

## END-OF-CHAPTER PROBLEMS



Check figures for odd-numbered problems in Appendix B.

Name \_\_\_\_\_ Date \_\_\_\_\_

## DRILL PROBLEMS

Add the following: LU 1-2(1)

$$\begin{array}{r} 1-1. \quad 90 \\ + 15 \\ \hline 105 \end{array}$$

$$\begin{array}{r} 1-2. \quad 900 \\ + 250 \\ \hline 1,150 \end{array}$$

$$\begin{array}{r} 1-3. \quad 77 \\ + 77 \\ \hline 154 \end{array}$$

$$\begin{array}{r} 1-4. \quad 88 \\ + 75 \\ \hline 163 \end{array}$$

$$\begin{array}{r} 1-5. \quad 6,251 \\ + 7,329 \\ \hline 13,580 \end{array}$$

$$\begin{array}{r} 1-6. \quad 59,481 \\ 51,411 \\ + 70,821 \\ \hline 181,713 \end{array}$$

$$\begin{array}{r} 1-7. \quad 78,159 \\ 15,850 \\ + 19,681 \\ \hline 113,690 \end{array}$$

Subtract the following: LU 1-2(2)

$$\begin{array}{r} 1-8. \quad 68 \quad \overset{518}{\cancel{68}} \\ - 19 \quad \underline{-19} \\ \hline 49 \end{array}$$

$$\begin{array}{r} 1-9. \quad 80 \quad \overset{710}{\cancel{80}} \\ - 42 \quad \underline{-42} \\ \hline 38 \end{array}$$

$$\begin{array}{r} 1-10. \quad 287 \quad \overset{11717}{\cancel{287}} \\ - 199 \quad \underline{-199} \\ \hline 88 \end{array}$$

$$\begin{array}{r} 1-11. \quad 9,000 \quad \overset{810}{\cancel{9,000}} \\ - 5,400 \quad \underline{-5,400} \\ \hline 3,600 \end{array}$$

$$\begin{array}{r} 1-12. \quad 9,800 \\ - 8,900 \\ \hline 900 \end{array}$$

$$\begin{array}{r} 1-13. \quad 1,622 \\ - 548 \\ \hline 1,074 \end{array}$$

Multiply the following: LU 1-3(1)

$$\begin{array}{r} 1-14. \quad 50 \\ \times 6 \\ \hline 300 \end{array}$$

$$\begin{array}{r} 1-15. \quad 510 \\ \times 61 \\ \hline 510 \\ 3060 \\ \hline 31,110 \end{array}$$

$$\begin{array}{r} 1-16. \quad 800 \\ \times 200 \\ \hline 160,000 \end{array}$$

$$\begin{array}{r} 1-17. \quad 677 \\ \times 503 \\ \hline 2031 \\ 3385 \\ \hline 340,531 \end{array}$$

$$\begin{array}{r} 1-18. \quad 309 \\ \times 850 \\ \hline 15450 \\ 2472 \\ \hline 262,650 \end{array}$$

$$\begin{array}{r} 1-19. \quad 450 \\ \times 280 \\ \hline 36000 \\ 900 \\ \hline 126,000 \end{array}$$

Divide the following by short division: LU 1-3(2)

$$1-20. \quad \begin{array}{r} 400 \\ 4 \overline{)1,600} \end{array}$$

$$1-21. \quad \begin{array}{r} 90 \\ 9 \overline{)810} \end{array}$$

$$1-22. \quad \begin{array}{r} 41 \\ 4 \overline{)164} \end{array}$$

Divide the following by long division. Show work and remainder. LU 1-3(2)

$$1-23. \quad \begin{array}{r} 86 \text{ R}4 \\ 6 \overline{)520} \\ \underline{48} \phantom{0} \\ 40 \phantom{0} \\ \underline{36} \phantom{0} \\ 4 \end{array}$$

$$1-24. \quad \begin{array}{r} 143 \text{ R}49 \\ 62 \overline{)8,915} \\ \underline{62} \phantom{00} \\ 271 \phantom{0} \\ \underline{248} \phantom{0} \\ 235 \phantom{0} \\ \underline{186} \phantom{0} \\ 49 \end{array}$$

Add the following without rearranging: LU 1-2(1)

$$1-25. \quad 95 + 310 = 405$$

$$1-26. \quad 1,055 + 88 = 1,143$$

$$1-27. \quad 666 + 950 = 1,616$$

$$1-28. \quad 1,011 + 17 = 1,028$$

**1-29.** Add the following and check by totaling each column individually without carrying numbers: *LU 1-2(1)*

	<b>Check</b>
8,539	16
6,842	16
+ 9,495	17
<u>24,876</u>	<u>23</u>
	24,876

Estimate the following by rounding all the way and then do actual addition: *LU 1-1(2), LU 1-2(1)*

	<b>Actual</b>	<b>Estimate</b>		<b>Actual</b>	<b>Estimate</b>
<b>1-30.</b>	7,700	8,000	<b>1-31.</b>	6,980	7,000
	9,286	9,000		3,190	3,000
	+ 3,900	+ 4,000		+ 7,819	+ 8,000
	<u>20,886</u>	<u>21,000</u>		<u>17,989</u>	<u>18,000</u>

Subtract the following without rearranging: *LU 1-2(2)*

**1-32.**  $190 - 66 = 124$       **1-33.**  $950 - 870 = 80$

**1-34.** Subtract the following and check answer: *LU 1-2(2)*

591,001	<del>591,001</del>	215,045
<u>-375,956</u>	<u>-375,956</u>	<u>+375,956</u>
	215,045	591,001

Multiply the following horizontally: *LU 1-3(1)*

**1-35.**  $19 \times 7 = 133$       **1-36.**  $84 \times 8 = 672$       **1-37.**  $27 \times 8 = 216$       **1-38.**  $19 \times 5 = 95$

Divide the following and check by multiplication: *LU 1-2(2)*

<b>1-39.</b> $45 \overline{)876}$ <div style="text-align: right;"> <math>\begin{array}{r} 19 \text{ R}21 \\ 45 \\ \underline{426} \\ 405 \\ \underline{21} \end{array}</math> </div>	<b>Check</b> $45 \times 19 = 855$ $+ 21(\text{R})$ $\underline{\phantom{00}876}$	<b>1-40.</b> $46 \overline{)1,950}$ <div style="text-align: right;"> <math>\begin{array}{r} 42 \text{ R}18 \\ 1 \ 84 \\ \underline{110} \\ 92 \\ \underline{18} \end{array}</math> </div>	<b>Check</b> $46 \times 42 = 1,932$ $+ 18(\text{R})$ $\underline{\phantom{00}1,950}$
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Complete the following: *LU 1-2(2)*

<b>1-41.</b> $\begin{array}{r} 9,200 \\ - 1,510 \\ \hline 7,690 \\ - 700 \\ \hline 6,990 \end{array}$	<b>1-42.</b> $\begin{array}{r} 3,000,000 \\ - 769,459 \\ \hline 2,230,541 \\ - 68,541 \\ \hline 2,162,000 \end{array}$
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**1-43.** Estimate the following problem by rounding all the way and then do the actual multiplication: *LU 1-1(2), LU 1-3(1)*

<b>Actual</b>	<b>Estimate</b>
870	900
$\times 81$	$\times 80$
<u>870</u>	<u>72,000</u>
<u>69 60</u>	
70,470	

Divide the following by the shortcut method: *LU 1-3(2)*

<b>1-44.</b> $1,000 \overline{)950,000}$ <div style="text-align: right;"> <math>\begin{array}{r} 950 \\ 1 \overline{)950} \end{array}</math> </div> <p style="text-align: center;">Drop 3 zeros</p>	<b>1-45.</b> $100 \overline{)70,000}$ <div style="text-align: right;"> <math>\begin{array}{r} 700 \\ 1 \overline{)700} \end{array}</math> </div> <p style="text-align: center;">Drop 2 zeros.</p>
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- 1–46. Estimate actual problem by rounding all the way and do actual division: LU 1-1(2), LU 1-3(2)

Actual	Estimate
$\begin{array}{r} 12 \text{ R}610 \\ 695 \overline{)8,950} \\ \underline{6 \ 95} \phantom{0} \\ 2 \ 000 \\ \underline{1 \ 390} \\ 610 \end{array}$	$\begin{array}{r} 12 \text{ R}600 \\ 700 \overline{)9,000} \\ \underline{7 \ 00} \phantom{0} \\ 2 \ 000 \\ \underline{1 \ 400} \\ 600 \end{array}$

## WORD PROBLEMS

- 1–47. *The Wall Street Journal* reported that the cost for lightbulbs over a 10-year period at a local Walmart parking lot in Kansas would be \$248,134 if standard lightbulbs were used. If LED lightbulbs were used over the same period, the total cost would be \$220,396. What would Walmart save by using LED bulbs? LU 1-2(2)

$$\begin{array}{r} \$248,134 \\ - \$220,396 \\ \hline \$27,738 \end{array}$$



My Money

- 1–48. An education can be the key to higher earnings. In a U.S. Census Bureau study, high school graduates earned \$30,400 per year. Associate's degree graduates averaged \$38,200 per year. Bachelor's degree graduates averaged \$52,200 per year. Assuming a 50-year work-life, calculate the lifetime earnings for a high school graduate, associate's degree graduate, and bachelor's degree graduate. What's the lifetime income difference between a high school and associate's degree? What about the lifetime difference between a high school and bachelor's degree? LU 1-3(1), LU 1-2(2)

$$\text{High school: } \$30,400 \times 50 = \$1,520,000$$

$$\text{Associate's degree: } \$38,200 \times 50 = \$1,910,000$$

$$\text{Bachelor's degree: } \$52,200 \times 50 = \$2,610,000$$

Difference between high school and associate's degree:

$$\$1,910,000 - \$1,520,000 = \$390,000$$

Difference between high school and bachelor's degree:

$$\$2,610,000 - \$1,520,000 = \$1,090,000$$

- 1–49. Assume season-ticket prices in the lower bowl for the Buffalo Bills will rise from \$480 for a 10-game package to \$600. Fans sitting in the best seats in the upper deck will pay an increase from \$440 to \$540. Don Manning plans to purchase two season tickets for either lower bowl or upper deck. (a) How much more will two tickets cost for lower bowl? (b) How much more will two tickets cost for upper deck? (c) What will be his total cost for a 10-game package for lower bowl? (d) What will be his total cost for a 10-game package for upper deck? LU 1-2(2), LU 1-3(1)

a.  $\$600$

$$\underline{-480}$$

$$\$120 \text{ per ticket}$$

$$\times 2$$

$$\$240 \text{ for 2 tickets}$$

b.  $\$540$

$$\underline{-440}$$

$$\$100 \text{ per ticket}$$

$$\times 2$$

$$\$200 \text{ for 2 tickets}$$

c.  $\$600$

$$\times 2$$

$$\$1,200$$

d.  $\$540$

$$\times 2$$

$$\$1,080$$

- 1–50. Some ticket prices for *Lion King* on Broadway were \$70, \$95, \$200, and \$250. For a family of four, estimate the cost of the \$95 tickets by rounding all the way and then do the actual multiplication: LU 1-1(2), LU 1-3(1)

Estimate

$$\$100$$

$$\times 4$$

$$\$400$$

Actual

$$\$95$$

$$\times 4$$

$$\$380$$

- 1–51. Walt Disney World Resort and United Vacations got together to create a special deal. The air-inclusive package features accommodations for three nights at Disney's All-Star Resort, hotel taxes, and a four-day unlimited Magic Pass. Prices are \$609 per person traveling from Washington, DC, and \$764 per person traveling from Los Angeles. (a) What would be the cost for a family of four leaving from Washington, DC? (b) What would be the cost for a family of four leaving from Los Angeles? (c) How much more will it cost the family from Los Angeles? LU 1-3(1)

a.  $\$609$

$$\times 4$$

$$\$2,436 \text{ cost}$$

b.  $\$764$

$$\times 4$$

$$\$3,056 \text{ cost}$$

c.  $\$3,056$

$$- \$2,436$$

$$\$620 \text{ more}$$

- 1–52.** NTB Tires bought 910 tires from its manufacturer for \$36 per tire. What is the total cost of NTB's purchase? If the store can sell all the tires at \$65 each, what will be the store's gross profit, or the difference between its sales and costs (Sales – Costs = Gross profit)? LU 1-3(1), LU 1-2(2)

$$\text{Cost} = 910 \times \$36 = \$32,760 \quad \text{Sales} = 910 \times \$65 = \$59,150$$

$$\begin{array}{r} \$59,150 \text{ sales} \\ - 32,760 \text{ cost} \\ \hline \$26,390 \text{ gross profit} \end{array}$$

- 1–53.** What was the total average number of visits for these websites? LU 1-2(1), LU 1-3(2)

Website	Average daily unique visitors
1. Orbitz.com	1,527,000
2. Mypoints.com	1,356,000
3. Americangreetings.com	745,000
4. Bizrate.com	503,000
5. Half.com	397,000
	905,600 average
1,527,000	5)4,528,000
1,356,000	4 5
745,000	28
503,000	25
+ 397,000	30
4,528,000 visitors	30



My Money

- 1–54.** CNN.com reported in October 2017 that nearly 40 out of 100 adults in the United States are obese or overweight. Research has shown coffee has several health-related benefits. One such benefit is an antioxidant, chlorogenic acid (CGA), that may help protect against several obesity-related diseases. During a 15-week study, if 67 mice did not gain weight during the test period and an additional 48 demonstrated insulin resistance, how many mice were positively affected by the injection of the CGA solution? LU 1-2(1)

$$67 + 48 = 115 \text{ mice}$$

- 1–55.** A report from the Center for Science in the Public Interest—a consumer group based in Washington, DC—released a study listing calories of various ice cream treats sold by six of the largest ice cream companies. The worst treat tested by the group was 1,270 total calories. People need roughly 2,200 to 2,500 calories per day. Using a daily average, how many additional calories should a person consume after eating ice cream? LU 1-2(1), LU 1-3(2)

$$\begin{array}{r} 2,200 \\ + 2,500 \\ \hline 4,700 \end{array} \quad \begin{array}{r} 2,350 \text{ average} \\ 2)4,700 \\ \hline 4 \\ 7 \\ 6 \\ 10 \\ 10 \\ 0 \end{array} \quad \begin{array}{r} 2,200 \\ - 1,270 \\ \hline 930 \end{array}$$

- 1–56.** At Rose State College, Alison Wells received the following grades in her online accounting class: 90, 65, 85, 80, 75, and 90. Alison's instructor, Professor Clark, said he would drop the lowest grade. What is Alison's average? LU 1-2(1)

$$90 + 85 + 80 + 75 + 90 = 420 \div 5 = 84 \text{ average}$$

- 1–57.** The Bureau of Transportation's list of the 10 most expensive U.S. airports and their average fares is given below. Please use this list to answer the questions that follow. LU 1-2(1, 2)

1. Houston, TX	\$477
2. Huntsville, AL	473
3. Newark, NJ	470
4. Cincinnati, OH	466
5. Washington, DC	465
6. Charleston, SC	460
7. Memphis, TN	449
8. Knoxville, TN	449
9. Dallas–Fort Worth, TX	431
10. Madison, WI	429

- a. What is the total of all the fares?
- b. What would the total be if all the fares were rounded all the way?
- c. How much does the actual number differ from the rounded estimate?

a. Total: \$4,569

b. Round all the way

$$\$500 + 500 + 500 + 500 + 500 + 500 + 400 + 400 + 400 + \$400 = \$4,600$$

c. \$4,600

$$-\$4,569$$

\$ 31 Difference

- 1–58. Ron Alf, owner of Alf's Moving Company, bought a new truck. On Ron's first trip, he drove 1,200 miles and used 80 gallons of gas. How many miles per gallon did Ron get from his new truck? On Ron's second trip, he drove 840 miles and used 60 gallons. What is the difference in miles per gallon between Ron's first trip and his second trip? LU 1-3(2)

$$1,200 \div 80 = 15 \text{ miles per gallon}$$

$$840 \div 60 = 14 \text{ miles per gallon} \quad \text{Difference} = 1 \text{ mile per gallon}$$

- 1–59. Magnifymoney.com reported in September 2017 that 201 million Americans use credit cards and 125 million carry an average household balance per month of \$8,158. If the average household balance per month last year was \$7,946, what is the increase in the average balance? LU 1-2(2)

$$\$8,158 - \$7,946 = \$212$$

- 1–60. Assume BarnesandNoble.com has 289 business math texts in inventory. During one month, the online bookstore ordered and received 1,855 texts; it also sold 1,222 on the web. What is the bookstore's inventory at the end of the month? If each text costs \$59, what is the end-of-month inventory cost? LU 1-2(1), LU 1-2(2)

$$289 + 1,855 = 2,144$$

$$2,144$$

$$-1,222$$

$$922 \times \$59 = \$54,398 \quad 922 \text{ end-of-month inventory}$$

- 1–61. Assume Cabot Company produced 2,115,000 cans of paint in August. Cabot sold 2,011,000 of these cans. If each can cost \$18, what were Cabot's ending inventory of paint cans and its total ending inventory cost? LU 1-2(2), LU 1-3(1)

$$2,115,000$$

$$-2,011,000$$

$$104,000 \text{ paint cans} \times \$18 = \$1,872,000$$

- 1–62. A local community college has 20 faculty members in the business department, 40 in psychology, 26 in English, and 140 in all other departments. What is the total number of faculty at this college? If each faculty member advises 25 students, how many students attend the local college? LU 1-2(1), LU 1-3(1)

$$20 + 40 + 26 + 140 = 226 \text{ faculty}$$

$$226 \times 25 = 5,650 \text{ students}$$

- 1–63. Hometown Buffet had 90 customers on Sunday, 70 on Monday, 65 on Tuesday, and a total of 310 on Wednesday to Saturday. How many customers did Hometown Buffet serve during the week? If each customer spends \$9, what were the total sales for the week? LU 1-2(1), LU 1-3(1)

$$90 + 70 + 65 + 310 = 535 \text{ customers}$$

$$\times \$9$$

$$\$4,815$$

If Hometown Buffet had the same sales each week, what were the sales for the year?

$$\$4,815 \times 52 = \$250,380$$

- 1–64. A local travel agency projected its year 2019 sales at \$880,000. During 2019, the agency earned \$482,900 sales from its major clients and \$116,500 sales from the remainder of its clients. How much did the agency overestimate its sales? LU 1-2(2)

$$\$880,000$$

$$- 599,400 (\$482,900 + \$116,500)$$

$$\$280,600$$



My Money



My Money

- 1–65.** Ryan Seary works at US Airways and earned \$71,000 last year before tax deductions. From Ryan's total earnings, his company subtracted \$1,388 for federal income taxes, \$4,402 for Social Security, and \$1,030 for Medicare taxes. What was Ryan's actual, or net, pay for the year? *LU 1-2(1, 2)*

$$\begin{array}{r}
 \$71,000 \\
 - \quad 6,820 \text{ } (\$1,388 + \$4,402 + \$1,030) \\
 \hline
 \$64,180
 \end{array}$$

- 1–66.** CompareCards.com lists credit card offers by such categories as low interest, no annual fee, cash back, and so on. A top card offers no interest payments for 18 months through 2020. If 11 credit card companies make this offer and 25,652 people are approved, on average how many new customers does each credit card company gain? *LU 1-3(2)*

$$25,652/11 = 2,332$$

- 1–67.** Roger Company produces beach balls and operates three shifts. Roger produces 5,000 balls per shift on shifts 1 and 2. On shift 3, the company can produce 6 times as many balls as on shift 1. Assume a 5-day workweek. How many beach balls does Roger produce per week and per year? *LU 1-2(1), LU 1-3(1)*

$$\begin{array}{r}
 10,000 \text{ balls (shifts 1 and 2)} \\
 + 30,000 \text{ balls (shift 3)} \\
 \hline
 40,000 \text{ balls per day} \\
 \times \quad 5 \\
 \hline
 200,000 \text{ balls per week}
 \end{array}
 \qquad
 \begin{array}{r}
 200,000 \\
 \times \quad 52 \\
 \hline
 10,400,000 \text{ balls per year}
 \end{array}$$

- 1–68.** Assume 6,000 children go to Disneyland today. How much additional revenue will Disneyland receive if it raises the cost of admission from \$31 to \$41? *LU 1-2(1), LU 1-3(1)*

$$\begin{array}{r}
 \$41 \\
 - \quad 31 \\
 \hline
 \$10 \text{ more per child}
 \end{array}
 \qquad
 \begin{array}{r}
 6,000 \text{ children} \\
 \times \quad \$10 \\
 \hline
 \$60,000 \text{ additional revenue per day}
 \end{array}$$

- 1–69.** Moe Brink has a \$900 balance in his checkbook. During the week, Moe wrote the following checks: rent, \$350; telephone, \$44; food, \$160; and entertaining, \$60. Moe also made a \$1,200 deposit. What is Moe's new checkbook balance? *LU 1-2(1, 2)*

$$\begin{array}{r}
 \$ \quad 900 \\
 + \quad 1,200 \\
 \hline
 \$2,100 \\
 - \quad 614 \text{ } (\$350 + \$44 + \$160 + \$60) \\
 \hline
 \$1,486
 \end{array}$$

- 1–70.** A local Dick's Sporting Store, an athletic sports shop, bought and sold the following merchandise: *LU 1-2(1, 2)*

	Cost	Selling price
Tennis rackets	\$2,900	\$ 3,999
Tennis balls	70	210
Bowling balls	1,050	2,950
Sneakers	+ 8,105	+14,888
	<u>\$12,125</u>	<u>\$22,047</u>

What was the total cost of the merchandise bought by Dick's Sporting Store? If the shop sold all its merchandise, what were the sales and the resulting gross profit (Sales – Costs = Gross profit)?

$$\begin{array}{r}
 \text{Sales} \qquad \qquad \$22,047 \\
 - \text{Costs} \qquad \qquad - \quad 12,125 \\
 \hline
 = \text{Gross profit} \quad \$ \quad 9,922
 \end{array}$$

**Excel**

- 1-71. Rich Engel, the bookkeeper for Engel's Real Estate, and his manager are concerned about the company's telephone bills. Last year the company's average monthly phone bill was \$32. Rich's manager asked him for an average of this year's phone bills. Rich's records show the following: LU 1-2(1), LU 1-3(2)

January	\$ 34	July	\$ 28
February	60	August	23
March	20	September	29
April	25	October	25
May	30	November	22
June	59	December	41
	<u>\$228</u>		<u>\$168</u>

What is the average of this year's phone bills? Did Rich and his manager have a justifiable concern?

$$\$228 + \$168 = \$396 \div 12 = \$33$$

No justifiable concern.

**Excel**

- 1-72. On Monday, a local True Value Hardware sold 15 paint brushes at \$3 each, six wrenches at \$5 each, seven bags of grass seed at \$3 each, four lawn mowers at \$119 each, and 28 cans of paint at \$8 each. What were True Value's total dollar sales on Monday? LU 1-2(1), LU 1-3(1)

$$\$45 + \$30 + \$21 + \$476 + \$224 = \$796$$

$$(15 \times \$3) + (6 \times \$5) + (7 \times \$3) + (4 \times \$119) + (28 \times \$8)$$

- 1-73. While redecorating, Lee Owens went to Carpet World and bought 150 square yards of commercial carpet. The total cost of the carpet was \$6,000. How much did Lee pay per square yard? LU 1-3(2)

$$\$6,000 \div 150 = \$40 \text{ per square yard}$$

**Excel**

- 1-74. Washington Construction built 12 ranch houses for \$115,000 each. From the sale of these houses, Washington received \$1,980,000. How much gross profit (Sales - Costs = Gross profit) did Washington make on the houses? LU 1-2(2), LU 1-3(1, 2)

$$\begin{array}{r} \$1,980,000 \\ - 1,380,000 \quad (\$115,000 \times 12) \\ \hline \$ 600,000 \end{array}$$

The four partners of Washington Construction split all profits equally. How much will each partner receive?

$$\$600,000 \div 4 = \$150,000$$

### CHALLENGE PROBLEMS

- 1-75. A mall in Lexington has 18 stores. The following is a breakdown of what each store pays for rent per month. The rent is based on square footage.

5 department/computer stores	\$1,250	2 bakeries	\$ 500
5 restaurants	860	2 drugstores	820
3 bookstores	750	1 supermarket	1,450

Calculate the total rent that these stores pay annually. What would the answer be if it were rounded all the way? How much more each year do the drugstores pay in rent compared to the bakeries? LU 1-2(2), LU 1-3(1)

$$\begin{array}{r} 5 \times \$1,250 = \$ 6,250 \\ 5 \times 860 = 4,300 \\ 3 \times 750 = 2,250 \\ 2 \times 500 = 1,000 \\ 2 \times 820 = 1,640 \\ 1 \times 1,450 = 1,450 \\ \hline \$16,890 \times 12 = \$202,680 \end{array}$$

$$\begin{array}{r} \text{Drugstores: } \$1,640 \times 12 = \$19,680 \\ \text{Bakeries: } 1,000 \times 12 = \underline{-12,000} \\ \$ 7,680 \end{array}$$

$$\$200,000$$

- 1–76. Paula Sanchez is trying to determine her 2019 finances. Paula's actual 2018 finances were as follows: LU 1-1, LU 1-2, LU 1-3



My Money

2018			
Income:		Assets:	
Gross income	\$69,000	Checking account	\$ 1,950
Interest income	450	Savings account	8,950
Total	\$69,450	Automobile	1,800
Expenses:		Personal property	14,000
Living	\$24,500	Total	\$26,700
Insurance premium	350	Liabilities:	
Taxes	14,800	Note to bank	4,500
Medical	585	Net worth	\$22,200 (\$26,700 – \$4,500)
Investment	4,000		
Total	\$44,235		

Net worth = Assets – Liabilities  
(own) (owe)

Paula believes her gross income will double in 2019 but her interest income will decrease \$150. She plans to reduce her 2019 living expenses by one-half. Paula's insurance company wrote a letter announcing that her insurance premiums would triple in 2019. Her accountant estimates her taxes will decrease \$250 and her medical costs will increase \$410. Paula also hopes to cut her investments expenses by one-fourth. Paula's accountant projects that her savings and checking accounts will each double in value. On January 2, 2019, Paula sold her automobile and began to use public transportation. Paula forecasts that her personal property will decrease by one-seventh. She has sent her bank a \$375 check to reduce her bank note. Could you give Paula an updated list of her 2019 finances? If you round all the way each 2018 and 2019 asset and liability, what will be the difference in Paula's net worth?

2019 estimate			
Income:		Assets:	
Gross income	\$138,000 (\$69,000 × 2)	Checking account	\$ 3,900 (\$1,950 × 2)
Interest income	300 (\$450 – \$150)	Savings account	17,900 (\$8,950 × 2)
Total	\$138,300	Personal property	12,000 (\$14,000 – $\frac{1}{7}$ of \$14,000)
Expenses:		Total	\$33,800
Living	\$ 12,250 (\$24,500 ÷ 2)	Liabilities:	
Insurance premium	1,050 (\$350 × 3)	Note to bank	4,125 (\$4,500 – \$375)
Taxes	14,550 (\$14,800 – \$250)	Net worth	\$29,675
Medical	995 (\$585 + \$410)		
Investment	3,000 (\$4,000 – $\frac{1}{4}$ of \$4,000)		
Total	\$ 31,845		
	<b>2018</b>	<b>2019</b>	
Checking account	\$ 2,000	\$ 4,000	
Savings account	9,000	20,000	
Automobile	2,000	0	
Personal property	10,000	10,000	
Total	\$ 23,000	\$34,000	\$30,000 = 2019
Liabilities	5,000	4,000	– 18,000 = 2018
Net worth	\$ 18,000	\$30,000	\$12,000

Total estimated difference is \$12,000 in favor of 2019.



# Classroom Notes



## SUMMARY PRACTICE TEST

Do you need help? Connect videos have step-by-step worked-out solutions.

- Translate the following verbal forms to numbers and add. *LU 1-1(1), LU 1-2(1)*
  - Four thousand, eight hundred thirty-nine  $\begin{array}{r} 4,839 \\ 7,000,012 \\ \hline 12,392 \\ 7,017,243 \end{array}$
  - Seven million, twelve
  - Twelve thousand, three hundred ninety-two
- Express the following number in verbal form. *LU 1-1(1)*  
9,622,364 **Nine million, six hundred twenty-two thousand, three hundred sixty-four**
- Round the following numbers. *LU 1-1(2)*

Nearest ten	Nearest hundred	Nearest thousand	Round all the way
a. 68 <b>70</b>	b. 888 <b>900</b>	c. 8,325 <b>8,000</b>	d. 14,821 <b>10,000</b>
- Estimate the following actual problem by rounding all the way, work the actual problem, and check by adding each column of digits separately. *LU 1-1(2), LU 1-2(1)*

Actual	Estimate	Check
$\begin{array}{r} 1,886 \\ 9,411 \\ + 6,395 \\ \hline 17,692 \end{array}$	$\begin{array}{r} 2,000 \\ 9,000 \\ + 6,000 \\ \hline 17,000 \end{array}$	$\begin{array}{r} 12 \\ 18 \\ 15 \\ 16 \\ \hline 17,692 \end{array}$
- Estimate the following actual problem by rounding all the way and then do the actual multiplication. *LU 1-1(2), LU 1-3(1)*

Actual	Estimate
$\begin{array}{r} 8,843 \\ \times 906 \\ \hline 53\ 058 \\ 7\ 958\ 70 \\ \hline 8,011,758 \end{array}$	$\begin{array}{r} 9,000 \\ \times 900 \\ \hline 8,100,000 \end{array}$
- Multiply the following by the shortcut method. *LU 1-3(1)*  
 $829,412 \times 1,000 = 829,412,000$
- Divide the following and check the answer by multiplication. *LU 1-3(1, 2)*

	Check
$\begin{array}{r} 379\ R19 \\ 39 \overline{)14,800} \\ \underline{11\ 7} \phantom{00} \\ 3\ 10 \phantom{00} \\ \underline{2\ 73} \phantom{00} \\ 370 \phantom{00} \\ \underline{351} \phantom{00} \\ 19 \phantom{00} \end{array}$	$\begin{array}{r} 379 \\ \times 39 \\ \hline 3411 \\ 1137 \phantom{00} \\ \hline 14,781 \\ \phantom{00} 19 \\ \hline 14,800 \end{array}$
- Divide the following by the shortcut method. *LU 1-3(2)*  
 $6,000 \div 60 = 600 \div 6 = 100$
- Ling Wong bought a \$299 iPod that was reduced to \$205. Ling gave the clerk three \$100 bills. What change will Ling receive? *LU 1-2(2)* **\$300 - \$205 = \$95**
- Sam Song plans to buy a \$16,000 Ford Focus with an interest charge of \$4,000. Sam figures he can afford a monthly payment of \$400. If Sam must pay 40 equal monthly payments, can he afford the Ford Focus? *LU 1-2(1), LU 1-3(2)* **\$16,000 + \$4,000 = \$20,000 ÷ 40 = \$500 No**
- Lester Hal has the oil tank at his business filled 20 times per year. The tank has a capacity of 200 gallons. Assume (a) the price of oil fuel is \$3 per gallon and (b) the tank is completely empty each time Lester has it filled. What is Lester's average monthly oil bill? Complete the following blueprint aid for dissecting and solving the word problem. *LU 1-3(1, 2)*

	The facts	Solving for?	Steps to take	Key points
<b>BLUEPRINT</b>	Tank filled 20 times per year. Tank holds 200 gallons. Cost is \$3 per gallon.	Average monthly oil bill.	Total gallons used × Price per gallon = Total cost of oil.	Average cost is total cost divided by 12 months in a year.

### Steps to solving problem

- Calculate the total number of gallons.  $200 \text{ gallons} \times 20 = 4,000 \text{ gallons}$
- Calculate total cost of oil.  $4,000 \text{ gallons} \times \$3 = \$12,000$
- Calculate the average monthly bill.  $\$12,000 \div 12 = \$1,000$