Business Math 12th edition Cleaves Solutions Manual

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Chapter 1 Review of Whole Numbers and Integers

Section Exercises

1-1, p. 9

1. Twenty-two million, three hundred fifty-six thousand, twenty-seven

2. One hundred six billion, three hundred fifty-seven million, two hundred ninety-one thousand, five hundred eighty-two

3. Seven hundred thirty million, five hundred thirty-one thousand, nine hundred sixty-eight

4. Twenty-one million, seventeen

5. Five hundred twenty-three billion, eight hundred million, seven thousand, one hundred ninety

6. Seven hundred thirteen million, two hundred five thousand, five hundred thirty-eight

7. 14,985

8. 32,943,608

9. 17,000,803,075

10. 50,612,078

11. 306,541

12. 300,760,512

13. 8 is in the tens place. 3 is to its right and is less than 5. Leave 8 and replace 3 with zero; 480.

14. 7 is in the hundreds place. The digit 6 is on the right and is 5 or more. Add 1 to 7 and replace 6 and 2 with zeros; 3,800.

15. 9 is in the ten-thousands place and 8 is 5 or greater. So increase 9 by 1. Since $9 + 1 = 10$, we record 0 and carry 1 to the next place to the left. $2 + 1 = 3$. Replace digits to the right of the ten-thousands place with zeros; 300,000.

16. 5 is the first digit. 7 is 5 or greater, so add 1 to 5 and replace all digits to its right with zeros; 60,000.

17. $4,000,000,000

18. $457,025,972,800

19. 0 is in the millions place, 3 on the right is less than 5, so leave 0 as it is and replace all digits on its right with zeros; 860,000,000.

20. 1 is in the first place. The digit to the right, 5, is 5 or more, so round up by adding 1 to the 1 in the first place. Replace all digits to the right with zeros; 2,000.

21. Negative fifteen thousand, three hundred fourteen dollars

22. Negative eight thousand, four hundred twenty dollars

23. Negative eight thousand, six hundred thirty-six dollars

24. Negative twenty-thousand, one hundred fifty-seven dollars

25. −$520,000,000

26. −$1,800,000,000

1-2, p. 24

1. $300 + 600 + 700 = 1{,}600$; 1,637

2. $700 + 1{,}000 + 60 = 1{,}760$; 1,710

3. $800 + 1{,}000 + 50 = 1{,}850$; 1,843

4. $6{,}000 + 20{,}000 + 30{,}000 = 56{,}000$; 53,871

5.
$$\begin{array}{r} 89 \\ -52 \\ \hline 37 \end{array}$$

6.
$$\begin{array}{r} {\scriptstyle 4\ 15} \\ 5\ \not{5} \\ -3\ 6 \\ \hline 1\ 9 \end{array}$$

7.
$$\begin{array}{r} {\scriptstyle 2\ 10} \\ 3\ \not{0}\ 8 \\ -2\ 7\ 5 \\ \hline 3\ 3 \end{array}$$

8.
$$\begin{array}{r} {\scriptstyle 3\ 10} \\ 5,\not{4}\ \not{0}\ 9 \\ -2,\ 1\ 7\ 6 \\ \hline 3,\ 2\ 3\ 3 \end{array}$$

9. −6

10. 92

11. −8,188

12. −403

13. 21

14. −17

15. 12

16. −4

17.
$$\begin{array}{r} 730 \\ \times\ 60 \\ \hline 43{,}800 \end{array}$$

18.
$$\begin{array}{r} 904 \\ \times\ 24 \\ \hline 3\,616 \\ 18\,08 \\ \hline 21{,}696 \end{array}$$

19.
$$\begin{array}{r} 1{,}005 \\ \times\ 89 \\ \hline 9\,045 \\ 80\,40 \\ \hline 89{,}445 \end{array}$$

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20. -138 **21.** -480 **22.** 5,312 **23.** $-\$580{,}412$

24.
$$\begin{array}{r} 16 \\ 6\overline{)96} \\ \underline{6} \\ 36 \\ \underline{36} \end{array}$$

25.
$$\begin{array}{r} 407 \\ 34\overline{)13{,}838} \\ \underline{13\,6} \\ 23 \\ \underline{0} \\ 238 \\ \underline{238} \end{array}$$

26.
$$\begin{array}{r} 260 \text{ R4} \\ 17\overline{)4{,}424} \\ \underline{3\,4} \\ 1\;02 \\ \underline{1\;02} \\ 4 \end{array}$$

27. -8 **28.** 7 **29.** -42 **30.** $-\$239$ **31.** 4 **32.** \$51 **33.** 26 **34.** -217

35. $2{,}950 \div 50 =$
$295 \div 5 = 59$

36. $689{,}100 \div 30 =$
$68{,}910 \div 3 = 22{,}970$

37. $57{,}800{,}000 \div 2{,}000 =$
$57{,}800 \div 2 = 28{,}900$

38. $5{,}730{,}000 \div 300 =$
$57{,}300 \div 3 = 19{,}100$

39.
$$\begin{array}{r} 922 \text{ R}256 \\ 352\overline{)324{,}800} \\ \underline{316\,8} \\ 8\;00 \\ \underline{7\;04} \\ 960 \\ \underline{704} \\ 256 \end{array}$$
The average selling price of each trailer was nearly \$923.

40. $8{,}832 \div 8 = 1{,}104$ Each vendor supplied 1,104 boxes of cards.

41. $348 \div 12 = 29$ You will need 29 boxes.

42. $21{,}960 - 16{,}300 = 5{,}660$ Visitors increased by 5,660.

43. $200{,}000{,}000 - 500{,}000 = 199{,}500{,}000$
The sales increase is \$199,500,000.

44. $\$200{,}000{,}000 \div \$500{,}000 = 400$ times increase

45. $-\$39{,}583 + (-\$23{,}486) = -\$63{,}069$

46. $-\$32{,}871 + \$29{,}783 = -\$3{,}088$ loss

47. $291 \times (-\$3) = -\$873$

48. $-\$63{,}408 \div 12 = -\$5{,}284$

49. Number of reams in warehouse $= 1{,}358 \times 10 = 13{,}580$.
If 15,000 reams are needed to process all the store orders, she needs to order more paper.

50. $487 \times (-\$12) = -\$5{,}844$

Exercise Set, p. 32

1. \$7,000,000,000

2. 20,000

3. 26

4. 5,400 hotels; 495,000 rooms; 70 countries; 20 percent owned by people from underrepresented groups

5. Negative fourteen billion, six hundred seventy-two million dollars

6. Thirty billion, eight hundred sixty million dollars

7. Negative twenty-seven billion, six hundred eighty-four million dollars

8. Negative eight billion, nine hundred twenty-two million dollars

9. 400

10. 9,000

11. 8,200

12. 350,000

13. 2̲65,472; 2 is in the hundred-thousands place. 6 is to the right and is more than 5. 300,000.
6,3̲16,436; 3 is in the hundred-thousands place. 1 is to the right and is less than 5. 6,300,000.

14. 3̲,899; 3 is in the thousands place. 8 is to the right and is more than 5. \$4,000.

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15. 2,017; 2 is in the thousands place.
0 is to the right and is less than 5.
2,000 radios.

16. $2,499; 4 is in the hundreds place.
9 is to the right and is more than 5.
$2,500.

17. 5,000

18. 4,000,000

19. 20,000,000,000

20. 2,000,000

21. $32{,}948 + 6{,}804 + 15{,}695 + 415 + 7{,}739 = 63{,}601$

22. $47 + 385 + 87 + 439 + 874 = 1{,}832$

23. $46{,}867 + 7{,}083 + 723 + 5{,}209 = 59{,}882$

24. $72 + 385 + 29 + 523 + 816 = 1{,}825$

25. 21,335

4,000
9,000
4,000
+ 5,000
22,000

26. 318,936

70,000
80,000
70,000
+ 90,000
310,000

27. 8,759

3,000
800
4,000
+ 600
8,400

28. 2,612

700
900
300
+ 700
2,600

29. 6,288

4,300
600
1,300
+ 100
6,300

30. Mental estimation:
$90 + 90 + 100 + 90 + 70 + 80 + 60 + 100 = 680$
92 [+] 87 [+] 96 [+] 85 [+] 72 [+] 84 [+] 57 [+] 98 [=] $\Rightarrow$ 671
Kiesha had 671 points.

31. Mental estimation: $50 + 100 + 40 + 50 = 240$
48 [+] 96 [+] 36 [+] 50 [=] $\Rightarrow$ 230
Mary bought 230 items.

32. Mental estimation:
$500 + 500 + 500 + 500 + 500 + 100 + 100 = 2{,}700$
483 [+] 472 [+] 497 [+] 486 [+] 464 [+] 146 [+] 87 [=] $\Rightarrow$ 2635
The total labor-hours worked was 2,635.

33. Mental estimation: $60 + 40 + 100 + 200 + 300 = 700$
57 [+] 43 [+] 104 [+] 210 [+] 309 [=] $\Rightarrow$ 723
Jorge has 723 cards.

34. 4,072

10,000
− 6,000
4,000

35. 55,632

80,000
−30,000
50,000

36. 56,539,090

80,000,000
−30,000,000
50,000,000

37. 182,902

400,000
−200,000
200,000

38. 7,310

10,000
− 5,000
5,000

39. 74,385

100,000
− 40,000
60,000

40. 130 [−] 42 [=] $\Rightarrow$ 88
Sam must order 88 packages.

41. 840 [−] 596 [=] $\Rightarrow$ 244
The number of fan belts to order is 244.

42. 148 [−] 75 [=] $\Rightarrow$ 73
Frieda still has 73 tickets.

43. 132 [−] 119 [=] $\Rightarrow$ 13
Veronica lost 13 pounds.

44. $(-32) + (-27) = -59$

45. $\$21 + (-\$47) = -\$26$

46. $14 - (-12) = 14 + 12 = 26$

47. $-36 - (-18) =$
$-36 + 18 = -18$

48. $46 + (-58) = -12$

49. $\$35 + (-\$52) = -\$17$

50. $37 - (-21) = 37 + 21 = 58$

51. $72 - (-42) = 72 + 42 = 114$

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52.
$$\begin{array}{r} 5{,}931 \\ \times\quad 835 \\ \hline 29\ 655 \\ 177\ 93 \\ 4\ 744\ 8 \\ \hline 4{,}952{,}385 \end{array}$$

53.
$$\begin{array}{r} 1{,}987 \\ \times\quad 394 \\ \hline 7948 \\ 17883 \\ 5961 \\ \hline 782{,}878 \end{array}$$

54.
$$\begin{array}{r} 33 \\ \times\ 500 \\ \hline 16{,}500 \end{array}$$

55.
$$\begin{array}{r} 7{,}870 \\ \times\ 6{,}000 \\ \hline 47{,}220{,}000 \end{array}$$

56.
$$\begin{array}{r} 5{,}565 \\ \times\quad 839 \\ \hline 50\ 085 \\ 166\ 95 \\ 4\ 452\ 0 \\ \hline 4{,}669{,}035 \end{array}$$

57.
$$\begin{array}{r} 78{,}626 \\ \times\quad 87 \\ \hline 550\ 382 \\ 6\ 290\ 08 \\ \hline 6{,}840{,}462 \end{array}$$

58.
$$\begin{array}{r} 283 \\ \times\ 3{,}000 \\ \hline 849{,}000 \end{array}$$

59.
$$\begin{array}{r} 405 \\ \times\ 400 \\ \hline 162{,}000 \end{array}$$

60.
$$\begin{array}{r} 7{,}000 \\ \times\quad 30 \\ \hline 210{,}000 \end{array} \qquad \begin{array}{r} 7{,}489 \\ \times\quad 34 \\ \hline 29\ 956 \\ 224\ 67 \\ \hline 254{,}626 \end{array}$$

61.
$$\begin{array}{r} 3{,}100 \\ \times\quad 500 \\ \hline 1{,}550{,}000 \end{array} \qquad \begin{array}{r} 3{,}128 \\ \times\quad 478 \\ \hline 25\ 024 \\ 218\ 96 \\ 1\ 251\ 2 \\ \hline 1{,}495{,}184 \end{array}$$

62.
$$\begin{array}{r} 400 \\ \times\ 500 \\ \hline 200{,}000 \end{array} \qquad \begin{array}{r} 378 \\ \times\quad 546 \\ \hline 2\ 268 \\ 15\ 12 \\ 189\ 0 \\ \hline 206{,}388 \end{array}$$

63.
$$\begin{array}{r} 400 \\ \times\ 70 \\ \hline 28{,}000 \end{array} \qquad \begin{array}{r} 378 \\ \times\ 72 \\ \hline 756 \\ 26\ 46 \\ \hline 27{,}216 \end{array}$$

64. $28 \boxed{\times} 5 \boxed{=} \Rightarrow 140$

The center requires 140 pieces of fruit.

65. $2017 \boxed{\div} 6 \boxed{=} \Rightarrow 336.1666667$

There are approximately 336 radios per thousand people.

66. $2 \times \$15 = \$30$; $\$30 - \$27 = \$3$

Two filters can be purchased at a savings of $3.

67. $793 \boxed{\div} 9 \boxed{=} \Rightarrow 88.11111111$

There are approximately 88 TVs per thousand people.

68.
$$\begin{array}{r} 77 \\ 16\overline{)1{,}232} \\ 1\ 12 \\ \hline 112 \\ 112 \\ \hline \end{array} \qquad \begin{array}{r} 77 \\ \times\ 16 \\ \hline 462 \\ 77 \\ \hline 1{,}232 \end{array}$$

69.
$$\begin{array}{r} 8{,}000 \\ 90\overline{)748{,}431} \end{array} \qquad \begin{array}{r} 8{,}805\ \text{R}6 \\ 85\overline{)748{,}431} \\ 680 \\ \hline 68\ 4 \\ 68\ 0 \\ \hline 43 \\ 0 \\ \hline 431 \\ 425 \\ \hline 6 \end{array}$$

70.
$$\begin{array}{r} 500 \\ 300\overline{)174{,}891} \end{array} \qquad \begin{array}{r} 505\ \text{R}161 \\ 346\overline{)174{,}891} \\ 173 \\ \hline 1\ 89 \\ 0 \\ \hline 1\ 891 \\ 1\ 730 \\ \hline 161 \end{array}$$

71.
$$\begin{array}{r} 335 \\ 12\overline{)4{,}020} \\ 3\ 6 \\ \hline 42 \\ 36 \\ \hline 60 \\ 60 \\ \hline \end{array} \qquad \begin{array}{r} 335 \\ \times\ 12 \\ \hline 670 \\ 3\ 35 \\ \hline 4{,}020 \end{array}$$

72. $483{,}000 \div 3{,}000 = 483 \div 3 = 161$

73. $73{,}460{,}000 \div 10{,}000 = 7{,}346 \div 1 = 7{,}346$

74. $835{,}000 \div 5{,}000 = 835 \div 5 = 167$

75. $68{,}650{,}000 \div 1{,}000 = 68{,}650 \div 1 = 68{,}650$

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76. $3{,}420 \boxed{\div} 12 \boxed{=} \Rightarrow 285$
The dealer can make 285 packages.

77. $2{,}032 \boxed{\div} 127 \boxed{=} \Rightarrow 16$
The average hourly wage per employee is $16 per hour.

78. $238 \boxed{\div} 2 \boxed{=} \Rightarrow 119$ The stack has 119 countertops.

79. $15+32+18+12=77$ coins

80. $138(-\$7) = -\$966$ loss

81. $\$69{,}708 \div 12 = \$5{,}809$ gain

82. $-\$10{,}152 \div 4 = -\$2{,}538$ loss

83. $219 \times \$3 = \$657$ gain

84. $34-3\times 7 = 34-21 = 13$

85. $(\$32-\$17+\$57)\div 9 = \$72 \div 9 = \$8$

86. $(-3)(-12)-5 = 36-5 = 31$

87. $(\$72+\$38-\$21+\$32)\times 3 = \$121\times 3 = \$363$

88. $63+126\div 7 = 63+18 = 81$

89. $(-5)(-11)-18 = 55-18 = 37$

Practice Test, p. 36

1. five hundred three

2. twelve million, fifty-six thousand, thirty-nine

3. 80,000

4. 600,000

5. 5,017,135,632

6. 17,500,608

7. Twenty-two billion, six hundred ninety-seven million dollars

8. Eighty-seven billion, four hundred seventy-one million, nine hundred thousand dollars

9.
$$\begin{array}{r} 900 \\ 1{,}000 \\ +\ 300 \\ \hline 2{,}200 \end{array} \qquad \begin{array}{r} 863 \\ 983 \\ +\ 271 \\ \hline 2{,}117 \end{array}$$

10.
$$\begin{array}{r} 1{,}000 \\ -\ 300 \\ \hline 700 \end{array} \qquad \begin{array}{r} 987 \\ -346 \\ \hline 641 \end{array}$$

11. -21

12. -23

13. $5-32 = 5+(-32) = -27$

14. $-8-21 = -8+(-21) = -29$

15.
$$\begin{array}{r} 900 \\ \times\ 50 \\ \hline 45{,}000 \end{array} \qquad \begin{array}{r} 892 \\ \times\ 46 \\ \hline 5\,352 \\ 35\,68 \\ \hline 41{,}032 \end{array}$$

16. $50\overline{)4{,}021}$ $= 80$ $\qquad$ $53\overline{)4{,}021}$ $= 75$ R46

$$\begin{array}{r} 3\ 71 \\ \hline 311 \\ 265 \\ \hline 46 \end{array}$$

17. $438 \boxed{+} 72 \boxed{+} 643 \boxed{=} \Rightarrow 1153$
1,153 items were counted.

18. $31 \boxed{\div} 2 \boxed{=} \Rightarrow 15.5$
Only 15 boxes can be stacked.

19. $2988 \boxed{\div} 12 \boxed{=} \Rightarrow 249$
249 packages can be made.

20. $43 \boxed{-} 23 \boxed{=} \Rightarrow 20$
20 pairs of shoes remain in inventory.

21. $680 \boxed{\div} 40 \boxed{=} \Rightarrow 17$
She makes $17 per hour.

22. $28 \boxed{\times} 2 \boxed{=} \Rightarrow 56$
$56 \boxed{\times} 5 \boxed{=} \Rightarrow 280$
280 pieces of fruit are required.

23. $16 \boxed{\times} 3 \boxed{=} \Rightarrow 48$
48 pages are devoted to review.

24. $48 \boxed{-} 11 \boxed{=} \Rightarrow 37$
37 novels were received.

25. $\$23{,}522{,}400{,}000 - \$4{,}313{,}200{,}000 = \$19{,}209{,}200{,}000$

26. Loss = negative profit; $\$34{,}362{,}200{,}000 - (-\$394{,}900{,}000) =$
$\$34{,}362{,}200{,}000 + \$394{,}900{,}000 = \$34{,}757{,}100{,}000$

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27. $-\$8{,}915+(-\$5{,}212)+(-\$6{,}103)=-\$20{,}230$

28. $-\$15{,}814-(-\$7{,}928)=-\$15{,}814+\$7{,}928=-\$7{,}886$

29. $186\times(-\$11)=-\$2{,}046$

30. $-\$26{,}136\div 12=-\$2{,}178$

31. $133\div 7\times(-4)+26=$
$19\times(-4)+26=$
$-76+26=-50$

32. $(\$68+\$52-\$71+\$32)\times 9=\$81\times 9=\$729$

Critical Thinking, p. 38

1. $n=17-12$
$n=5$

2. $n=45\div 5$
$n=9$

3. Answers will vary.
$(12-5)-2=7-2=5$
$12-(5-2)=12-3=9$

4. Answers will vary.
$8\div 4=4$
$4\div 8=\frac{4}{8}$ does not $=4$

5. Answers will vary. You made purchases of \$15 and \$18. What is the total of your purchases?

6. Answers will vary. You purchased seven items that cost \$23 each. What is the total of your purchases?

7. Answers will vary. Multiplication
$4+4+4+4+4=5(4)=20.$

8. Addition and Subtraction

9. Division

10. zero missing

```
      59                509
12)6,108          12)6,108
   60                 60
   108                10
   108                 0
                      108
                      108
```

The 5 in the quotient should align above the 1 in the dividend.

11. $5+3(8)-12=$
$5+24-12=$
$29-12=17$
The order of operations requires multiplication to be completed before addition or subtraction.

12. $25-12+7=$
$13+7=20$
Addition and subtraction must be completed in the order they occur, working from *left* to *right*.

Combining Concepts, p. 38

1.
```
  120        500
  135      - 420
+ 165        80 units
  420
```

2.

TABLE 1-2

Employee Name	Week 1	Week 2	Week 3	Week 4	Units Sold
Brown, Tyler	15	12	23	27	77
Lopez, Cierra	23	18	14	12	67
Prete, Aaron	18	19	27	9	73
Salayon, Steven	21	15	16	17	69
Vidrine, Stephen	31	12	9	15	67
Waddell, Dawn	17	18	12	21	68
Young, Travon	15	19	14	13	61

The overall monthly sales were 482 units. The monthly quota of 500 units was not reached. Tyler Brown and Aaron Prete reached their monthly sales goals.

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3.

TABLE 1-3						
Region	**W**	**Th**	**F**	**S**	**Su**	**Region Totals**
Eastern	$72,492	$81,948	$32,307	$24,301	$32,589	$243,637
Southern	81,897	59,421	48,598	61,025	21,897	272,838
Central	71,708	22,096	23,222	21,507	42,801	181,334
Western	61,723	71,687	52,196	41,737	22,186	249,529
Daily Sales Total	$287,820	$235,152	$156,323	$148,570	$119,473	$947,338

$$\text{Region Totals} = \$243,637 + \$272,838 + \$181,334 + \$249,529 = \$947,338$$

$$\text{Difference} = \text{Goal} - \text{Actual} = \$1,384,000 - \$947,338 = \$436,662$$

$$\text{Daily Sales Totals} = \$287,820 + \$235,152 + \$156,323 + \$148,570 + \$119,473 + \$947,338$$

Goal was not reached.

4. Total pounds of candy $= 84 \times 25 = 2,100$

Number of bags of candy $= 2,100 \div 3 = 700$

Number of boxes of candy $= 700 \div 12 = 58$ R4

There are 58 boxes of candy and 4 bags left so 59 boxes will be needed to ship all the candy. Enough bags and boxes are on hand to package.

5. Total length of fencing needed $= 210 \times 4 = 840$ feet

Number of rolls of fencing needed $= 840 \div 50 = 16$ R40

Because a partial roll of fencing cannot be purchased, 17 rolls are needed.

Cost of 17 rolls of fencing $= \$49 \times 17 = \$833$

Cost of installing fence $= \$1 \times 840 = \$840$

Total cost $= \$833 + \$840 = \$1,673$

Your bid is the lowest bid and you are likely to get the business.

6. Wages $= 3 \times \$15 \times 21 = \$945$

Gross profit = total − cost of materials − cost of labor

Gross profit $= \$1,673 - \$833 - \$945 = \$105$

7. $12 + 27 + 55 + 21 = 115$ gallons; yes, 100 gallons of fuel can be stored in these containers.

8. $\$75 + \$45 + 4(\$10) = \$75 + \$45 + \$40 = \$160$;

$\$160 - \$7 = \$153$

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Case Studies

1-1, p. 41

1. Daily Pass: $250 \text{ days} \times \$6 = \$1,500$ Monthly Pass: $12 \text{ months} \times \$105 = \$1,260$
$\$1,500 - \$1,260 = \$240$

2. Daily Mileage: $2 \times 20 \text{ miles} = 40 \text{ miles}$ $40 \text{ miles} = 1 \text{ gallon of gasoline per day} = \$4$
Annual Fuel Cost: $\$4 \times 250 \text{ days} = \$1,000$ Parking Cost: $\$120 \times 50 \text{ weeks} = \$6,000$
Cost to Drive to Work: $\$1,000 + \$6,000 = \$7,000$

3. Position 1 is \$70,000 per year;
$\$70,000 - \$1,260 \text{ (annual cost of bus)} = \$68,740$
Position 2 is \$67,000 per year;
$\$67,000 + \$2,000 \text{ (wellness bonus)} = \$69,000$
Position 2 is the better option.

1-2, p. 42

1. $45 \text{ ft} \times 20 \text{ ft} \times 2 \text{ sides} = 1,800 \text{ ft}^2$ $1,800 \text{ ft}^2 \div 100 = 18$ roofing squares
For the roof, $1,800 \text{ ft}^2$ of roofing is required, which is 18 roofing squares.

2. $18 \text{ squares} \times 4 \text{ bundles} = 72 \text{ bundles}$ $18 \text{ squares} \div 3 = 6$ rolls of roofing felt
$72 \text{ bundles} \times \$42 \text{ per bundle} = \$3,024$ total shingle cost $6 \text{ rolls} \times \$27 \text{ per roll} = \$162$ total roofing felt cost
For the roof, 72 bundles of shingles are needed at a cost of \$3,024. Also, 6 rolls of felt are needed at a cost of \$162.

3. $18 \text{ squares} \div 3 \text{ squares} = 6 \text{ boxes}; \ 6 \text{ boxes} \times \$15 = \$90$ nail cost
$17 \text{ drip edge pieces} \times \$6 \text{ per} = \$102$ total drip edge cost
$(20 \text{ ft} + 20 \text{ ft} + 45 \text{ ft}) = 85 \text{ ft per side of drip edge}$ Total cost = \$3,024 + \$162 + \$90 + \$102 = \$3,378
$85 \text{ ft} \times 2 \text{ sides} = 170 \text{ ft}; \ 170 \text{ ft} \div 10 \text{ ft length} = 17 \text{ pieces}$
6 boxes of roofing nails are needed at a cost of \$90; 17 lengths of drip edge are needed at a cost of \$102. The material costs for the entire roof are \$3,378.

1-3, p. 42

1. $150 + 75 + 25 = 250$ people
$\$100,000 \div 250 = \$400$

2. $\$400 \div 10 = \$40$

3. First shift: $100(\$40)(10 \text{ months}) = \$40,000; \ 25(\$100) = \$2,500; \ 15(\$50) = \$750;$
$10(\$20)(10) = \$2,000; \ \$40,000 + \$2,500 + \$750 + \$2,000 = \$45,250$ total
Second shift: $25(\$150) = \$3,750; \ 25(\$40)(10) = \$10,000; \ 25(\$35) = \$875$
$\$3,750 + \$10,000 + \$875 = \$14,625$ total
Third shift: $25(\$80)(10) = \$20,000$ total

4. No, she is short \$20,125. $\$45,250 + \$14,625 + \$20,000 = \$79,875; \ \$100,000 - \$79,875 = \$20,125$

5. $\$79,875(2) = \$159,750$ company contribution $\$79,875 + \$159,750 = \$239,625$ total contribution

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