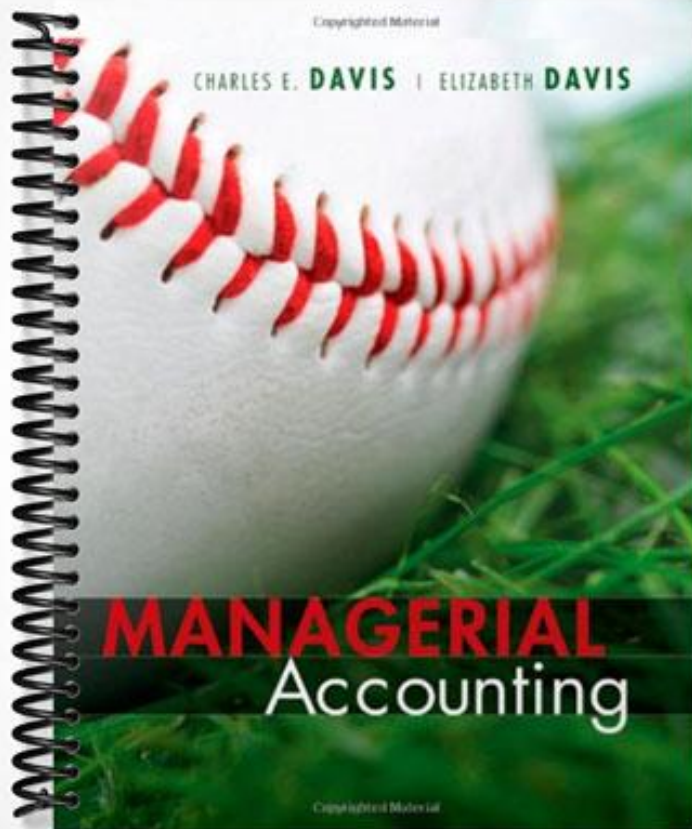


SOLUTIONS MANUAL

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MANAGERIAL
Accounting

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SOLUTIONS TO PUZZLE CLUES

Unit 2.1

1. Managers must be able to predict the financial results of their various decisions. The only way to predict results is to know how costs will change or “behave” with changes in activity.

LO: 1, Bloom: C, Unit: 2-1, Difficulty: Moderate, Min: 2, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

2. A variable cost is a cost that varies in total in proportion to a business activity. Within the relevant range, variable cost per unit is constant. As the level of activity increases, the total cost increases by the same proportion. Examples include commissions, cost of tires on a bicycle and, cost of stamps on a 1-ounce letter.

LO: 1, Bloom: C, K, Unit: 2-1, Difficulty: Moderate, Min: 4, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

3. A fixed cost is a cost that does not change in total with the activity level. Within the relevant range, the fixed cost per unit varies inversely with the change in activity. Examples include monthly rent, a manager’s salary, and property taxes.

LO: 1, Bloom: C, K, Unit: 2-1, Difficulty: Moderate, Min: 3, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

4. Discretionary fixed costs are fixed costs that can be changed over the short run. Committed fixed costs cannot be changed over the short run.

LO: 1, Bloom: C, Unit: 2-1, Difficulty: Easy, Min: 2, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

5. A mixed cost is a cost that has both fixed and variable components. As the level of activity increases, the total cost increases and the cost per unit decreases. Examples include electricity cost, party hall rental when the charge includes a flat fee plus a cost per guest, and t-shirt printing when the charge includes a set up fee plus a charge for each t-shirt printed.

LO: 1, Bloom: C, K, Unit: 2-1, Difficulty: Moderate, Min: 4, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

6. A step cost is a cost that is fixed over a small range of activity. Total cost will not change as activity levels increase if the level of activity is within a certain range. However, once the activity level exceeds this

range, total cost will increase. Examples include maintenance costs when a new maintenance worker is needed per 10 machines, nurse salaries per 5 patients on a hospital floor, and hotel room rates per 4 students on a class trip.

LO: 1, Bloom: C, K, Unit: 2-1, Difficulty: Moderate, Min: 4, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

Unit 2.2

1. $TC = (VC \times x) + FC$

LO: 2, Bloom: K, Unit: 2-2, Difficulty: Easy, Min: 1, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

2. With a scattergraph, a line is drawn to best fit the data points. The point at which the line intersects the y-axis is the value for fixed costs. The slope of the line, change in total cost dividing by change in activity, is the variable cost per unit.

LO: 2, Bloom: C, Unit: 2-2, Difficulty: Moderate, Min: 2, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

3. The high-low method uses the highest and lowest points within a data range to construct a total cost line. The variable cost per unit is calculated by dividing the change in total cost by the change in activity. The fixed cost is calculated by plugging the variable cost in the formula $TC = (VC \times x) + FC$ and using either the high point or low point of activity.

LO: 2, Bloom: K, Unit: 2-2, Difficulty: Moderate, Min: 4, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

4. Regression analysis is preferable as it produces a line with the least amount of error and is relatively easy to use in Excel or other spreadsheet software.

LO: 2, Bloom: C, Unit: 2-2, Difficulty: Easy, Min: 2, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

5. The relevant range is the normal level of operating activity. The relevant range applies to the whole company and is valid for all cost relationships. The steps in a step cost are ranges that are only valid for that particular cost. The steps in the range are smaller than the relevant range.

LO: 2, Bloom: C, Unit: 2-2, Difficulty: Moderate, Min: 4, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Unit 2.3

1. Contribution margin is the difference between sales and variable cost.

LO: 3, Bloom: K, Unit: 2-3, Difficulty: Easy, Min: 1, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

- 2. Contribution margin ratio is the contribution margin divided by sales. The variable cost ratio is 1 minus the contribution margin ratio.**

LO: 3, Bloom: K, Unit: 2-3, Difficulty: Easy, Min: 2, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

- 3. If the variable cost per unit increases and the selling price decreases, the contribution margin per unit will decrease. The change in fixed cost has no bearing on the contribution margin.**

LO: 3, Bloom: C, Unit: 2-3, Difficulty: Difficult, Min: 3, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

- 4. A product's contribution margin can be increased by increasing the selling price per unit or decreasing variable costs per unit. Total contribution margin can be increased by selling more units.**

LO: 3, Bloom: C, Unit: 2-3, Difficulty: Difficult, Min: 3, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

SOLUTIONS TO EXERCISES

Exercise 2-1

- | | |
|-------------|----------|
| a. variable | e. step |
| b. fixed | f. fixed |
| c. variable | g. mixed |
| d. fixed | |

LO: 1, Bloom: C, Unit: 2-1, Difficulty: Moderate, Min: 12, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

Exercise 2-2

- | | |
|-------------|-------------|
| a. variable | f. fixed |
| b. fixed | g. mixed |
| c. step | h. variable |
| d. mixed | i. variable |
| e. variable | j. fixed |

LO: 1, Bloom: C, Unit: 2-1, Difficulty: Difficult, Min: 15, AACSB: Analytic, AICPA FN: Reporting, AICPA PC: Communication, IMA: Cost Management

Exercise 2-3

- a. $TC(300) = (300 \times \$10 \text{ per return}) + \$500 \text{ fee} = \$3,500$
 $TC(400) = (400 \times \$10 \text{ per return}) + \$500 \text{ fee} = \$4,500$
 $TC(500) = (500 \times \$10 \text{ per return}) + \$500 \text{ fee} = \$5,500$
- b. $\text{Cost per unit (300)} = \$3,500 \div 300 = \$11.67$
 $\text{Cost per unit (400)} = \$4,500 \div 400 = \$11.25$
 $\text{Cost per unit (500)} = \$5,500 \div 500 = \$11.00$
- c. As the number of returns increased from 300 to 500, the fixed cost of \$500 decreased on a per unit basis.

LO: 1, Bloom: AP, Unit: 2-1, Difficulty: Moderate, Min: 12, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-4

	<u>Answer</u>	<u>Reasoning</u>
Balloons	variable	The total cost increases as activity increases and the cost per unit remains constant at \$2 per bouquet.
Insurance	fixed	The total cost remains constant across all activity levels.
Delivery	mixed	The total cost increases as activity increases and the cost per unit decreases as activity increases.
Employee compensation	mixed	The total cost increases as activity increases and the cost per unit decreases as activity increases.
Advertising	fixed	The total cost remains constant across all activity levels.

Per unit costs:

	<u>5,000</u>	<u>7,500</u>	<u>10,000</u>
Balloons	$\frac{\$10,000}{5,000 \text{ bouquets}} = \2	$\frac{\$10,000}{7,500 \text{ bouquets}} = \2	$\frac{\$10,000}{10,000 \text{ bouquets}} = \2
Delivery	$\frac{\$5,500}{5,000 \text{ bouquets}} = \1.10	$\frac{\$8,000}{5,000 \text{ bouquets}} = \1.60	$\frac{\$10,500}{5,000 \text{ bouquets}} = \2.10
Employee compensation	$\frac{\$10,000}{5,000 \text{ bouquets}} = \2	$\frac{\$13,000}{5,000 \text{ bouquets}} = \2.60	$\frac{\$16,000}{5,000 \text{ bouquets}} = \3.20

LO: 1, Bloom: AP, C, Unit: 2-1, Difficulty: Moderate, Min: 15-20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-5

Undoubtedly, some of your costs are fixed and will not change with the number of units sold. For example, you probably pay rent to the mall to set up your kiosk. Total rent does not change with the number of MP3 players sold. Using the unit cost you calculated, your estimate will be too high if you sell more units next year and too low if you sell fewer units next year.

LO: 1, Bloom: AN, Unit: 2-1, Difficulty: Difficult, Min: 5-7, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

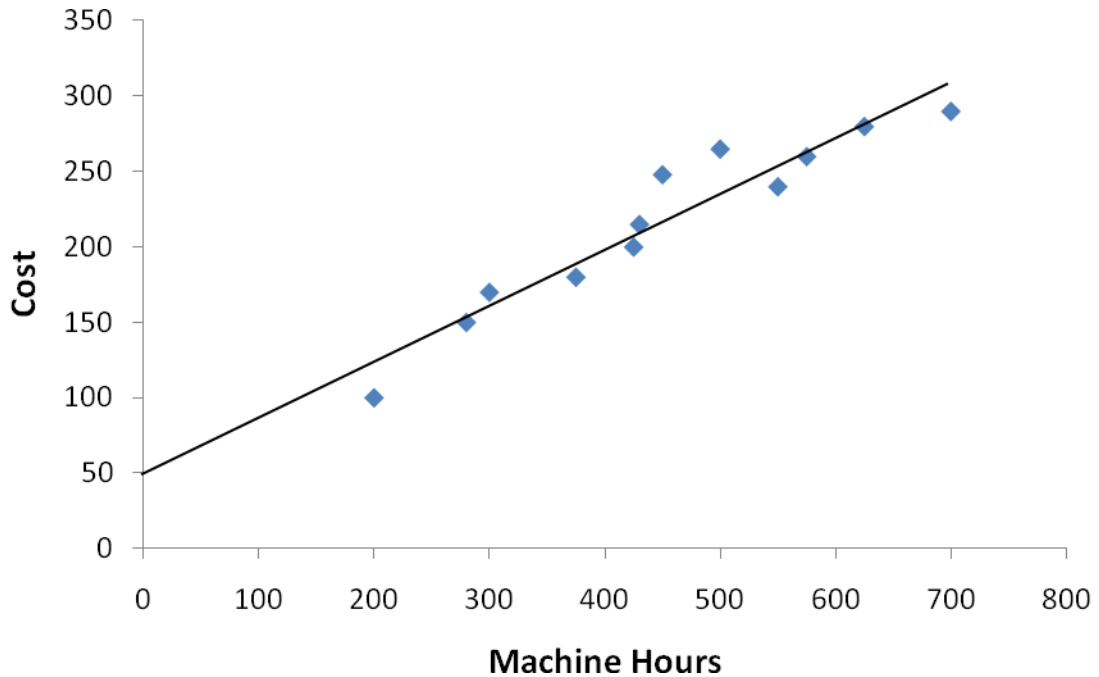
Exercise 2-6

- a. No effect – total fixed costs do not change with changes in quantity.
- b. Decrease – the increase in accounting quantity would lower the fixed costs per unit, which would lower the unit cost of the 737 Next Generation plane.

LO: 1, Bloom: AP, AN, Unit: 2-1, Difficulty: Difficult, Min: 8, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-7

a.



Note: Students may draw lines that differ from the one above. That will affect the equation they use in the remaining parts of the exercise.

- b. The line intersects the y-axis at \$50, representing total fixed costs. The line passes through the point (575, \$260), so the slope can be calculated as follows:

$$\frac{\$260 - \$50}{575 - 0} = \$0.37 \text{ per machine hour}$$

The equation of the line is: $y = \$0.37\text{MH} + \50

- c. Total cost = $\$0.37(425 \text{ hrs}) + \$50 = \$207.25$
- d. The line is merely an estimation of what costs will be. Since the line does not intersect the actual cost at which machine hours is 425, then the cost estimate will not equal the actual cost.

LO: 2, Bloom: AP, AN, Unit: 2-2, Difficulty: Moderate, Min: 15-20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-8

- a. Variable cost = $\frac{\$290 - \$100}{700 - 200} = \$0.38 \text{ per machine hour}$
- b. Fixed cost using the low point = $\$100 - (\$0.38 \times 200) = \$24$
- c. Total cost = $\$0.38\text{MH} + \24
- d. Total cost = $0.38(425 \text{ hrs}) + \$24 = \$185.50$
- e. The equation of the line was determined using two points, neither of which was 425 machine hours. Since the line does not intersect the actual cost at which machine hours is 425, then the cost estimate will not equal the actual cost.

LO: 2, Bloom: AP, AN, Unit: 2-2, Difficulty: Moderate, Min: 20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-9

	Answer	Calculations
Balloons	$y = \$2x + \0	$VC = \frac{\$20,000 - \$10,000}{10,000 - 5,000} = \2 $FC = \$20,000 - \$2(10,000) = \$0$
Insurance	$y = \$5,000$	Since the total cost is constant, no calculations are needed.
Delivery	$y = \$1x + \500	$VC = \frac{\$10,500 - \$5,500}{10,000 - 5,000} = \1 $FC = \$10,500 - \$1(10,000) = \$500$
Employee compensation	$y = \$1.20x + \$4,000$	$VC = \frac{\$16,000 - \$10,000}{10,000 - 5,000} = \1.20 $FC = \$16,000 - \$1.2(10,000) = \$4,000$
Advertising	$y = \$1,500$	Since the total cost is constant, no calculations are needed.

LO: 2, Bloom: AP, Unit: 2-2, Difficulty: Difficult, Min: 20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-10

- a. Current system = $(.03 \times \text{sales}) + \$60,000$
 Salary and 5% = $(.05 \times \text{sales}) + \$50,000$
 12% commission = $.12 \times \text{sales}$

b.

	Current system	Salary and 5% commission	12% commission
Sales	\$1,000,000	\$1,120,000	\$1,200,000
COGS (.3 × Sales)	<u>300,000</u>	<u>336,000</u>	<u>360,000</u>
Gross profit	700,000	784,000	840,000
Compensation	<u>90,000^a</u>	<u>106,000^b</u>	<u>144,000^c</u>
Income	<u>\$610,000</u>	<u>\$678,000</u>	<u>\$696,000</u>

The 12% commission results in the most profitable result for the company.

$$^a \$60,000 + (\$1,000,000 \times 0.03)$$

$$^b \$50,000 + (\$1,120,000 \times 0.05)$$

$$^c \$1,200,000 \times 0.12$$

LO: 2, Bloom: AP, Unit: 2-2, Difficulty: Difficult, Min: 10-15, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-11

		Per Unit
Sales	\$50,000	<u>\$100</u>
Less variable costs:		
COGS	\$30,000	60
Commissions	3,000	6
Shipping	<u>1,000</u>	<u>2</u>
Total variable costs	<u>34,000</u>	<u>68</u>
Contribution margin	16,000	<u>\$ 32</u>
Less fixed costs:		
Salaries	8,000	
Advertising	<u>6,000</u>	
Total fixed costs	<u>14,000</u>	
Operating Income	<u>\$ 2,000</u>	

LO: 3, Bloom: AP, Unit: 2-3, Difficulty: Moderate, Min: 10-15, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-12

	a.	b.	c.	d.
Sales revenue	\$300,000	\$450,000	\$280,000	\$600,000
Variable costs	<u>210,000</u>	<u>300,000</u>	<u>96,000</u>	<u>200,000</u>
Contribution margin	90,000	150,000	184,000	400,000
Fixed costs	<u>75,000</u>	<u>90,000</u>	<u>120,000</u>	<u>180,000</u>
Operating income	15,000	60,000	64,000	220,000
Income taxes	<u>4,500</u>	<u>18,000</u>	<u>16,000</u>	<u>55,000</u>
Net income	<u><u>\$10,500</u></u>	<u><u>\$42,000</u></u>	<u><u>\$48,000</u></u>	<u><u>\$165,000</u></u>

LO: 3, Bloom: AN, Unit: 2-3, Difficulty: Easy, Min: 10-15, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-13

		Per Unit
Sales	\$10,000	<u>\$5.00</u>
Less variable costs:		
COGS	\$3,000	1.50
Operating costs	<u>1,000^a</u>	<u>.50</u>
Total variable costs		<u>2.00</u>
Contribution margin	6,000	<u>\$3.00</u>
Fixed operating costs	<u>1,500^b</u>	
Operating Income	<u>\$4,500</u>	

Units sold = \$10,000 sales revenue ÷ \$5.00 per unit = 2,000 units

^a2,000 units × \$0.50 per unit

^b\$2,500 total operating costs - \$1,000 variable cost

LO: 3, Bloom: AP, Unit: 2-3, Difficulty: Difficult, Min: 10-15, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Exercise 2-14

a.

Sales revenue		\$50,000
Less variable costs:		
COGS	\$25,575	
Selling (20%)	1,600 ^a	
Administrative (60%)	<u>7,200^b</u>	
Total variable costs		<u>34,375</u>
Contribution margin		15,625
Less fixed costs:		
Selling (80%)	6,400 ^c	
Administrative (40%)	<u>4,800^d</u>	
Total fixed costs		<u>11,200</u>
Operating Income		<u><u>\$4,425</u></u>

^a\$8,000 × 0.20

^b\$7,200 × 0.60

^c\$8,000 × 0.80

^d\$7,200 × 0.40

b. $\$50,000 \div \$1.60 \text{ per cookie} = 31,250 \text{ cookies}$

c. $\$15,625 \div 31,250 \text{ cookies} = \$.50 \text{ per cookie}$

d. $\$15,625 \div \$50,000 = 31.25\%$

LO: 3, Bloom: AP, Unit: 2-3, Difficulty: Easy, Min: 20-25, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

SOLUTIONS TO PROBLEMS**Problem 2-15**

a.

<u>Minutes</u>	<u>Cost per minute</u>	<u>Total Cost</u>
10	\$5.00	\$50
100	\$0.50	\$50
250	\$0.20	\$50
500	\$0.10	\$50

b. This is a fixed cost because total cost remains fixed while the cost per minute decreases as minutes used increases.

c. $1,000 \times \$0.02 = \20 ; prefer \$0.02 per minute instead of \$50 per month

$3,000 \times \$0.02 = \60 ; prefer \$50 per month

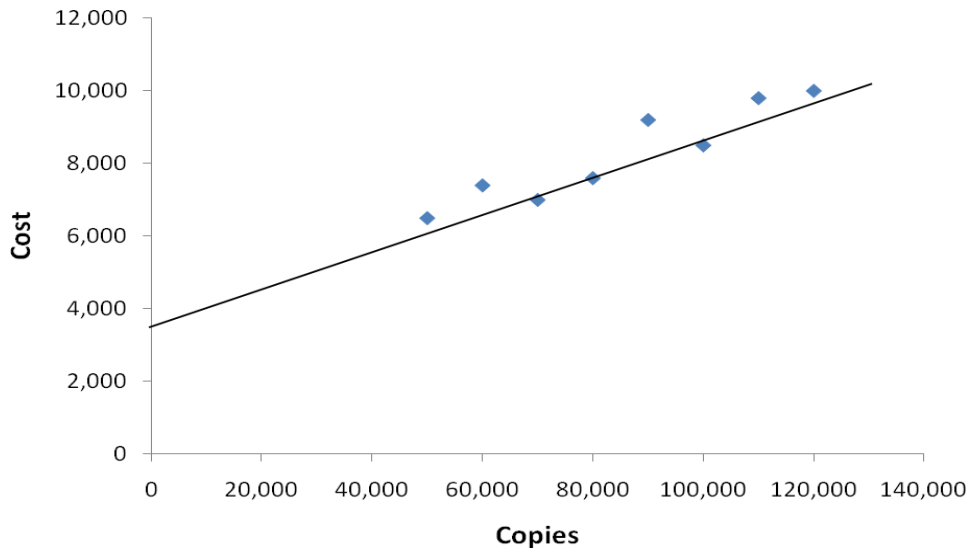
indifferent where $\$50 = \$0.02x$

$x = 2,500$ minutes

d. You should determine which phone plan to buy based on how many minutes you expect to use in one month.

Problem 2-16

a.



The line intersects the y-axis at \$3,500, representing total fixed costs. The line passes through the point (80,000, \$7,600), so the slope can be calculated as follows:

$$\frac{\$7,600 - \$3,500}{80,000 - 0} = \$0.05125 \text{ per copy}$$

The equation of the line is: $y = \$0.05125/\text{copy} + \$3,500$

b. Variable cost = $\frac{\$10,000 - 6,500}{120,000 - 50,000} = \0.05 per copy

c. Fixed cost = $\$10,000 - (\$0.05 \times 120,000) = \$4,000$

d. $y = \$0.05x + \$4,000$

e. September cost = $(\$0.05 \times 70,000) + \$4,000 = \$7,500$. The equation is just an approximation of the relationship between cost and copies. Since the March cost was not one of the points used to construct the line, then it is not surprising that the two figures aren't equal.

Problem 2-17

- a. Variable cost = $\frac{\$77,000 - \$55,000}{7,500 - 2,500} = \4.40 per labor hour
Fixed cost = $\$77,000 - (\$4.40 \times 7,500) = \$44,000$
- b. Total cost = $(\$4.40 \times 2,800) + \$44,000 = \$56,320$
- c. Additional overhead = $\$4.40 \times 200 = \880
- d. In regression analysis, the cost equation is calculated using all of the data points. In the high-low method, only two points are used to determine the cost equation. In either case, they are both estimates.

LO: 2, Bloom: AP, AN, Unit: 2-2, Difficulty: Difficult, Min: 15-20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Problem 2-18

- a. Variable cost = $\frac{\$83,050 - \$74,525}{561,000 - 390,500} = \0.05 per spike set sold
- b. Fixed cost = $\$83,050 - (\$0.05 \times 561,000) = \$55,000$
- c. Marketing cost = $\$.05(\text{sets sold}) + \$55,000$
- d. February sales volume and costs are much lower than the others.
- e. Variable cost = $\frac{\$83,050 - \$82,330}{561,000 - 543,000} = \0.04 per spike set sold
Fixed cost = $\$83,050 - (\$0.04 \times 561,000) = \$60,610$
Marketing cost = $\$.04(\text{sets sold}) + \$60,610$
- f. The second equation is better because the endpoints used to estimate the line are more consistent with the normal sales volumes and costs.

LO: 2, Bloom: AP, AN, Unit: 2-2, Difficulty: Moderate, Min: 20-25, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Problem 2-19

a. Passengers:

$$\text{Variable cost} = \frac{\$25,459 - \$22,225}{2,430 - 2,136} = \$11 \text{ per passenger}$$

$$\text{Fixed cost} = \$25,459 - (\$11 \times 2,430) = (\$1,271)$$

$$\text{Fuel expense} = \$11(\text{passenger}) - \$1,271$$

Passenger miles:

$$\text{Variable cost} = \frac{\$24,481 - \$22,435}{578,133 - 373,533} = \$.01 \text{ per passenger mile}$$

$$\text{Fixed cost} = \$24,481 - (\$.01 \times 578,133) = \$18,699.67$$

$$\text{Fuel expense} = \$.01(\text{passenger mile}) + \$18,699.67$$

Train Miles:

$$\text{Variable cost} = \frac{\$25,459 - \$22,225}{3,315 - 2,825} = \$6.60 \text{ per train mile}$$

$$\text{Fixed cost} = \$25,459 - (\$6.60 \times 3,315) = \$3,580$$

$$\text{Fuel expense} = \$6.60(\text{train mile}) + \$3,580$$

- b. The formula based on passengers doesn't make sense as the fixed cost is negative. While this might have some predictive ability, it doesn't help managers understand any causal relationship between the number of passengers and fuel expense.
- c. Logically, train miles would seem to have the most predictive ability since the miles a train travels and fuel costs should be directly related. While passenger miles would likely provide information related to the fuel expended due to weight (more passengers, greater weight), it is unlikely that one more passenger mile will have the same impact on fuel expenses that one more train mile will have.

LO: 2, Bloom: AP, AN, Unit: 2-2, Difficulty: Difficult, Min: 30-35, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Problem 2-20

- a. COGS – variable
- Advertising – fixed
- Salaries and Wages – mixed
- Insurance – fixed
- Postage – variable

b. Sales price = $\$3,000 \div 2,000$ windows = \$1.50 per window

COGS = $\$1,200 \div 2,000$ windows = \$.60 per window

Variable salaries = $\frac{\$1,100 - \$700}{6,000 - 2,000} = \$0.10$ per window

Postage = $\$400 \div 2,000$ windows = \$0.20 per window

Fixed salaries = $\$1,100 - .1(6,000) = \500

	5,000 windows	Per Unit
Sales revenue	\$7,500	<u>\$1.50</u>
Less variable costs:		
COGS	3,000	0.60
Salaries	500	0.10
Postage	<u>1,000</u>	<u>0.20</u>
Total variable costs	<u>4,500</u>	<u>0.90</u>
Contribution margin	3,000	<u>\$0.60</u>
Less fixed costs:		
Advertising	400	
Salaries	500	
Insurance	<u>200</u>	
Total fixed costs	<u>1,100</u>	
Operating Income	<u>\$1,900</u>	

LO: 1,3, Bloom: AP, Unit: 2-1,2-3, Difficulty: Difficult, Min: 20-25, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Problem 2-21

a. coats sold = $\$750,000 \div \$250 = 3,000$ units

variable selling = $\$6.50 \times 3,000 = \$19,500$

variable administrative = $5\% \times \$750,000 = \$37,500 \div 3,000 = \$12.50$

fixed selling = $\$23,560 - \$19,500 = \$4,060$

fixed administrative = $\$49,500 - \$37,500 = \$12,000$

		Per Unit
Sales revenue	\$750,000	<u>\$250.00</u>
Less variable costs:		
COGS	300,000	100.00
Selling	19,500	6.50
Administrative	<u>37,500</u>	<u>\$12.50</u>
Total variable costs	<u>357,000</u>	<u>119.00</u>
Contribution margin	393,000	<u>\$131.00</u>
Less fixed costs:		
Selling	4,060	
Administrative	<u>12,000</u>	
Total fixed costs	<u>16,060</u>	
Operating Income	<u>\$376,940</u>	

b. Operating expenses = $\$119x + 16,060$

c. $\$131 \times 2,700 = \$353,700$

LO: 2,3, Bloom: AP, Unit: 2-2,2-3, Difficulty: Difficult, Min: 20, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Problem 2-22

a.

		<u>Per Unit</u>
Sales revenue	\$25,500	<u>\$30</u>
Less variable costs:		
Service	14,450	17
Bookkeeping	<u>1,700</u>	<u>2</u>
Total variable costs	<u>16,150</u>	<u>19</u>
Contribution margin	9,350	<u>\$11</u>
Less fixed costs:		
Vans	2,000	
Salaries	<u>3,000</u>	
Total fixed costs	<u>5,000</u>	
Operating Income	<u>\$4,350</u>	

b. $\$4,350 + 150(\$11) = \$6,000$

c.

	<u>850</u>	<u>1,000</u>	<u>1,100</u>
Current cost: $\$2 \times \text{customers} \times 12 \text{ months}$	\$20,400	\$24,000	\$26,400
Option 1: $\$10,200 + (\$1 \times \text{customers} \times 12 \text{ months})$	\$20,400	\$22,200	\$23,400
Option 2: $\$18,000 + \$5,000$	\$23,000	\$23,000	\$23,000

d. Mr. Henley needs to evaluate what he thinks future demand for his services will be. If he thinks he will have more customers, then he should consider switching to option 1 or 2 before prices increase. He also needs to think about the stability of his customer base. If he services fewer than 850 customers, options 1 and 2 will be more expensive than the current arrangement.

SOLUTIONS TO CASES

Case 2-23

a.

Ad development	\$5,000	
Placement ^a	1,600	(\$.80 × 2,000)
Click-through	<u>4,000</u>	(\$.02 × .1 × 2,000,000)
	<u>\$10,600</u>	

^a $\frac{2,000,000 \text{ ad impressions}}{1,000} = 2,000$ (impressions are priced per thousand)

b. customers = 2,000,000 × 10% × 5% = 10,000

$\frac{\$10,600}{10,000} = \1.06 per customer

c. You need to work backwards to solve this problem:

Since only 5% of those who click through make a purchase, it will take 20 click-throughs to generate one customer (1 ÷ .05).

Since only 10% of banner ad viewers click through, 200 more banner ads need to be placed (20 ÷ .10)

Cost of 200 placements = (200 ÷ 1,000) × \$.80	\$.16
Cost of 20 click-throughs = 20 × \$.02	<u>\$.40</u>
	<u>\$.56</u>

LO: 1, Bloom: AP, Unit: 2-1, Difficulty: Difficult, Min: 20-25, AACSB: Analytic, AICPA FN: Measurement, AICPA PC: Problem Solving and Decision Making, IMA: Cost Management

Case 2-24

- a. No, it wasn't ethical. The family and friends are not legitimate customers, and they are driving up Helios's cost.
- b. No, it wouldn't change. While the purchase is an unintended benefit, the motivation behind Sami's actions was fraudulent.

c. Their costs increased.

LO: ETHICS, Bloom: E, AN, Unit: ETHICS, Difficulty: Moderate, Min: 10-15, AACSB: Analytic, Ethics, AICPA FN: Reporting, AICPA PC: Communication, IMA: Business Applications