

# Chapter 2

## Managerial Accounting and Cost Concepts

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### Exercise 2-3

	<i>Cups of Coffee Served in a Week</i>		
	<u>1,800</u>	<u>1,900</u>	<u>2,000</u>
Fixed cost .....	\$1,100	\$1,100	\$1,100
Variable cost .....	<u>468</u>	<u>494</u>	<u>520</u>
Total cost.....	<u>\$1,568</u>	<u>\$1,594</u>	<u>\$1,620</u>
Average cost per cup served* .....	\$0.871	\$0.839	\$0.810

\* Total cost ÷ cups of coffee served in a week

2. The average cost of a cup of coffee declines as the number of cups of coffee served increases because the fixed cost is spread over more cups of coffee.

### Exercise 2-4

1.	<i>Occupancy- Days</i>	<i>Electrical Costs</i>
	High activity level (August)..	3,608
Low activity level (October).	<u>186</u>	<u>1,712</u>
Change.....	<u>3,422</u>	<u>\$6,399</u>

$$\begin{aligned} \text{Variable cost} &= \text{Change in cost} \div \text{Change in activity} \\ &= \$6,399 \div 3,422 \text{ occupancy-days} \\ &= \$1.87 \text{ per occupancy-day} \end{aligned}$$

Total cost (August).....	\$8,111
Variable cost element (\$1.87 per occupancy-day × 3,608 occupancy-days) .	<u>6,747</u>
Fixed cost element .....	<u>\$1,364</u>

2. Electrical costs may reflect seasonal factors other than just the variation in occupancy days. For example, common areas such as the reception area must be lighted for longer periods during the winter. This will result in seasonal effects on the fixed electrical costs.

Additionally, fixed costs will be affected by how many days are in a

month. In other words, costs like the costs of lighting common areas are variable with respect to the number of days in the month, but are fixed with respect to how many rooms are occupied during the month. Other, less systematic, factors may also affect electrical costs such as the frugality of individual guests. Some guests will turn off lights when they leave a room. Others will not.

## Exercise 2-5

### 1. Traditional income statement

Redhawk, Inc. Traditional Income Statement		
Sales (\$15 per unit × 10,000 units).....		\$150,000
Cost of goods sold		
(\$12,000 + \$90,000 – \$22,000) .....		<u>80,000</u>
Gross margin.....		70,000
Selling and administrative expenses:		
Selling expenses		
((\$2 per unit × 10,000 units) + \$20,000) .....	40,000	
Administrative expenses		
((\$1 per unit × 10,000 units) + \$15,000) .....	<u>25,000</u>	<u>65,000</u>
Net operating income.....		<u>\$ 5,000</u>

### 2. Contribution format income statement

Redhawk, Inc. Contribution Format Income Statement		
Sales .....		\$150,000
Variable expenses:		
Cost of goods sold		
(\$12,000 + \$90,000 – \$22,000).....	\$80,000	
Selling expenses (\$2 per unit × 10,000 units) ..	20,000	
Administrative expenses		
(\$1 per unit × 10,000 units).....	<u>10,000</u>	<u>110,000</u>
Contribution margin .....		40,000
Fixed expenses:		
Selling expenses .....	20,000	
Administrative expenses .....	<u>15,000</u>	<u>35,000</u>
Net operating income.....		<u>\$ 5,000</u>

## Exercise 2-6

	<i>Cost</i>	<i>Cost Object</i>	<i>Direct Cost</i>	<i>Indirect Cost</i>
1.	The salary of the head chef	The hotel's restaurant	X	
2.	The salary of the head chef	A particular restaurant customer		X
3.	Room cleaning supplies	A particular hotel guest		X
4.	Flowers for the reception desk	A particular hotel guest		X
5.	The wages of the doorman	A particular hotel guest		X
6.	Room cleaning supplies	The housecleaning department	X	
7.	Fire insurance on the hotel building	The hotel's gym		X
8.	Towels used in the gym	The hotel's gym	X	

Note: The room cleaning supplies would most likely be considered an indirect cost of a particular hotel guest because it would not be practical to keep track of exactly how much of each cleaning supply was used in the guest's room.

## Exercise 2-7

<i>Item</i>	<i>Differential Cost</i>	<i>Opportunity Cost</i>	<i>Sunk Cost</i>
1. Cost of the new flat-panel displays.....	X		
2. Cost of the old computer terminals.....			X
3. Rent on the space occupied by the registration desk .....			
4. Wages of registration desk personnel .....			
5. Benefits from a new freezer .....		X	
6. Costs of maintaining the old computer terminals .....	X		
7. Cost of removing the old computer terminals .....	X		
8. Cost of existing registration desk wiring.....			X

Note: The costs of the rent on the space occupied by the registration desk and the wages of registration desk personnel are neither differential costs, opportunity costs, nor sunk costs. These are costs that do not differ between the alternatives and are therefore irrelevant in the decision, but they are not sunk costs since they occur in the future.

## Problem 2-21

1. Maintenance cost at the 70,000 machine-hour level of activity can be isolated as follows:

	<i>Level of Activity</i>	
	<i>40,000 MH</i>	<i>70,000 MH</i>
Total factory overhead cost .....	\$170,200	\$241,600
Deduct:		
Utilities cost @ \$1.30 per MH* .....	52,000	91,000
Supervisory salaries.....	<u>60,000</u>	<u>60,000</u>
Maintenance cost.....	<u>\$ 58,200</u>	<u>\$ 90,600</u>

\*\$52,000 ÷ 40,000 MHs = \$1.30 per MH

2. High-low analysis of maintenance cost:

	<i>Machine- Hours</i>	<i>Maintenance Cost</i>
High activity level .....	70,000	\$90,600
Low activity level .....	<u>40,000</u>	<u>58,200</u>
Change .....	<u>30,000</u>	<u>\$32,400</u>

Variable cost per unit of activity:

$$\frac{\text{Change in cost}}{\text{Change in activity}} = \frac{\$32,400}{30,000 \text{ MHs}} = \$1.08 \text{ per MH}$$

Total fixed cost:

Total maintenance cost at the low activity level.....	\$58,200
Less the variable cost element (40,000 MHs × \$1.08 per MH) .....	<u>43,200</u>
Fixed cost element.....	<u>\$15,000</u>

Therefore, the cost formula is \$15,000 per month plus \$1.08 per machine-hour or:

$$Y = \$15,000 + \$1.08X$$

**Problem 2-21** (continued)

	<i>Variable Rate per Machine-Hour</i>	<i>Fixed Cost</i>
3. Maintenance cost .....	\$1.08	\$15,000
Utilities cost .....	1.30	
Supervisory salaries cost ...	<u>          </u>	<u>60,000</u>
Totals .....	<u>\$2.38</u>	<u>\$75,000</u>

Thus, the cost formula is:  $Y = \$75,000 + \$2.38X$ .

4. Total overhead cost at an activity level of 45,000 machine-hours:

Fixed costs.....	\$ 75,000
Variable costs: \$2.38 per MH × 45,000 MHs.....	<u>107,100</u>
Total overhead costs.....	<u>\$182,100</u>