Business Mathematics 14th edition Clendenen Solutions Manual

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Chapter 1 Whole Numbers and Decimals

1.1 Whole Numbers

1. 7040
seven thousand, forty

2. 5310
five thousand, three hundred ten

3. 37,901
thirty-seven thousand, nine hundred one

4. 725,069
seven hundred twenty-five thousand, sixty-nine

5. 4,650,015
four million, six hundred fifty thousand, fifteen

6. 3,765,041,000
three billion, seven hundred sixty-five million, forty-one thousand

7. 2065 to the nearest ten is 2070.
Draw a line under the tens digit.

2065

Since the digit to the right of that place is 5, increase the tens digit by 1. Change all digits to the right of the tens place to zero.

2065 to the nearest hundred is 2100.
Draw a line under the hundreds digit.

2065

Since the digit to the right of that place is 6, increase the hundreds digit by 1. Change all digits to the right of the hundreds place to zero.

2065 to the nearest thousand is 2000.
Draw a line under the thousands digit.

2065

Since the digit to the right of that place is 0, do not change the thousands digit. Change all digits to the right of the thousands place to zero.

8. 8385 to the nearest ten is 8390.
Draw a line under the tens digit.

8385

Since the digit to the right of that place is 5, increase the tens digit by 1. Change all digits to the right of the tens place to zero.

8385 to the nearest hundred is 8400.
Draw a line under the hundreds digit.

8385

Since the digit to the right of that place is 8, increase the hundreds digit by 1. Change all digits to the right of the hundreds place to zero.

8385 to the nearest thousand is 8000.
Draw a line under the thousands digit.

8385

Since the digit to the right of that place is 3, do not change the thousands digit. Change all digits to the right of the thousands place to zero.

9. 46,231 to the nearest ten is 46,230.
Draw a line under the tens digit.

46,231

Since the digit to the right of that place is 1, do not change the tens digit. Change all digits to the right of the tens place to zero.

46,231 to the nearest hundred is 46,200.
Draw a line under the hundreds digit.

46,231

Since the digit to the right of that place is 3, do not change the hundreds digit. Change all digits to the right of the hundreds place to zero.

46,231 to the nearest thousand is 46,000.
Draw a line under the thousands digit.

46,231

Since the digit to the right of that place is 2, do not change the thousands digit. Change all digits to the right of the thousands place to zero.

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10. 55,175 to the nearest ten is 55,180.
Draw a line under the tens digit.

55,175

Since the digit to the right of that place is 5, increase the tens digit by 1. Change all digits to the right of the tens place to zero.

55,175 to the nearest hundred is 55,200.
Draw a line under the hundreds digit.

55,175

Since the digit to the right of that place is 7, increase the hundreds digit by 1. Change all digits to the right of the hundreds place to zero.

55,175 to the nearest thousand is 55,000.
Draw a line under the thousands digit.

55,175

Since the digit to the right of that place is 1, do not change the thousands digit. Change all digits to the right of the thousands place to zero.

11. 106,054 to the nearest ten is 106,050.
Draw a line under the tens digit.

106,054

Since the digit to the right of that place is 4, do not change the tens digit. Change all digits to the right of the tens place to zero.

106,054 to the nearest hundred is 106,100.
Draw a line under the hundreds digit.

106,054

Since the digit to the right of that place is 5, increase the hundreds digit by 1. Change all digits to the right of the hundreds place to zero.

106,054 to the nearest thousand is 106,000.
Draw a line under the thousands digit.

106,054

Since the digit to the right of that place is 0, do not change the thousands digit. Change all digits to the right of the thousands place to zero.

12. 359,874 to the nearest ten is 359,870.
Draw a line under the tens digit.

359,874

Since the digit to the right of that place is 4, do not change the tens digit. Change all digits to the right of the tens place to zero.

359,874 to the nearest hundred is 359,900.
Draw a line under the hundreds digit.

359,874

Since the digit to the right of that place is 7, increase the hundreds digit by 1. Change all digits to the right of the hundreds place to zero.

359,874 to the nearest thousand is 360,000.
Draw a line under the thousands digit.

359,874

Since the digit to the right of that place is 8, increase the thousands digit by 1. 59 increased by 1 is 60. Change all other digits to the right of the thousands place to zero.

13. Answers will vary.

14. Answers will vary.

15.
$$\begin{array}{r} 75 \\ 63 \\ 45 \\ +\ 27 \\ \hline 210 \end{array}$$

16.
$$\begin{array}{r} 57 \\ 26 \\ 43 \\ +\ 18 \\ \hline 144 \end{array}$$

17.
$$\begin{array}{r} 875 \\ 364 \\ 171 \\ +\ 776 \\ \hline 2186 \end{array}$$

18.
$$\begin{array}{r} 135 \\ 594 \\ 415 \\ +\ 276 \\ \hline 1420 \end{array}$$

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19.
$$\begin{array}{r} 750 \\ 91 \\ 8 \\ 540 \\ +\ 7 \\ \hline 1396 \end{array}$$

20.
$$\begin{array}{r} 371 \\ 45 \\ 839 \\ 3 \\ +\ 47 \\ \hline 1305 \end{array}$$

21.
$$\begin{array}{r} 311,479 \\ 77,631 \\ +\ 594,383 \\ \hline 983,493 \end{array}$$

22.
$$\begin{array}{r} 803,526 \\ 759,991 \\ +\ 36,024 \\ \hline 1,599,541 \end{array}$$

23.
$$\begin{array}{r} 896 \\ -\ 228 \\ \hline 668 \end{array}$$

24.
$$\begin{array}{r} 757 \\ -\ 286 \\ \hline 471 \end{array}$$

25.
$$\begin{array}{r} 3715 \\ -\ 838 \\ \hline 2877 \end{array}$$

26.
$$\begin{array}{r} 6215 \\ -\ 767 \\ \hline 5448 \end{array}$$

27.
$$\begin{array}{r} 65,198 \\ -\ 43,652 \\ \hline 21,546 \end{array}$$

28.
$$\begin{array}{r} 445,193 \\ -\ 62,785 \\ \hline 382,408 \end{array}$$

29.
$$\begin{array}{r} 7,025,389 \\ -\ 936,490 \\ \hline 6,088,899 \end{array}$$

30.
$$\begin{array}{r} 9,807,943 \\ -\ 959,489 \\ \hline 8,848,454 \end{array}$$

31. Adding across the rows, we get the following.

$$\begin{array}{r} \$49,802 \\ \$36,911 \\ \$47,851 \\ \$54,732 \\ \$29,852 \\ +\ \$74,119 \\ \hline \$293,267 \end{array} \qquad \begin{array}{r} \$86,154 \\ \$72,908 \\ \$31,552 \\ \$74,944 \\ \$85,532 \\ +\ \$36,705 \\ \hline \$387,795 \end{array}$$

$$\begin{array}{r} \$59,854 \\ \$85,119 \\ \$87,914 \\ \$45,812 \\ \$56,314 \\ +\ \$91,856 \\ \hline \$426,869 \end{array} \qquad \begin{array}{r} \$73,951 \\ \$72,564 \\ \$39,615 \\ \$71,099 \\ \$72,918 \\ +\ \$42,953 \\ \hline \$373,100 \end{array}$$

$\$293,267 + \$387,795 + \$426,869 + \$373,100$
$= \$1,481,031$

Adding down the columns, we get the following.

$$\begin{array}{r} \$49,802 \\ \$86,154 \\ \$59,854 \\ +\ \$73,951 \\ \hline \$269,761 \end{array} \qquad \begin{array}{r} \$36,911 \\ \$72,908 \\ \$85,119 \\ +\ \$72,564 \\ \hline \$267,502 \end{array}$$

$$\begin{array}{r} \$47,851 \\ \$31,552 \\ \$87,914 \\ +\ \$39,615 \\ \hline \$206,932 \end{array} \qquad \begin{array}{r} \$54,732 \\ \$74,944 \\ \$45,812 \\ +\ \$71,099 \\ \hline \$246,587 \end{array}$$

$$\begin{array}{r} \$29,852 \\ \$85,532 \\ \$56,314 \\ +\ \$72,918 \\ \hline \$244,616 \end{array} \qquad \begin{array}{r} \$74,119 \\ \$36,705 \\ \$91,856 \\ +\ \$42,953 \\ \hline \$245,633 \end{array}$$

$\$269,761 + \$267,502 + \$206,932$
$+ \$246,587 + \$244,616 + \$245,633$
$= \$1,481,031$

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32. Adding across the rows, we get the following.

\$29,806	\$92,143
\$31,712	\$86,599
\$40,909	\$97,194
\$32,514	\$72,815
\$18,902	\$89,500
+ \$23,514	+ \$63,754
\$177,357	\$502,005

\$31,802	\$15,746
\$39,515	\$12,986
\$58,192	\$32,325
\$32,544	\$41,983
\$41,920	\$39,814
+ \$48,732	+ \$20,605
\$252,705	\$163,459

\$177,357 + \$502,005 + \$252,705 + \$163,459
= \$1,095,526

Adding down the columns, we get the following.

\$29,806	\$31,712
\$92,143	\$86,599
\$31,802	\$39,515
+ \$15,746	+ \$12,986
\$169,497	\$170,812

\$40,909	\$32,514
\$97,194	\$72,815
\$58,192	\$32,544
+ \$32,325	+ \$41,983
\$228,620	\$179,856

\$18,902	\$23,514
\$89,500	\$63,754
\$41,920	\$48,732
+ \$39,814	+ \$20,605
\$190,136	\$156,605

\$169,497 + \$170,812 + \$228,620
+ \$179,856 + \$190,136 + \$156,605
= \$1,095,526

33.
$$\begin{array}{r} 218 \\ \times\ 43 \\ \hline 654 \\ 872 \\ \hline 9374 \end{array}$$

34.
$$\begin{array}{r} 672 \\ \times\ 56 \\ \hline 4\ 032 \\ 33\ 60 \\ \hline 37,632 \end{array}$$

35.
$$\begin{array}{r} 1896 \\ \times\ 62 \\ \hline 3\ 792 \\ 113\ 76 \\ \hline 117,552 \end{array}$$

36.
$$\begin{array}{r} 7318 \\ \times\ 38 \\ \hline 58\ 544 \\ 219\ 54 \\ \hline 278,084 \end{array}$$

37.
$$\begin{array}{r} 6452 \\ \times\ 263 \\ \hline 1\ 9\ 356 \\ 387\ 12 \\ 1290\ 4 \\ \hline 1,696,876 \end{array}$$

38.
$$\begin{array}{r} 7143 \\ \times\ 295 \\ \hline 35715 \\ 6428\ 7 \\ 1\ 428\ 6 \\ \hline 2,107,185 \end{array}$$

39.
$$\begin{array}{r} 1109 \\ \times\ 7311 \\ \hline 1\ 109 \\ 11\ 09 \\ 332\ 7 \\ 7\ 763 \\ \hline 8,107,899 \end{array}$$

40.
$$\begin{array}{r} 9503 \\ \times\ 3411 \\ \hline 9\ 503 \\ 95\ 03 \\ 3\ 801\ 2 \\ 28\ 509 \\ \hline 32,414,733 \end{array}$$

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41.

Estimate		Exact
8,000	⟵	8,215
60	⟵	56
700	⟵	729
+ 4,000	⟵	+ 3,605
12,760		12,605

42.

Estimate		Exact
3,000	⟵	2,685
70	⟵	73
600	⟵	592
+ 7,000	⟵	+ 7,183
10,670		10,533

43.

Estimate		Exact
800	⟵	783
− 200	⟵	− 238
600		545

44.

Estimate		Exact
900	⟵	942
− 300	⟵	− 286
600		656

45.

Estimate		Exact
600	⟵	638
× 50	⟵	× 47
30,000		29,986

46.

Estimate		Exact
900	⟵	864
× 70	⟵	× 74
63,000		63,936

47.
$$\begin{array}{r} 370 \\ \times\, 180 \\ \hline \end{array} \qquad \begin{array}{r} 37 \\ \times\, 18 \\ \hline 666 \end{array} + 2 \text{ zeros}$$

66,600

48.
$$\begin{array}{r} 520 \\ \times\, 400 \\ \hline \end{array} \qquad \begin{array}{r} 52 \\ \times\, 4 \\ \hline 208 \end{array} + 3 \text{ zeros}$$

208,000

49.
$$\begin{array}{r} 3760 \\ \times\, 6000 \\ \hline \end{array} \qquad \begin{array}{r} 376 \\ \times\, 6 \\ \hline 2256 \end{array} + 4 \text{ zeros}$$

22,560,000

50.
$$\begin{array}{r} 7200 \\ \times\, 1300 \\ \hline \end{array} \qquad \begin{array}{r} 72 \\ \times\, 13 \\ \hline 936 \end{array} + 4 \text{ zeros}$$

9,360,000

51.
$$\begin{array}{r} 1241 \text{ R1} \\ 4\overline{)4965} \\ \underline{4} \\ 09 \\ \underline{8} \\ 16 \\ \underline{16} \\ 05 \\ \underline{4} \\ 1 \end{array}$$

52.
$$\begin{array}{r} 1,887 \text{ R5} \\ 7\overline{)13,214} \\ \underline{7} \\ 62 \\ \underline{56} \\ 61 \\ \underline{56} \\ 54 \\ \underline{49} \\ 5 \end{array}$$

53.
$$\begin{array}{r} 458 \text{ R21} \\ 43\overline{)19,715} \\ \underline{172} \\ 251 \\ \underline{215} \\ 365 \\ \underline{344} \\ 21 \end{array}$$

54.
$$\begin{array}{r} 875 \text{ R77} \\ 93\overline{)81,452} \\ \underline{744} \\ 705 \\ \underline{651} \\ 542 \\ \underline{465} \\ 77 \end{array}$$

55. Answers will vary.

56. Answers will vary.

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57. $180\overline{)429,350}$

$$\begin{array}{r} 2,385\ \text{R5} \\ 18\overline{)42,935} \\ \underline{36} \\ 69 \\ \underline{54} \\ 153 \\ \underline{144} \\ 95 \\ \underline{90} \\ 5 \end{array}$$

58. $320\overline{)360,990}$

$$\begin{array}{r} 1,128\ \text{R3} \\ 32\overline{)36,099} \\ \underline{32} \\ 40 \\ \underline{32} \\ 89 \\ \underline{64} \\ 259 \\ \underline{256} \\ 3 \end{array}$$

59. $1300\overline{)75,800}$

$$\begin{array}{r} 58\ \text{R4} \\ 13\overline{)758} \\ \underline{65} \\ 108 \\ \underline{104} \\ 4 \end{array}$$

60. $1600\overline{)253,100}$

$$\begin{array}{r} 158\ \text{R3} \\ 16\overline{)2531} \\ \underline{16} \\ 93 \\ \underline{80} \\ 131 \\ \underline{128} \\ 3 \end{array}$$

61. 2,443,000
two million, four hundred forty-three thousand

62. 8,534,350
eight million, five hundred thirty-four thousand, three hundred fifty

63. 3,200,000
three million, two hundred thousand

64. 18,036,650,000,000
eighteen trillion, thirty-six billion, six hundred fifty million

65. eight hundred fifty-four thousand, seven hundred ninety-five
854,795

66. two billion
2,000,000,000

67. fifty-six million, three hundred twelve thousand, seven hundred
56,312,700

68. six hundred forty-eight million
648,000,000

69.
$$\begin{array}{rr} 5000 & 5 \\ \times\ 40 & \times\ 4 \\ \hline & 20 \end{array} \quad +4 \text{ zeros}$$

There are 200,000 chips in 40 pounds.

70.
$$\begin{array}{rr} 61,000,000 & 61 \\ \times\qquad 30 & \times\ 3 \\ \hline & 183 \end{array} \quad +7 \text{ zeros}$$

1,830,000,000 Hershey Kisses can be produced in 30 days.

71. $900+400+500+200=2000$
$2000\div 4=500$

Jim restocks 500 items per hour.

72. $1801+927+2088+580+1049=6445$
$6445\div 5=1289$

There is an average of 1289 sold per week.

73. A total of $6+15+10+5=36$ rafts were rented.

$$\begin{aligned} 6\times\$70&=\$420 \\ 15\times\$95&=\$1425 \\ 10\times\$165&=\$1650 \\ 5\times\$180&=\$900 \\ 36\times\$3&=\$108 \end{aligned}$$

$\$420+\$1425+\$1650+\$900+\$108$
$=\$4503$
Total receipts were $4503.

74. A total of $38+73+58+46=215$ rafts were rented.

$$\begin{aligned} 38\times\$70&=\$2660 \\ 73\times\$95&=\$6935 \\ 58\times\$165&=\$9570 \\ 46\times\$180&=\$8280 \\ 215\times\$3&=\$645 \end{aligned}$$

$\$2660+\$6935+\$9570+\$8280+\$645$
$=\$28,090$
Total receipts were $28,090.

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75. $51,062+27,870+24,912+24,353$
$=128,197$
There were 128,197 thousand or 128,197,000 egg-laying chickens in the top four states.

76. $50,000+30,000+20,000$
$+20,000+20,000+20,000$
$=160,000$
The total number of egg-laying chickens from all states shown is 160,000 thousand or 160,000,000.

77. $51,062-18,769=32,293$
There are 32,293 thousand or 32,293,000 more egg-laying chickens in Iowa than in Texas.

78. $(51,062+27,870)-(20,024+18,769)$
$=78,932-38,793$
$=40,139$
There are 40,139 thousand or 40,139,000 more egg-laying chickens in Iowa and Ohio combined compared to California and Texas combined.

79. $12.5\times1000=12,500$
There are 12,500 Dollar General stores.

80. $4.5\times1000=4500$
There are 4500 Walmart stores.

81. Amazon has the fewest retail stores. There is no cart, meaning that there are fewer than 100 stores.

82. $\$340.0-\$73.2=\$266.8$ billion
The difference in annual sales between Walmart and Target is $266.8 billion.

83. $\$83.5-\$73.2=\$10.3$ billion
Costco has more $10.3 billion more in sales.

84. $12.5\times1000=12,500$ Dollar General stores
$8\times1000=8000$ Walgreens stores

$12,500-8000=4500$
Dollar General has 4500 more retail stores than Walgreens.

1.2 Application Problems

1. $602+935+1328+757+1586=5208$
Subway sold 5208 sandwiches.

2. $80+75+135+40+52=382$
Rob rode 382 miles.

3. $3-1=2$ trillion
2 trillion additional miles per year were driven.

4. $405-328=77$
The amount of carbon dioxide increased by 77 parts per million.

5. $4.7\times253,000,000=1,189,100,000$
1,189,100,000 metric tons of carbon dioxide are emitted per year in the U.S.

6. $19\times850,000=16,150,000$
There were approximately 16,150,000 World War II veterans.

7. $8375-762=7613$
$7613+976=8589$
The weight of the boat is 8589 pounds.

8. $(\$195+\$180+\$205)-(\$85+\$62+\$92)$
$=\$580-\$239=\$341$
The savings is $341.

9. $\$499-\$435=\$64$
The decrease in price was $64.

10. $21,375-9250=12,125$
The weight of the firewood is 12,125 pounds.

11. $43,560\times140=6,098,400$
There are 6,098,400 square feet in 140 acres.

12. $3000\times365=1,095,000$
1,095,000 checks are processed in a year.

13. $\$225-\$75=\$150,\ 7\times\$150=\$1050$
The amount saved is $1050.

14. $\$645-\$74=\$571;\ 4\times\$571=\$2284$
The amount saved is $2284.

15. $6\times\$1256=\$\ 7,536$
$15\times\$895=\$13,425$
$\text{Total}=\$20,961$
The total cost is $20,961.

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16. $32 \times \$1538 = \$49,216$
$28 \times \$887 = \$24,836$
$\text{Total} = \$74,052$
The total cost is \$74,052.

17. $\$7588 - \$838 = \$6750$
\$6750 was raised.

$\$6750 \div 18 = \$375$
Each team received \$375.

18. $(\$60 \times 2) - \$98 = \$120 - \$98 = \$22$
The total profit per hour is \$22.

$\$22 \times 35 = \$770$
Smith's profit for the week is \$770.

19. $30 \times 25 = 750$
$1250 - 750 = 500$
There are 500 balcony seats.

$500 \div 25 = 20$
There must be 20 seats in each row.

20. $82 \times 40 \times 5 \times 50 = 820,000$
There are 820,000 calls per year.

$820,000 \div 17,000 = 48$ R4000,
which rounds to 49.
A minimum of 49 call center operators are needed.

1.3 Decimal Numbers

1. .38
thirty-eight hundredths

2. .91
ninety-one hundredths

3. 5.61
five and sixty-one hundredths

4. 6.53
six and fifty-three hundredths

5. 7.408
seven and four hundred eight thousandths

6. 1.254
one and two hundred fifty-four thousandths

7. 37.593
thirty-seven and five hundred ninety-three thousandths

8. 20.903
twenty and nine hundred three thousandths

9. 4.0062
four and sixty-two ten-thousandths

10. 9.0201
nine and two hundred one ten-thousandths

11. Answers will vary.

12. Answers will vary.

13. four hundred thirty-eight and four tenths
438.4

14. six hundred five and seven tenths
605.7

15. ninety-seven and sixty-two hundredths
97.62

16. seventy-one and thirty-three hundredths
71.33

17. one and five hundred seventy-three ten-thousandths
1.0573

18. nine and three hundred eight ten-thousandths
9.0308

19. three and five thousand eight hundred twenty-seven ten-thousandths
3.5827

20. two thousand seventy-four ten-thousandths
.2074

21. $\$11.99 \div 2 = \$5.995 \approx \$6.00$
Zagorin pays \$6.00.

22. $\$69.94 \div 4 = \$17.485 \approx \$17.49$
Zagorin pays \$17.49.

23. $\$1.75 \div 3 \approx \$.58333 \approx \$.58$
Zagorin pays \$.58.

24. $\$3.94 \div 6 \approx \$.65666 \approx \$.66$
Zagorin pays \$.66.

25. $\$11.98 \div 3 \approx \$3.993 \approx \$3.99$
Zagorin pays \$3.99.

26. $\$37.46 \div 5 = \$7.492 \approx \$7.49$
Zagorin pays \$7.49.

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27. 3.5218 to the nearest tenth is 3.5.
Locate the tenths digit and draw a line.

3.5|218

Since the digit to the right of the line is 2, leave the tenths digit alone.

3.5218 to the nearest hundredth is 3.52.
Locate the hundredths digit and draw a line.

3.52|18

Since the digit to the right of the line is 1, leave the hundredths digit alone.

3.5218 to the nearest thousandth is 3.522.
Locate the hundredths digit and draw a line.

3.512|8

Since the digit to the right of the line is 8, increase the thousandths digit by 1.

28. 4.836 to the nearest tenth is 4.8.
Locate the tenths digit and draw a line.

4.8|36

Since the digit to the right of the line is 3, leave the tenths digit alone.

4.836 to the nearest hundredth is 4.84.
Locate the hundredths digit and draw a line.

4.83|6

Since the digit to the right of the line is 6, increase the hundredths digit by 1.

4.836 to the nearest thousandth is 4.836.
Locate the hundredths digit and draw a line.

4.836|0

Since the digit to the right of the line is 0, leave the thousandths digit alone.

29. 2.54836 to the nearest tenth is 2.5.
Locate the tenths digit and draw a line.

2.5|4836

Since the digit to the right of the line is 4, leave the tenths digit alone.

2.54836 to the nearest hundredth is 2.55.
Locate the hundredths digit and draw a line.

2.54|836

Since the digit to the right of the line is 8, increase the hundredths digit by 1.

2.54836 to the nearest thousandth is 2.548.
Locate the thousandths digit and draw a line.

2.548|36

Since the digit to the right of the line is 3, leave the thousandths digit alone.

30. 7.44652 to the nearest tenth is 7.4.
Locate the tenths digit and draw a line.

7.4|4652

Since the digit to the right of the line is 4, leave the tenths digit alone.

7.44652 to the nearest hundredth is 7.45.
Locate the hundredths digit and draw a line.

7.44|652

Since the digit to the right of the line is 6, increase the hundredths digit by 1.

7.44652 to the nearest thousandth is 7.447.
Locate the thousandths digit and draw a line.

7.446|52

Since the digit to the right of the line is 5, increase the thousandths digit by 1.

31. 27.32451 to the nearest tenth is 27.3.
Locate the tenths digit and draw a line.

27.3|2451

Since the digit to the right of the line is 2, leave the tenths digit alone.

27.32451 to the nearest hundredth is 27.32.
Locate the hundredths digit and draw a line.

27.32|451

Since the digit to the right of the line is 4, leave the hundredths digit alone.

27.32451 to the nearest thousandth is 27.325.
Locate the thousandths digit and draw a line.

27.324|51

Since the digit to the right of the line is 5, increase the thousandths digit by 1.

32. 89.53796 to the nearest tenth is 89.5.
Locate the tenths digit and draw a line.

89.5|3796

Since the digit to the right of the line is 3, leave the tenths digit alone.

89.53796 to the nearest hundredth is 89.54.
Locate the hundredths digit and draw a line.

89.53|796

Since the digit to the right of the line is 7, increase the hundredths digit by 1.

89.53796 to the nearest thousandth is 89.538.
Locate the thousandths digit and draw a line.

89.537|96

Since the digit to the right of the line is 9, increase the thousandths digit by 1.

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33. 36.47249 to the nearest tenth is 36.5.
Locate the tenths digit and draw a line.

36.4|7249

Since the digit to the right of the line is 7, increase the tenths digit by 1.

36.47249 to the nearest hundredth is 36.47.
Locate the hundredths digit and draw a line.

36.47|249

Since the digit to the right of the line is 2, leave the hundredths digit alone.

36.47249 to the nearest thousandth is 36.472.
Locate the thousandths digit and draw a line.

36.472|49

Since the digit to the right of the line is 4, leave the thousandths digit alone.

34. 58.95651 to the nearest tenth is 59.0.
Locate the tenths digit and draw a line.

58.9|5651

Since the digit to the right of the line is 5, increase the tenths digit by 1. 58.9 increased by .1 is 59.0.

58.95651 to the nearest hundredth is 58.96.
Locate the hundredths digit and draw a line.

58.95|651

Since the digit to the right of the line is 6, increase the hundredths digit by 1.

58.95651 to the nearest thousandth is 58.957.
Locate the thousandths digit and draw a line.

58.956|51

Since the digit to the right of the line is 5, increase the thousandths digit by 1.

35. .0562 to the nearest tenth is .1.
Locate the tenths digit and draw a line.

.0|562

Since the digit to the right of the line is 5, increase the tenths digit by 1.

.0562 to the nearest hundredth is .06.
Locate the hundredths digit and draw a line.

.05|62

Since the digit to the right of the line is 6, increase the hundredths digit by 1.

.0562 to the nearest thousandth is .056.
Locate the thousandths digit and draw a line.

.056|2

Since the digit to the right of the line is 2, leave the thousandths digit alone.

36. .0789 to the nearest tenth is .1.
Locate the tenths digit and draw a line.

.0|789

Since the digit to the right of the line is 7, increase the tenths digit by 1.

.0789 to the nearest hundredth is .08.
Locate the hundredths digit and draw a line.

.07|89

Since the digit to the right of the line is 8, increase the hundredths digit by 1.

.0789 to the nearest thousandth is .079.
Locate the thousandths digit and draw a line.

.078|9

Since the digit to the right of the line is 9, increase the thousandths digit by 1.

37. $\$5.056 \approx \$5.06$
Locate the digit representing the cent and draw a vertical line.

\$5.05|6

Since the digit to the right of the line is 6, increase the cent digit by 1.

38. $\$16.519 \approx \$16.52$
Locate the digit representing the cent and draw a vertical line.

\$16.51|9

Since the digit to the right of the line is 9, increase the cent digit by 1.

39. $\$32.493 \approx \$32.49$
Locate the digit representing the cent and draw a vertical line.

\$32.49|3

Since the digit to the right of the line is 3, leave the cent digit alone.

40. $\$375.003 \approx \$375.00$
Locate the digit representing the cent and draw a vertical line.

\$375.00|3

Since the digit to the right of the line is 3, leave the cent digit alone.

41. $\$382.005 \approx \$382.01$
Locate the digit representing the cent and draw a vertical line.

\$382.00|5

Since the digit to the right of the line is 5, increase the cent digit by 1.

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42. $12,802.965 ≈ $12,802.97
Locate the digit representing the cent and draw a vertical line.
$12,802.96|5
Since the digit to the right of the line is 5, increase the cent digit by 1.

43. $42.137 ≈ $42.14
Locate the digit representing the cent and draw a vertical line.
$42.13|7
Since the digit to the right of the line is 7, increase the cent digit by 1.

44. $.846 ≈ $.85
Locate the digit representing the cent and draw a vertical line.
$.84|6
Since the digit to the right of the line is 6, increase the cent digit by 1.

45. $.0015 ≈ $.00
Locate the digit representing the cent and draw a vertical line.
$.00|15
Since the digit to the right of the line is 1, leave the cent digit alone.

46. $.008 ≈ $.01
Locate the digit representing the cent and draw a vertical line.
$.00|8
Since the digit to the right of the line is 8, increase the cent digit by 1.

47. $1.5002 ≈ $1.50
Locate the digit representing the cent and draw a vertical line.
$1.50|02
Since the digit to the right of the line is 0, leave the cent digit alone.

48. $7.6009 ≈ $7.60
Locate the digit representing the cent and draw a vertical line.
$7.60|09
Since the digit to the right of the line is 0, leave the cent digit alone.

49. $1.995 ≈ $2.00
Locate the digit representing the cent and draw a vertical line.
$1.99|5
Since the digit to the right of the line is 5, increase the cent digit by 1.

50. $28.994 ≈ $28.99
Locate the digit representing the cent and draw a vertical line.
$28.99|4
Since the digit to the right of the line is 4, leave the cent digit alone.

51. $752.798 ≈ $752.80
Locate the digit representing the cent and draw a vertical line.
$752.79|8
Since the digit to the right of the line is 8, increase the cent digit by 1.

52. $8.58 ≈ $9
Locate the digit representing the dollar and draw a vertical line.
$8.|58
Since the digit to the right of the line is 5, increase the dollar digit by 1.

53. $26.49 ≈ $26
Locate the digit representing the dollar and draw a vertical line.
$26.|49
Since the digit to the right of the line is 4, leave the dollar digit alone.

54. $.57 ≈ $1
Locate the digit representing the dollar and draw a vertical line.
$.|57
Since the digit to the right of the line is 5, increase the dollar digit by 1.

55. $.49 ≈ $0
Locate the digit representing the dollar and draw a vertical line.
$.|49
Since the digit to the right of the line is 4, leave the dollar digit alone.

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56. $\$299.76 \approx \$300$
Locate the digit representing the dollar and draw a vertical line.
$\$299.|76$
Since the digit to the right of the line is 7, increase the dollar digit by 1. \$299 increased by 1 is \$300.

57. $\$12,836.38 \approx \$12,836$
Locate the digit representing the dollar and draw a vertical line.
$\$12,836.|38$
Since the digit to the right of the line is 3, leave the dollar digit alone.

58. $\$268.72 \approx \$269$
Locate the digit representing the dollar and draw a vertical line.
$\$268.|72$
Since the digit to the right of the line is 7, increase the dollar digit by 1.

59. $\$395.18 \approx \$395$
Locate the digit representing the dollar and draw a vertical line.
$\$395.|18$
Since the digit to the right of the line is 1, leave the dollar digit alone.

60. $\$666.66 \approx \$667$
Locate the digit representing the dollar and draw a vertical line.
$\$666.|66$
Since the digit to the right of the line is 6, increase the dollar digit by 1.

61. $\$4699.62 \approx \$4700$
Locate the digit representing the dollar and draw a vertical line.
$\$4699.|62$
Since the digit to the right of the line is 6, increase the dollar digit by 1. \$4699 increased by 1 is \$4700.

62. $\$11,285.13 \approx \$11,285$
Locate the digit representing the dollar and draw a vertical line.
$\$11,285.|13$
Since the digit to the right of the line is 1, leave the dollar digit alone.

63. $\$378.59 \approx \$379$
Locate the digit representing the dollar and draw a vertical line.
$\$378.|59$
Since the digit to the right of the line is 5, increase the dollar digit by 1.

64. $\$233.86 \approx \$234$
Locate the digit representing the dollar and draw a vertical line.
$\$233.|86$
Since the digit to the right of the line is 8, increase the dollar digit by 1.

65. $\$722.38 \approx \$722$
Locate the digit representing the dollar and draw a vertical line.
$\$722.|38$
Since the digit to the right of the line is 3, leave the dollar digit alone.

66. $\$8263.47 \approx \$8263$
Locate the digit representing the dollar and draw a vertical line.
$\$8263.|47$
Since the digit to the right of the line is 3, leave the dollar digit alone.

67. Answers will vary.

68. Answers will vary.

1.4 Addition and Subtraction of Decimals

1.

Estimate		Exact
40	⟵	43.36
20	⟵	15.8
+ 9	⟵	+ 9.3
69		68.46

2.

Estimate		Exact
600	⟵	623.15
700	⟵	734.29
+ 700	⟵	+ 686.26
2000		2043.70

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3.

Estimate		Exact
6	⟵	6.23
4	⟵	3.6
5	⟵	5.1
7	⟵	7.2
+ 2	⟵	+ 1.69
24		23.82

4.

Estimate		Exact
10	⟵	12.79
2	⟵	2.15
20	⟵	16.28
4	⟵	4.39
+ 8	⟵	+ 7.61
44		43.22

5.

Estimate		Exact
2000	⟵	2156.38
5	⟵	5.26
3	⟵	2.791
+ 7	⟵	+ 6.983
2015		2171.414

6.

Estimate		Exact
2000	⟵	1889.76
20	⟵	21.42
20	⟵	19.35
+ 8	⟵	+ 8.1
2048		1938.63

7.

Estimate		Exact
6000	⟵	6133.78
500	⟵	506.124
20	⟵	18.63
+ 8	⟵	+ 7.527
6528		6666.061

8.

Estimate		Exact
700	⟵	743.1
4000	⟵	3817.65
3	⟵	2.908
4000	⟵	4123.76
+ 20	⟵	+ 21.98
8723		8709.398

9.

Estimate		Exact
2000	⟵	1798.419
70	⟵	68.32
500	⟵	512.807
600	⟵	643.9
+ 400	⟵	+ 428.
3570		3451.446

10.
$$\begin{array}{r} 45.631 \\ 15.8 \\ 7.234 \\ +\ 19.63 \\ \hline 88.295 \end{array}$$

11.
$$\begin{array}{r} 12.15 \\ 6.83 \\ 61.75 \\ 19.218 \\ +\ 73.325 \\ \hline 173.273 \end{array}$$

12.
$$\begin{array}{r} 197.4 \\ 83.72 \\ 17.43 \\ 25.63 \\ +\ 1.4 \\ \hline 325.58 \end{array}$$

13.
$$\begin{array}{r} 27.653 \\ 18.7142 \\ 9.7496 \\ +\ 3.21 \\ \hline 59.3268 \end{array}$$

14.
$$\begin{array}{r} 73.618 \\ 19.18 \\ 371.82 \\ +355.125 \\ \hline 819.743 \end{array}$$

15. Answers will vary.

16. Answers will vary.

17. $\$1815.79 + \$2367.34 + \$1976.22 + \$2155.81 + \$1698.14 + 2885.26 + \$2239.63 = \$15{,}138.19$

The total weekly sales are $15,138.19.

18. $\$85.25 + \$114.60 + \$129.40 = \$329.25$

The total is $329.25.

19. $\$12.99 - \$1.89 = \$11.10$

The price of T-bone steak is $11.10 per pound more than turkey.

20. $\$1530 - \$1238.73 = \$291.27$

Tuxon is paying $291.27 above the average.

21.

Estimate		Problem
20	⟵	19.74
− 7	⟵	− 6.58
13		13.16

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22.

Estimate		Problem
40	⟵	35.86
− 8	⟵	− 7.91
32		27.95

23.

Estimate		Problem
50	⟵	51.215
− 20	⟵	− 19.708
30		31.507

24.

Estimate		Problem
30	⟵	27.613
− 20	⟵	− 18.942
10		8.671

25.

Estimate		Problem
300	⟵	325.053
− 90	⟵	− 85.019
210		240.034

26.

Estimate		Problem
4000	⟵	3974.61
− 900	⟵	− 892.59
3100		3082.02

27.

Estimate		Problem
8	⟵	7.8
− 3	⟵	− 2.952
5		4.848

28.

Estimate		Problem
30	⟵	27.8
− 10	⟵	− 13.582
20		14.218

29.

Estimate		Problem
5	⟵	5
− 2	⟵	− 1.9802
3		3.0198

30. $\$60,375.82 + \$3280.18 + \$75.53$
$= \$63,731.53$
Fernandez deposited \$63,731.53 in March.

31. $\$27,282.75 + \$4280.83 + \$12,252.23$
$= \$43,815.81$
Fernandez paid out \$43,815.81.

32. $\$5382.12 + \$63,731.53 - \$43,815.81$
$= \$25,297.84$
Her final balance was \$25,297.84.

1.5 Multiplication and Division of Decimals

1.

Estimate		Problem
100	⟵	96.8
× 4	⟵	× 4.2
400		406.56

2.

Estimate		Problem
20	⟵	16.6
× 4	⟵	× 4.2
80		69.72

3.

Estimate		Problem
30	⟵	34.1
× 7	⟵	× 6.8
210		231.88

4.

Estimate		Problem
70	⟵	70.35
× 8	⟵	× 8.06
560		567.021

5.

Estimate		Problem
40	⟵	43.8
× 2	⟵	× 2.04
80		89.352

6.

Estimate		Problem
70	⟵	69.3
× 3	⟵	× 2.81
210		194.733

7.

.532	⟵	3 decimals
× 3.6	⟵	1 decimal
3192		
1 596		
1.9152	⟵	4 decimals

8.

.259	⟵	3 decimals
× 6.2	⟵	1 decimal
518		
1 554		
1.6058	⟵	4 decimals

9.

21.7	⟵	1 decimal
× .431	⟵	3 decimals
217		
651		
8 68		
9.3527	⟵	4 decimals

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10.
$$\begin{array}{rl} 76.9 \longleftarrow & 1 \text{ decimal} \\ \times\ .903 \longleftarrow & 3 \text{ decimals} \\ \hline 2307 & \\ 0 & \\ 69\ 21 & \\ \hline 69.4407 \longleftarrow & 4 \text{ decimals} \end{array}$$

11.
$$\begin{array}{rl} .0408 \longleftarrow & 4 \text{ decimal} \\ \times\ .06 \longleftarrow & 2 \text{ decimals} \\ \hline 2448 & \\ 0 & \\ \hline .002448 \longleftarrow & 6 \text{ decimals} \end{array}$$

12.
$$\begin{array}{rl} 2481.9 \longleftarrow & 1 \text{ decimal} \\ \times\ .003 \longleftarrow & 3 \text{ decimals} \\ \hline 74457 & \\ 0 & \\ 0 & \\ \hline 7.4457 \longleftarrow & 4 \text{ decimals} \end{array}$$

13. $18.5 \times \$14.50 = \$268.25$

14. $36.6 \times \$9.85 = \$360.51$

15.
$$\begin{array}{rl} 27.9 \times \$11.42 = & \$318.62 \\ 6.8 \times \$14.63 = & \$99.48 \\ \hline & \$418.10 \end{array}$$

16.
$$\begin{array}{rl} 11.4 \times \$8.59 = & \$97.93 \\ 23.9 \times \$10.06 = & \$240.43 \\ \hline & \$338.36 \end{array}$$

17.
$$\begin{array}{r} 8.075 \\ 6\overline{)48.450} \\ 48 \\ \hline 04 \\ 0 \\ \hline 45 \\ 42 \\ \hline 30 \\ 30 \\ \hline 0 \end{array}$$

18.
$$\begin{array}{r} 12.476 \\ 5\overline{)62.380} \\ 5 \\ \hline 12 \\ 10 \\ \hline 23 \\ 20 \\ \hline 38 \\ 35 \\ \hline 30 \\ 30 \\ \hline 0 \end{array}$$

19.
$$\begin{array}{r} 27.442 \\ 15\overline{)411.630} \\ 30 \\ \hline 111 \\ 105 \\ \hline 66 \\ 60 \\ \hline 63 \\ 60 \\ \hline 30 \\ 30 \\ \hline 0 \end{array}$$

20. $2.43\overline{)9.6153}$

$= 3.957$ (rounded)

$$\begin{array}{r} 3.9569 \\ 243\overline{)961.5300} \\ 729 \\ \hline 2325 \\ 2187 \\ \hline 1383 \\ 1215 \\ \hline 1680 \\ 1458 \\ \hline 2220 \\ 2187 \\ \hline 33 \end{array}$$

21. $.65\overline{)37.6852}$

$= 57.977$ (rounded)

$$\begin{array}{r} 57.9772 \\ 65\overline{)3768.5200} \\ 325 \\ \hline 518 \\ 455 \\ \hline 635 \\ 585 \\ \hline 502 \\ 455 \\ \hline 470 \\ 455 \\ \hline 150 \\ 130 \\ \hline 20 \end{array}$$

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22. $.28\overline{)15.62}$

$= 55.786$ (rounded)

$$28\overline{)1562.0000}\quad 55.7857$$

140
162
140
220
196
240
224
160
140
200
196
4

23. Answers will vary.

24. Answers will vary.

25. $\$246,500 \times .06 = \$14,790$
The amount of commission was $14,790.

26. $2.75 \times 4 = 11$
Janitha needs 11 yards of material.

27. $519 \div 10.2 = 50.9$
The Prius got 50.9 miles per gallon.

28. (a) $48 \times 4.3 = 206.4$
206.4 hours are worked each month.

(b) $\$2528 \div 206.4 = \$12.25$
The assistant manager's hourly earnings are $12.25.

29. $\$1170.18 \div \$106.38 = 11$
It will take 11 months to pay off the balance.

30. $57.13 \div 1.62 \approx 35$
35 doses can be made.

31. (a) $.0043 \times 100 = .43$
The pile of one hundred $100 bills would be .43 inch high.

(b) $.0043 \times 1000 = 4.3$
The pile of one thousand $100 bills would be 4.3 inches high.

32. (a) $43 \div .0043 = 10,000$
There are 10,000 bills.

(b) $10,000 \times \$20 = \$200,000$
You would have $200,000.

33. A total of $4 + 2 = 6$ shirts were ordered.

$4 \times \$18.95 = \$75.80$
$2 \times \$16.75 = \$33.50$
$6 \times \$2 = \$12$

$\$75.80 + \$33.50 + \$12 = \$121.30$ total price

Total price + shipping
$= \$121.30 + \$7.95 = \$129.25$
The total cost is $129.95.

34. $5 \times \$18.95 = \$94.75$
$3 \times \$21.95 = \$65.85$

$\$94.75 + \$65.85 = \$160.60$ total price

Total price + shipping
$= \$160.60 + \$9.95 + \$4.25 = \$174.80$
The total cost is $174.80.

35. (a) Add to find the total for the shirts, monogram, and gift box.
$3 \times \$14.75 = \$44.25$
$\$44.25 + \$4.95 + \$4.95 + \$4.95 + \$5$
$= \$64.10$

Total price + shipping
$= \$64.10 + \$5.95 = \$70.05$
The total cost is $70.05.

(b) Monogram + gift box + shipping
$= \$4.95 + \$4.95 + \$4.95 + \$5 + \$5.95$
$= \$25.80$
The monogram, gift box, and shipping added $25.80 to the cost.

36. (a) Add to find the total for your shirts, with monogram on the solid-color shirts.
$\$14.75 + \$16.75 + \$18.95 + \$21.95$
$+\$4.95 + \$4.95 = \$82.30$

Add to find the total for your father's size-XXL shirts, in a gift box.
$3 \times \$21.95 = \$65.85$
$\$65.85 + \$2 + \$2 + \$2 + \$5 = \$76.85$

Total price
$= \$82.30 + \$76.85 = \$159.15$

Total price + shipping
$= \$159.15 + \$9.95 + \$4.25 = \$173.35$
The total cost is $173.35.

(b) $\$82.30 - \$76.85 = \$5.45$
The difference in total cost is $5.45.

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Case Study

1. $\$10,664 + \$3821 + \$3053 + \$2958 = \$20,496$
The combined cost is $20,496.

2. $\$28,540 - \$24,168 = \$4372$
The difference in the average costs is $4372.

3. $\$7500 \div \$42 \approx 178$
You can invite 178 guests.

$\$42 \times 178 = \$7476$

$\$7500 - \$7476 = \$24$
The amount remaining is $24.

4. $\$5325 \div 115 \approx \$46.304 \approx \$46.30$
$46.30 can be spent per person.

5. $\$22,000 - \$8000 = \$14,000$

$\$14,000 \div \$650 \approx 21.538 \approx 22$
It will require 22 months for the couple to pay their share of the costs.

Case in Point Summary Exercise

1. $\$486.12 + \$1236.14 + \$364.76 + \$103.75 = \$2190.77$
The total of the invoice is $2190.77.

2. $3.5 + 4.5 + 6 + \$5.5 = 19.5$
The total number of hours worked is 19.5.

$19.5 \times \$8.65 = \$168.68$
The pay for the week is $168.68.

3. $\$2065.48 - \$1864.92 = \$200.56$
The difference between the two is $200.56.

$\$200.56 \div \$.94 \approx 213$
There are approximately 213 additional customers.

4. $\$168.32 \times 4 = \$673.28$
The amount spent on advertising is $673.28.

$\$10,984.76 \times 1.3 = \$14,280.19$
The revenue is approximately $14,280.19.

Chapter 1 Test

1. 844 to the nearest ten is 840.
Draw a line under the tens digit.

$$8\underline{4}4$$

Since the digit to the right of that place is 4, do not change the tens digit. Change all digits to the right of the tens place to zero.

2. 21,958 to the nearest hundred is 22,000.
Draw a line under the hundreds digit.

$$21,\underline{9}58$$

Since the digit to the right of that place is 5, increase the hundreds digit by 1, which increases the thousands digit by 1. Change all digits to the right of the thousands place to zero.

3. 671,529 to the nearest thousand is 672,000.
Draw a line under the thousands digit.

$$671\underline{,}529$$

Since the digit to the right of that place is 5, increase the thousands digit by 1. Change all digits to the right of the thousands place to zero.

4. $50,987 \approx 50,000$
Round the first digit and change all other digits to zero.

5. $851,004 \approx 900,000$
Round the first digit and change all other digits to zero.

6. $\$124 + \$88 + \$62 + \$137 + \$195 = \$606$
Katie's total amount of commissions is $606.

7. $(3 \times \$1540) + (5 \times \$695) + (8 \times \$38)$
$= \$4620 + \$3475 + \$304 = \$8399$
The total cost of the equipment is $8399.

8. $\$21.0568 \approx \$21.06$
Locate the digit representing the cent and draw a vertical line.

$$\$21.05|68$$

Since the digit to the right of the line is 6, increase the cent digit by 1.

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9. $\$364.345 \approx \$364.35$
Locate the digit representing the cent and draw a vertical line.

$\$364.34|5$

Since the digit to the right of the line is 5, increase the cent digit by 1.

10. $\$7246.49 \approx \$7246$
Locate the digit representing the dollar and draw a vertical line.

$\$7246.|49$

Since the digit to the right of the line is 4, leave the dollar digit alone.

11. $9.6 + 8.42 + 3.715 + 159.8 = 181.535$

12.
$$\begin{array}{r} 2.715 \\ 32.78 \\ 426.3 \\ +\ 37 \\ \hline 498.795 \end{array}$$

13.
$$\begin{array}{r} 341.4 \\ -\ 207.8 \\ \hline 133.6 \end{array}$$

14.
$$\begin{array}{r} 3.8 \\ -\ .0053 \\ \hline 3.7947 \end{array}$$

15.
$$\begin{array}{rl} 21.98 & \longleftarrow \text{ 2 decimals} \\ \times\ \ .72 & \longleftarrow \text{ 2 decimals} \\ \hline 4396 & \\ 15386 & \\ \hline 15.8256 & \longleftarrow \text{ 4 decimals} \end{array}$$

16.
$$\begin{array}{rl} 218.6 & \longleftarrow \text{ 1 decimal} \\ \times\ .037 & \longleftarrow \text{ 3 decimals} \\ \hline 15302 & \\ 6558 & \\ \hline 8.0882 & \longleftarrow \text{ 4 decimals} \end{array}$$

17. $21.8\overline{)252.008}$

$$\begin{array}{r} 11.56 \\ 218.\overline{)2520.08} \\ 218 \\ \hline 340 \\ 218 \\ \hline 1220 \\ 1090 \\ \hline 1308 \\ 1308 \\ \hline 0 \end{array}$$

18. $70\overline{)24,500}$

$$\begin{array}{r} 350 \\ 7\overline{)2450} \\ 21 \\ \hline 35 \\ 35 \\ \hline 00 \\ 0 \\ \hline 0 \end{array}$$

19. $2.41\overline{)57.358}$

$$\begin{array}{r} 23.8 \\ 241.\overline{)5735.8} \\ 482 \\ \hline 915 \\ 723 \\ \hline 192\ 8 \\ 192\ 8 \\ \hline 0 \end{array}$$

20. $(24.8 \times \$1.89) + (38.2 \times \$4.52)$
$= \$219.536 \approx \$219.54$
The final cost is \$219.54.

21. $\$84.52 + \$55.75 + \$9.65 = \$149.92$
The cost per square is \$149.92.

$\$149.92 \times 26.3 = \$3942.90$
The total cost is \$3942.90.

22. $3.4 - 1.6 = 1.8$
1.8 gallons of water are saved per flush.

$1.8 \times 22 \times 365 = 14,454$
14,454 gallons of water are saved in one year.

23. $(135.5 \times \$.86) + (12 \times \$2.18) = \$142.69$
The total cost was \$142.69.

$(8 \times \$20) - \$142.69 = \$17.31$
Steve received \$17.31 change.

24. $\$1.74 \div 2.2 = \$.7909 \approx \$.79$
The price of bananas is \$.79 per pound.

25. $14.674 \div .058 = 253$
253 seedlings can be fertilized.

26. $.65 \times 2 \times 7 = 9.1 \approx 9$
9 milliliters of antibiotics are needed.

27. $\$36.95 \times 4 = \$147.80$
The cost of the phones is \$147.80 per month.

$\$147.80 - \$100 = \$47.80$
The monthly shortage is \$47.80.

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BUSINESS MATHEMATICS
CHAPTER TEST FORMS

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Round as indicated.

1. 577 to the nearest ten **1.** _____

2. 29,568 to the nearest hundred **2.** _____

3. 478,236 to the nearest thousand **3.** _____

Round each of the following, using front-end rounding.

4. 87,923 **4.** _____

5. 147,273 **5.** _____

Solve each word problem.

6. Michael Ross earned $44 on Monday, $36 on Tuesday, $58 on Wednesday, took Thursday off, and earned $51 on Friday. Find his total earnings for the week. **6.** _____

7. DT Publishing purchased four notebook computers, each costing $2149, and three printers, each priced at $399. Find the total cost of the new computer equipment. **7.** _____

Round as indicated.

8. $8.0443 to the nearest cent **8.** _____

9. $61.718 to the nearest cent **9.** _____

10. $736.49 to the nearest dollar **10.** _____

Solve each problem.

11. $5.7 + 4.74 + 56.5423 + 666.2$ **11.** _____

12.
$$\begin{array}{r} 365.812 \\ 47.37 \\ 598.1 \\ +\ 54 \\ \hline \end{array}$$
12. _____

13.
$$\begin{array}{r} 278.6 \\ -\ 195.1 \\ \hline \end{array}$$
13. _____

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14. $3.15 - .201$ **14.** _____

15. $23.96 \times .51$ **16.** $345.2 \times .027$ **15.** _____

16. _____

17. $23.7\overline{)116.604}$ **17.** _____

18. $8.848 \div 1.58$ **18.** _____

19. $39.5115 \div 2.13$ **19.** _____

Solve each word problem.

20. Find the total cost of 3.4 pounds of caramel nut clusters at $8.25 per pound and 5.2 pounds of chocolate covered cashews at $9.35 per pound. **20.** _____

21. A certain wallpaper costs $18.79 per roll. An installer charges $30.00 per roll for labor and $5.50 per roll for supplies. Find the charge to buy and install 7 rolls of wallpaper. **21.** _____

22. An Ebay merchant sells Civil War bullets individually for $2.50. You are interested in buying the bullets in bulk to create display cases to resell. The merchant agrees to sell assortments of 25 bullets for $45. How much will you save over the individual price if you buy 75 bullets? **22.** _____

23. Elena treats a friend to a snack at the food court of a local mall. She buys a slice of pizza to share for $2.95, two drinks at $1.25 each, and two cinnamon rolls at $1.85 each. How much change will Elena receive from a $20 bill? **23.** _____

24. While redecorating, Morris Company used 275 square yards of commercial carpet. The cost of the carpet was $7411.25. How much did Morris pay per square yard? **24.** _____

25. A bottle of cleanser contains .76 ounce of an active ingredient. Find the number of bottles of cleanser that can be made with 39.52 ounces of active ingredient. **25.** _____

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Round as indicated.

1. 423 to the nearest ten **1.** _____

2. 56,314 to the nearest hundred **2.** _____

3. 965,937 to the nearest thousand **3.** _____

Round each of the following, using front-end rounding.

4. 63,559 **4.** _____

5. 371,491 **5.** _____

Solve each word problem.

6. James sold $175 of concession snacks at the ballpark during the first hour, $305 during the second hour, and $224 during the final hour of the game. How much revenue did James make from the concessions during the game? **6.** _____

7. Four students each decide to purchase a new smartphone. One student purchases a smartphone for $99. A second student purchases a smartphone for $149. The last two students spend $299 each on a smartphone. Find the total. **7.** _____

Round as indicated.

8. $12.1573 to the nearest cent **8.** _____

9. $1.213 to the nearest cent **9.** _____

10. $45.63 to the nearest dollar **10.** _____

Solve each problem.

11. $7236.4 + 21.6478 + 1.2 + 32.78$ **11.** _____

12.
$$\begin{array}{r} 2.723 \\ 285.38 \\ 24.1 \\ +\ 36 \\ \hline \end{array}$$
12. _____

13.
$$\begin{array}{r} 786.3 \\ -397.2 \\ \hline \end{array}$$
13. _____

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14. $7.52 - 1.205$ **14.** _____

15. 19.95×3.2 **15.** _____

16. 621.7×0.245 **16.** _____

17. $13.3\overline{)312.55}$ **17.** _____

18. $26.208 \div 3.64$ **18.** _____

19. $28.0606 \div 1.73$ **19.** _____

Solve each word problem.

20. A fly fisherman purchased 7 Black Gnat dry flies at $3.67 each, 11 Blue Dun dry flies at $3.97 each, and a floating trout leader for $5.99. Find the total spent for the supplies. **20.** _____

21. A contractor charges $66.35 per cubic yard for concrete, $168.45 per cubic yard to spread the concrete, and $15.75 per cubic yard to finish the concrete. Find the total cost for 9.17 cubic yards of concrete. Round to the nearest cent. **21.** _____

22. The Ramirez family is planning a cruise for their reunion. If they book 2 people per stateroom, the cost per person is $776.29. If they book 4 people per stateroom, the cost per person is $606.64. Forty-four people will attend the reunion. How much will the group save by booking 4 people per room as opposed to 2 people per room? **22.** _____

23. Sally bought 2 new tires at Kirk's Tires for $96.80 each. Kirk also charged Sally $2.99 per tire for mounting, $2.80 per tire for valves, and $4.10 per tire for balancing. What is Sally's final bill? **23.** _____

24. JoEllyn spent $4.41 on ribbon for a craft project. The ribbon cost $.36 per yard. How many yards of ribbon did JoEllyn purchase? **24.** _____

25. Shelia owns a sports car that gets 23.4 miles to the gallon. She is planning a weekend trip to see her parents, who live 265 miles away. If gas costs $3.43 per gallon, how much does she need to budget for gas for the trip? Round to the nearest dollar. (Hint: Remember the return trip.) **25.** _____

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Round as indicated.

1. 877 to the nearest ten **1.** _____

2. 54,396 to the nearest hundred **2.** _____

3. 343,184 to the nearest thousand **3.** _____

Round each of the following, using front-end rounding.

4. 78,894 **4.** _____

5. 603,888 **5.** _____

Solve each word problem.

6. Lynda earned the following tips in a week: Monday, $37; Tuesday, $21; Wednesday, $19; Friday, $52; and Saturday, $63. Find her total tips for the week. **6.** _____

7. The manager of a small office orders several bouquets of flowers for Mother's Day, 3 rose bouquets for $69 each, 4 orchid bouquets for $75 each, and 7 daisy bouquets for $35 each. Find the total cost for the flowers. **7.** _____

Round as indicated.

8. $7.4538 to the nearest cent **8.** _____

9. $94.8795 to the nearest cent **9.** _____

10. $357.61 to the nearest dollar **10.** _____

Solve each problem.

11. $129.18 + 4.7 + 32.8 + 9.532$ **11.** _____

12.
$$\begin{array}{r} 219.57 \\ 22.8 \\ 36.982 \\ +\ 54 \\ \hline \end{array}$$
12. _____

13.
$$\begin{array}{r} 471.2 \\ -\ 84.3 \\ \hline \end{array}$$
13. _____

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14. $2.3 - .0093$ **14.** _____

15. 81.74×3.6 **16.** $204.8 \times .075$ **15.** _____

16. _____

17. $77.4\overline{)2054.196}$ **17.** _____

18. $643.365 \div 7.65$ **18.** _____

19. $2036.6571 \div 26.31$ **19.** _____

Solve each word problem.

20. Find the total cost for 2.34 pounds of strawberries at $1.48 per pound, and 2.48 pounds of grapes at $1.99 per pound. Round to the nearest cent. **20.** _____

21. Brandon worked 44.75 hours last week. He will earn a base pay of $10.80 per hour and 1.5 times this amount for any time over 40 hours. Find Brandon's gross pay. **21.** _____

22. The Robinson family's federal income tax is found by multiplying their taxable income of $84,305.29 by the decimal .27 and rounding the result to the nearest dollar. Find their tax. **22.** _____

23. An adult belt requires 45.375 inches of leather. A child's belt requires 34.75 inches of leather. A craftsman must produce one dozen of each size. How much leather will be left over from a 1000 inch length? **23.** _____

24. Each dose of a medication contains 4.28 units of a certain ingredient. Find the number of doses that can be made from 286.77 units of the ingredient. Round to the nearest whole number. **24.** _____

25. A commemorative gold coin weighs 7.842 grams. Find the number of coins that can be produced from 118 grams of gold. Round to the nearest whole number. **25.** _____

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Round as indicated.

1. 241 to the nearest ten **1.** _____

2. 36,062 to the nearest hundred **2.** _____

3. 708,532 to the nearest thousand **3.** _____

Round each of the following, using front-end rounding.

4. 23,941 **4.** _____

5. 362,352 **5.** _____

Solve each word problem.

6. Brent Richmond earned $48 on Monday, $74 on Tuesday, $54 on Wednesday, took Thursday off, and earned $86 on Friday. Find his total earnings for the week. **6.** _____

7. The Northwest Public Library purchased 8 laptops at $1295 each, 3 copiers at $3815 each, and 4 projectors at $1375 each. Find the total cost. **7.** _____

Round as indicated.

8. $6.8361 to the nearest cent **8.** _____

9. $243.5652 to the nearest cent **9.** _____

10. $998.49 to the nearest dollar **10.** _____

Solve each problem.

11. $128.6 + 13.57 + 48 + 1.974$ **11.** _____

12.
$$\begin{array}{r} 12.8 \\ 13.82 \\ 77 \\ +\ 48.908 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 743.2 \\ -\ 54.3 \\ \hline \end{array}$$

12. _____

13. _____

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14. $8.3 - .0542$ **14.** _____

15. 71.15×4.4 **16.** $117.8 \times .032$ **15.** _____

16. _____

17. $22.65\overline{)1402.035}$ **17.** _____

18. $103.224 \div 2.64$ **18.** _____

19. $149.547 \div 6.31$ **19.** _____

Solve each word problem.

20. Find the total cost for 3.55 pounds of chicken at $2.68 per pound, and 2.7 pounds of beef at $6.48 per pound. Round to the nearest cent. **20.** _____

21. A local car rental company charges a weekend rate of $35.98 plus surcharges of $14.30. Additionally, taxes are calculated by multiplying the entire amount by .15. What is the charge to rent the car? Round to the nearest cent. **21.** _____

22. Phil bought a jeep for $29,850. Find the tax if the tax rate is .0575. Round to the nearest cent. **22.** _____

23. The Law family budgeted $500 for a camping vacation. They spent $315.89 on food, $43.80 on site rental, and $26.53 on gas. How much is left in their vacation budget for souvenirs? **23.** _____

24. It takes an assembly line machine 7.84 seconds to wrap an item in plastic. Find the number of items that can be wrapped in 1 hour (3600 seconds). Round to the nearest whole number. **24.** _____

25. Joe Cratty is reimbursed $.29 per mile for travel expenses. Last month he was reimbursed $219.53. How many miles did Joe submit on his travel log last month? **25.** _____

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For each question, select the letter that corresponds to the correct answer.

1. Round 968 to the nearest ten. **1.** _____

(a) 1000 (b) 970 (c) 960 (d) 900

2. Round 9812 to the nearest hundred. **2.** _____

(a) 9000 (b) 9800 (c) 10,000 (d) 9810

3. Round 75,698 to the nearest thousand. **3.** _____

(a) 75,000 (b) 75,700 (c) 76,000 (d) 80,000

4. Round 38,486 using front-end rounding. **4.** _____

(a) 40,000 (b) 38,000 (c) 38,490 (d) 38,500

5. Round 649,999 using front-end rounding. **5.** _____

(a) 700,000 (b) 649,000 (c) 650,000 (d) 600,000

6. Luis Ramirez earned $41 on Monday, $71 on Tuesday, $69 on Wednesday, $40 on Thursday, and $73 on Friday. Find his total earnings for the week. **6.** _____

(a) $254 (b) $253 (c) $294 (d) $225

7. Tierra Santa Resort bought 4 exercise bikes at $964 each, 3 treadmills at $1235 each, and 2 weight sets at $1148 each. Find the total cost of the equipment. **7.** _____

(a) $9857 (b) $6694 (c) $3347 (d) $8709

8. Round $72.0648 to the nearest cent. **8.** _____

(a) $72.00 (b) $72.10 (c) $72.65 (d) $72.06

9. Round $1842.1824 to the nearest cent. **9.** _____

(a) $1800 (b) $1842.18 (c) $1842.20 (d) $1842

10. Round $16.705 to the nearest dollar. **10.** _____

(a) $16.71 (b) $16 (c) $17 (d) $16.70

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11. Add: $7.815 + 6.28 + 17.47 + 829.6$ **11.** _____

(a) 862.15 (b) 861.2 (c) 861.165 (d) 861

12. Add: $413.2 + 74.398 + 12 + 83.2$ **12.** _____

(a) 570.918 (b) 582.80 (c) 583.38 (d) 582.798

13. Subtract: $418.2 - 39.3$ **13.** _____

(a) 378.9 (b) 457.5 (c) 37.89 (d) 25.2

14. Subtract: $2.8 - .0074$ **14.** _____

(a) 27.9926 (b) 27.926 (c) 2.7926 (d) 2.8026

15. Multiply: 41.27×4.39 **15.** _____

(a) 18,117.53 (b) 181.1753 (c) 45.66 (d) 18.7453

16. Multiply: $703.9 \times .024$ **16.** _____

(a) 16.8936 (b) 1609.53 (c) 703.924 (d) 168.936

17. Divide: $24.6\overline{)322.752}$ **17.** _____

(a) .0762 (b) 1.312 (c) 298.152 (d) 13.12

18. Divide: $33.948 \div 9.43$ **18.** _____

(a) 24.518 (b) .036 (c) 3.6 (d) .2778

19. Divide: $140.7606 \div 11.37$ **19.** _____

(a) 12.38 (b) .08078 (c) 129.3906 (d) .1238

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Solve each word problem.

20. Find the total cost, rounded to the nearest cent, of 3.9 pounds of corned beef at $5.49 per pound and 4.6 pounds of pastrami at $4.95 per pound. **20.** _____

(a) $40.72 (b) $26.36 (c) $28.26 (d) $44.18

21. Artificial grass sells for $10.98 per square yard. Find the cost to buy and install 69.2 square yards if the installer charges $5.15 per square yard for labor. Round to the nearest cent. **21.** _____

(a) $1116.20 (b) $764.97 (c) $367.36 (d) $412.93

22. The Gerard family's state income tax is found by multiplying their taxable income of $53,928.36 by the decimal .021 and rounding the result to the nearest dollar. Find the tax. **22.** _____

(a) $2568 (b) $1132 (c) $11,325 (d) $1133

23. A construction worker works 34.6 hours at $10.47 per hour. A total of $68.83 is deducted for taxes. Find the net amount of his paycheck. Round to the nearest cent. **23.** _____

(a) $293.43 (b) $2019.26 (c) $431.09 (d) $281.00

24. A domestic automobile can travel 326 miles on a full tank of gasoline, and averages 22 miles per gallon. How big is the gas tank? Round to the nearest tenth. **24.** _____

(a) 12.4 gallons (b) 10 gallons (c) 15 gallons (d) 14.8 gallons

25. A piece of rubber tubing must be 12.8 inches in length. Find the number of pieces that can be cut from 1472 inches of tubing. Round to the nearest whole number. **25.** _____

(a) 86 pieces (b) 87 pieces (c) 118 pieces (d) 115 pieces

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For each question, select the letter that corresponds to the correct answer.

1. Round 843 to the nearest ten. **1.** _____

(a) 840 (b) 845 (c) 800 (d) 850

2. Round 119,451 to the nearest hundred. **2.** _____

(a) 119,450 (b) 119,500 (c) 119,400 (d) 119,000

3. Round 336,503 to the nearest thousand. **3.** _____

(a) 336,000 (b) 336,500 (c) 337,000 (d) 300,000

4. Round 4121 using front-end rounding. **4.** _____

(a) 4120 (b) 4000 (c) 5000 (d) 4100

5. Round 749,999 using front-end rounding. **5.** _____

(a) 740,000 (b) 750,000 (c) 700,000 (d) 800,000

6. Cheryl paid the following utility bills: electric, $47; gas, $71; telephone, $153; water, $18; and trash, $19. Find the total amount for the utility bills. **6.** _____

(a) $261 (b) $308 (c) $289 (d) $155

7. The Harris County Library bought 4 printers at $895 each, 7 personal computers at $2600 each, and 3 copiers at $3590 each. Find the total cost of the equipment. **7.** _____

(a) $28,340 (b) $7085 (c) $16,950 (d) $32,550

8. Round $3.4892 to the nearest cent. **8.** _____

(a) $3.48 (b) $3.50 (c) $3.49 (d) $3.45

9. Round $2348.0190 to the nearest cent. **9.** _____

(a) $2348.20 (b) $2348.00 (c) $2348.10 (d) $2348.02

10. Round $5678.49 to the nearest dollar. **10.** _____

(a) $5678 (b) $5700 (c) $5670 (d) $6000

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11. Add: $14.86 + 2.9 + 34 + 178.271$ **11.** _____

(a) 230.031 (b) 229.771 (c) 256.131 (d) 199.431

12. Add: $36.4 + 788 + 7.06 + 147.209$ **12.** _____

(a) 979.209 (b) 978.669 (c) 979 (d) 979.29

13. Subtract: $114.1 - 78.3$ **13.** _____

(a) 35.8 (b) 45.8 (c) 46.8 (d) 36.8

14. Subtract: $14.3 - .0017$ **14.** _____

(a) 14.13 (b) 14.3093 (c) 14.2983 (d) 14.283

15. Multiply: 14.26×3.92 **15.** _____

(a) 4264.82 (b) 42.6482 (c) 5589.92 (d) 55.8992

16. Multiply: $706.5 \times .023$ **16.** _____

(a) 16.1285 (b) 16.2495 (c) 162.495 (d) 1624.95

17. Divide: $30.8\overline{)543.312}$ **17.** _____

(a) 56.69 (b) 1.764 (c) 17.64 (d) 5.67

18. Divide: $118.144 \div 9.23$ **18.** _____

(a) 128 (b) 13 (c) 7.8125 (d) 12.8

19. Divide: $324.508 \div 6.2$ **19.** _____

(a) 52.34 (b) 523.4 (c) 5.234 (d) 262.508

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Solve each word problem.

20. Find the total cost of 4.3 pounds of bean salad at $6.95 per pound and 2.9 pounds of potato salad at $5.35 per pound. **20.** _____

(a) $45.31 (b) $45.40 (c) $50.04 (d) $44.30

21. Ceramic tile costs $5.36 per square foot. The installer charges $6.35 per square foot for labor. Find the cost to buy and install 54.3 square feet of tile. Round to the nearest cent. **21.** _____

(a) $635.90 (b) $350.17 (c) $297.40 (d) $635.85

22. The Robb family purchased a new van for $32,499. The tax rate is .0725. Find the total cost of the vehicle. Round to the nearest cent. **22.** _____

(a) $23,561.78 (b) $23,56.18 (c) $34,855.18 (d) $4482.62

23. The Garzas have budgeted $700 for the Christmas holiday. To this point, they have spent $435.27 on gifts, $112.79 on food, and $85 on travel. How much remains in their holiday budget? **23.** _____

(a) $237.48 (b) $633.06 (c) $1333.06 (d) $66.94

24. A sales representative spent $337.96 on incentive gifts for 21 clients. What is the average cost per gift? Round to the nearest cent. **24.** _____

(a) $16.09 (b) $7097.16 (c) $16.93 (d) $7098

25. Each dosage of a medication contains 5.85 units of a certain ingredient. Find the number of dosages that can be made from 1872 units of the ingredient. **25.** _____

(a) 320 dosages (b) 110 dosages

(c) 109 dosages (d) 313 dosages

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