

Instructor's Solutions Manual

Cheryl V. Roberts

Laurel Technical Services

BASIC COLLEGE MATHEMATICS

THIRD EDITION

Jeffrey Slater John Tobey

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PRENTICE HALL Upper Saddle River, NJ 07458

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Chapter 1

Pretest Chapter 1

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

4. 41,217 thousand or 41,217,000

$$\begin{array}{r} 2 \\ 13 \\ 31 \\ 88 \\ 43 \\ + 69 \\ \hline 244 \end{array}$$

$$\begin{array}{r} 11 \\ 7148 \\ 500 \\ 19 \\ + 7062 \\ \hline 14729 \end{array}$$

$$\begin{array}{r} 9 \\ 1010410 \\ 100450 \\ - 24139 \\ \hline 76311 \end{array}$$

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

$$\begin{array}{r} 91 \\ \times 74 \\ \hline 364 \\ 637 \\ \hline 6734 \end{array}$$

$$\begin{array}{r} 10605 \\ 8 \overline{)84840} \\ 8 \\ \hline 04 \\ 0 \\ \hline 48 \\ 48 \\ \hline 04 \\ 0 \\ \hline 40 \\ 40 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 139 \\ 42 \overline{)5838} \\ 42 \\ \hline 163 \\ 126 \\ \hline 378 \\ 378 \\ \hline 0 \end{array}$$

$$\begin{aligned} 20. \quad 3^4 &= 3 \times 3 \times 3 \times 3 \\ &= 9 \times 3 \times 3 \\ &= 27 \times 3 \\ &= 81 \end{aligned}$$

$$\begin{aligned} 22. \quad 2^4 + (6^2 + 36) \div 2 &= 16 + (36 + 36) \div 2 \\ &= 16 + 72 \div 2 \\ &= 16 + 36 \\ &= 52 \end{aligned}$$

24. 270,612 rounds to 271,000 since 6 is greater than 5.

26. 59,540,000 rounds to 60,000,000 since 5 is greater than or equal to 5.

28. $56,784 \times 459,202$ is approximately $60,000 \times 500,000 = 30,000,000,000$.

$$\begin{array}{r} 22 \\ 84 \overline{)1848} \\ 168 \\ \hline 168 \\ 168 \\ \hline 0 \end{array}$$

\$22 per share

$$\begin{array}{r} 32. \quad \text{a.} \quad 550043 \\ - 401851 \\ \hline 148192 \end{array}$$

148,192 people

$$\begin{array}{r} \text{b.} \quad 550043 \\ + 134890 \\ \hline 684933 \end{array}$$

684,933 people

1.1 Exercises

2. $9519 = 9000 + 500 + 10 + 9$

4. $350,765 = 300,000 + 50,000 + 700 + 60 + 5$

$$\begin{aligned} 6. \quad 46,198,253 \\ &= 40,000,000 + 6,000,000 + 100,000 + 90,000 \\ &\quad + 8000 + 200 + 50 + 3 \end{aligned}$$

$$\begin{aligned} 8. \quad 820,310,574 \\ &= 800,000,000 + 20,000,000 + 300,000 + 10,000 \\ &\quad + 500 + 70 + 4 \end{aligned}$$

10. $500 + 90 + 6 = 596$

12. $7000 + 600 + 50 + 2 = 7652$
14. $80,000 + 2,000 + 300 + 5 = 82,305$
16. $900,000 + 50,000 + 40 + 7 = 950,047$
18. a. 6
b. 20,000
20. a. 9
b. 9000
22. Forty-six
24. Four thousand, six hundred twenty-nine
26. Fifty-five thousand, seven hundred forty-two
28. Three hundred seventy thousand,
two hundred fifty-eight
30. Nineteen million, three hundred seventy-six
thousand, five hundred eight-four
32. Seven billion, four hundred thirty-six million,
two hundred ten thousand, four hundred
34. 736
36. 79,346
38. 450,300,249
40. Six thousand, three hundred eighty-three
42. 7 million or 7,000,000
44. 9 million or 9,000,000
46. \$536 billion or \$536,000,000,000
48. \$108 billion or \$108,000,000,000
50. a. 1
b. 3
52. a. 9
b. 7
54. 3,682,968,009,931,960,747
Three quintillion, six hundred eighty-two
quadrillion, nine hundred sixty-eight trillion,
nine billion, nine hundred thirty-one million,
nine hundred sixty thousand, seven hundred
forty-seven

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

$$\begin{array}{r} 6. \quad 4 \\ \quad 6 \\ \quad 2 \\ + 7 \\ \hline 19 \end{array}$$

$$\begin{array}{r} 8. \quad 1 \\ \quad 4 \\ \quad 3 \\ + 8 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 10. \quad 46 \\ \quad 20 \\ + 2 \\ \hline 68 \end{array}$$

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

$$\begin{array}{r} 14. \quad 111 \\ \quad 4816 \\ \quad 3015 \\ + 798 \\ \hline 8629 \end{array}$$

$$\begin{array}{r} 111 \\ 16. \quad 5017 \\ \quad 2984 \\ + 1328 \\ \hline 9329 \end{array}$$

$$\begin{array}{r} 11 \\ 18. \quad 5673 \\ + 3572 \\ \hline 9245 \end{array}$$

$$\begin{array}{r} 1 \\ 20. \quad 99,023 \\ + 47,325 \\ \hline 146,348 \end{array}$$

$$\begin{array}{r} 3 \\ 22. \quad 24 \\ \quad 39 \\ \quad 16 \\ \quad 14 \\ + 9 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 12 \\ 24. \quad 463 \\ \quad 27 \\ \quad 8 \\ \quad 41 \\ + 507 \\ \hline 1046 \end{array}$$

$$\begin{array}{r} 11 \\ 26. \quad 223 \\ \quad 7021 \\ \quad 89 \\ + 7634 \\ \hline 14,967 \end{array}$$

$$\begin{array}{r} 11 \\ 28. \quad 4,002,983 \\ \quad 2,134,702 \\ + 3,592,001 \\ \hline 9,729,686 \end{array}$$

$$\begin{array}{r} 11 \\ 30. \quad 982,306,000 \\ + 583,215,320 \\ \hline 1,565,521,320 \end{array}$$

$$\begin{array}{r} 1111 \\ 32. \quad 32,500 \\ \quad 763,420 \\ + 2,837,667 \\ \hline 3,633,587 \end{array}$$

$$34. \quad 85 + 3 + 407 + 26 = 88 + 407 + 26 = 495 + 26 = 521$$

$$36. \quad 26,002 + 599 + 3500 = 26,601 + 3500 = 30,101$$

$$\begin{array}{r} 38. \quad 421 \\ \quad 218 \\ + 79 \\ \hline 718 \end{array}$$

The room cost \$718.

$$\begin{array}{r} 40. \quad 4658 \\ \quad 5222 \\ + 6027 \\ \hline 15,907 \end{array}$$

The total of the taxes is \$15,907.

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

2335 ft of fencing is needed.

$$\begin{array}{r} 44. \quad 5,400,000 \\ \quad 1,100,000 \\ + 1,000,000 \\ \hline 7,500,000 \end{array}$$

The total area is 7,500,000 square miles.

$$\begin{array}{r} 46. \quad 23,010 \\ \quad 12,700 \\ + 12,162 \\ \hline 47,872 \end{array}$$

The total area is 47,872 square miles.

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

motorcycles passed inspection

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

motorcycles were assembled

$$\begin{array}{r} 50. \quad 2,368,521,788 \\ \quad 5,721,368,701 \\ + 4,027,399,206 \\ \hline 12,117,289,695 \end{array}$$

52. You could not add the addends in reverse order to check the addition. (Answers may vary.)

Cumulative Review Problems

54. Seventy-six million, two hundred eight thousand, nine hundred forty-one

56. 8,724,396

1.3 Exercises

$$\begin{array}{r} 2. \quad 7 \\ - 5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 4. \quad 6 \\ - 0 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 6. \quad 17 \\ - 8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 8. \quad 14 \\ - 5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 10. \quad 17 \\ - 9 \\ \hline 8 \end{array}$$

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

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

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

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

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

$$\begin{array}{r} 22. \quad 84 \\ - 32 \\ \hline 52 \end{array}$$

Check: $\begin{array}{r} 52 \\ + 32 \\ \hline 84 \end{array}$

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

Check: $\begin{array}{r} 41 \\ + 36 \\ \hline 77 \end{array}$

$$\begin{array}{r} 26. \quad 193 \\ - 72 \\ \hline 121 \end{array}$$

Check: $\begin{array}{r} 121 \\ + 72 \\ \hline 193 \end{array}$

$$\begin{array}{r} 28. \quad 621 \\ - 320 \\ \hline 301 \end{array}$$

Check: $\begin{array}{r} 320 \\ + 301 \\ \hline 621 \end{array}$

$$\begin{array}{r} 30. \quad 1896 \\ - 743 \\ \hline 1153 \end{array}$$

Check: $\begin{array}{r} 1153 \\ + 743 \\ \hline 1896 \end{array}$

$$\begin{array}{r} 32. \quad 52,980 \\ - 31,660 \\ \hline 21,320 \end{array}$$

Check: $\begin{array}{r} 21,320 \\ + 31,660 \\ \hline 52,980 \end{array}$

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

Check: $\begin{array}{r} 503,751 \\ + 304,214 \\ \hline 807,965 \end{array}$

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

Correct

$$\begin{array}{r} 38. \quad 2733 \\ + 3243 \\ \hline 5976 \end{array}$$

Correct

$$\begin{array}{r} 40. \quad 7670 \\ + 3200 \\ \hline 10870 \end{array}$$

Incorrect

$$\begin{array}{r} 7890 \\ - 3200 \\ \hline 4690 \end{array}$$

$$\begin{array}{r} 42. \quad 14,223 \\ + 33,846 \\ \hline 48,069 \end{array}$$

Incorrect

$$\begin{array}{r} 47,969 \\ - 33,846 \\ \hline 14,123 \end{array}$$

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

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

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

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

$$\begin{array}{r} 52. \quad 20,000 \\ - 13,120 \\ \hline 6,880 \end{array}$$

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

$$\begin{array}{r} 56. \quad 54,913 \\ - 29,997 \\ \hline 24,916 \end{array}$$

$$\begin{array}{r} 58. \quad 580,092 \\ - 349,905 \\ \hline 230,187 \end{array}$$

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

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

$$\begin{array}{l} 64. \quad 86 + x = 120 \\ \quad \quad x = 120 - 86 \\ \quad \quad x = 34 \end{array}$$

$$\begin{array}{r} 66. \quad 8846 \\ - 6960 \\ \hline 1886 \text{ meters} \end{array}$$

$$\begin{array}{r} 68. \quad 424,130,812 \\ - 376,211,007 \\ \hline \$47,919,805 \end{array}$$

$$\begin{array}{l} 70. \quad \text{Total received} = \$1682 \\ \quad \text{Total paid out} = \$350 + \$265 = \$615 \\ \quad \text{Total actually raised} = \$1682 - \$615 = \$1067 \end{array}$$

$$\begin{array}{r} 72. \quad 9,295,297 \\ - 7,823,194 \\ \hline 1,472,103 \end{array}$$

1,472,103 people

$$\begin{array}{r} 74. \quad 5,490,212 \\ - 4,075,970 \\ \hline 1,414,242 \end{array}$$

1,414,242 people

$$\begin{array}{r} 76. \quad 9,295,297 \\ - 9,262,044 \\ \hline 33,253 \end{array}$$

33,253 people

$$\begin{array}{r} 78. \quad 63 \\ - 45 \\ \hline 18 \end{array}$$

18 homes

$$\begin{array}{r} 80. \quad 54 \\ - 38 \\ \hline 16 \end{array}$$

16 homes

82. Between 1994 and 1995.

84. Willow Creek and Harvey

86. It is true for all a and b if $c = 0$.
For example:
 $5 - (3 - 0) = (5 - 3) - 0$
 $5 - 3 = 2 - 0$
 $2 = 2$

$$\begin{array}{r} 88. \quad 101,000,101,000,101 \\ - 99,090,989,878,789 \\ \hline 1,909,111,121,312 \end{array}$$

Cumulative Review Problems

90. Two hundred ninety-six thousand, three hundred eight.

$$\begin{array}{r} 92. \quad 156,325 \\ + 963,209 \\ \hline 1,119,534 \end{array}$$

1.4 Exercises

$$\begin{aligned}
 2. \quad 4 \times 13 &= 4 \times (10 + 3) \\
 &= (4 \times 10) + (4 \times 3) \\
 &= 40 + 12 \\
 &= 52
 \end{aligned}$$

4.

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

$$\begin{array}{r}
 6. \quad 21 \\
 \times 4 \\
 \hline
 84
 \end{array}$$

$$\begin{array}{r}
 8. \quad 302 \\
 \times 3 \\
 \hline
 906
 \end{array}$$

$$\begin{array}{r}
 10. \quad 5\,203 \\
 \times 2 \\
 \hline
 10,406
 \end{array}$$

$$\begin{array}{r}
 12. \quad 301,200 \\
 \times 4 \\
 \hline
 1,204,800
 \end{array}$$

$$\begin{array}{r}
 14. \quad 12 \\
 \times 4 \\
 \hline
 48
 \end{array}$$

$$\begin{array}{r}
 16. \quad 95 \\
 \times 7 \\
 \hline
 665
 \end{array}$$

$$\begin{array}{r}
 18. \quad 732 \\
 \times 6 \\
 \hline
 4392
 \end{array}$$

$$\begin{array}{r}
 20. \quad 2605 \\
 \times 9 \\
 \hline
 23,445
 \end{array}$$

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

$$\begin{array}{r}
 24. \quad 127,054 \\
 \times 6 \\
 \hline
 762,324
 \end{array}$$

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

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

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

$$\begin{array}{r}
 32. \quad 25,346 \\
 \times 10,000 \\
 \hline
 253,460,000
 \end{array}$$

$$\begin{array}{r}
 34. \quad 134 \\
 \times 20 \\
 \hline
 2680
 \end{array}$$

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

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

$$\begin{array}{r}
 40. \quad 415 \\
 \times 24 \\
 \hline
 1660 \\
 830 \\
 \hline
 9960
 \end{array}$$

$$\begin{array}{r} 42. \quad 3021 \\ \times 12 \\ \hline 6042 \\ 3021 \\ \hline 36,252 \end{array}$$

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

$$\begin{array}{r} 46. \quad 817 \\ \times 84 \\ \hline 3268 \\ 6536 \\ \hline 68,628 \end{array}$$

$$\begin{array}{r} 48. \quad 915 \\ \times 47 \\ \hline 6405 \\ 3660 \\ \hline 43,005 \end{array}$$

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

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

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

$$\begin{array}{r} 56. \quad 493 \\ \times 416 \\ \hline 2958 \\ 493 \\ 197 \\ \hline 205,088 \end{array}$$

$$\begin{array}{r} 58. \quad 392 \\ \times 187 \\ \hline 2744 \\ 3136 \\ 392 \\ \hline 73,304 \end{array}$$

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

$$\begin{array}{r} 62. \quad 7023 \\ \times 2007 \\ \hline 49161 \\ 14046 \\ \hline 14,095,161 \end{array}$$

$$\begin{array}{r} 64. \quad 1298 \\ \times 304 \\ \hline 5192 \\ 3894 \\ \hline 394,592 \end{array}$$

$$\begin{array}{r} 66. \quad 307 \\ \times 300 \\ \hline 92,100 \end{array}$$

$$\begin{array}{r} 68. \quad 150 \\ \times 200 \\ \hline 30,000 \end{array}$$

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

$$72. \quad 15 \cdot 4 \cdot 4 = 60 \cdot 4 = 240$$

$$74. \quad 20 \cdot 5 \cdot 3 = 100 \cdot 3 = 300$$

$$76. \quad 7 \cdot 6 \cdot 2 \cdot 5 = (7 \cdot 6) \cdot (2 \cdot 5) = 42 \cdot 10 = 420$$

$$78. \quad x = 0$$

$$\begin{array}{r} 80. \quad 17 \\ \times 9 \\ \hline 153 \\ 153 \text{ square millimeters} \end{array}$$

$$\begin{array}{r} 82. \quad 43 \\ \times 27 \\ \hline 301 \\ 86 \\ \hline 1161 \\ \$1161 \end{array}$$

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

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

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

$$\begin{array}{r} 90. \quad 102 \\ \times 38 \\ \hline 816 \\ 306 \\ \hline 3876 \\ 3876 \text{ hours} \end{array}$$

$$\begin{array}{r} 92. \quad 15,500,000 \\ \times 17,200 \\ \hline 266,600,000,000 \\ \$266,600,000,000 \end{array}$$

$$\begin{array}{l} 94. \quad 5(x) = 40 \\ 5(8) = 40 \\ x = 8 \end{array}$$

$$\begin{array}{l} 96. \quad 72 = 8(x) \\ 72 = 8(9) \\ x = 9 \end{array}$$

$$\begin{array}{l} 98. \quad \text{No, it would not always be true. In our system} \\ 62 = 60 + 2. \text{ However, in Roman numerals} \\ \text{IV} \neq \text{I} + \text{V}. \\ \text{So } (\text{XII}) \times (\text{IV}) \neq (\text{XII} \times \text{I}) + (\text{XI} \times \text{V}). \end{array}$$

Cumulative Review Problems

$$\begin{array}{r} 100. \quad 34,084 \\ - 27,328 \\ \hline 6,756 \end{array}$$

$$\begin{array}{r} 102. \quad 12 \qquad 156 \\ 2 \qquad -17 \\ +3 \qquad \hline 17 \qquad 139 \\ \$139 \text{ is left.} \end{array}$$

1.5 Exercises

$$2. \quad 5 \overline{)35}^7$$

$$4. \quad 4 \overline{)32}^8$$

$$6. \quad 9 \overline{)27}^3$$

$$8. \quad 7 \overline{)56}^8$$

$$10. \quad 4 \overline{)12}^3$$

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

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

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

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

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

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

$$24. \quad 5 \overline{)0}^0$$

$$26. \quad 6 \overline{)48}^8$$

$$28. \quad 7 \overline{)42}^6$$

$$30. \quad 5 \overline{)5}^1$$

$$32. \quad 5 \overline{)37}^7 \begin{array}{r} 37 \\ -35 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 7 \text{ R}2 \\ \text{Check: } \begin{array}{r} 7 \\ \times 5 \\ \hline 35 \\ + 2 \\ \hline 37 \end{array} \end{array}$$

$$34. \begin{array}{r} 4 \\ 9 \overline{)39} \\ \underline{36} \\ 3 \end{array}$$

4 R3

$$\begin{array}{r} \text{Check: } 4 \\ \times 9 \\ \hline 36 \\ + 3 \\ \hline 39 \end{array}$$

$$36. \begin{array}{r} 17 \\ 6 \overline{)103} \\ \underline{6} \\ 43 \\ \underline{42} \\ 1 \end{array}$$

17 R1

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

$$38. \begin{array}{r} 15 \\ 8 \overline{)124} \\ \underline{8} \\ 44 \\ \underline{40} \\ 4 \end{array}$$

15 R4

$$\begin{array}{r} \text{Check: } 15 \\ \times 8 \\ \hline 120 \\ + 4 \\ \hline 124 \end{array}$$

$$40. \begin{array}{r} 18 \\ 7 \overline{)126} \\ \underline{7} \\ 56 \\ \underline{56} \\ 0 \end{array}$$

$$\begin{array}{r} \text{Check: } 18 \\ \times 7 \\ \hline 126 \end{array}$$

$$42. \begin{array}{r} 28 \\ 8 \overline{)224} \\ \underline{16} \\ 64 \\ \underline{64} \\ 0 \end{array}$$

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

$$44. \begin{array}{r} 252 \\ 3 \overline{)758} \\ \underline{6} \\ 15 \\ \underline{15} \\ 8 \\ \underline{6} \\ 2 \end{array}$$

252 R2

$$46. \begin{array}{r} 57 \\ 7 \overline{)403} \\ \underline{35} \\ 53 \\ \underline{49} \\ 4 \end{array}$$

127 R4

$$48. \begin{array}{r} 254 \\ 9 \overline{)2286} \\ \underline{18} \\ 48 \\ \underline{45} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

$$50. \begin{array}{r} 1464 \\ 5 \overline{)7324} \\ \underline{5} \\ 23 \\ \underline{20} \\ 32 \\ \underline{30} \\ 24 \\ \underline{20} \\ 4 \end{array}$$

1464 R4

$$52. \begin{array}{r} 3021 \\ 6 \overline{)18127} \\ \underline{18} \\ 1 \\ \underline{0} \\ 12 \\ \underline{12} \\ 7 \\ \underline{6} \\ 1 \end{array}$$

3021 R1

$$\begin{array}{r}
 3254 \\
 54. \quad 8 \overline{)26037} \\
 \underline{24} \\
 20 \\
 \underline{16} \\
 43 \\
 \underline{40} \\
 37 \\
 \underline{32} \\
 5
 \end{array}$$

3254 R5

$$\begin{array}{r}
 3 \\
 56. \quad 48 \overline{)152} \\
 \underline{144} \\
 8
 \end{array}$$

3 R8

$$\begin{array}{r}
 6 \\
 58. \quad 53 \overline{)321} \\
 \underline{318} \\
 3
 \end{array}$$

6 R3

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

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

523 R11

$$\begin{array}{r}
 28 \\
 64. \quad 40 \overline{)1125} \\
 \underline{80} \\
 325 \\
 \underline{320} \\
 5
 \end{array}$$

28 R5

$$\begin{array}{r}
 519 \\
 66. \quad 16 \overline{)8314} \\
 \underline{80} \\
 31 \\
 \underline{16} \\
 154 \\
 \underline{144} \\
 10
 \end{array}$$

519 R10

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

110 R7

$$\begin{array}{r}
 114 \\
 70. \quad 19 \overline{)2174} \\
 \underline{19} \\
 27 \\
 \underline{19} \\
 84 \\
 \underline{76} \\
 8
 \end{array}$$

114 R8

$$\begin{array}{r}
 6 \\
 72. \quad 132 \overline{)792} \\
 \underline{792} \\
 0
 \end{array}$$

$$\begin{array}{r}
 5000 \\
 74. \quad 41 \overline{)205000} \\
 \underline{205} \\
 0
 \end{array}$$

$$\begin{array}{r}
 18 \\
 76. \quad 123 \overline{)2214} \\
 \underline{123} \\
 984 \\
 \underline{984} \\
 0
 \end{array}$$

 $x = 18$

$$\begin{array}{r}
 61693 \\
 78. \quad 7 \overline{)431851} \\
 \underline{42} \\
 11 \\
 \underline{7} \\
 48 \\
 \underline{42} \\
 65 \\
 \underline{63} \\
 21 \\
 \underline{21} \\
 0
 \end{array}$$

61,693 runs per day

$$\begin{array}{r} 24 \\ 80. \quad 36 \overline{)864} \\ \underline{72} \\ 144 \\ \underline{144} \\ 0 \end{array}$$

24 pairs per hour

$$\begin{array}{r} 21053 \\ 82. \quad 7 \overline{)147371} \\ \underline{14} \\ 7 \\ \underline{7} \\ 37 \\ \underline{35} \\ 21 \\ \underline{21} \\ 0 \end{array}$$

Each carriage cost \$21,053.

$$\begin{array}{r} 171 \\ 84. \quad 24 \overline{)4104} \\ \underline{24} \\ 170 \\ \underline{168} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

The payments will be \$171 per month.

$$\begin{array}{r} 86. \quad \begin{array}{r} 874 \\ -138 \\ \hline 736 \\ -138 \\ \hline 598 \\ -138 \\ \hline 460 \\ -138 \\ \hline 322 \\ -138 \\ \hline 184 \\ -138 \\ \hline 46 \end{array} \end{array}$$

1st
2nd
3rd
4th
5th
6th

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

6 R46

Cumulative Review Problems

$$\begin{array}{r} 88. \quad \begin{array}{r} 7162 \\ \times 145 \\ \hline 35810 \\ 28648 \\ 7162 \\ \hline 1,038,490 \end{array} \end{array}$$

$$\begin{array}{r} 90. \quad \begin{array}{r} 1,360,000 \\ -1,293,156 \\ \hline 66,844 \end{array} \end{array}$$

Putting Your Skills To Work

$$\begin{array}{r} 2. \quad \begin{array}{r} 370 \\ \times 48 \\ \hline 17,760 \\ +18,760 \\ \hline 36,520 \end{array} \end{array}$$

$$\begin{array}{r} 4. \quad \begin{array}{r} 12,000 \\ \times 4 \\ \hline 48,000 \\ +16,000 \\ \hline 64,000 \end{array} \end{array}$$

1.6 Exercises

2. exponent
4. 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.

$$8. \quad 2 \times 2 \times 2 \times 2 \times 2 = 2^5$$

$$10. \quad 12 \times 12 \times 12 = 12^3$$

$$12. \quad 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 = 1^7$$

$$14. \quad 27 = 27^1$$

$$16. \quad 3^3 = 3 \times 3 \times 3 = 27$$

$$18. \quad 5^2 = 5 \times 5 = 25$$

$$20. \quad 10^3 = 10 \times 10 \times 10 = 1000$$

$$22. \quad 1^{20} = 1$$

$$24. \quad 2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

$$26. \quad 4^3 = 4 \times 4 \times 4 = 64$$

$$28. \quad 13^2 = 13 \times 13 = 169$$

$$30. \quad 8^3 = 8 \times 8 \times 8 = 512$$

$$32. \quad 5^4 = 5 \times 5 \times 5 \times 5 = 625$$

$$34. 2^7 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 128$$

$$36. 8^0 = 1$$

$$38. 20^3 = 20 \times 20 \times 20 = 8000$$

$$40. 8^1 = 8$$

$$42. 10^5 = 100,000$$

$$44. 14^2 = 14 \times 14 = 196$$

$$46. 4^5 = 4 \times 4 \times 4 \times 4 \times 4 = 1024$$

$$48. 4^3 + 4^0 = 64 + 1 = 65$$

$$50. 7^3 + 4^2 = 343 + 16 = 359$$

$$52. 9^2 + 9 = 81 + 9 = 90$$

$$54. 8 \times 3 - 4 \times 2 = 24 - 8 = 16$$

$$56. 6 \times 7 - 4 \div 2 = 42 - 2 = 40$$

$$58. 24 \div 2^2 + 4 = 24 \div 4 + 4 = 6 + 4 = 10$$

$$60. 2^3 \times 4 + 6 - 9 = 8 \times 4 + 6 - 9 = 32 + 6 - 9 = 38 - 9 = 29$$

$$62. 5 \times 2^5 - 4 \times (11 - 8) = 5 \times 32 - 4 \times 3 = 160 - 12 = 148$$

$$64. (600 \div 30) \div 20 = 20 \div 20 = 1$$

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

$$68. (8)(30) - (8 + 30) = 240 - 38 = 202$$

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

$$72. (8)(9) - (15 - 5) \div 5 = 72 - 10 \div 5 = 72 - 2 = 70$$

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

$$76. 2^3 + 3^2 + 4^3 = 8 + 9 + 64 = 17 + 64 = 81$$

$$78. 36 \div 4 \times 5 \times 6 \div 6 = 9 \times 5 \times 6 \div 6 = 45 \times 6 \div 6 = 270 \div 6 = 45$$

$$80. 14^2 - 5 \times 2 \times 3 \times 0 = 196 - 0 = 196$$

$$82. 5^2 \times 4 \div 10 = 25 \times 4 \div 10 = 100 \div 10 = 10$$

$$84. 7 + 5 \times 4 \div 10 - 2 = 7 + 20 \div 10 - 2 = 7 + 2 - 2 = 9 - 2 = 7$$

$$86. 5 + 4^3 \times 2 + 7 = 5 + 64 \times 2 + 7 = 5 + 128 + 7 = 133 + 7 = 140$$

$$88. 30 \div 10 \times 5 - 3^2 = 30 \div 10 \times 5 - 9 = 3 \times 5 - 9 = 15 - 9 = 6$$

$$90. 5^2 \times 3 \div 25 + 7 \times 6 = 25 \times 3 \div 25 + 7 \times 6 = 75 \div 25 + 7 \times 6 = 3 + 7 \times 6 = 3 + 42 = 45$$

$$92. 3(12 - 5)^2 \div (4 + 3) = 3(7)^2 \div 7 = 3(49) \div 7 = 147 \div 7 = 21$$

$$94. 2150 - 3^4(2) \div 9 = 2150 - 81(2) \div 9 = 2150 - 162 \div 9 = 2150 - 18 = 2132$$

$$96. 400 \div 16 - 8 + 3^4 = 400 \div 16 - 8 + 81 = 25 - 8 + 81 = 17 + 81 = 98$$

$$\begin{aligned}
 98. \quad & 50 + 10 \times 2 - 8 + 3 \times (17 - 11) \\
 & = 50 + 10 \times 2 - 8 + 3 \times 6 \\
 & = 5 \times 2 - 8 + 3 \times 6 \\
 & = 10 - 8 + 18 \\
 & = 2 + 18 \\
 & = 20
 \end{aligned}$$

$$\begin{aligned}
 100. \quad & (5 + 3) \times 9 + 6 \times 5 - 6 \times 6 \\
 & = 8 \times 9 + 6 \times 5 - 6 \times 6 \\
 & = 72 + 30 - 36 \\
 & = 102 - 36 \\
 & = 66
 \end{aligned}$$

Cumulative Review Problems

$$102. \quad 200,765,909$$

$$\begin{array}{r}
 104. \quad \begin{array}{r} 1 \ 563 \\ 2 \ 736 \\ 381 \\ 25 \\ + 9 \ 823 \\ \hline 14,528 \end{array}
 \end{array}$$

$$106. \quad 90000$$

1.7 Exercises

2. Since the digit to the right of tens is greater than 4, you round up. When you round up 9 tens, it becomes 10 tens or 100.

4. $4\bar{5}$ rounds to 50 since 5 is equal to 5.

6. $5\bar{7}$ rounds to 60 since 7 is greater than 5.

8. $13\bar{8}$ rounds to 140 since 8 is greater than 5.

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

12. $786\bar{3}$ rounds to 7860 since 3 is less than 5.

14. $7\bar{3}5$ rounds to 700 since 3 is less than 5.

16. $12\bar{5}8$ rounds to 1300 since 5 is equal to 5.

18. $16\bar{4}3$ rounds to 1600 since 4 is less than 5.

20. $3\bar{7}54$ rounds to 4000 since 7 is greater than 5.

22. $\bar{6}79$ rounds to 1000 since 6 is greater than 5.

24. $94,\bar{6}71$ rounds to 95,000 since 6 is greater than 5.

26. $5,878,6\bar{1}2,843,000$ rounds to 5,878,600,000,000 miles since 1 is less than 5.

28. $15,\bar{8}17$ rounds to 16,000 barrels since 8 is greater than 5.

30. a. $614,\bar{5}71$ rounds to 615,000 since 5 is equal to 5.

b. $614,\bar{5}71$ rounds to 614,600 since 7 is greater than 5.

32. a. $10,957,4\bar{4}2,856$ rounds to 10,957,400,000 pounds since 4 is less than 5.

b. $10,957,4\bar{4}2,856$ rounds to 10,957,440,000 pounds since 2 is less than 5.

$$34. \quad 300 + 200 + 1000 = 1500$$

$$36. \quad 30 + 80 + 80 + 40 = 230$$

$$38. \quad 300,000 + 90,000 + 60,000 = 450,000$$

$$40. \quad 1,000,000 - 600,000 = 400,000$$

$$42. \quad 5,000,000 - 4,000,000 = 1,000,000$$

$$44. \quad 90,000,000 - 50,000,000 = 40,000,000$$

$$46. \quad 40 \times 100 = 4000$$

$$48. \quad 3000 \times 6 = 18,000$$

$$50. \quad 400,000 \times 200 = 80,000,000$$

$$52. \quad 60,000 \div 30 = 2000$$

$$54. \quad 600,000 \div 30 = 20,000$$

$$56. \quad 8,000,000 \div 400 = 20,000$$

$$\begin{array}{r}
 58. \quad \begin{array}{r} 500 \\ 100 \\ 500 \\ + 400 \\ \hline 1500 \end{array} \\
 \text{Correct}
 \end{array}$$

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

$$\begin{array}{r}
 62. \quad \begin{array}{r} 700,000 \\ - 100,000 \\ \hline 600,000 \end{array} \\
 \text{Correct}
 \end{array}$$