

Chapter 1

1.1 Exercises

2. $7834 = 7000 + 800 + 30 + 4$
4. $304,276 = 300,000 + 4000 + 200 + 70 + 6$
6. $59,236,781 = 50,000,000 + 9,000,000 + 200,000 + 30,000 + 6000 + 700 + 80 + 1$
8. $820,310,574 = 800,000,000 + 20,000,000 + 300,000 + 10,000 + 500 + 70 + 4$
10. $500 + 90 + 6 = 596$
12. $7000 + 600 + 50 + 2 = 7652$
14. $60,000 + 7000 + 200 + 4 = 67,204$
16. $300,000 + 40,000 + 800 = 340,800$
18. a. The digit 0 tells the number of ten thousands.
b. The value of the digit 8 is 800,000.
20. a. The digit 9 tells the number of thousands.
b. The value of the digit 9 is 9000.
22. $376 =$ three hundred seventy-six
24. $7606 =$ seven thousand, six hundred six
26. $55,742 =$ fifty-five thousand, seven hundred forty-two
28. $370,258 =$ three hundred seventy thousand, two hundred fifty-eight
30. $68,089,213 =$ sixty-eight million, eighty-nine thousand, two hundred thirteen
32. $7,436,210,400 =$ seven billion, four hundred thirty-six million, two hundred ten thousand, four hundred
34. 3189

36. 203,374
38. 450,300,249
40. The word name should be one thousand, seven hundred forty-nine.
42. The estimated population of Florida in 1970 was 7 million or 7,000,000.
44. The estimated population of Illinois in 1940 was 8 million or 8,000,000.
46. In 2014, 25,978 thousand or 25,978,000 passengers flew from Denver.
48. In 2011, 30,505 thousand or 30,505,000 passengers flew from Los Angeles.
50. a. The digit 3 tells the number of ten millions.
b. The digit 4 tells the number of hundred thousands.
52. a. The digit 7 tells the number of hundred thousands.
b. The digit 9 tells the number of ten millions.
54. 836,047,927,316
56. 6 E 22 represents 60,000,000,000,000,000,000,000.
58. There are 195 such numbers.

Classroom Quiz 1.1

1. $41,127 = 40,000 + 1000 + 100 + 20 + 7$
2. five million, three hundred twenty-seven thousand, eight hundred ninety-six
3. 422,985

1.2 Exercises

2. When zero is added to any number, the sum is identical to that number.

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

$$\begin{array}{r}
 6. \quad 9 \\
 5 \\
 7 \\
 + 2 \\
 \hline
 23
 \end{array}$$

$$\begin{array}{r}
 8. \quad 2 \\
 3 \\
 5 \\
 9 \\
 + 8 \\
 \hline
 27
 \end{array}$$

$$\begin{array}{r}
 10. \quad 86 \\
 17 \\
 + 4 \\
 \hline
 107
 \end{array}$$

$$\begin{array}{r}
 12. \quad 54 \\
 21 \\
 + 23 \\
 \hline
 98
 \end{array}$$

$$\begin{array}{r} 14. \quad 5773 \\ \quad 425 \\ + \quad 67 \\ \hline 6265 \end{array}$$

$$\begin{array}{r} 16. \quad 5017 \\ \quad 2984 \\ + 1328 \\ \hline 9329 \end{array}$$

$$\begin{array}{r} 18. \quad 6753 \\ + 3265 \\ \hline 10,018 \end{array}$$

$$\begin{array}{r} 20. \quad 83,596 \\ + 56,384 \\ \hline 139,980 \end{array}$$

$$\begin{array}{r} 22. \quad 24 \\ \quad 39 \\ \quad 16 \\ \quad 14 \\ + \quad 9 \\ \hline 102 \end{array} \qquad \begin{array}{r} 9 \\ 14 \\ 16 \\ 39 \\ + 24 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 24. \quad 426 \\ \quad 39 \\ \quad 6 \\ \quad 52 \\ + 802 \\ \hline 1325 \end{array} \qquad \begin{array}{r} 802 \\ 52 \\ 6 \\ 39 \\ + 426 \\ \hline 1325 \end{array}$$

$$\begin{array}{r} 26. \quad 582 \\ \quad 1674 \\ \quad 336 \\ + 8458 \\ \hline 11,050 \end{array}$$

$$\begin{array}{r} 28. \quad 4,002,983 \\ \quad 2,134,702 \\ + 3,592,001 \\ \hline 9,729,686 \end{array}$$

$$\begin{array}{r} 30. \quad 982,306,000 \\ + 583,215,320 \\ \hline 1,565,521,320 \end{array}$$

$$\begin{array}{r} 32. \quad 32,500 \\ \quad 763,420 \\ + 2,837,667 \\ \hline 3,633,587 \end{array}$$

$$34. \quad 120 + 35 + 360 + 75 = 590$$

$$36. \quad 40 + 320 + 66 + 39 + 80 = 545$$

$$\begin{array}{r} 38. \quad 595 \\ \quad 348 \\ + \quad 76 \\ \hline 1019 \end{array}$$

Lexi spent \$1019 on school supplies.

$$\begin{array}{r} 40. \quad 2025 \\ \quad 2650 \\ + 1960 \\ \hline 6635 \end{array}$$

Paul earned \$6635 last summer.

$$\begin{array}{r} 42. \quad 827 \\ \quad 405 \\ \quad 631 \\ + 472 \\ \hline 2335 \end{array}$$

2335 feet of fencing are needed.

$$\begin{array}{r} 44. \quad 145,850 \\ \quad 115,860 \\ + 104,454 \\ \hline 366,164 \end{array}$$

The total area is 366,164 square miles.

$$\begin{array}{r} 46. \quad 81,000 \\ \quad 67,900 \\ + 74,700 \\ \hline 223,600 \end{array}$$

The total area of these three lakes is 223,600 square miles.

$$\begin{array}{r} 48. \text{ a. } \quad 14,311 \\ \quad 11,077 \\ + 12,580 \\ \hline 37,968 \end{array}$$

motorcycles passed inspection

$$\begin{array}{r} \text{b. } \quad 37,968 \\ \quad 56 \\ \quad 158 \\ + \quad 97 \\ \hline 38,279 \end{array}$$

motorcycles were assembled.

$$\begin{array}{r} 50. \quad 21 \\ 17 \\ + 87 \\ \hline 125 \end{array}$$

She drove 125 miles.

52. Two sides are 930 feet and two sides are 798 feet.

$$\begin{array}{r} 930 \\ 930 \\ 798 \\ + 798 \\ \hline 3456 \end{array}$$

The length of fencing to enclose the field is 3456 feet.

54. $2,368,521,788 + 5,721,368,701 + 4,027,399,206 = 12,117,289,695$

56. Answers may vary. A sample is: You could not add the addends in reverse order to check the addition.

Cumulative Review

58. $76,208,941 =$ seventy-six million, two hundred eight thousand, nine hundred forty-one
59. $121,000,374 =$ one hundred twenty-one million, three hundred seventy-four
60. eight million, seven hundred twenty-four thousand, three hundred ninety-six $= 8,724,396$
61. nine million, fifty-one thousand, seven hundred nineteen $= 9,051,719$
62. twenty-eight million, three hundred eighty-seven thousand, eighteen $= 28,387,018$

Classroom Quiz 1.2

$$\begin{array}{r} 1. \quad 37 \\ 22 \\ 86 \\ 13 \\ + 8 \\ \hline 166 \end{array}$$

$$\begin{array}{r} 2. \quad 982 \\ 531 \\ + 207 \\ \hline 1720 \end{array}$$

$$\begin{array}{r} 3. \quad 721,605 \\ 3,286 \\ 19,125 \\ + 200,290 \\ \hline 944,306 \end{array}$$

1.3 Exercises

2. Since there are not enough ones to subtract 8 ones from 7 ones, we borrow. This means we change the 1 hundred to an equivalent 10 tens. From the 10 tens we borrow one, making it 9 tens and 10 ones. Now we have 7 ones and 10 ones or 17 ones. 17 ones subtract 8 ones is 9 ones and 9 tens subtract 8 tens is 1 ten. Thus, $107 - 88 = 19$.
4. In subtraction, we can subtract only numbers representing the same units. Thus, we need to change 7 feet to a number that measures inches. Since 1 foot equals 12 inches, 7 feet equals 84 inches. Now we subtract:
 $84 \text{ inches} - 11 \text{ inches} = 73 \text{ inches}$.

$$\begin{array}{r} 6. \quad 16 \\ - 7 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 8. \quad 15 \\ - 8 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 10. \quad 14 \\ - 6 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 12. \quad 12 \\ - 7 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 14. \quad 15 \\ - 8 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 16. \quad 16 \\ - 9 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 18. \quad 10 \\ - 7 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 20. \quad 12 \\ - 5 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 22. \quad 96 \\ - 51 \\ \hline 45 \\ \text{Check:} \quad 51 \\ + 45 \\ \hline 96 \end{array}$$

$$\begin{array}{r} 24. \quad 77 \\ - 36 \\ \hline 41 \\ \text{Check:} \quad 36 \\ + 41 \\ \hline 77 \end{array}$$

$$\begin{array}{r} 26. \quad 189 \\ - 65 \\ \hline 124 \\ \text{Check:} \quad 65 \\ + 124 \\ \hline 189 \end{array}$$

$$\begin{array}{r} 28. \quad 659 \\ - 247 \\ \hline 412 \\ \text{Check:} \quad 247 \\ + 412 \\ \hline 659 \end{array}$$

$$\begin{array}{r} 30. \quad 5780 \\ - 530 \\ \hline 5250 \\ \text{Check:} \quad 530 \\ + 5250 \\ \hline 5780 \end{array}$$

$$\begin{array}{r} 32. \quad 243,951 \\ - 12,400 \\ \hline 231,551 \\ \text{Check:} \quad 12,400 \\ + 231,551 \\ \hline 243,951 \end{array}$$

$$\begin{array}{r} 34. \quad 807,965 \\ - 304,214 \\ \hline 503,751 \\ \text{Check:} \quad 304,214 \\ + 503,751 \\ \hline 807,965 \end{array}$$

$$\begin{array}{r} 36. \quad 45 \\ + 141 \\ \hline 186 \\ \text{Correct} \end{array}$$

$$\begin{array}{r} 38. \quad 7254 \\ + 2702 \\ \hline 9956 \\ \text{Correct} \end{array}$$

$$\begin{array}{r} 40. \quad 3 \ 200 \\ + 7 \ 670 \\ \hline 10,870 \\ \text{Incorrect} \\ 7890 \\ - 3200 \\ \hline 4690 \end{array}$$

$$\begin{array}{r} 42. \quad 41,181 \\ + 58,402 \\ \hline 99,583 \\ \text{Correct} \end{array}$$

$$\begin{array}{r} 44. \quad 86 \\ - 33 \\ \hline 53 \end{array}$$

$$\begin{array}{r} 46. \quad 136 \\ - 95 \\ \hline 41 \end{array}$$

$$\begin{array}{r} 48. \quad 706 \\ - 435 \\ \hline 271 \end{array}$$

$$\begin{array}{r} 50. \quad 861 \\ - 345 \\ \hline 516 \end{array}$$

$$\begin{array}{r} 52. \quad 50,000 \\ - 7 \ 338 \\ \hline 42,662 \end{array}$$

$$\begin{array}{r} 54. \quad 361,000 \\ - 121,520 \\ \hline 239,480 \end{array}$$

$$\begin{array}{r} 56. \quad 64,381 \\ - 29,997 \\ \hline 34,384 \end{array}$$

$$\begin{array}{r} 58. \quad 3,554,830 \\ - 1,710,913 \\ \hline 1,843,917 \end{array}$$

$$\begin{array}{l} 60. \quad x + 35 = 50 \\ 15 + 35 = 50 \\ \quad \quad x = 15 \end{array}$$

$$\begin{array}{l} 62. \quad 25 = x + 18 \\ 25 = 7 + 18 \\ \quad \quad x = 7 \end{array}$$

$$\begin{array}{l} 64. \quad 140 + x = 200 \\ 140 + 60 = 200 \\ \quad \quad x = 60 \end{array}$$

$$\begin{array}{r} 66. \quad 6,976,172 \\ - 4,485,741 \\ \hline 2,490,431 \end{array}$$

Romney received 2,490,431 votes.

$$\begin{array}{r} 68. \quad 22,070,400 \\ - 19,018,560 \\ \hline 3,051,840 \end{array}$$

The Nile river is 3,051,840 feet longer.

$$\begin{array}{l} 70. \quad \text{Total received} = \$3450 \\ \text{Total used} = \$375 + \$2300 = \$2675 \\ \text{Down payment} = \$3450 - \$2675 = \$775 \end{array}$$

$$\begin{array}{r} 72. \quad 10,428,683 \\ - 8,881,826 \\ \hline 1,546,857 \end{array}$$

1,546,857 people is the population increase.

$$\begin{array}{l} 74. \quad \text{Illinois} = 12,051,683 \\ \text{Indiana} + \text{Minnesota} = 6,045,521 + 4,830,784 \\ \quad \quad \quad = 10,876,305 \\ \text{Difference} = 12,057,683 - 10,876,305 \\ \quad \quad \quad = 1,175,378 \text{ people} \end{array}$$

$$\begin{array}{r} 76. \quad 9,295,297 \\ - 8,881,826 \\ \hline 413,471 \end{array}$$

413,471 people is the population increase.

$$\begin{array}{l} 78. \quad \text{Highest} - \text{Lowest} = 13,236,720 - 5,900,769 \\ \quad \quad \quad = 7,335,951 \text{ people} \end{array}$$

$$\begin{array}{r} 80. \quad 59 \\ - 48 \\ \hline 11 \end{array}$$

The increase in the number of homes sold in Irving from 2014 to 2015 was 11 homes.

$$\begin{array}{r} 82. \quad 190 \\ - 157 \\ \hline 33 \end{array}$$

The decrease in the number of homes sold in Harvey from 2013 to 2014 was 33 homes.

$$\begin{array}{r} 84. \quad \begin{array}{r} 279 \\ - 261 \\ \hline 18 \end{array} \qquad \begin{array}{r} 298 \\ - 279 \\ \hline 19 \end{array} \end{array}$$

The greatest change in the number of homes sold in Manchester occurred between 2014 and 2015.

$$\begin{array}{l} 86. \quad \text{Winchester: } 132 \\ \text{Willow Creek: } 150 \\ \text{Essex: } 72 \\ \text{Manchester: } 261 \\ \text{Irving: } 47 \\ \text{Harvey: } 190 \\ \text{He should select Winchester and Willow Creek.} \end{array}$$

$$\begin{array}{l} 88. \quad \text{It is true for all } a \text{ and } b \text{ if } c = 0. \\ \text{For example: } 5 - (3 - 0) = (5 - 3) - 0 \\ \quad \quad \quad 5 - 3 = 2 - 0 \\ \quad \quad \quad 2 = 2 \end{array}$$

$$\begin{array}{r} 90. \quad 300 \\ - 228 \\ \hline 72 \end{array}$$

Convert 72 feet to the number of 12-foot sections.

$$\begin{array}{l} \text{Now, } \frac{17}{12} = 6 \text{ and each section costs} \\ \$80 + \$40 = \$120. \\ \$120 \\ \times 6 \\ \hline \$720 \end{array}$$

Cumulative Review

91. eight million, four hundred sixty-six thousand, eighty-four = 8,466,084

92. $296,308 =$ two hundred ninety-six thousand, three hundred eight

93. $25 + 75 + 80 + 20 + 18 = 218$

94.
$$\begin{array}{r} 278,563 \\ + 896,187 \\ \hline 1,174,750 \end{array}$$

Classroom Quiz 1.3

1.
$$\begin{array}{r} 7631 \\ - 892 \\ \hline 6739 \end{array}$$

2.
$$\begin{array}{r} 706,350 \\ - 287,809 \\ \hline 418,541 \end{array}$$

3.
$$\begin{array}{r} 26,300,500 \\ - 18,279,156 \\ \hline 8,021,344 \end{array}$$

1.4 Exercises

2. You can write 13 as $10 + 3$ and distribute 4 over the addition. $4 \times (10 + 3) = (4 \times 10) + (4 \times 3)$

4. \times

	2	7	0	5	3	4	8	12	6	9
1	2	7	0	5	3	4	8	12	6	9
6	12	42	0	30	18	24	48	72	36	54
5	10	35	0	25	15	20	40	60	30	45
3	6	21	0	15	9	12	24	36	18	27
0	0	0	0	0	0	0	0	0	0	0
9	18	63	0	45	27	36	72	108	54	81
4	8	28	0	20	12	16	32	48	24	36
7	14	49	0	35	21	28	56	84	42	63
2	4	14	0	10	6	8	16	24	12	18
8	16	56	0	40	24	32	64	96	48	72

$$\begin{array}{r} 6. \quad 42 \\ \times 4 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 8. \quad 48 \\ \times 6 \\ \hline 288 \end{array}$$

$$\begin{array}{r} 10. \quad 98 \\ \times 8 \\ \hline 784 \end{array}$$

$$\begin{array}{r} 12. \quad 313 \\ \times 3 \\ \hline 939 \end{array}$$

$$\begin{array}{r} 14. \quad 538 \\ \times 8 \\ \hline 4304 \end{array}$$

$$\begin{array}{r} 16. \quad 5203 \\ \times 2 \\ \hline 10,406 \end{array}$$

$$\begin{array}{r} 18. \quad 31,206 \\ \times 3 \\ \hline 93,618 \end{array}$$

$$\begin{array}{r} 20. \quad 3 \, 215 \\ \times 6 \\ \hline 19,290 \end{array}$$

$$\begin{array}{r} 22. \quad 48,761 \\ \times 7 \\ \hline 341,327 \end{array}$$

$$\begin{array}{r} 24. \quad 257,021 \\ \times 9 \\ \hline 2,313,189 \end{array}$$

$$\begin{array}{r} 26. \quad 278 \\ \times 10 \\ \hline 2780 \end{array}$$

$$\begin{array}{r} 28. \quad 89,361 \\ \times 100 \\ \hline 8,936,100 \end{array}$$

$$\begin{array}{r} 30. \quad 579 \\ \times 1000 \\ \hline 579,000 \end{array}$$

$$\begin{array}{r} 32. \quad 614,260 \\ \times 10,000 \\ \hline 6,142,600,000 \end{array}$$

$$\begin{array}{r} 34. \quad 332 \\ \times 30 \\ \hline 9960 \end{array}$$

$$\begin{array}{r} 36. \quad 4230 \\ \times 20 \\ \hline 84,600 \end{array}$$

$$\begin{array}{r} 38. \quad 62,000 \\ \times 3000 \\ \hline 186,000,000 \end{array}$$

$$\begin{array}{r} 40. \quad 432 \\ \times 13 \\ \hline 1296 \\ 432 \\ \hline 5616 \end{array}$$

$$\begin{array}{r} 42. \quad 163 \\ \times 35 \\ \hline 815 \\ 489 \\ \hline 5705 \end{array}$$

$$\begin{array}{r} 44. \quad 68 \\ \times 49 \\ \hline 612 \\ 272 \\ \hline 3332 \end{array}$$

$$\begin{array}{r} 46. \quad 780 \\ \times 24 \\ \hline 3 \, 120 \\ 15 \, 60 \\ \hline 18,720 \end{array}$$

$$\begin{array}{r} 48. \quad 652 \\ \times 92 \\ \hline 1 \, 304 \\ 5 \, 868 \\ \hline 59,984 \end{array}$$

$$\begin{array}{r}
 50. \quad 498 \\
 \times 39 \\
 \hline
 4482 \\
 1494 \\
 \hline
 19,422
 \end{array}$$

$$\begin{array}{r}
 52. \quad 1268 \\
 \times 38 \\
 \hline
 10144 \\
 3804 \\
 \hline
 48,184
 \end{array}$$

$$\begin{array}{r}
 54. \quad 3078 \\
 \times 72 \\
 \hline
 6156 \\
 21546 \\
 \hline
 221,616
 \end{array}$$

$$\begin{array}{r}
 56. \quad 5738 \\
 \times 376 \\
 \hline
 34428 \\
 40166 \\
 17214 \\
 \hline
 2,157,488
 \end{array}$$

$$\begin{array}{r}
 58. \quad 739 \\
 \times 614 \\
 \hline
 2956 \\
 739 \\
 4434 \\
 \hline
 453,746
 \end{array}$$

$$\begin{array}{r}
 60. \quad 5092 \\
 \times 302 \\
 \hline
 10184 \\
 0000 \\
 15276 \\
 \hline
 1,537,784
 \end{array}$$

$$\begin{array}{r}
 62. \quad 2074 \\
 \times 1003 \\
 \hline
 6222 \\
 2074 \\
 \hline
 2,080,222
 \end{array}$$

$$\begin{array}{r}
 64. \quad 15,200 \\
 \times 30 \\
 \hline
 456,000
 \end{array}$$

$$\begin{array}{r}
 66. \quad 302 \\
 \times 30 \\
 \hline
 9060
 \end{array}$$

$$\begin{array}{r}
 68. \quad 3000 \\
 \times 302 \\
 \hline
 906,000
 \end{array}$$

$$70. \quad 8 \cdot 3 \cdot 2 = 24 \cdot 2 = 48$$

$$72. \quad 16 \cdot 5 \cdot 6 = 80 \cdot 6 = 480$$

$$\begin{array}{r}
 74. \quad 526 \\
 \times 21 \\
 \hline
 526 \\
 1052 \\
 \hline
 11,046
 \end{array}$$

$$76. \quad 4 \cdot 5 \cdot 5 \cdot 15 = 20 \cdot 75 = 1500$$

$$78. \quad x = 0$$

$$\begin{array}{r}
 80. \quad 115 \\
 \times 59 \\
 \hline
 1035 \\
 575 \\
 \hline
 6785
 \end{array}$$

The area is 6785 square millimeters.

$$\begin{array}{l}
 82. \quad 4 \times 5 = 20 \\
 12 \times 8 = 96 \\
 20 + 96 = 116 \\
 \text{The surveillance area is 116 square miles.}
 \end{array}$$

$$\begin{array}{r}
 84. \quad 345 \\
 \times 8 \\
 \hline
 2760
 \end{array}$$

The total amount of the purchase is \$2760.

$$\begin{array}{r}
 86. \quad 276 \\
 \times 8 \\
 \hline
 2208
 \end{array}$$

The cost for the car rental is \$2208.

$$\begin{array}{r}
 88. \quad 48 \\
 \times 12 \\
 \hline
 96 \\
 48 \\
 \hline
 576
 \end{array}$$

576 miles is the distance she can travel.

$$\begin{array}{r}
 90. \quad 125 \\
 \times 24 \\
 \hline
 500 \\
 250 \\
 \hline
 3000
 \end{array}$$

Jorge contributes \$3000 to his IRA in one year.

$$\begin{array}{r}
 92. \quad 61,100,000 \\
 \times \quad 34,000 \\
 \hline
 2,077,400,000,000
 \end{array}$$

The approximate total yearly income is \$2,077,400,000,000.

$$\begin{array}{r}
 94. \quad \begin{array}{ccc} 18 & 26 & 54 \end{array} \quad \begin{array}{c} 36 \\ 104 \end{array} \\
 \times \begin{array}{ccc} 2 & 4 & 1 \end{array} \quad \begin{array}{c} 104 \\ 54 \end{array} \\
 \hline
 \begin{array}{ccc} 36 & 104 & 54 \end{array} \quad \begin{array}{c} + 54 \\ 194 \end{array}
 \end{array}$$

There are 194 white paws in the room.

$$\begin{array}{r}
 96. \quad \begin{array}{ccc} 18 & 26 & 54 \end{array} \quad \begin{array}{c} 0 \\ 26 \end{array} \\
 \times \begin{array}{ccc} 0 & 1 & 2 \end{array} \quad \begin{array}{c} 26 \\ 108 \end{array} \\
 \hline
 \begin{array}{ccc} 0 & 26 & 108 \end{array} \quad \begin{array}{c} + 108 \\ 134 \end{array}
 \end{array}$$

There are 134 white ears in the room.

$$\begin{array}{l}
 98. \quad 7(x) = 56 \\
 \quad \quad 7(8) = 56 \\
 \quad \quad x = 8
 \end{array}$$

$$\begin{array}{l}
 100. \quad 63 = 9(x) \\
 \quad \quad 63 = 9(7) \\
 \quad \quad x = 7
 \end{array}$$

$$\begin{array}{l}
 102. \quad \text{Yes} \\
 \quad \quad 5 \times (8 - 3) = 5 \times 8 - 5 \times 3 \\
 \quad \quad a \times (b - c) = a \times b - a \times c
 \end{array}$$

Cumulative Review

$$\begin{array}{r}
 103. \quad 34,084 \\
 - 27,328 \\
 \hline
 6,756
 \end{array}$$

$$\begin{array}{r}
 104. \quad 263 \\
 \quad 27 \\
 \quad 891 \\
 \quad 5 \\
 + 63 \\
 \hline
 1249
 \end{array}$$

$$\begin{array}{l}
 105. \quad 1278 - (345 + 128) = 1278 - 473 = 805 \\
 \quad \quad \text{There is \$805 left in his checking account.}
 \end{array}$$

$$\begin{array}{r}
 106. \quad 1932 \\
 - 1772 \\
 \hline
 160 \\
 \quad \quad \text{The increase was \$160.}
 \end{array}$$

$$\begin{array}{r}
 107. \quad 45,918 \\
 - 42,667 \\
 \hline
 3251 \\
 \quad \quad \text{The population increased by 3251 people.}
 \end{array}$$

$$\begin{array}{r}
 108. \quad 1,358,000,000,000 \\
 - 720,800,000,000 \\
 \hline
 637,200,000,000 \\
 \quad \quad \text{The increase was \$637,200,000,000.}
 \end{array}$$

Classroom Quiz 1.4

$$\begin{array}{r}
 1. \quad 26,523 \\
 \times 8 \\
 \hline
 212,184
 \end{array}$$

$$\begin{array}{r}
 2. \quad 83 \\
 \times 57 \\
 \hline
 581 \\
 415 \\
 \hline
 4731
 \end{array}$$

$$\begin{array}{r}
 3. \quad 782 \\
 \times 345 \\
 \hline
 3910 \\
 3128 \\
 \hline
 2346 \\
 269,790
 \end{array}$$

1.5 Exercises

$$2. \quad 5 \overline{)35}$$

$$4. \quad 9 \overline{)63}$$

$$6. \quad 8 \overline{)40}$$

$$8. \quad 7 \overline{)49}$$

$$10. \quad 6 \overline{)42}^7$$

$$12. \quad 9 \overline{)81}^9$$

$$14. \quad 6 \overline{)54}^9$$

$$16. \quad 4 \overline{)28}^7$$

$$18. \quad 8 \overline{)64}^8$$

$$20. \quad 9 \overline{)72}^8$$

$$22. \quad 1 \overline{)8}^8$$

$$24. \quad 7 \overline{)0}^0$$

$$26. \quad 12 \div 0$$

undefined

$$28. \quad \frac{0}{7} = 0$$

$$30. \quad 5 \div 5 = 1$$

$$32. \quad 8 \overline{)42}^5 \text{ R } 2$$

$$\quad \underline{40}$$

$$\quad \quad 2$$

$$\text{Check:} \quad \begin{array}{r} 5 \\ \times 8 \\ \hline 40 \\ + 2 \\ \hline 42 \end{array}$$

$$34. \quad 9 \overline{)75}^8 \text{ R } 3$$

$$\quad \underline{72}$$

$$\quad \quad 3$$

$$\text{Check:} \quad \begin{array}{r} 8 \\ \times 9 \\ \hline 72 \\ + 3 \\ \hline 75 \end{array}$$

$$36. \quad 6 \overline{)103}^{17} \text{ R } 1$$

$$\quad \underline{6}$$

$$\quad \quad 43$$

$$\quad \quad \underline{42}$$

$$\quad \quad \quad 1$$

$$\text{Check:} \quad \begin{array}{r} 17 \\ \times 6 \\ \hline 102 \\ + 1 \\ \hline 103 \end{array}$$

$$38. \quad 8 \overline{)427}^{53} \text{ R } 3$$

$$\quad \underline{40}$$

$$\quad \quad 27$$

$$\quad \quad \underline{24}$$

$$\quad \quad \quad 3$$

$$\text{Check:} \quad \begin{array}{r} 53 \\ \times 8 \\ \hline 424 \\ + 3 \\ \hline 427 \end{array}$$

$$40. \quad 7 \overline{)294}^{42}$$

$$\quad \underline{28}$$

$$\quad \quad 14$$

$$\quad \quad \underline{14}$$

$$\quad \quad \quad 0$$

$$\text{Check:} \quad \begin{array}{r} 42 \\ \times 7 \\ \hline 294 \end{array}$$

$$\begin{array}{r}
 28 \\
 8 \overline{)224} \\
 \underline{16} \\
 64 \\
 \underline{64} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \text{Check: } 28 \\
 \times 8 \\
 \hline
 224
 \end{array}$$

$$\begin{array}{r}
 252 \text{ R } 2 \\
 3 \overline{)758} \\
 \underline{6} \\
 15 \\
 \underline{15} \\
 8 \\
 \underline{6} \\
 2
 \end{array}$$

$$\begin{array}{r}
 57 \text{ R } 4 \\
 7 \overline{)403} \\
 \underline{35} \\
 53 \\
 \underline{49} \\
 4
 \end{array}$$

$$\begin{array}{r}
 713 \\
 9 \overline{)6417} \\
 \underline{63} \\
 11 \\
 \underline{9} \\
 27 \\
 \underline{27} \\
 0
 \end{array}$$

$$\begin{array}{r}
 1427 \text{ R } 4 \\
 5 \overline{)7139} \\
 \underline{5} \\
 21 \\
 \underline{20} \\
 13 \\
 \underline{10} \\
 39 \\
 \underline{35} \\
 4
 \end{array}$$

$$\begin{array}{r}
 3021 \text{ R } 1 \\
 6 \overline{)18,127} \\
 \underline{18} \\
 1 \\
 \underline{0} \\
 12 \\
 \underline{12} \\
 7 \\
 \underline{6} \\
 1
 \end{array}$$

$$\begin{array}{r}
 4027 \text{ R } 7 \\
 8 \overline{)32,223} \\
 \underline{32} \\
 2 \\
 \underline{0} \\
 22 \\
 \underline{16} \\
 63 \\
 \underline{56} \\
 7
 \end{array}$$

$$\begin{array}{r}
 54 \text{ R } 2 \\
 6 \overline{)326} \\
 \underline{30} \\
 26 \\
 \underline{24} \\
 2
 \end{array}$$

$$\begin{array}{r}
 13 \\
 35 \overline{)455} \\
 \underline{35} \\
 105 \\
 \underline{105} \\
 0
 \end{array}$$

$$\begin{array}{r}
 6 \\
 72 \overline{)432} \\
 \underline{432} \\
 0
 \end{array}$$

$$\begin{array}{r}
 523 \text{ R } 11 \\
 62. \quad 13 \overline{)6810} \\
 \underline{65} \\
 31 \\
 \underline{26} \\
 50 \\
 \underline{39} \\
 11
 \end{array}$$

$$\begin{array}{r}
 20 \text{ R } 36 \\
 64. \quad 60 \overline{)1236} \\
 \underline{120} \\
 36 \\
 \underline{0} \\
 36
 \end{array}$$

$$\begin{array}{r}
 768 \\
 66. \quad 8 \overline{)6144} \\
 \underline{56} \\
 54 \\
 \underline{48} \\
 64 \\
 \underline{64} \\
 0
 \end{array}$$

$$\begin{array}{r}
 110 \text{ R } 7 \\
 68. \quad 32 \overline{)3527} \\
 \underline{32} \\
 32 \\
 \underline{32} \\
 7 \\
 \underline{0} \\
 7
 \end{array}$$

$$\begin{array}{r}
 104 \text{ R } 6 \\
 70. \quad 19 \overline{)1982} \\
 \underline{19} \\
 82 \\
 \underline{76} \\
 6
 \end{array}$$

$$\begin{array}{r}
 7 \\
 72. \quad 128 \overline{)896} \\
 \underline{896} \\
 0
 \end{array}$$

$$\begin{array}{r}
 134 \\
 74. \quad 235 \overline{)31,490} \\
 \underline{235} \\
 799 \\
 \underline{705} \\
 940 \\
 \underline{940} \\
 0
 \end{array}$$

$$\begin{array}{r}
 12 \\
 76. \quad 131 \overline{)1572} \\
 \underline{131} \\
 262 \\
 \underline{262} \\
 0
 \end{array}$$

$$x = 12$$

$$\begin{array}{r}
 1460 \\
 78. \quad 25 \overline{)36,500} \\
 \underline{25} \\
 115 \\
 \underline{100} \\
 150 \\
 \underline{150} \\
 0
 \end{array}$$

Each horse eats 1460 pounds.

$$\begin{array}{r}
 120,000 \\
 80. \quad 70 \overline{)8,400,000} \\
 \underline{70} \\
 140 \\
 \underline{140} \\
 0
 \end{array}$$

Each snowplow cost \$120,000.

$$\begin{array}{r}
 46,179 \\
 82. \quad 8 \overline{)369,432} \\
 \underline{32} \\
 49 \\
 \underline{48} \\
 14 \\
 \underline{8} \\
 63 \\
 \underline{56} \\
 72 \\
 \underline{72} \\
 0
 \end{array}$$

Each person paid \$46,179.

$$\begin{array}{r}
 186 \\
 84. \quad 70 \overline{)13,020} \\
 \underline{70} \\
 602 \\
 \underline{560} \\
 420 \\
 \underline{420} \\
 0
 \end{array}$$

Each bookcase cost \$186.

$$\begin{array}{r}
 78 \\
 86. \quad 34 \overline{)2652} \\
 \underline{238} \\
 272 \\
 \underline{272} \\
 0
 \end{array}$$

The length of the lawn is 78 feet.

$$\begin{array}{r}
 82 \\
 88. \quad 43 \overline{)3526} \\
 \underline{344} \\
 86 \\
 \underline{86} \\
 0
 \end{array}$$

The length of the panel is 82 centimeters.

$$\begin{array}{r}
 874 \\
 90. \quad - 138 \quad \text{1st} \\
 \underline{736} \\
 - 138 \quad \text{2nd} \\
 \underline{598} \\
 - 138 \quad \text{3rd} \\
 \underline{460} \\
 - 138 \quad \text{4th} \\
 \underline{322} \\
 - 138 \quad \text{5th} \\
 \underline{184} \\
 - 138 \quad \text{6th} \\
 \underline{46}
 \end{array}$$

$$\begin{array}{r}
 6 \text{ R } 46 \\
 138 \overline{)874} \\
 \underline{828} \\
 46
 \end{array}$$

Cumulative Review

$$\begin{array}{r}
 91. \quad 108 \\
 \times 50 \\
 \hline
 5400
 \end{array}$$

$$\begin{array}{r}
 92. \quad 7162 \\
 \times 145 \\
 \hline
 35810 \\
 28648 \\
 7162 \\
 \hline
 1,038,490
 \end{array}$$

$$\begin{array}{r}
 93. \quad 316,214 \\
 + 89,981 \\
 \hline
 406,195
 \end{array}$$

$$\begin{array}{r}
 94. \quad 1,360,000 \\
 - 1,293,156 \\
 \hline
 66,844
 \end{array}$$

Classroom Quiz 1.5

$$\begin{array}{r}
 368 \\
 1. \quad 8 \overline{)2944} \\
 \underline{24} \\
 54 \\
 \underline{48} \\
 64 \\
 \underline{64} \\
 0
 \end{array}$$

$$\begin{array}{r}
 3695 \text{ R } 4 \\
 2. \quad 7 \overline{)25,869} \\
 \underline{21} \\
 48 \\
 \underline{42} \\
 66 \\
 \underline{63} \\
 39 \\
 \underline{35} \\
 4
 \end{array}$$

$$\begin{array}{r}
 237 \\
 3. \quad 56 \overline{)13,272} \\
 \underline{112} \\
 207 \\
 \underline{168} \\
 392 \\
 \underline{392} \\
 0
 \end{array}$$

Use Math To Save Money

1. Their three credit cards are maxed out at \$8000, they have hospital debt of \$12,000, they owe \$2000 on their car, and they owe friends \$100 and \$300.
\$100, \$300, \$2000, \$8000, \$8000, \$8000, \$12,000

2. $3 \times \$25 + \$50 + \$200 + 2 \times \20
 $= \$75 + \$50 + \$200 + \40
 $= \$365$

3. Their three smallest debts are the \$100 and \$300 loans from friends and their \$2000 car loan.

4. The total amount of the minimum monthly payments for the smallest two debts is
 $2 \times \$20 = \40 .

5. After 2 months, the balance on the car loan is
 $\$2000 - \$400 = \$1600$. Then they begin paying \$240 per month.

$$\begin{array}{r} 6 \text{ R } 160 \\ 240 \overline{)1600} \\ \underline{1440} \\ 160 \end{array}$$

It takes them about 7 months to pay off their car loan.

6. Answers will vary.

How Am I Doing? Sections 1.1–1.5

(Available online through MyMathLab or from the Instructor's Resource Center.)

1. 78,310,436 = seventy-eight million, three hundred ten thousand, four hundred thirty-six

2. $38,247 = 30,000 + 8000 + 200 + 40 + 7$

3. 5,064,122

4. 17,487 thousand or 17,487,000 students were enrolled in 2005.

5. 20,080 thousand or 20,080,000 students are expected to be enrolled in 2017.

6.
$$\begin{array}{r} 13 \\ 31 \\ 88 \\ 43 \\ + 69 \\ \hline 244 \end{array}$$

7.
$$\begin{array}{r} 28,318 \\ 5,039 \\ + 17,213 \\ \hline 50,570 \end{array}$$

8.
$$\begin{array}{r} 833,576 \\ + 517,885 \\ \hline 1,351,461 \end{array}$$

9.
$$\begin{array}{r} 5728 \\ - 1735 \\ \hline 3993 \end{array}$$

10.
$$\begin{array}{r} 100,450 \\ - 24,139 \\ \hline 76,311 \end{array}$$

11.
$$\begin{array}{r} 45,861,413 \\ - 43,879,761 \\ \hline 1,981,652 \end{array}$$

12. $9 \times 6 \times 1 \times 2 = 54 \times 1 \times 2 = 54 \times 2 = 108$

13. $50 \times 10 \times 200 = 500 \times 200 = 100,000$

14.
$$\begin{array}{r} 2658 \\ \times 7 \\ \hline 18,606 \end{array}$$

15.
$$\begin{array}{r} 68 \\ \times 55 \\ \hline 340 \\ 340 \\ \hline 3740 \end{array}$$

16.
$$\begin{array}{r} 365 \\ \times 908 \\ \hline 2920 \\ 32850 \\ \hline 331,420 \end{array}$$

17.
$$\begin{array}{r} 10,605 \\ 8 \overline{)84,840} \\ \underline{8} \\ 48 \\ \underline{48} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$$\begin{array}{r}
 7\ 376\ R\ 1 \\
 18. \quad 7 \overline{)51,633} \\
 \underline{49} \\
 26 \\
 \underline{21} \\
 53 \\
 \underline{49} \\
 43 \\
 \underline{42} \\
 1
 \end{array}$$

$$\begin{array}{r}
 26\ R\ 8 \\
 19. \quad 76 \overline{)1984} \\
 \underline{152} \\
 464 \\
 \underline{456} \\
 8
 \end{array}$$

$$\begin{array}{r}
 139 \\
 20. \quad 42 \overline{)5838} \\
 \underline{42} \\
 163 \\
 \underline{126} \\
 378 \\
 \underline{378} \\
 0
 \end{array}$$

1.6 Exercises

2. In exponent form, the exponent tells how many times to multiply the base.
4. 10^5 is read as 10 to the fifth power.
6. $12 \times 5 + 3 \times 5 + 7 \times 5 = 60 + 15 + 35 = 110$
Yes, because of the distributive property.
8. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^8$
10. $3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^6$
12. $1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 = 1^7$
14. $27 = 27^1$
16. $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$
18. $4^3 = 4 \times 4 \times 4 = 64$
20. $10^5 = 10 \times 10 \times 10 \times 10 \times 10 = 100,000$
22. $1^{20} = 1$
24. $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$
26. $4^2 = 4 \times 4 = 16$
28. $12^2 = 12 \times 12 = 144$
30. $3^3 = 3 \times 3 \times 3 = 27$
32. $5^4 = 5 \times 5 \times 5 \times 5 = 625$
34. $7^2 = 7 \times 7 = 49$
36. $8^0 = 1$
38. $20^3 = 20 \times 20 \times 20 = 8000$
40. $8^1 = 8$
42. $11^2 = 11 \times 11 = 121$
44. $14^2 = 14 \times 14 = 196$
46. $5^3 = 5 \times 5 \times 5 = 125$
48. $7^0 + 4^3 = 1 + 64 = 65$
50. $7^3 + 4^2 = 343 + 16 = 359$
52. $9^2 + 9 = 81 + 9 = 90$
54. $6 \times 9 + 32 = 54 + 32 = 86$
56. $4 \times 6 - 24 \div 4 = 24 - 24 \div 4 = 24 - 6 = 18$
58. $4^3 \div 4 - 11 = 64 \div 4 - 11 = 16 - 11 = 5$
60. $2 \times 12^2 - 80 = 2 \times 144 - 80 = 288 - 80 = 208$
62. $4^3 - 5 \times (9 + 1) = 4^3 - 5(10)$
 $= 64 - 5(10)$
 $= 64 - 50$
 $= 14$
64. $(600 \div 30) \div 20 = 20 \div 20 = 1$

$$66. 875 \div (35 \div 7) = 875 \div 5 = 175$$

$$68. 5(30) - (30 + 5) = 5(30) - 35 = 150 - 35 = 115$$

$$70. 7^2 + 9^2 \div 3^2 = 49 + 81 \div 9 = 49 + 9 = 58$$

$$\begin{aligned} 72. (8)(9) - (15 - 5) \div 5 &= (8)(9) - 10 \div 5 \\ &= 72 - 10 \div 5 \\ &= 72 - 2 \\ &= 70 \end{aligned}$$

$$74. 130 - 4^2 \times 5 = 130 - 16 \times 5 = 130 - 80 = 50$$

$$76. 2^4 + 3^3 + 4^2 = 16 + 27 + 16 = 43 + 16 = 59$$

$$\begin{aligned} 78. 150 \div 50 \times 3 \times 2 \div 6 &= 3 \times 3 \times 2 \div 6 \\ &= 9 \times 2 \div 6 \\ &= 18 \div 6 \\ &= 3 \end{aligned}$$

$$80. 11^2 - 2 \times 3 \times 0 \times 11 = 121 - 0 = 121$$

$$82. 7^2 \times 3 \div 3 = 49 \times 3 \div 3 = 147 \div 3 = 49$$

$$84. 75 - 3 \times 5 \times 2 + 15 = 75 - 30 + 15 = 45 + 15 = 60$$

$$\begin{aligned} 86. 5 + 4^3 \times 2 + 7 &= 5 + 64 \times 2 + 7 \\ &= 5 + 128 + 7 \\ &= 133 + 7 \\ &= 140 \end{aligned}$$

$$\begin{aligned} 88. 24 \div 3 \times (5 - 3)^2 &= 24 \div 3 \times 2^2 \\ &= 24 \div 3 \times 4 \\ &= 8 \times 4 \\ &= 32 \end{aligned}$$

$$\begin{aligned} 90. 5^2 \times 3 \div 25 + 7 \times 6 &= 25 \times 3 \div 25 + 7 \times 6 \\ &= 75 \div 25 + 7 \times 6 \\ &= 3 + 7 \times 6 \\ &= 3 + 42 \\ &= 45 \end{aligned}$$

$$92. 12^1 + 7^0 + 4^4 = 12 + 1 + 256 = 269$$

$$\begin{aligned} 94. 2150 - 3^4(2) \div 9 &= 2150 - 81(2) \div 9 \\ &= 2150 - 162 \div 9 \\ &= 2150 - 18 \\ &= 2132 \end{aligned}$$

$$96. 100 - 48 \div (2 \times 3) = 100 - 48 \div 6 = 100 - 8 = 92$$

$$98. 100 - 48 \div 2 \times 3 = 100 - 24 \times 3 = 100 - 72 = 28$$

$$\begin{aligned} 100. 8 \times 6 - 5^0 + (6 - 2)^3 &= 8 \times 6 - 5^0 + 4^3 \\ &= 8 \times 6 - 1 + 64 \\ &= 48 - 1 + 64 \\ &= 47 + 64 \\ &= 111 \end{aligned}$$

$$\begin{aligned} 102. 10 \times 60 + 12 &= 600 + 12 = 612 \text{ minutes} \\ 612 \times 60 &= 36,720 \text{ seconds} \end{aligned}$$

Cumulative Review

$$103. \text{ a. } 3$$

$$\text{ b. } 2,000,000$$

$$104. 200,765,909$$

$$105. 261,763,002 = \text{two hundred sixty-one million, seven hundred sixty-three thousand, two}$$

$$\begin{aligned} 106. \text{ Perimeter: } 2 \times 250 + 2 \times 480 &= 500 + 960 \\ &= 1460 \text{ feet} \\ 1460 \text{ feet of fencing is needed to surround field.} \\ \text{Area: } 250 \times 480 &= 120,000 \text{ square feet} \\ 120,000 \text{ square feet of grass must be planted.} \end{aligned}$$

Classroom Quiz 1.6

$$1. 15 \times 15 \times 15 \times 15 = 15^4$$

$$2. 7^3 = 7 \times 7 \times 7 = 343$$

$$\begin{aligned} 3. 3 + 5^3 - 2 \times (10 - 4)^2 &= 3 + 5^3 - 2 \times 6^2 \\ &= 3 + 125 - 2 \times 36 \\ &= 3 + 125 - 72 \\ &= 128 - 72 \\ &= 56 \end{aligned}$$

1.7 Exercises

2. Since the digit to the right of the tens digit is 5 or more, you round up. When you round up 9 tens, it becomes 10 tens or 100.

4. $9\underline{5}$ rounds to 100 since 5 is 5 or more.

6. $8\underline{4}$ rounds to 80 since 4 is less than 5.

8. $17\underline{6}$ rounds to 180 since 6 is 5 or more.

10. $283\underline{4}$ rounds to 2830 since 4 is less than 5.

12. $435\underline{5}$ rounds to 4360 since 5 is 5 or more.

14. $\underline{6}61$ rounds to 700 since 6 is 5 or more.
16. $12\underline{4}9$ rounds to 1200 since 4 is less than 5.
18. $16\underline{4}3$ rounds to 1600 since 4 is less than 5.
20. $3\underline{7}54$ rounds to 4000 since 7 is 5 or more.
22. $\underline{5}15$ rounds to 1000 since 5 is 5 or more.
24. $94,\underline{4}89$ rounds to 94,000 since 4 is less than 5.
26. 5,878, $\underline{6}12,843,000$ miles rounds to 5,878,600,000,000 miles since 1 is less than 5.
28. $1\underline{7},802$ feet rounds to 20,000 feet since 7 is 5 or more.
30. a. $24,271,\underline{8}94$ rounds to 24,272,000 since 8 is 5 or more.
- b. $2\underline{4},271,894$ rounds to 20,000,000 since 4 is less than 5.
32. a. $31,8\underline{3}0,000$ square miles rounds to 31,800,000 square miles since 3 is less than 5.
- b. $31,\underline{8}30,000$ square miles rounds to 32,000,000 square miles since 8 is 5 or more.
34.
$$\begin{array}{r} 200 \\ 500 \\ + 900 \\ \hline 1600 \end{array}$$
36.
$$\begin{array}{r} 60 \\ 30 \\ 50 \\ + 100 \\ \hline 240 \end{array}$$
38. $200,000 + 80,000 + 10,000 = 290,000$
40. $1,000,000 - 600,000 = 400,000$
42. $400,000 - 60,000 = 340,000$
44. $90,000,000 - 50,000,000 = 40,000,000$
46. $40 \times 100 = 4000$
48. $6000 \times 3 = 18,000$
50. $400,000 \times 600 = 240,000,000$

$$\begin{array}{r} 300 \\ 30 \overline{)9000} \\ \underline{90} \\ 0 \end{array}$$

$$\begin{array}{r} 10,000 \\ 60 \overline{)600,000} \\ \underline{60} \\ 0 \end{array}$$

$$\begin{array}{r} 100,000 \\ 300 \overline{)30,000,000} \\ \underline{300} \\ 0 \end{array}$$

$$\begin{array}{r} 500 \\ 100 \\ 500 \\ + 400 \\ \hline 1500 \end{array}$$

Correct

$$\begin{array}{r} 30,000 \\ 50,000 \\ + 60,000 \\ \hline 140,000 \end{array}$$

Correct

$$\begin{array}{r} 700,000 \\ - 100,000 \\ \hline 600,000 \end{array}$$

Incorrect

$$\begin{array}{r} 40,000,000 \\ - 30,000,000 \\ \hline 10,000,000 \end{array}$$

Incorrect

$$\begin{array}{r} 500 \\ \times 50 \\ \hline 25,000 \end{array}$$

Incorrect

$$\begin{array}{r} 8000 \\ \times 90 \\ \hline 720,000 \end{array}$$

Correct

$$\begin{array}{r} 600 \\ 50 \overline{)30,000} \end{array}$$

Correct

$$\begin{array}{r}
 625 \\
 800 \overline{)500,000} \\
 \underline{480\ 0} \\
 20\ 00 \\
 \underline{16\ 00} \\
 4\ 000 \\
 \underline{4\ 000} \\
 0
 \end{array}$$

Correct

74. $40 \times 100 = 4000$

The restaurant is approximately 4000 square yards.

76. $300,000 + 700,000 + 200,000 + 600,000 = 1,800,000$

The estimated total is \$1,800,000.

78. $70 \times 30 = 2100$

She is estimated to earn \$2100.

80. $90,000 - 52,000 = 38,000$

The difference in attendance is estimated at 38,000 people.

82. Sudan: 1,000,000 since 6 is 5 or more.

Brazil: 3,300,000 since 8 is 5 or more.

$$3,300,000 - 1,000,000 = 2,300,000$$

Brazil is estimated to be 2,300,000 square miles larger than Sudan.

84. a. $9,348,487,000 \div 28,367$

$$9,000,000,000 \div 30,000 = 300,000$$

It will take the probe 300,000 hours to travel this distance.

b. $300,000 \div 24$

$$300,000 \div 20 = 15,000$$

It will take the probe 15,000 days to travel this distance.

Cumulative Review

85. $26 \times 3 + 20 \div 4 = 78 + 20 \div 4 = 78 + 5 = 83$

$$\begin{aligned}
 86. \quad 5^2 + 3^2 - (17 - 10) &= 5^2 + 3^2 - 7 \\
 &= 25 + 9 - 7 \\
 &= 34 - 7 \\
 &= 27
 \end{aligned}$$

$$\begin{aligned}
 87. \quad 3 \times (16 \div 4) + 8 \times 2 &= 3 \times 4 + 8 \times 2 \\
 &= 12 + 8 \times 2 \\
 &= 12 + 16 \\
 &= 28
 \end{aligned}$$

$$\begin{aligned}
 88. \quad 126 + 4 - (20 \div 5)^3 &= 126 + 4 - 4^3 \\
 &= 126 + 4 - 64 \\
 &= 130 - 64 \\
 &= 66
 \end{aligned}$$

$$\begin{array}{r}
 89. \quad 5489 \\
 \times \quad 67 \\
 \hline
 38\ 423 \\
 329\ 34 \\
 \hline
 367,763
 \end{array}$$

$$\begin{array}{r}
 90. \quad 52 \overline{)4524} \\
 \underline{416} \\
 364 \\
 \underline{364} \\
 0
 \end{array}$$

Classroom Quiz 1.7

1. 57,621 rounds to 57,600 since 2 is less than 5.

2. 3,475,688 rounds to 3,480,000 since 5 is 5 or more.

$$\begin{array}{r}
 3. \quad 40,000 \\
 \times \quad 900,000 \\
 \hline
 36,000,000,000
 \end{array}$$

1.8 Exercises

$$\begin{array}{r}
 2. \quad 9,596,960 \\
 - \quad 270,550 \\
 \hline
 9,326,410
 \end{array}$$

China has 9,326,410 square kilometers of land.

$$\begin{array}{r}
 4. \quad 144 \\
 \times \quad 14 \\
 \hline
 576 \\
 144 \\
 \hline
 2016
 \end{array}$$

Mr. Jim Weston ordered 2016 pencils.

$$\begin{array}{r}
 6. \quad 15 \overline{)90} \\
 \underline{90} \\
 0
 \end{array}$$

The pears cost 6¢ per ounce.

$$\begin{array}{r} 8. \quad 50,000 \\ - \quad 103 \\ \hline 49,897 \end{array}$$

49,897 bison live elsewhere.

$$\begin{array}{r} 10. \quad 44,010 \\ \times \quad 26 \\ \hline 264,060 \\ 880,200 \\ \hline 1,144,260 \end{array}$$

Valleyfair covers 1,144,260 square feet of land.

$$\begin{array}{r} 12. \quad 2,138,551 \\ - \quad 794,811 \\ \hline 1,343,740 \end{array}$$

The difference in population between Paris and Marseille is 1,343,740 people.

$$\begin{array}{r} 14. \quad 4 \ 132 \quad 4132 \\ \quad 3 \ 915 \quad - \ 3741 \\ + \ 3 \ 741 \quad \quad 391 \\ \hline 11,788 \end{array}$$

The three rivers have a total run of 11,788 miles. The difference in the lengths of the Nile and Mississippi is 391 miles.

$$16. \quad 2158 + 156 + 238 + 1119 + 866 + 136 = 4673$$

He has \$4673 in the account.

$$\begin{array}{r} 18. \quad 10 \quad 6 \quad 7 \\ \times 5 \quad \times 7 \quad \times 3 \\ \hline 50 \quad 42 \quad 21 \\ 50 + 42 + 21 = 113 \\ \text{The company made \$113.} \end{array}$$

$$\begin{array}{r} 20. \quad 48 \quad 387 \quad 543 \\ 126 \quad + 156 \quad - 247 \\ 70 \quad 543 \quad 296 \\ + 3 \\ \hline 247 \end{array}$$

The new balance in his bank account is \$296.

$$22. \quad 13 \times 12,350 - 13 \times 7362 = 160,550 - 95,706 = 64,844$$

His profit is \$64,844.

$$\begin{array}{r} 24. \quad 29,438 \\ - \quad 28,862 \\ \hline 576 \\ \overline{)32} \\ 18 \overline{)576} \\ \underline{54} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

The car achieved 32 miles per gallon.

$$\begin{array}{l} 26. \quad 27 \times 2 = 54 \\ 94 - 54 = 40 \\ 40 \div 2 = 20 \\ 27 - 20 = 7 \\ \text{There are 20 tables with 4 chairs and 7 tables} \\ \text{with 2 chairs.} \end{array}$$

$$\begin{array}{r} 28. \quad 924 \\ - \quad 256 \\ \hline 668 \end{array}$$

There were 668 million, or 668,000,000 more mobile phones in use in India than in Russia.

$$\begin{array}{r} 30. \quad 167 \\ 121 \\ + 117 \\ \hline 405 \end{array}$$

There were 405 million, or 405,000,000 mobile phones in use in Nigeria, Japan, and Bangladesh.

$$\begin{array}{r} 32. \quad 176 \\ - \quad 53 \\ \hline 123 \end{array}$$

The population increased by 123 million, or 123,000,000.

$$\begin{array}{r} 34. \quad 195 \quad 195 \\ - 123 \quad + 72 \\ \hline 72 \quad 267 \end{array}$$

The estimated population in 2040 is 267 million, or 267,000,000.

Cumulative Review

$$35. \quad 7^3 = 7 \times 7 \times 7 = 343$$

$$\begin{aligned}
 36. \quad 3 \times 2^3 + 15 \div 3 - 4 \times 2 &= 3 \times 8 + 15 \div 3 - 4 \times 2 \\
 &= 24 + 15 \div 3 - 4 \times 2 \\
 &= 24 + 5 - 4 \times 2 \\
 &= 24 + 5 - 8 \\
 &= 29 - 8 \\
 &= 21
 \end{aligned}$$

$$\begin{array}{r}
 37. \quad 126 \\
 \times 38 \\
 \hline
 1008 \\
 378 \\
 \hline
 4788
 \end{array}$$

$$\begin{array}{r}
 38. \quad 12 \overline{)3096} \\
 \underline{24} \\
 69 \\
 \underline{60} \\
 96 \\
 \underline{96} \\
 0
 \end{array}$$

$$\begin{array}{r}
 39. \quad 96 \\
 123 \\
 57 \\
 + 526 \\
 \hline
 802
 \end{array}$$

$$\begin{array}{r}
 40. \quad 509,263 \\
 - 485,978 \\
 \hline
 23,285
 \end{array}$$

41. 526,195,726 rounds to 526,196,000 because 7 is 5 or more.

42. 3,400,603,025

Classroom Quiz 1.8

1. Divide the cost of the uniforms by the number of players.

$$\begin{array}{r}
 657 \\
 18 \overline{)11,826} \\
 \underline{108} \\
 102 \\
 \underline{90} \\
 126 \\
 \underline{126} \\
 0
 \end{array}$$

Each team member will pay \$657 for a uniform.

$$\begin{array}{r}
 2. \quad \text{Total deposits:} \quad 906 \\
 \phantom{2. \quad \text{Total deposits:}} + 885 \\
 \hline
 1791
 \end{array}$$

$$\begin{array}{r}
 \text{Total checks:} \quad 29 \\
 \phantom{\text{Total checks:}} 109 \\
 \phantom{\text{Total checks:}} 412 \\
 \phantom{\text{Total checks:}} + 683 \\
 \hline
 1233
 \end{array}$$

$$\begin{array}{r}
 64 \\
 + 1791 \\
 \hline
 1855 \\
 - 1233 \\
 \hline
 622
 \end{array}$$

His new balance will be \$622.

$$\begin{array}{r}
 3. \quad \text{Senior citizens:} \quad 7 \\
 \phantom{3. \quad \text{Senior citizens:}} \times 6 \\
 \hline
 42
 \end{array}$$

$$\begin{array}{r}
 \text{Age 12 to 64:} \quad 8 \\
 \phantom{\text{Age 12 to 64:}} \times 8 \\
 \hline
 64
 \end{array}$$

$$\begin{array}{r}
 \text{Children under 12:} \quad 9 \\
 \phantom{\text{Children under 12:}} \times 3 \\
 \hline
 27
 \end{array}$$

$$\begin{array}{r}
 42 \\
 64 \\
 + 27 \\
 \hline
 133
 \end{array}$$

She needed to collect \$133 in fares.

Career Exploration Problems

1. a. Miles that she can travel with 84 gallons averaging 6 miles per gallon:
 $6 \times 84 = 504$ miles
 Miles from her current location to the truck stop: $235 + 65 = 300$ miles
 Yes, she has enough fuel, since $504 > 300$.
- b. Of the total that she could drive, 504 miles, it is 235 miles to her delivery.
 Miles remaining: $504 - 235 = 269$ mi
 Gallons remaining:
 $269 \div 6 = 44 \text{ R}5 = 44 \text{ plus gallons}$
 Yes, she has more than 25 gallons of fuel left in the tank.

- c. Miles traveled in one day
 $= 11 \text{ hr} \times 65 \text{ mph}$
 $= 715 \text{ miles per day}$
 Total miles traveled in 3 days
 $= 715 \text{ mi per day} \times 3 \text{ days}$
 $= 2145 \text{ mi}$
 Yes, she can make a delivery to a location
 2000 miles away in 3 days, since
 $2145 > 2000$.

2. a.

Shift	Tables	Servers (round up)
8 A.M.–2 P.M.	40	$40 \div 4 = 10$ or 10
2 P.M.–8 P.M.	36	$36 \div 4 = 9$ or 9
8 P.M.–2 A.M.	26	$26 \div 4 = 6 \text{ R}2$ or 7
2 A.M.–8 A.M.	18	$18 \div 4 = 4 \text{ R}2$ or 5

Mary must schedule
 $10 + 9 + 7 + 5 = 31$ different servers.

b.

Shift	Tables Fri + Sat + Sun
8 A.M.–2 P.M.	$36 + 40 + 44 = 120$
2 P.M.–8 P.M.	$40 + 36 + 32 = 108$
8 P.M.–2 A.M.	$24 + 26 + 8 = 58$
2 A.M.–8 A.M.	$24 + 18 + 4 = 46$

The largest number of servers should be
 scheduled during the shift with the greatest
 average number of tables, which is
 8 A.M.–2 P.M.

You Try It

- The digit 7 is in the hundred thousands place.
- $132,259$
 $= 100,000 + 30,000 + 2000 + 200 + 50 + 9$
- $58,872,150 =$ fifty-eight million, eight hundred
 seventy-two thousand, one
 hundred fifty
- $$\begin{array}{r} 478 \\ 134 \\ 260 \\ + 73 \\ \hline 945 \end{array}$$
- $$\begin{array}{r} 23,495 \\ - 19,297 \\ \hline 4,198 \end{array}$$
- $$\begin{array}{r} 532 \\ \times 167 \\ \hline 3724 \\ 3192 \\ 532 \\ \hline 88,844 \end{array}$$
- $5 \times 2 \times 4 \times 6 \times 8 = 10 \times 4 \times 6 \times 8$
 $= 40 \times 6 \times 8$
 $= 240 \times 8$
 $= 1920$
- $$\begin{array}{r} 628 \\ 135 \overline{)84,780} \\ \underline{810} \\ 378 \\ \underline{270} \\ 1080 \\ \underline{1080} \\ 0 \end{array}$$
- a. $9 \times 9 \times 9 \times 9 \times 9 = 9^5$

b. $7^4 = 7 \times 7 \times 7 \times 7 = 2401$
- $6^2 \div 2 \times 3 - (10 - 8)^2 = 6^2 \div 2 \times 3 - 2^2$
 $= 36 \div 2 \times 3 - 4$
 $= 18 \times 3 - 4$
 $= 54 - 4$
 $= 50$
- a. 338,912 rounds to 339,000 since 9 is 5 or more.

b. 745,830 rounds to 700,000 since 4 is less than 5.
- $90,000 \times 2000 = 180,000,000$

Chapter 1 Review Problems

1. $892 = \text{eight hundred ninety-two}$

2. $109,276 = \text{one hundred nine thousand, two hundred seventy-six}$

3. $4364 = 4000 + 300 + 60 + 4$

4. $42,166,037 = 40,000,000 + 2,000,000 + 100,000 + 60,000 + 6000 + 30 + 7$

5. 5302

6. 1,328,828

7.
$$\begin{array}{r} 76 \\ + 39 \\ \hline 115 \end{array}$$

8.
$$\begin{array}{r} 235 \\ + 165 \\ \hline 400 \end{array}$$

9.
$$\begin{array}{r} 12 \\ 28 \\ 34 \\ + 76 \\ \hline 150 \end{array}$$

10.
$$\begin{array}{r} 123 \\ 61 \\ 9 \\ 84 \\ + 123 \\ \hline 400 \end{array}$$

11.
$$\begin{array}{r} 226 \\ 134 \\ + 647 \\ \hline 1007 \end{array}$$

12.
$$\begin{array}{r} 52,134 \\ + 7,966 \\ \hline 60,100 \end{array}$$

13.
$$\begin{array}{r} 1,356 \\ 2,892 \\ 561 \\ 89 \\ + 9,805 \\ \hline 14,703 \end{array}$$

14.
$$\begin{array}{r} 36 \\ - 19 \\ \hline 17 \end{array}$$

15.
$$\begin{array}{r} 126 \\ - 99 \\ \hline 27 \end{array}$$

16.
$$\begin{array}{r} 543 \\ - 372 \\ \hline 171 \end{array}$$

17.
$$\begin{array}{r} 7000 \\ - 845 \\ \hline 6155 \end{array}$$

18.
$$\begin{array}{r} 201,340 \\ - 120,618 \\ \hline 80,722 \end{array}$$

19.
$$\begin{array}{r} 6,325,034 \\ - 89,023 \\ \hline 6,236,011 \end{array}$$

20.
$$\begin{array}{r} 5,412,022 \\ - 79,031 \\ \hline 5,332,991 \end{array}$$

21. $8 \times 1 \times 9 \times 2 = 8 \times 9 \times 2 = 72 \times 2 = 144$

22. $7 \times 6 \times 0 \times 4 = 42 \times 0 \times 4 = 0 \times 4 = 0$

23. $2 \cdot 5 \cdot 10 \cdot 8 = 10 \cdot 10 \cdot 8 = 100 \cdot 8 = 800$

24. $621 \times 100 = 62,100$

25. $84,312 \times 1000 = 84,312,000$

26. $78 \times 10,000 = 780,000$

27.
$$\begin{array}{r} 3492 \\ \times 7 \\ \hline 24,444 \end{array}$$

28.
$$\begin{array}{r} 6257 \\ \times 8 \\ \hline 50,056 \end{array}$$

29.
$$\begin{array}{r} 58 \\ \times 32 \\ \hline 1856 \end{array}$$

$$\begin{array}{r} 30. \quad 73 \\ \times 24 \\ \hline 292 \\ 146 \\ \hline 1752 \end{array}$$

$$\begin{array}{r} 31. \quad 709 \\ \times 36 \\ \hline 4254 \\ 2127 \\ \hline 25,524 \end{array}$$

$$\begin{array}{r} 32. \quad 123 \\ \times 714 \\ \hline 492 \\ 123 \\ 861 \\ \hline 87,822 \end{array}$$

$$\begin{array}{r} 33. \quad 431 \\ \times 623 \\ \hline 1293 \\ 862 \\ 2586 \\ \hline 268,513 \end{array}$$

$$\begin{array}{r} 34. \quad 1782 \\ \times 305 \\ \hline 8910 \\ 53460 \\ \hline 543,510 \end{array}$$

$$\begin{array}{r} 35. \quad 2057 \\ \times 124 \\ \hline 8228 \\ 4114 \\ 2057 \\ \hline 255,068 \end{array}$$

$$\begin{array}{r} 36. \quad 3182 \\ \times 35 \\ \hline 15910 \\ 9546 \\ \hline 111,370 \end{array}$$

$$\begin{array}{r} 37. \quad 1200 \\ \times 6000 \\ \hline 7,200,000 \end{array}$$

$$\begin{array}{r} 38. \quad 100,000 \\ \times 20,000 \\ \hline 2,000,000,000 \end{array}$$

$$39. \quad 20 \div 10 = 2$$

$$40. \quad 40 \div 8 = 5$$

$$41. \quad 0 \div 8 = 0$$

$$42. \quad 7 \div 1 = 7$$

$$43. \quad \frac{81}{9} = 9$$

$$44. \quad \frac{42}{6} = 7$$

$$45. \quad \frac{5}{0} \text{ undefined}$$

$$46. \quad \frac{24}{6} = 4$$

$$\begin{array}{r} 47. \quad 6 \overline{)750} \\ \underline{6} \\ 15 \\ \underline{12} \\ 30 \\ \underline{30} \\ 0 \end{array}$$

$$\begin{array}{r} 48. \quad 9 \overline{)1863} \\ \underline{18} \\ 063 \\ \underline{63} \\ 0 \end{array}$$

$$\begin{array}{r} 49. \quad 6 \overline{)15,024} \\ \underline{12} \\ 30 \\ \underline{30} \\ 024 \\ \underline{24} \\ 0 \end{array}$$

$$\begin{array}{r}
 3\ 064 \\
 50. \quad 8 \overline{)24,512} \\
 \underline{24} \\
 51 \\
 \underline{48} \\
 32 \\
 \underline{32} \\
 0
 \end{array}$$

$$\begin{array}{r}
 36,958 \\
 51. \quad 6 \overline{)221,748} \\
 \underline{18} \\
 41 \\
 \underline{36} \\
 57 \\
 \underline{54} \\
 34 \\
 \underline{30} \\
 48 \\
 \underline{48} \\
 0
 \end{array}$$

$$\begin{array}{r}
 36,921 \\
 52. \quad 5 \overline{)184,605} \\
 \underline{15} \\
 34 \\
 \underline{30} \\
 46 \\
 \underline{45} \\
 10 \\
 \underline{10} \\
 5 \\
 \underline{5} \\
 0
 \end{array}$$

$$\begin{array}{r}
 15,046 \text{ R } 3 \\
 53. \quad 8 \overline{)120,371} \\
 \underline{8} \\
 40 \\
 \underline{40} \\
 037 \\
 \underline{32} \\
 51 \\
 \underline{48} \\
 3
 \end{array}$$

$$\begin{array}{r}
 7 \text{ R } 21 \\
 54. \quad 67 \overline{)490} \\
 \underline{469} \\
 21
 \end{array}$$

$$\begin{array}{r}
 31 \text{ R } 15 \\
 55. \quad 21 \overline{)666} \\
 \underline{63} \\
 36 \\
 \underline{21} \\
 15
 \end{array}$$

$$\begin{array}{r}
 60 \text{ R } 22 \\
 56. \quad 53 \overline{)3202} \\
 \underline{318} \\
 22
 \end{array}$$

$$\begin{array}{r}
 195 \\
 57. \quad 45 \overline{)8775} \\
 \underline{45} \\
 427 \\
 \underline{405} \\
 225 \\
 \underline{225} \\
 0
 \end{array}$$

$$\begin{array}{r}
 54 \\
 58. \quad 132 \overline{)7128} \\
 \underline{660} \\
 528 \\
 \underline{528} \\
 0
 \end{array}$$

$$\begin{array}{r}
 19 \\
 59. \quad 204 \overline{)3876} \\
 \underline{204} \\
 1836 \\
 \underline{1836} \\
 0
 \end{array}$$

$$60. \quad 21 \times 21 \times 21 = 21^3$$

$$61. \quad 8 \times 8 \times 8 \times 8 \times 8 = 8^5$$

$$62. \quad 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^6$$

$$63. \quad 2^6 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$$

$$64. \quad 3^4 = 3 \times 3 \times 3 \times 3 = 81$$

$$65. 5^3 = 5 \times 5 \times 5 = 125$$

$$66. 7^2 = 7 \times 7 = 49$$

$$67. 9^2 = 9 \times 9 = 81$$

$$68. 6^3 = 6 \times 6 \times 6 = 216$$

$$69. 7 + 2 \times 3 - 5 = 7 + 6 - 5 = 13 - 5 = 8$$

$$\begin{aligned} 70. 2^5 + 4 - (5 + 3^2) &= 32 + 4 - (5 + 9) \\ &= 32 + 4 - 14 \\ &= 36 - 14 \\ &= 22 \end{aligned}$$

$$71. 34 - 9 \div 9 \times 12 = 34 - 1 \times 12 = 34 - 12 = 22$$

$$\begin{aligned} 72. 2^3 \times 5 \div 8 + 3 \times 4 &= 8 \times 5 \div 8 + 3 \times 4 \\ &= 40 \div 8 + 3 \times 4 \\ &= 5 + 3 \times 4 \\ &= 5 + 12 \\ &= 17 \end{aligned}$$

$$\begin{aligned} 73. 2^3 + 4 \times 5 - 32 \div (1 + 3)^2 &= 2^3 + 4 \times 5 - 32 \div 4^2 \\ &= 8 + 4 \times 5 - 32 \div 16 \\ &= 8 + 20 - 2 \\ &= 26 \end{aligned}$$

$$\begin{aligned} 74. 6 \times 3 + 3 \times 5^2 - 63 \div (5 - 2)^2 &= 6 \times 3 + 3 \times 5^2 - 63 \div 3^2 \\ &= 6 \times 3 + 3 \times 25 - 63 \div 9 \\ &= 18 + 75 - 7 \\ &= 86 \end{aligned}$$

75. 3364 rounds to 3360 since 4 is less than 5.

76. 5895 rounds to 5900 since 5 is 5 or more.

77. 42,644 rounds to 42,640 since 4 is less than 5.

78. 12,350 rounds to 12,000 since 3 is less than 5.

79. 22,986 rounds to 23,000 since 9 is 5 or more.

80. 202,498 rounds to 202,000 since 4 is less than 5.

81. 4,649,320 rounds to 4,600,000 since 4 is less than 5.

82. 9,995,312 rounds to 10,000,000 since 5 is 5 or more.

$$\begin{array}{r} 83. \quad 20,000 \\ \quad 8,000 \\ + 40,000 \\ \hline 68,000 \end{array}$$

$$\begin{array}{r} 84. \quad 30,000 \\ - 20,000 \\ \hline 10,000 \end{array}$$

$$\begin{array}{r} 85. \quad 3,000,000 \\ \times \quad 900 \\ \hline 2,700,000,000 \end{array}$$

$$\begin{array}{r} 86. \quad 4000 \\ 20 \overline{)80,000} \\ \underline{80} \\ 0 \end{array}$$

$$\begin{array}{r} 87. \quad 25 \\ \times 7 \\ \hline 175 \end{array}$$

He typed 175 words.

$$\begin{array}{r} 88. \quad 2462 \\ \quad 1997 \\ + 2561 \\ \hline 7020 \end{array}$$

7020 people visited the festival during these three months.

$$\begin{array}{r} 89. \quad 14,630 \\ - 4,329 \\ \hline 10,301 \end{array}$$

There was 10,301 feet between them.

$$\begin{array}{r} 90. \quad 4330 \qquad 4598 \\ + 268 \qquad - 1250 \\ \hline 4598 \qquad 3348 \end{array}$$

Gerardo will have to pay \$3348 for tuition and books.

$$\begin{array}{r} 91. \quad 74 \\ 112 \overline{)8288} \\ \underline{784} \\ 448 \\ \underline{448} \\ 0 \end{array}$$

The cost was \$74 per bed.

92. Deposits 24 105 36 + 177 <hr/> 342	Withdrawals 18 145 250 + 461 <hr/> 874
--	---

$810 + 342 - 874 = 278$
 Her balance will be \$278.

93. 56,720
 - 56,320

 400 miles

$$\begin{array}{r} 25 \\ 16 \overline{)400} \\ \underline{32} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

He got 25 miles per gallon.

94.	15	60	42	975
	$\times 65$	$\times 12$	$\times 8$	720
	<hr/> 975	<hr/> 720	<hr/> 336	<hr/> + 336
				<hr/> 2031

The total price was \$2031.

95. 97,000
 - 21,800

 75,200

75,200 thousand tons or 75,200,000 tons more were recovered in 2015 than in 1985.

96. 55,000,000
 - 33,600,000

 21,400,000

The greatest increase was 21,400,000 tons between 1990 and 1995.

97. From 2000 to 2010:
 84,500
 - 63,500

 21,000

$$\begin{array}{r} 84,500 \\ + 21,000 \\ \hline 105,500 \end{array}$$

There would be 105,500 thousand tons or 105,500,000 tons recovered in 2020.

98. 205
 36
 1983
 + 60

 2284

99. 56,793
 - 48,926

 7 867

100. 396
 $\times 28$

 3 168
 7 92

 11,088

101. $37 \overline{)4773}$
 37

 107
 74

 333
 333

 0

102. $4 \times 12 - (12 + 9) + 2^3 \div 4 = 4 \times 12 - 21 + 2^3 \div 4$
 $= 4 \times 12 - 21 + 8 \div 4$
 $= 48 - 21 + 8 \div 4$
 $= 48 - 21 + 2$
 $= 29$

103.	699	78	2097	3000
	$\times 3$	$\times 2$	$+ 156$	$- 2253$
	<hr/> 2097	<hr/> 156	<hr/> 2253	<hr/> 747

He has \$747 in his account.

104. a. 22
 $\times 15$

 110
 22

 330

The patio is 330 square feet.

b. $2(22) + 2(15) = 44 + 30 = 74$
 He would need 74 feet of fence.

How Am I Doing? Chapter 1 Test

1. 44,007,635 = forty-four million, seven thousand, six hundred thirty-five

2. $26,859 = 20,000 + 6000 + 800 + 50 + 9$

3. three million, five hundred eighty-one thousand, seventy-six = 3,581,076

4.
$$\begin{array}{r} 189 \\ 26 \\ 12 \\ 528 \\ + 76 \\ \hline 831 \end{array}$$

5.
$$\begin{array}{r} 763 \\ 220 \\ + 508 \\ \hline 1491 \end{array}$$

6.
$$\begin{array}{r} 135,484 \\ 2,376 \\ 81,004 \\ + 100,113 \\ \hline 318,977 \end{array}$$

7.
$$\begin{array}{r} 8961 \\ - 894 \\ \hline 8067 \end{array}$$

8.
$$\begin{array}{r} 501,760 \\ - 328,902 \\ \hline 172,858 \end{array}$$

9.
$$\begin{array}{r} 18,400,100 \\ - 13,174,332 \\ \hline 5,225,768 \end{array}$$

10. $1 \times 6 \times 9 \times 7 = 6 \times 9 \times 7 = 54 \times 7 = 378$

11.
$$\begin{array}{r} 45 \\ \times 96 \\ \hline 270 \\ 405 \\ \hline 4320 \end{array}$$

12.
$$\begin{array}{r} 326 \\ \times 592 \\ \hline 652 \\ 2934 \\ 1630 \\ \hline 192,992 \end{array}$$

13.
$$\begin{array}{r} 18,491 \\ \times 7 \\ \hline 129,437 \end{array}$$

14.
$$\begin{array}{r} 3014 \text{ R } 1 \\ 5 \overline{)15,071} \\ \underline{15} \\ 0 \\ 0 \\ 7 \\ 5 \\ \underline{21} \\ 20 \\ \underline{20} \\ 1 \end{array}$$

15.
$$\begin{array}{r} 2358 \\ 6 \overline{)14,148} \\ \underline{12} \\ 21 \\ \underline{18} \\ 34 \\ \underline{30} \\ 48 \\ \underline{48} \\ 0 \end{array}$$

16.
$$\begin{array}{r} 352 \\ 37 \overline{)13,024} \\ \underline{111} \\ 192 \\ \underline{185} \\ 74 \\ \underline{74} \\ 0 \end{array}$$

17. $14 \times 14 \times 14 = 14^3$

18. $2^6 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$

19.
$$\begin{aligned} 5 + 6^2 - 2 \times (9 - 6)^2 &= 5 + 6^2 - 2 \times 3^2 \\ &= 5 + 36 - 2 \times 9 \\ &= 5 + 36 - 18 \\ &= 41 - 18 \\ &= 23 \end{aligned}$$

$$\begin{aligned}
 20. \quad 2^4 + 3^3 + 28 \div 4 &= 16 + 27 + 28 \div 4 \\
 &= 16 + 27 + 7 \\
 &= 43 + 7 \\
 &= 50
 \end{aligned}$$

$$\begin{aligned}
 21. \quad 4 \times 6 + 3^3 \times 2 + 23 \div 23 &= 4 \times 6 + 27 \times 2 + 23 \div 23 \\
 &= 24 + 27 \times 2 + 23 \div 23 \\
 &= 24 + 54 + 23 \div 23 \\
 &= 24 + 54 + 1 \\
 &= 78 + 1 \\
 &= 79
 \end{aligned}$$

22. 94,768 rounds to 94,800 since 6 is 5 or more.

23. 6,462,431 rounds to 6,460,000 since 2 is less than 5.

24. 5,278,963 rounds to 5,300,000 since 7 is 5 or more.

$$25. \quad 5,000,000 \times 30,000 = 150,000,000,000$$

$$26. \quad 1000 + 3000 + 4000 + 8000 = 16,000$$

$$\begin{array}{r}
 2148 \\
 15 \overline{) 32,220} \\
 \underline{30} \\
 22 \\
 \underline{15} \\
 72 \\
 \underline{60} \\
 120 \\
 \underline{120} \\
 0
 \end{array}$$

Each person paid \$2148.

$$\begin{array}{r}
 28. \quad 602 \\
 - 135 \\
 \hline
 467
 \end{array}$$

The boy is 467 feet from the other side of the river.

$$29. \quad 3 \times 2 + 1 \times 45 + 2 \times 21 + 2 \times 17 = 6 + 45 + 42 + 34 = 127$$

His total bill was \$127.

$$\begin{array}{r}
 30. \quad \begin{array}{r} 31 \\ 902 \\ + 399 \\ \hline 1332 \end{array} \qquad \begin{array}{r} 885 \\ 103 \\ 26 \\ 17 \\ + 9 \\ \hline 1040 \end{array}
 \end{array}$$

Her balance is \$1332 - \$1040 = \$292.

$$\begin{array}{r}
 31. \quad \begin{array}{r} 6800 \\ \times 110 \\ \hline 0000 \\ 6800 \\ \hline 748,000 \end{array}
 \end{array}$$

The area of the runway is 748,000 square feet.

$$\begin{aligned}
 32. \quad 2 \times 8 + 2 \times 15 &= 16 + 30 = 46 \\
 \text{The perimeter is 46 feet. He should purchase} \\
 &46 \text{ feet of fence.}
 \end{aligned}$$