $1,970,380 → $2,000,000

48.
$$\begin{array}{r} \$3,500,000 \\ -\ 2,000,000 \\ \hline \$1,500,000 \end{array}$$

49. Massachusetts; 78,815 → 79,000 students

50. Vermont; 8059 → 8000 students

51.
$$\begin{array}{r} 79,000 \\ -\ 8\ 000 \\ \hline 71,000 \end{array}$$
The difference is 71,000 students.

52.
$$\begin{array}{rcr} & & {\scriptstyle 4} \\ 45,879 & \rightarrow & 46,000 \\ 9137 & \rightarrow & 9,000 \\ 16,756 & \rightarrow & 17,000 \\ 78,815 & \rightarrow & 79,000 \\ 17,422 & \rightarrow & 17,000 \\ 13,172 & \rightarrow & 13,000 \\ +\ 8059 & \rightarrow & +\ 8\ 000 \\ \hline & & 189,000 \end{array}$$
The total is 189,000 students.

53.
$$\begin{array}{rcr} 3045 \text{ mm} & \rightarrow & 3000 \text{ mm} \\ 1892 \text{ mm} & \rightarrow & 2000 \text{ mm} \\ 3045 \text{ mm} & \rightarrow & 3000 \text{ mm} \\ +\ 1892 \text{ mm} & \rightarrow & +\ 2000 \text{ mm} \\ \hline & & 10,000 \text{ mm} \end{array}$$

54.
$$\begin{array}{rcr} 1851 \text{ cm} & \rightarrow & 2000 \text{ cm} \\ 1782 \text{ cm} & \rightarrow & 2000 \text{ cm} \\ 1851 \text{ cm} & \rightarrow & 2000 \text{ cm} \\ +\ 1782 \text{ cm} & \rightarrow & +\ 2000 \text{ cm} \\ \hline & & 8000 \text{ cm} \end{array}$$

55.
$$\begin{array}{rcr} & & {\scriptstyle 2} \\ 105 \text{ in.} & \rightarrow & 110 \text{ in.} \\ 57 \text{ in.} & \rightarrow & 60 \text{ in.} \\ 57 \text{ in.} & \rightarrow & 60 \text{ in.} \\ 105 \text{ in.} & \rightarrow & 110 \text{ in.} \\ 57 \text{ in.} & \rightarrow & 60 \text{ in.} \\ +\ 57 \text{ in.} & \rightarrow & +\ 60 \text{ in.} \\ \hline & & 460 \text{ in.} \end{array}$$

56.
$$\begin{array}{rcr} 182 \text{ ft} & \rightarrow & 200 \text{ ft} \\ 121 \text{ ft} & \rightarrow & 100 \text{ ft} \\ 182 \text{ ft} & \rightarrow & 200 \text{ ft} \\ 169 \text{ ft} & \rightarrow & 200 \text{ ft} \\ +\ 169 \text{ ft} & \rightarrow & +\ 200 \text{ ft} \\ \hline & & 900 \text{ ft} \end{array}$$

Section 1.5 Multiplication of Whole Numbers and Area

Section 1.5 Practice Exercises

1. Answers will vary.

2. **(a)** **Multiplication** is repeated addition.

(b) The numbers that are multiplied are called **factors.**
(c) The result of multiplication is called the **product.**
(d) **Area** measures the amount of surface contained within a region.
(e) The **area of a rectangle** is the product of the length and the width.

3.
$$\begin{array}{rcr} & & {\scriptstyle 1} \\ 869,240 & \rightarrow & 870,000 \\ 34,921 & \rightarrow & 30,000 \\ \underline{+\,108,332} & \rightarrow & \underline{+\,110,000} \\ & & 1,010,000 \end{array}$$

4.
$$\begin{array}{rcr} 907,801 & \rightarrow & 900,000 \\ \underline{-\,413,560} & \rightarrow & \underline{-\,400,000} \\ & & 500,000 \end{array}$$

5.
$$\begin{array}{rcr} 8821 & \rightarrow & 8800 \\ \underline{-\,3401} & \rightarrow & \underline{-\,3400} \\ & & 5400 \end{array}$$

6.

×	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

7. $5 + 5 + 5 + 5 + 5 + 5 = 6 \times 5 = 30$

8. $2+2+2+2+2+2+2+2+2 = 9\times 2 = 18$

9. $9 + 9 + 9 = 3 \times 9 = 27$

10. $7 + 7 + 7 + 7 = 4 \times 7 = 28$

11. $13 \times 42 = 546$
factors: 13, 42; product: 546

12. $26 \times 9 = 234$
factors: 26, 9; product: 234

13. $3 \cdot 5 \cdot 2 = 30$
factors: 3, 5, 2; product: 30

14. $4 \cdot 3 \cdot 8 = 96$
factors: 4, 3, 8; product: 96

15. For example: 5×12; $5 \cdot 12$; $5(12)$

16. For example: 23×14; $23 \cdot 14$; $23(14)$

17. d

18. a

19. e

20. b

21. c

22. a

23. $14 \bullet 8 = 8 \bullet 14$

24. $3 \bullet 9 = 9 \bullet 3$

25. $6 \bullet (2 \bullet 10) = (6 \bullet 2) \bullet 10$

26. $(4 \cdot 15) \cdot 5 = 4 \cdot (15 \cdot 5)$

27. $5(7 + 4) = (5 \cdot 7) + (5 \cdot 4)$

28. $3(2 + 6) = (3 \cdot 2) + (3 \cdot 6)$

29.
$$\begin{array}{r} 24 \\ \times\ 6 \\ \hline 24 \\ +\ 120 \\ \hline 144 \end{array}$$
Multiply 6×4.
Multiply 6×20.
Add.

30.
$$\begin{array}{r} 18 \\ \times\ 5 \\ \hline 40 \\ +\ 50 \\ \hline 90 \end{array}$$
Multiply 5×8.
Multiply 5×10.
Add.

31.
$$\begin{array}{r} 26 \\ \times\ 2 \\ \hline 12 \\ +\ 40 \\ \hline 52 \end{array}$$
Multiply 2×6.
Multiply 2×20.
Add.

32.
$$\begin{array}{r} 71 \\ \times\ 3 \\ \hline 3 \\ +\ 210 \\ \hline 213 \end{array}$$
Multiply 3×1.
Multiply 3×70.
Add.

33.
$$\begin{array}{r} 131 \\ \times\ 5 \\ \hline 5 \\ 150 \\ +\ 500 \\ \hline 655 \end{array}$$
Multiply 5×1.
Multiply 5×30.
Multiply 5×100.
Add.

34.
$$\begin{array}{r} 725 \\ \times\ 3 \\ \hline 15 \\ 60 \\ +\ 2100 \\ \hline 2175 \end{array}$$
Multiply 3×5.
Multiply 3×20.
Multiply 3×700.
Add.

35.
$$\begin{array}{r} 344 \\ \times\ 4 \\ \hline 16 \\ 160 \\ +\ 1200 \\ \hline 1376 \end{array}$$
Multiply 4×4.
Multiply 4×40.
Multiply 4×300.
Add.

36.
$$\begin{array}{r} 105 \\ \times\ 9 \\ \hline 45 \\ 00 \\ +\ 900 \\ \hline 945 \end{array}$$
Multiply 9×5.
Multiply 9×0.
Multiply 9×100.
Add.

37.
$$\begin{array}{r} {\scriptstyle 3} \\ 1410 \\ \times\ \ 8 \\ \hline 11{,}280 \end{array}$$

38.
$$\begin{array}{r} {\scriptstyle 3} \\ 2016 \\ \times\ \ 6 \\ \hline 12{,}096 \end{array}$$

39.
$$\begin{array}{r} {\scriptstyle 2\ \ 1} \\ 3312 \\ \times\ \ 7 \\ \hline 23{,}184 \end{array}$$

40.
$$\begin{array}{r} {\scriptstyle 4} \\ 4801 \\ \times\ \ 5 \\ \hline 24{,}005 \end{array}$$

41.
$$\begin{array}{r} {\scriptstyle 1\ \ 1\,3} \\ 42{,}014 \\ \times\ \ 9 \\ \hline 378{,}126 \end{array}$$

42.
$$\begin{array}{r} {\scriptstyle 4} \\ 51{,}006 \\ \times\ \ 8 \\ \hline 408{,}048 \end{array}$$

43.
$$\begin{array}{r} 32 \\ \times\ 14 \\ \hline 128 \\ +\ 320 \\ \hline 448 \end{array}$$

44.
$$\begin{array}{r} 41 \\ \times\ 21 \\ \hline 41 \\ +\ 820 \\ \hline 861 \end{array}$$

45.
$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ {\scriptstyle 3\ \ \ } \\ 68 \\ \times\ 24 \\ \hline {\scriptstyle 1\ \ \ } \\ 272 \\ +\ 1360 \\ \hline 1632 \end{array}$$

46.
$$\begin{array}{r} {\scriptstyle 2\ \ \ } \\ 55 \\ \times\ 41 \\ \hline 55 \\ +\ 2200 \\ \hline 2255 \end{array}$$

47.
$$\begin{array}{r} 72 \\ \times\ 12 \\ \hline 144 \\ +\ 720 \\ \hline 864 \end{array}$$

48.
$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ {\scriptstyle 1\ \ \ } \\ 13 \\ \times\ 46 \\ \hline 78 \\ +\ 520 \\ \hline 598 \end{array}$$

49.
$$\begin{array}{r} {\scriptstyle 3\,2\ } \\ 143 \\ \times\ 17 \\ \hline 1001 \\ +\ 1430 \\ \hline 2431 \end{array}$$

50.
$$\begin{array}{r} {\scriptstyle 1\,1\ } \\ 722 \\ \times\ 28 \\ \hline {\scriptstyle 1\,1\,1\ } \\ 5\,776 \\ +\ 14\,440 \\ \hline 20,216 \end{array}$$

51.
$$\begin{array}{r} {\scriptstyle 4\,8\ } \\ 349 \\ \times\ 19 \\ \hline {\scriptstyle 1\ \ \ } \\ 3141 \\ +\ 3490 \\ \hline 6631 \end{array}$$

52.
$$\begin{array}{r} 512 \\ \times\ 31 \\ \hline 512 \\ +\ 15\,360 \\ \hline 15,872 \end{array}$$

53.
$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ {\scriptstyle 3\ \ \ } \\ 151 \\ \times\ 127 \\ \hline 1\,057 \\ 3\,020 \\ +\ 15\,100 \\ \hline 19,177 \end{array}$$

54.
$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ {\scriptstyle 1\ \ \ } \\ 703 \\ \times\ 146 \\ \hline {\scriptstyle 1}\,4\,218 \\ 28\,120 \\ +\ 70\,300 \\ \hline 102,638 \end{array}$$

55.
$$\begin{array}{r} {\scriptstyle 1\,1\ } \\ 222 \\ \times\ 841 \\ \hline {\scriptstyle 1\ \ \ } \\ {\scriptstyle 1\,1}\ 222 \\ 8\,880 \\ +\ 177\,600 \\ \hline 186,702 \end{array}$$

56.
$$\begin{array}{r} {\scriptstyle 4\,3\ } \\ {\scriptstyle 5\,4\ } \\ 387 \\ \times\ 506 \\ \hline 2\,322 \\ 0\,000 \\ +\ 193\,500 \\ \hline 195,822 \end{array}$$

57.
$$\begin{array}{r} {\scriptstyle 3\,1\,1\ } \\ {\scriptstyle 2\,1\ \ } \\ 3532 \\ \times\ 6014 \\ \hline {\scriptstyle 1\,1\ } \\ 14\,128 \\ 35\,320 \\ 000\,000 \\ +\ 21\,192\,000 \\ \hline 21,241,448 \end{array}$$

58.
$$\begin{array}{r} {\scriptstyle 2\ \ \ } \\ {\scriptstyle 7\ \ \ } \\ 2810 \\ \times\ \ 1039 \\ \hline 1\,25\,290 \\ 84\,300 \\ 000\,000 \\ +\ 2\,810\,000 \\ \hline 2{,}919{,}590 \end{array}$$

59.
$$\begin{array}{r} {\scriptstyle 1\,1\,1\ \ \ } \\ {\scriptstyle 1\,1\ \ \ } \\ 4122 \\ \times\ \ 982 \\ \hline 8\,244 \\ 329\,760 \\ +\ 3\,709\,800 \\ \hline 4{,}047{,}804 \end{array}$$

60.
$$\begin{array}{r} {\scriptstyle 1\,3\ \ \ } \\ {\scriptstyle 1\ \ \ } \\ {\scriptstyle 2\,4\ \ \ } \\ 7026 \\ \times\ \ 528 \\ \hline 56\,208 \\ 140\,520 \\ +\ 3513\,000 \\ \hline 3{,}709{,}728 \end{array}$$

61. $600 \rightarrow 6 \mid 00$
$\times\,40 \rightarrow \times 4 \mid 0$
$24 \mid 000 = 24{,}000$

62. $900 \rightarrow 9 \mid 00$
$\times\,50 \rightarrow \times 5 \mid 0$
$45 \mid 000 = 45{,}000$

63. $3000 \rightarrow 3 \mid 000$
$\times\,700 \rightarrow \times 7 \mid 00$
$21 \mid 00000 = 2{,}100{,}000$

64. $4000 \rightarrow 4 \mid 000$
$\times\,400 \rightarrow \times 4 \mid 00$
$16 \mid 00000 = 1{,}600{,}000$

65. $8000 \rightarrow 8 \mid 000$
$\times\,9000 \rightarrow \times 9 \mid 000$
$72 \mid 000000 = 72{,}000{,}000$

66. $1000 \rightarrow 1 \mid 000$
$\times\,2000 \rightarrow \times 2 \mid 000$
$2 \mid 000000 = 2{,}000{,}000$

67. $90{,}000 \rightarrow 9 \mid 0000$
$\times\,400 \rightarrow \times 4 \mid 00$
$36 \mid 000000 = 36{,}000{,}000$

68. $50{,}000 \rightarrow 5 \mid 0000$
$\times\,6{,}000 \rightarrow \times 6 \mid 000$
$30 \mid 0000000 = 300{,}000{,}000$

69. $11{,}784 \rightarrow 12{,}000$
$\times\,5\ 201 \rightarrow \times\ \ 5{,}000$
$60{,}000{,}000$

70.
$$\begin{array}{r} 45{,}046 \rightarrow {\scriptstyle 4\ \ \ } \\ \times\ 7\ 812 \rightarrow 45{,}000 \\ \hline 360{,}000{,}000 \end{array} \qquad \times\ \ 8\,000$$

71. $82{,}941 \rightarrow 80{,}000$
$\times\,29{,}740 \rightarrow \times\ \ 30{,}000$
$2{,}400{,}000{,}000$

72.
$$\begin{array}{r} 630{,}229 \rightarrow {\scriptstyle 2\ \ \ } \\ \times\ 71{,}907 \rightarrow 630{,}000 \\ \hline 44{,}100{,}000{,}000 \end{array} \qquad \times\ \ 70{,}000$$

73. $\$189 \rightarrow \$200$
$\times\ \ 5 \qquad \times\ \ 5$
$\$1000$

74. $\$129 \rightarrow \$130$
$\times\ 28 \rightarrow \times\ \ 30$
$\$3{,}900$

75. $10{,}256 \rightarrow 1 \mid 0000$
$\times\ \$137 \rightarrow \times\,137 \mid$
$137 \mid 0000 = \$1{,}370{,}000$

76. $48 \rightarrow 5 \mid 0$
$\times 12 \rightarrow \times 1 \mid 0$
$5 \mid 00$

500
$\times\ \ 7$
$\$3500$ per week

77.
$$\begin{array}{r} 1000 \\ \times \quad 4 \\ \hline 4000 \end{array}$$
4000 minutes can be stored.

78.
$$\begin{array}{r} 700 \\ \times \quad 15 \\ \hline 3500 \\ +\,7000 \\ \hline 10{,}500 \end{array}$$
15 CD's hold 10,500 MB of data

79.
$$\begin{array}{r} {\scriptstyle 1\ 3} \\ \$45 \\ \times \quad 37 \\ \hline 315 \\ +\,1\,350 \\ \hline \$1{,}665 \end{array}$$

80.
$$\begin{array}{r} {\scriptstyle 1} \\ 55 \\ \times \quad 20 \\ \hline 00 \\ +\,1\,100 \\ \hline 1100 \end{array}$$
It can go 1100 miles on 20 gallons of gas.

81.
$$\begin{array}{r} 12 \\ \times \quad 12 \\ \hline 24 \\ +\,120 \\ \hline 144 \end{array}$$
A case contains 144 fl oz.

82.
$$\begin{array}{r} {\scriptstyle 1} \\ 16 \\ \times \quad 3 \\ \hline 48 \end{array}$$
The class meets for 48 hours.

83.
$$\begin{array}{r} {\scriptstyle 2} \\ 115 \\ \times \quad 5 \\ \hline 575 \end{array} \qquad \begin{array}{r} {\scriptstyle 3\ 2} \\ 57\,5 \\ \times \quad 5 \\ \hline 287{,}5 \end{array} \Big| \begin{array}{l} \\ 00 \\ \hline \\ 00 \end{array}$$
287,500 sheets of paper are delivered.

84.
$$\begin{array}{r} 14 \\ \times 2 \\ \hline 28 \end{array} \qquad \begin{array}{r} {\scriptstyle 4} \\ 28 \\ \times \quad 6 \\ \hline 168 \end{array}$$
She gets 168 g of protein.

85.
$$\begin{array}{r} 31 \\ \times \quad 12 \\ \hline 62 \\ +\,310 \\ \hline 372 \end{array}$$
He can travel 372 miles.

86.
$$\begin{array}{r} 23 \\ \times \quad 32 \\ \hline {\scriptstyle 1} \\ 46 \\ +\,690 \\ \hline 736 \end{array}$$
Sherica schedules 736 hr.

87. $A = l \times w$
$A = (23 \text{ ft}) \times (12 \text{ ft})$
$$\begin{array}{r} 23 \\ \times \quad 12 \\ \hline 46 \\ +\,230 \\ \hline 276 \end{array}$$
The area is 276 ft^2.

88. $A = l \times w$
$A = (31 \text{ m}) \times (2 \text{ m}) = 62 \text{ m}^2$

89. $A = l \times w$
$A = (73 \text{ cm}) \times (73 \text{ cm})$
$$\begin{array}{r} {\scriptstyle 2} \\ 73 \\ \times \quad 73 \\ \hline 219 \\ +\,5110 \\ \hline 5329 \end{array}$$
The area is 5329 cm^2.

90. $A = l \times w$
$A = (41 \text{ yd}) \times (41 \text{ yd})$
$$\begin{array}{r} 41 \\ \times \quad 41 \\ \hline 41 \\ +\,1640 \\ \hline 1681 \end{array}$$
The area is 1681 yd^2.

91. $A = l \times w$
$A = (390 \text{ mi}) \times (270 \text{ mi})$

$$\begin{array}{r} {}^{1} \\ {}^{6} \\ 390 \\ \times\ \ 270 \\ \hline 000 \\ 27300 \\ +\,78000 \\ \hline 105{,}300 \end{array}$$

The area is 105,300 mi^2.

92. $A = l \times w$
$A = (130\text{ yd}) \times (150\text{ yd})$

$$\begin{array}{r} {}^{1} \\ 130 \\ \times\ \ 150 \\ \hline 000 \\ 6500 \\ +\,13000 \\ \hline 19{,}500 \end{array}$$

The area is 19,500 yd^2.

93. **(a)** $A = l \times w$
$A = (40\text{ in.}) \times (60\text{ in.})$

$$\begin{array}{r} 40 \\ \times\ \ \ \ 60 \\ \hline 00 \\ +\,2400 \\ \hline 2400 \end{array}\ \text{in.}^2$$

(b)
$$\begin{array}{r} {}^{1} \\ 14 \\ \times 3 \\ \hline 42 \end{array}$$

There are 42 windows.

(c)
$$\begin{array}{r} {}^{1} \\ 2400 \\ \times\ \ \ \ 42 \\ \hline 4\,800 \\ +\,96\,000 \\ \hline 100{,}800 \end{array}$$

The total area is 100,800 in.^2

94. $A = l \times w$
$A = (50\text{ ft.}) \times (30\text{ ft.})$

$$\begin{array}{r} {}^{8} \\ 50 \\ \times\ \ 30 \\ \hline 000 \\ +\,1500 \\ \hline 1500 \end{array}$$

The area is 1500 ft^2.

95. $A = l \times w$
$A = (8\text{ ft}) \times (16\text{ ft})$

$$\begin{array}{r} {}^{4} \\ 16 \\ \times\ 8 \\ \hline 128 \end{array}$$

The area is 128 ft^2.

96. $A = l \times w$
$A = (10\text{ yd}) \times (15\text{ yd}) = 150\text{ yd}^2$.

Section 1.6 Division of Whole Numbers

Section 1.6 Practice Exercises

1. Answers will vary.

2. **(a)** **Division** is the process of separating a number into equal groups.
(b) The **dividend** is the number being divided.
(c) The **divisor** is the number of groups.
(d) The **quotient** is the result of the division.
(e) **Long division** uses a series of estimates to find the quotient when dividing larger numbers.

(f) The **remainder** is the "leftover" piece if a divisor does not divide the dividend evenly.

(g) The **whole part of the quotient** is the number of times the divisor goes into the dividend without the remainder.

3.
$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ {\scriptstyle 2\ \ \ } \\ 103 \\ \times\quad 48 \\ \hline 824 \\ +\,4120 \\ \hline 4944 \end{array}$$

4.
$$\begin{array}{r} {\scriptstyle 5\,17} \\ \not{6}\not{7}8 \\ -\,83 \\ \hline 595 \end{array}$$

5.
$$\begin{array}{r} {\scriptstyle 1\ \ \ \ } \\ 1008 \\ +\,245 \\ \hline 1253 \end{array}$$

6.
$$\begin{array}{r} 220 \\ \times\ \ 14 \\ \hline {\scriptstyle 1}\,880 \\ 2\,200 \\ \hline 3080 \end{array}$$

7.
$$\begin{array}{r} {\scriptstyle 1\,2\ \ \ } \\ 5230 \\ \times\quad 127 \\ \hline {\scriptstyle 1\,1\ \ \ } \\ 36\,610 \\ 104\,600 \\ +\,523\,000 \\ \hline 664,210 \end{array}$$

8.
$$\begin{array}{r} {\scriptstyle 1\,1\ \ \ } \\ {\scriptstyle 4\,4\ \ \ } \\ 789 \\ \times\,25 \\ \hline {\scriptstyle 1\,1\ \ \ } \\ 3\,945 \\ +\,15\,780 \\ \hline 19,725 \end{array}$$

9.
$$\begin{array}{r} {\scriptstyle 3\,18\,8\,10} \\ \not{4}\not{8}\not{9}\not{0} \\ -\,3\,98\ 8 \\ \hline 90\ 2 \end{array}$$

10.
$$\begin{array}{r} {\scriptstyle 1\ \ \ \ \ } \\ 38\,002 \\ +\,3\,902 \\ \hline 41,904 \end{array}$$

11. $72 \div 8 = 9$ because $9 \times 8 = 72$.
dividend: 72
divisor: 8
quotient: 9

12. $32 \div 4 = 8$ because $8 \times 4 = 32$.
dividend: 32
divisor: 4
quotient: 8

13. $8\overline{)64} = 8$ because $8 \times 8 = 64$.
dividend: 64
divisor: 8
quotient: 8

14. $5\overline{)35} = 7$ because $7 \times 5 = 35$.
dividend: 35
divisor: 5
quotient: 7

15. $\frac{45}{9} = 5$ because $5 \times 9 = 45$.
dividend: 45
divisor: 9
quotient: 5

16. $\frac{20}{5} = 4$ because $4 \times 5 = 20$.
dividend: 20
divisor: 5
quotient: 4

17. You cannot divide a number by zero (the quotient is undefined). If you divide zero by a number (other than zero), the quotient is always zero.

18. A number divided or multiplied by 1 remains unchanged.

19. $15 \div 1 = 15$ because $15 \times 1 = 15$.

20. $21\overline{)21} = 1$ because $1 \times 21 = 21$.

21. $0 \div 10 = 0$ because $0 \times 10 = 0$.

22. $\frac{0}{3} = 0$ because $0 \times 3 = 0$.

23. $0\overline{)9}$ is undefined because division by zero is undefined.

24. $4 \div 0$ is undefined because division by zero is undefined.

25. $\frac{20}{20} = 1$ because $1 \times 20 = 20$.

26. $1\overline{)9} = 9$ because $9 \times 1 = 9$.

27. $\frac{16}{0}$ is undefined because division by zero is undefined.

28. $\frac{5}{1} = 5$ because $5 \times 1 = 5$.

29. $8\overline{)0} = 0$ because $0 \times 8 = 0$.

30. $13 \div 13 = 1$ because $13 \times 1 = 13$.

31. $6 \div 3 = 2$ because $2 \times 3 = 6$.
$3 \div 6 \neq 2$ because $2 \times 6 \neq 3$.

32. $(36 \div 12) \div 3 = 3 \div 3 = 1$ but $36 \div (12 \div 3) = 36 \div 4 = 9$.

33. To check a division problem without a remainder you should multiply the quotient and the divisor to get the dividend.

34. To check $0 \div 5 = 0$ we multiply $0 \times 5 = 0$ which is true. If we try to check $5 \div 0 = ?$ we need to find a number to multiply by 0 to get 5. Since no such number exists, the answer to $5 \div 0$ is undefined.

35.
$$\begin{array}{r} 13 \\ 6\overline{)\,78} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$
$$\begin{array}{r} {\scriptstyle 1} \\ 13 \\ \times\ 6 \\ \hline 78 \end{array} \checkmark$$

36.
$$\begin{array}{r} 52 \\ 7\overline{)\,364} \\ \underline{-35} \\ 14 \\ \underline{-14} \\ 0 \end{array}$$
$$\begin{array}{r} {\scriptstyle 1} \\ 52 \\ \times\ 7 \\ \hline 364 \end{array} \checkmark$$

37.
$$\begin{array}{r} 41 \\ 5\overline{)\,205} \\ \underline{-20} \\ 05 \\ \underline{-5} \\ 0 \end{array}$$
$$\begin{array}{r} 41 \\ \times\ 5 \\ \hline 205 \end{array} \checkmark$$

38.
$$\begin{array}{r} 19 \\ 8\overline{)152} \\ \underline{-8} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$
$$\begin{array}{r} {\scriptstyle 7} \\ 19 \\ \times\ 8 \\ \hline 152 \end{array} \checkmark$$

39.
$$\begin{array}{r} 486 \\ 2\overline{)\,972} \\ \underline{-8} \\ 17 \\ \underline{-16} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$
$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 486 \\ \times\ 2 \\ \hline 972 \end{array} \checkmark$$

40.
$$\begin{array}{r} 97 \\ 6\overline{)\,582} \\ \underline{-54} \\ 42 \\ \underline{-42} \\ 0 \end{array}$$
$$\begin{array}{r} {\scriptstyle 4} \\ 97 \\ \times\ 6 \\ \hline 582 \end{array} \checkmark$$

41.
$$\begin{array}{r} 409 \\ 3\overline{)\,1227} \\ \underline{-12} \\ 02 \\ \underline{-0} \\ 27 \\ \underline{-27} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2} \\ 409 \\ \times\ \ 3 \\ \hline 1227 \end{array}\ \checkmark$$

42.
$$\begin{array}{r} 59 \\ 4\overline{)\,236} \\ \underline{-20} \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 3} \\ 59 \\ \times\ 4 \\ \hline 236 \end{array}\ \checkmark$$

43.
$$\begin{array}{r} 203 \\ 5\overline{)\,1015} \\ \underline{-10} \\ 01 \\ \underline{-0} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1} \\ 203 \\ \times\ \ 5 \\ \hline 1015 \end{array}\ \checkmark$$

44.
$$\begin{array}{r} 407 \\ 5\overline{)\,2035} \\ \underline{-20} \\ 03 \\ \underline{-0} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 3} \\ 407 \\ \times\ \ 5 \\ \hline 2035 \end{array}\ \checkmark$$

45.
$$\begin{array}{r} 822 \\ 6\overline{)\,4932} \\ \underline{-48} \\ 13 \\ \underline{-12} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\,1} \\ 822 \\ \times\ \ 6 \\ \hline 4932 \end{array}\ \checkmark$$

46.
$$\begin{array}{r} 517 \\ 7\overline{)\,3619} \\ \underline{-35} \\ 11 \\ \underline{-7} \\ 49 \\ \underline{-49} \\ 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\,4} \\ 517 \\ \times\ \ 7 \\ \hline 3619 \end{array}\ \checkmark$$

47.
$$\begin{array}{r} {\scriptstyle 2} \\ 56 \\ \times\ 4 \\ \hline 224 \end{array}$$ correct

48.
$$\begin{array}{r} {\scriptstyle 1} \\ 82 \\ \times\ 7 \\ \hline 574 \end{array}$$ correct

49.
$$\begin{array}{r} {\scriptstyle 1\,\acute{2}} \\ 253 \\ \times\ 3 \\ \hline 759 \end{array}$$ incorrect

$$\begin{array}{r} 253 \text{ R } 2 \\ 3\overline{)\,761} \\ \underline{-6} \\ 16 \\ \underline{-15} \\ 11 \\ \underline{-9} \\ 2 \end{array}$$

50.
$$\begin{array}{r} {\scriptstyle 1\,\acute{2}} \\ 120 \\ \times\ 5 \\ \hline 600 \end{array}$$ incorrect

$$\begin{array}{r} 120 \text{ R } 4 \\ 5\overline{)\,604} \\ \underline{-5} \\ 10 \\ \underline{-10} \\ 04 \\ \underline{-0} \\ 4 \end{array}$$

51.
$$\begin{array}{r} {\scriptstyle 1\,2} \\ 113 \\ \times\ \ 9 \\ \hline {\scriptstyle 1} \\ 1017 \\ +\ \ 4 \\ \hline 1021 \end{array}$$ Add the remainder. Correct

52.
$$\begin{array}{r} {\scriptstyle 1\,4} \\ 218 \\ \times\ \ 6 \\ \hline 1308 \\ +\ \ 3 \\ \hline 1311 \end{array}$$ Add the remainder. Correct

53.
$$\begin{array}{r} {\scriptstyle 4} \\ 25 \\ \times\ \ 8 \\ \hline 200 \\ +\ \ 6 \\ \hline 206 \end{array}$$ incorrect

$$8\overline{)\,203}\ \text{R } 3$$
$$\begin{array}{r} 25 \\ -16 \\ \hline 43 \\ -40 \\ \hline 3 \end{array}$$

54.
$$\begin{array}{r} {\scriptstyle 14} \\ 117 \\ \times\ \ 7 \\ \hline 819 \\ +\ \ 5 \\ \hline 824 \end{array}$$ incorrect

$$7\overline{)\,821}\ \text{R } 2$$
$$\begin{array}{r} 117 \\ -7 \\ \hline 12 \\ -7 \\ \hline 51 \\ -49 \\ \hline 2 \end{array}$$

55. $8\overline{)\,61}\ \text{R } 5$
$$\begin{array}{r} 7 \\ -56 \\ \hline 5 \end{array}$$
$7 \times 8 + 5 = 56 + 5$
$= 61$ ✓

56. $3\overline{)\,89}\ \text{R } 2$
$$\begin{array}{r} 29 \\ -6 \\ \hline 29 \\ -27 \\ \hline 2 \end{array}$$
$29 \times 3 + 2 = 87 + 2$
$= 89$ ✓

57. $9\overline{)\,92}\ \text{R } 2$
$$\begin{array}{r} 10 \\ -9 \\ \hline 02 \end{array}$$
$10 \times 9 + 2 = 90 + 2$
$= 92$ ✓

58. $5\overline{)\,74}\ \text{R } 4$
$$\begin{array}{r} 14 \\ -5 \\ \hline 24 \\ -20 \\ \hline 4 \end{array}$$
$14 \times 5 + 4 = 70 + 4$
$= 74$ ✓

59. $2\overline{)\,55}\ \text{R } 1$
$$\begin{array}{r} 27 \\ -4 \\ \hline 15 \\ -14 \\ \hline 1 \end{array}$$
$27 \times 2 + 1 = 54 + 1$
$= 55$ ✓

60. $3\overline{)\,49}\ \text{R } 1$
$$\begin{array}{r} 16 \\ -3 \\ \hline 19 \\ -18 \\ \hline 1 \end{array}$$
$16 \times 3 + 1 = 48 + 1$
$= 49$ ✓

61. $3\overline{)\,593}\ \text{R } 2$
$$\begin{array}{r} 197 \\ -3 \\ \hline 29 \\ -27 \\ \hline 23 \\ -21 \\ \hline 2 \end{array}$$
$197 \times 3 + 2 = 591 + 2$
$= 593$ ✓

62. $4\overline{)\,801}\ \text{R } 1$
$$\begin{array}{r} 200 \\ -8 \\ \hline 00 \\ -00 \\ \hline 01 \\ -00 \\ \hline 1 \end{array}$$
$200 \times 4 + 1 = 800 + 1$
$= 801$ ✓

63. $9\overline{)\,382}\ \text{R } 4$
$$\begin{array}{r} 42 \\ -36 \\ \hline 22 \\ -18 \\ \hline 4 \end{array}$$
$42 \times 9 + 4 = 378 + 4$
$= 382$ ✓

64. $8\overline{)\,428}\ \text{R } 4$
$$\begin{array}{r} 53 \\ -40 \\ \hline 28 \\ -24 \\ \hline 4 \end{array}$$
$53 \times 8 + 4 = 424 + 4$
$= 428$ ✓

65. $2\overline{)\,3115}\ \text{R } 1$
$$\begin{array}{r} 1557 \\ -2 \\ \hline 11 \\ -10 \\ \hline 11 \\ -10 \\ \hline 15 \\ -14 \\ \hline 1 \end{array}$$

$$\begin{array}{r} {\scriptstyle 111} \\ 1557 \\ \times\ \ 2 \\ \hline 3114 \\ +\ \ 1 \\ \hline 3115 \end{array}$$ ✓

66.
$$\begin{array}{r} 785 \text{ R } 5 \\ 6\overline{)\,4715} \\ \underline{-42} \\ 51 \\ \underline{-48} \\ 35 \\ \underline{-30} \\ 5 \end{array}$$

$$\begin{array}{r} {\scriptstyle 5\,3} \\ 785 \\ \times\quad 6 \\ \hline 4710 \\ +\quad 5 \\ \hline 4715 \end{array} \checkmark$$

67.
$$\begin{array}{r} 751 \text{ R } 6 \\ 8\overline{)\,6014} \\ \underline{-56} \\ 41 \\ \underline{-40} \\ 14 \\ \underline{-8} \\ 6 \end{array}$$

$$\begin{array}{r} {\scriptstyle 4} \\ 751 \\ \times\quad 8 \\ \hline 6008 \\ +\quad 6 \\ \hline 6014 \end{array} \checkmark$$

68.
$$\begin{array}{r} 1287 \text{ R } 4 \\ 7\overline{)\,9013} \\ \underline{-7} \\ 20 \\ \underline{-14} \\ 61 \\ \underline{-56} \\ 53 \\ \underline{-49} \\ 4 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2\,6\,4} \\ 1\,287 \\ \times\quad 7 \\ \hline 9009 \\ +\quad 4 \\ \hline 9013 \end{array} \checkmark$$

69.
$$\begin{array}{r} 835 \text{ R } 2 \\ 6\overline{)\,5012} \\ \underline{-48} \\ 21 \\ \underline{-18} \\ 32 \\ \underline{-30} \\ 2 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2\,3} \\ 835 \\ \times\quad 6 \\ \hline 5010 \\ +\quad 2 \\ \hline 5012 \end{array} \checkmark$$

70.
$$\begin{array}{r} 550 \text{ R } 1 \\ 2\overline{)\,1101} \\ \underline{-10} \\ 10 \\ \underline{-10} \\ 01 \\ \underline{00} \\ 1 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1} \\ 550 \\ \times\quad 2 \\ \hline 1100 \\ +\quad 1 \\ \hline 1101 \end{array} \checkmark$$

71.
$$\begin{array}{r} 479 \text{ R } 9 \\ 19\overline{)\,9110} \\ \underline{-76} \\ 151 \\ \underline{-133} \\ 180 \\ \underline{-171} \\ 9 \end{array}$$

72.
$$\begin{array}{r} 269 \text{ R } 8 \\ 13\overline{)\,3505} \\ \underline{-26} \\ 90 \\ \underline{-78} \\ 125 \\ \underline{-117} \\ 8 \end{array}$$

73.
$$\begin{array}{r} 43 \text{ R } 19 \\ 24\overline{)\,1051} \\ \underline{-96} \\ 91 \\ \underline{-72} \\ 19 \end{array}$$

74.
$$\begin{array}{r} 197 \text{ R } 27 \\ 41\overline{)\,8104} \\ \underline{-41} \\ 400 \\ \underline{-369} \\ 314 \\ \underline{-287} \\ 27 \end{array}$$

75.
$$\begin{array}{r} 308 \\ 26\overline{)\,8008} \\ \underline{-78} \\ 20 \\ \underline{-0} \\ 208 \\ \underline{-208} \\ 0 \end{array}$$

76.
$$\begin{array}{r} 612 \\ 15\overline{)\,9180} \\ \underline{-90} \\ 18 \\ \underline{-15} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

77.
$$\begin{array}{r} 1259 \text{ R } 26 \\ 54\overline{)\,68012} \\ \underline{-54} \\ 140 \\ \underline{-108} \\ 321 \\ \underline{-270} \\ 512 \\ \underline{-486} \\ 26 \end{array}$$

78.
$$\begin{array}{r} 2628 \text{ R } 33 \\ 35\overline{)\,92,013} \\ \underline{-70} \\ 220 \\ \underline{-210} \\ 101 \\ \underline{-70} \\ 313 \\ \underline{-280} \\ 33 \end{array}$$

79.
$$\begin{array}{r} 22 \\ 75\overline{)\,1650} \\ \underline{-150} \\ 150 \\ \underline{-150} \\ 0 \end{array}$$

80.
$$\begin{array}{r} 41 \\ 89\overline{)\,3649} \\ \underline{-356} \\ 89 \\ \underline{-89} \\ 0 \end{array}$$

81.
$$\begin{array}{r} 35 \text{ R } 1 \\ 520\overline{)\,18,201} \\ \underline{-1560} \\ 2601 \\ \underline{-2600} \\ 1 \end{array}$$

82.
$$\begin{array}{r} 21 \text{ R } 20 \\ 298\overline{)\,6278} \\ \underline{-596} \\ 318 \\ \underline{-298} \\ 20 \end{array}$$

83.
$$\begin{array}{r} 229 \text{ R } 96 \\ 304\overline{)\,69712} \\ \underline{-608} \\ 891 \\ \underline{-608} \\ 2832 \\ \underline{-2736} \\ 96 \end{array}$$

84.
$$\begin{array}{r} 231 \text{ R } 56 \\ 221\overline{)\,51107} \\ \underline{-442} \\ 690 \\ \underline{-663} \\ 277 \\ \underline{-221} \\ 56 \end{array}$$

85.
$$\begin{array}{r} 302 \\ 114\overline{)\,34428} \\ \underline{-342} \\ 22 \\ \underline{-00} \\ 228 \\ \underline{-228} \\ 0 \end{array}$$

86.
$$\begin{array}{r} 209 \\ 421\overline{)\,87989} \\ \underline{-842} \\ 378 \\ \underline{-000} \\ 3789 \\ \underline{-3789} \\ 0 \end{array}$$

87. $497 \div 71 = 7$

$$\begin{array}{r} 7 \\ 71\overline{)\ 497} \\ \underline{-497} \\ 0 \end{array}$$

88. $1890 \div 45 = 42$

$$\begin{array}{r} 42 \\ 45\overline{)\ 1890} \\ \underline{-180} \\ 90 \\ \underline{-90} \\ 0 \end{array}$$

89. $877 \div 14 = 62 \text{ R } 9$

$$\begin{array}{r} 62 \text{ R } 9 \\ 14\overline{)\ 877} \\ \underline{-84} \\ 37 \\ \underline{-28} \\ 9 \end{array}$$

90. $722 \div 53 = 13 \text{ R } 33$

$$\begin{array}{r} 13 \\ 53\overline{)\ 722} \\ \underline{-53} \\ 192 \\ \underline{-159} \\ 33 \end{array}$$

91. $42 \div 6 = 7$

92. $108 \div 9 = 12$

$$\begin{array}{r} 12 \\ 9\overline{)108} \\ \underline{-9} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

93.

$$\begin{array}{r} 14 \text{ classrooms} \\ 28\overline{)\ 392} \\ \underline{-28} \\ 112 \\ \underline{-112} \\ 0 \end{array}$$

94.

$$\begin{array}{r} 15 \text{ tables} \\ 8\overline{)120} \\ \underline{-8} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

95.

$$\begin{array}{r} 5 \text{ R } 8 \\ 32\overline{)\ 168} \\ \underline{-160} \\ 8 \end{array}$$

5 cases; 8 cans left over

96.

$$\begin{array}{r} 8 \text{ R } 9 \\ 52\overline{)\ 425} \\ \underline{-416} \\ 9 \end{array}$$

Yes; $9 left over

97.

$$\begin{array}{r} 120 \\ 25\overline{)\ 3000} \\ \underline{-25} \\ 50 \\ \underline{-50} \\ 0 \\ \underline{-0} \\ 0 \end{array}$$

There will be 120 classes of Beginning Algebra.

98.

$$\begin{array}{r} 10560 \\ 8\overline{)\ 84480} \\ \underline{-8} \\ 4 \\ \underline{-0} \\ 44 \\ \underline{-40} \\ 48 \\ \underline{-48} \\ 0 \\ \underline{-0} \\ 0 \end{array}$$

Each person will receive $10,560.

99.

$$\begin{array}{r} 9 \\ 45\overline{)\ 405} \\ \underline{-405} \\ 0 \end{array}$$

There will be 9 gallons used.

100.
$$\begin{array}{r} 26 \\ 52\overline{)\,1352} \\ -104 \\ \hline 312 \\ -312 \\ \hline 0 \end{array}$$

The couple traveled for 26 hours.

101. $1200 \div 20 = 60$

$$\begin{array}{r} 60 \\ 20\overline{)\,1200} \\ -120 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

Approximately 60 words per minute

102. $2800 \div 400$

$$\begin{array}{r} 7 \\ 400\overline{)\,2800} \\ -2800 \\ \hline 0 \end{array}$$

Approximately 7 tanks of gas

103.
$$\begin{array}{r} 25 \\ 18\overline{)\,450} \\ -36 \\ \hline 90 \\ -90 \\ \hline 0 \end{array}$$

Yes, they can all attend if they sit in the second balcony.

104.
$$\begin{array}{r} 3\,000 \\ 12\overline{)\,36{,}000} \\ -36 \\ \hline 0 \end{array}$$

Teacher: \$3000

$$\begin{array}{r} 5\,000 \\ 12\overline{)\,60{,}000} \\ -60 \\ \hline 0 \end{array}$$

Professor: \$5,000

$$\begin{array}{r} 10{,}000 \\ 12\overline{)\,120{,}000} \\ -12 \\ \hline 0 \end{array}$$

CEO: \$10,000

$$\begin{array}{r} 4\,000 \\ 12\overline{)\,48{,}000} \\ -48 \\ \hline 0 \end{array}$$

Programmer: \$4,000

105.
$$\begin{array}{r} 21{,}000{,}000 \\ \times \quad 365 \\ \hline 7{,}665{,}000{,}000 \end{array}$$ bbl