

# Chapter 19

# Managerial Accounting

## STUDY OBJECTIVES

After studying this chapter, you should be able to:

- 1 Explain the distinguishing features of managerial accounting.
- 2 Identify the three broad functions of management.
- 3 Define the three classes of manufacturing costs.
- 4 Distinguish between product and period costs.
- 5 Explain the difference between a merchandising and a manufacturing income statement.
- 6 Indicate how cost of goods manufactured is determined.
- 7 Explain the difference between a merchandising and a manufacturing balance sheet.
- 8 Identify trends in managerial accounting.



## The Navigator

Scan <b>Study Objectives</b>	■
Read <b>Feature Story</b>	■
Read <b>Preview</b>	■
Read text and answer <b>DO IT!</b> p. 848 ■ p. 851 ■ p. 854 ■ p. 861 ■	
Work <b>Comprehensive DO IT!</b> p. 861 ■ p. 863 ■	
Review <b>Summary of Study Objectives</b>	■
Answer <b>Self-Study Questions</b>	■
Complete <b>Assignments</b>	■

## Feature Story

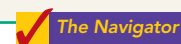
### WHAT A DIFFERENCE A DAY MAKES

In January 1998 **Compaq Computer** ([www.compaq.com](http://www.compaq.com)) had just become the largest seller of personal computers, and it was *Forbes* magazine's "company of the year." Its chief executive, Eckhard Pfeiffer, was riding high. But during the next two years Compaq lost \$2 billion. The company was in chaos, and Mr. Pfeiffer was out of a job. What happened?

First, Dell happened. **Dell Computer** ([www.dell.com](http://www.dell.com)) pioneered a new way of making and selling personal computers. Its customers “custom design” their computer over the Internet or phone. Dell reengineered its “supply chain”: It coordinated its efforts with its suppliers and streamlined its order-taking and production process. It can ship a computer within two days of taking an order. Personal computers lose 1 percent of their value every week they sit on a shelf. Thus, having virtually no inventory is a great advantage to Dell. Compaq tried to adopt Dell’s approach, but with limited success.

The second shock to Compaq came when it acquired a company even larger than itself—**Digital Equipment**. Mr. Pfeiffer believed that the purchase of Digital, with its huge and respected technical sales force, opened new opportunities for Compaq as a global service company. But combining the two companies proved to be hugely expensive and extremely complicated. Ultimately Compaq decided to merge with **Hewlett-Packard** ([www.hp.com](http://www.hp.com)) in order to survive.

After this merger, HP lost significant market share to Dell because its higher cost structure made it hard to compete with Dell on price. Dell created a buzz in the financial press when it decided to enter the computer printing business—a segment that HP had long dominated. Many predicted that Dell would soon take over printers as well. But just when it appeared that Dell could not be beat, HP regained its footing and Dell stumbled. HP reduced its costs by adopting many of Dell’s “lean” practices. Thus Dell lost much of its competitive advantage. In addition, computer purchasing habits changed, and Dell wasn’t able to adjust fast enough.



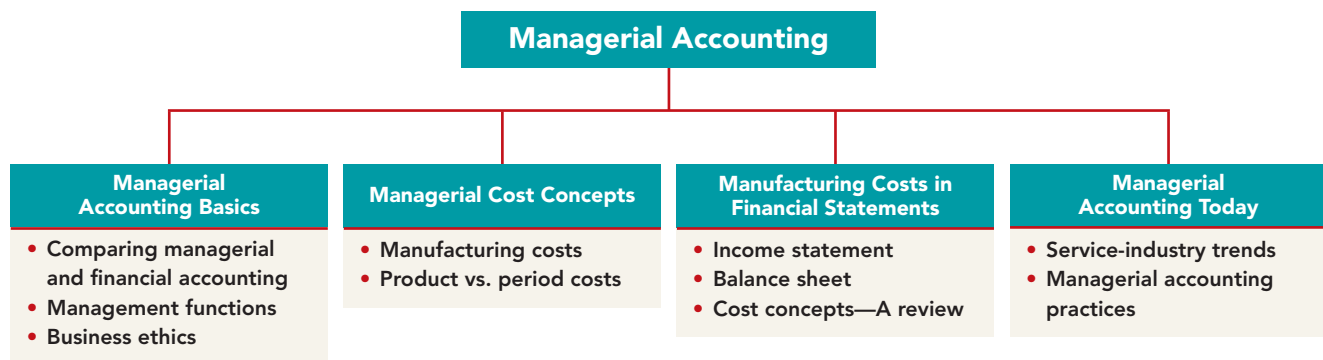
## *Inside Chapter 19...*

- **Even the Best Have to Get Better** (p. 846)
- **Bananas Receive Special Treatment** (p. 860)

## Preview of Chapter 19

This chapter focuses on issues illustrated in the Feature Story about **Compaq Computer**, **Hewlett-Packard**, and **Dell**. These include determining and controlling the costs of material, labor, and overhead and the relationship between costs and profits. In previous chapters, you learned about the form and content of **financial statements for external users** of financial information, such as stockholders and creditors. These financial statements represent the principal product of financial accounting. Managerial accounting focuses primarily on the preparation of **reports for internal users** of financial information, such as the managers and officers of a company. In today's rapidly changing global environment, managers often make decisions that determine their company's fate—and their own. Managers are evaluated on the results of their decisions. Managerial accounting provides tools for assisting management in making decisions and for evaluating the effectiveness of those decisions.

The content and organization of this chapter are as follows.



## MANAGERIAL ACCOUNTING BASICS

**Managerial accounting**, also called **management accounting**, is a field of accounting that provides economic and financial information for managers and other internal users. The activities that are part of managerial accounting (and the chapters in which they are discussed in this textbook) are as follows.

1. Explaining manufacturing and nonmanufacturing costs and how they are reported in the financial statements (Chapter 19).
2. Computing the cost of providing a service or manufacturing a product (Chapters 20 and 21).
3. Determining the behavior of costs and expenses as activity levels change and analyzing cost–volume–profit relationships within a company (Chapter 22).
4. Assisting management in profit planning and formalizing these plans in the form of budgets (Chapter 23).
5. Providing a basis for controlling costs and expenses by comparing actual results with planned objectives and standard costs (Chapters 24 and 25).
6. Accumulating and presenting data for management decision making (Chapter 26).

Managerial accounting applies to all types of businesses—service, merchandising, and manufacturing. It also applies to all forms of business organizations—proprietorships, partnerships, and corporations. Not-for-profit entities as well as profit-oriented enterprises need managerial accounting.

In the past, managerial accountants were primarily engaged in cost accounting—collecting and reporting costs to management. Recently that role has changed significantly. First as the business environment has become more automated, methods to determine the amount and type of cost in a product have changed. Second, managerial accountants are now held responsible for strategic cost management; that is, they assist in evaluating how well the company is employing its resources. As a result, managerial accountants now serve as team members alongside personnel from production, marketing, and engineering when the company makes critical strategic decisions.

Opportunities for managerial accountants to advance within the company are considerable. Financial executives must have a background that includes an understanding of managerial accounting concepts. Whatever your position in the company—marketing, sales, or production, knowledge of managerial accounting greatly improves your opportunities for advancement. As the CEO of **Microsoft** noted: “If you’re supposed to be making money in business and supposed to be satisfying customers and building market share, there are numbers that characterize those things. And if somebody can’t sort of speak to me quantitatively about it, then I’m nervous.”

## Comparing Managerial and Financial Accounting



There are both similarities and differences between managerial and financial accounting. First, each field of accounting deals with the economic events of a business. Thus, their interests overlap. For example, *determining* the unit cost of manufacturing a product is part of managerial accounting. *Reporting* the total cost of goods manufactured and sold is part of financial accounting. In addition, both managerial and financial accounting require that a company’s economic events be quantified and communicated to interested parties.

Illustration 19-1 illustrates the principal differences between financial accounting and managerial accounting. The need for various types of economic data is responsible for many of the differences.

### STUDY OBJECTIVE 1

Explain the distinguishing features of managerial accounting.

**Illustration 19-1**  
Differences between financial and managerial accounting

Financial Accounting		Managerial Accounting
 <ul style="list-style-type: none"> <li>• External users: stockholders, creditors, and regulators.</li> <li>• Financial statements.</li> <li>• Quarterly and annually.</li> <li>• General-purpose.</li> <li>• Pertains to business as a whole.</li> <li>• Highly aggregated (condensed).</li> <li>• Limited to double-entry accounting and cost data.</li> <li>• Generally accepted accounting principles.</li> <li>• Audit by CPA.</li> </ul>	<b>Primary Users of Reports</b>	<ul style="list-style-type: none"> <li>• Internal users: officers and managers.</li> </ul>
	<b>Types and Frequency of Reports</b>	<ul style="list-style-type: none"> <li>• Internal reports.</li> <li>• As frequently as needed.</li> </ul>
	<b>Purpose of Reports</b>	<ul style="list-style-type: none"> <li>• Special-purpose for specific decisions.</li> </ul>
	<b>Content of Reports</b>	<ul style="list-style-type: none"> <li>• Pertains to subunits of the business.</li> <li>• Very detailed.</li> <li>• Extends beyond double-entry accounting to any relevant data.</li> <li>• Standard is relevance to decisions.</li> </ul>
	<b>Verification Process</b>	<ul style="list-style-type: none"> <li>• No independent audits.</li> </ul>
		

## Management Functions

### STUDY OBJECTIVE 2

Identify the three broad functions of management.

Managers' activities and responsibilities can be classified into three broad functions:

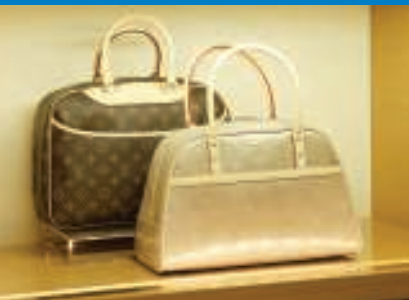
1. Planning.
2. Directing.
3. Controlling.

In performing these functions, managers make decisions that have a significant impact on the organization.

**Planning** requires managers to look ahead and to establish objectives. These objectives are often diverse: maximizing short-term profits and market share, maintaining a commitment to environmental protection, and contributing to social programs. For example, **Hewlett-Packard**, in an attempt to gain a stronger foothold in the computer industry, has greatly reduced its prices to compete with **Dell**. A key objective of management is to add **value** to the business under its control. Value is usually measured by the trading price of the company's stock and by the potential selling price of the company.

**Directing** involves coordinating a company's diverse activities and human resources to produce a smooth-running operation. This function relates to implementing planned objectives and providing necessary incentives to motivate employees. For example, manufacturers such as **Campbell Soup Company**, **General Motors**, and **Dell** must coordinate purchasing, manufacturing, warehousing, and selling. Service corporations such as **American Airlines**, **FedEx**, and **AT&T** must coordinate scheduling, sales, service, and acquisitions of equipment and supplies. Directing also involves selecting executives, appointing managers and supervisors, and hiring and training employees.

## MANAGEMENT INSIGHT



### Even the Best Have to Get Better

**Louis Vuitton** is a French manufacturer of high-end handbags, wallets, and suitcases. Its reputation for quality and style allows it to charge extremely high prices—for example, \$700 for a tote bag. But often in the past, when demand was hot, supply was nonexistent—shelves were empty, and would-be buyers left empty-handed.

Luxury-goods manufacturers used to consider stock-outs to be a good thing, but recently Louis Vuitton changed its attitude. The company adopted “lean” processes used by car manufacturers and electronics companies to speed up production of “hot” products. Work is done by flexible teams, with jobs organized based on how long a task takes. By reducing wasted time and eliminating bottlenecks, what used to take 20 to 30 workers eight days to do now takes 6 to 12 workers one day. Also, production employees who used to specialize on a single task on a single product are now multiskilled. This allows them to quickly switch products to meet demand.

To make sure that the factory is making the right products, within a week of a product launch, Louis Vuitton stores around the world feed sales information to the headquarters in France, and production is adjusted accordingly. Finally, the new production processes have also improved quality. Returns of some products are down by two-thirds, which makes quite a difference to the bottom line when the products are pricey.

**Source:** Christina Passariello, “Louis Vuitton Tries Modern Methods on Factory Lines,” *Wall Street Journal*, October 9, 2006.



What are some of the steps that this company has taken in order to ensure that production meets demand?

The third management function, **controlling**, is the process of keeping the company's activities on track. In controlling operations, managers determine whether planned goals are being met. When there are deviations from targeted objectives, managers must decide what changes are needed to get back on track. Recent scandals at companies like **Enron**, **Lucent**, and **Xerox** attest to the fact that companies must have adequate controls to ensure that the company develops and distributes accurate information.

How do managers achieve control? A smart manager in a small operation can make personal observations, ask good questions, and know how to evaluate the answers. But using this approach in a large organization would result in chaos. Unless there is some record of what has happened and what is expected to occur, imagine the president of **Dell** attempting to determine whether the company is meeting its planned objectives. Thus, large businesses typically use a formal system of evaluation. These systems include such features as budgets, responsibility centers, and performance evaluation reports—all of which are features of managerial accounting.

Decision making is not a separate management function. Rather, it is the outcome of the exercise of good judgment in planning, directing, and controlling.

## Business Ethics

As indicated in Chapter 1, all employees within an organization are expected to act ethically in their business activities. Given the importance of ethical behavior to corporations and their owners (stockholders), an increasing number of organizations provide codes of business ethics for their employees.

Despite these efforts, recent business scandals resulted in massive investment losses and numerous employee layoffs. A recent survey of fraud by international accounting firm KPMG reported a 13% increase in instances of corporate fraud compared to five years earlier. It noted that while employee fraud (such things as expense-account abuse, payroll fraud, and theft of assets) represented 60% of all instances of fraud, financial reporting fraud (the intentional misstatement of financial reports) was the most costly to companies. That should not be surprising given the long list of companies such as **Enron**, **Global Crossing**, **WorldCom**, and others that engaged in massive financial frauds which led to huge financial losses and thousands of lost jobs.

### CREATING PROPER INCENTIVES

Companies like **Motorola**, **IBM**, and **Nike** use complex systems to control and evaluate the actions of managers. They dedicate substantial resources to monitor and effectively evaluate the actions of employees. Unfortunately, these systems and controls sometimes unwittingly create incentives for managers to take unethical actions. For example, companies prepare budgets to provide direction. Because the budget is also used as an evaluation tool, some managers try to “game” the budgeting process by underestimating their division's predicted performance so that it will be easier to meet their performance targets. On the other hand, if the budget is set at unattainable levels, managers sometimes take unethical actions to meet the targets in order to receive higher compensation or, in some cases, to keep their jobs.

For example, in recent years, airline manufacturer **Boeing** was plagued by a series of scandals including charges of over-billing, corporate espionage, and illegal conflicts of interest. Some long-time employees of Boeing blame the decline in ethics on a change in the corporate culture that took place after Boeing merged with **McDonnell Douglas**. They suggest that evaluation systems implemented after the merger to monitor results and evaluate employee performance made employees believe they needed to succeed no matter what.

As another example, manufacturing companies need to establish production goals for their processes. Again, if controls are not effective and realistic, problems develop. To illustrate, **Schering-Plough**, a pharmaceutical manufacturer, found that

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employees were so concerned with meeting production standards that they failed to monitor the quality of the product, and as a result the dosages were often wrong.

### CODE OF ETHICAL STANDARDS

In response to ethical scandals in 2000 and 2001, the U.S. Congress enacted legislation to help prevent lapses in internal control. This legislation, referred to as the **Sarbanes-Oxley Act of 2002 (SOX)** has important implications for the financial community. One result of SOX was to clarify top management's responsibility for the company's financial statements. CEOs and CFOs must now certify that financial statements give a fair presentation of the company's operating results and its financial condition. In addition, top managers must certify that the company maintains an adequate system of internal controls to safeguard the company's assets and ensure accurate financial reports.

Another result of Sarbanes-Oxley is that companies now pay more attention to the composition of the board of directors. In particular, the audit committee of the board of directors must be comprised entirely of independent members (that is, nonemployees) and must contain at least one financial expert.

Finally, to increase the likelihood of compliance with the rules that are part of the new legislation, the law substantially increases the penalties for misconduct.

To provide guidance for managerial accountants, the Institute of Management Accountants (IMA) has developed a code of ethical standards, entitled *IMA Statement of Ethical Professional Practice*. Management accountants should not commit acts in violation of these standards. Nor should they condone such acts by others within their organizations. We include the IMA code of ethical standards in Appendix E at the end of the book. Throughout the chapters on managerial accounting, we will address various ethical issues faced by managers.

### DO IT!

#### MANAGERIAL ACCOUNTING CONCEPTS

#### action plan

- ✓ Understand that managerial accounting is a field of accounting that provides economic and financial information for managers and other internal users.
- ✓ Understand that financial accounting provides information for external users.
- ✓ Analyze which users require which different types of information.

Indicate whether the following statements are true or false.

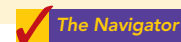
1. Managerial accountants have a single role within an organization, collecting and reporting costs to management.
2. Financial accounting reports are general-purpose and intended for external users.
3. Managerial accounting reports are special-purpose and issued as frequently as needed.
4. Managers' activities and responsibilities can be classified into three broad functions: cost accounting, budgeting, and internal control.
5. As a result of the Sarbanes-Oxley Act of 2002, managerial accounting reports must now comply with generally accepted accounting principles (GAAP).
6. Top managers must certify that a company maintains an adequate system of internal controls.

#### Solution

1. False. Managerial accounts today must help determine the amount and type of a cost in product. In addition, managerial accountants are now held responsible for evaluating how well the company is employing its resources. As a result, when the company makes critical strategic decisions, managerial accountants now serve as team members alongside personnel from production, marketing, and engineering.

2. True.
3. True.
4. False. Managers' activities are classified into three broad functions: planning, directing, and controlling. Planning requires managers to look ahead to establish objectives. Directing involves coordinating a company's diverse activities and human resources to produce a smooth-running operation. Controlling is keeping the company's activities on track.
5. False. SOX clarifies top management's responsibility for the company's financial statements. In addition, top managers must certify that the company maintains an adequate system of internal control to safeguard the company's assets and ensure accurate financial reports.
6. True.

Related exercise material: BE19-1, BE19-2, BE19-3, E19-1, and **DO IT!** 19-1.



## MANAGERIAL COST CONCEPTS

In order for managers at companies like **Dell** or **Hewlett-Packard** to plan, direct, and control operations effectively, they need good information. One very important type of information is related to costs. Managers should ask questions such as the following.

1. What costs are involved in making a product or providing a service?
2. If we decrease production volume, will costs decrease?
3. What impact will automation have on total costs?
4. How can we best control costs?

To answer these questions, managers need reliable and relevant cost information. We now explain and illustrate the various cost categories that companies use.

### Manufacturing Costs

**Manufacturing** consists of activities and processes that convert raw materials into finished goods. Contrast this type of operation with merchandising, which sells merchandise in the form in which it is purchased. Manufacturing costs are typically classified as shown in Illustration 19-2.

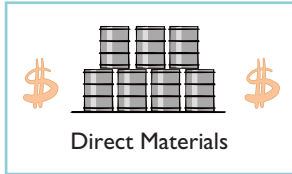
#### STUDY OBJECTIVE 3

Define the three classes of manufacturing costs.

**Illustration 19-2**  
Classifications of manufacturing costs







### DIRECT MATERIALS

To obtain the materials that will be converted into the finished product, the manufacturer purchases raw materials. **Raw materials** are the basic materials and parts used in the manufacturing process. For example, auto manufacturers such as **General Motors**, **Ford**, and **Toyota** use steel, plastics, and tires as raw materials in making cars.

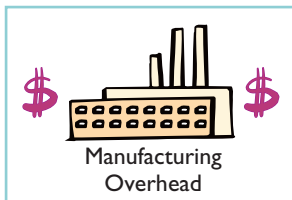
Raw materials that can be physically and directly associated with the finished product during the manufacturing process are **direct materials**. Examples include flour in the baking of bread, syrup in the bottling of soft drinks, and steel in the making of automobiles. Direct materials for **Hewlett-Packard** and **Dell Computer** include plastic, glass, hard drives, and processing chips.

But some raw materials cannot be easily associated with the finished product. These are called indirect materials. **Indirect materials** have one of two characteristics: (1) They do not physically become part of the finished product (such as lubricants and polishing compounds). Or (2) they cannot be traced because their physical association with the finished product is too small in terms of cost (such as cotter pins and lock washers). Companies account for indirect materials as part of **manufacturing overhead**.



### DIRECT LABOR

The work of factory employees that can be physically and directly associated with converting raw materials into finished goods is **direct labor**. Bottlers at **Coca-Cola**, bakers at **Sara Lee**, and typesetters at **Aptara Corp.** are employees whose activities are usually classified as direct labor. **Indirect labor** refers to the work of employees that has no physical association with the finished product, or for which it is impractical to trace costs to the goods produced. Examples include wages of maintenance people, time-keepers, and supervisors. Like indirect materials, companies classify indirect labor as **manufacturing overhead**.



### MANUFACTURING OVERHEAD

**Manufacturing overhead** consists of costs that are indirectly associated with the manufacture of the finished product. These costs may also be manufacturing costs that cannot be classified as direct materials or direct labor. Manufacturing overhead includes indirect materials, indirect labor, depreciation on factory buildings and machines, and insurance, taxes, and maintenance on factory facilities.

One study found the following magnitudes of the three different product costs as a percentage of the total product cost: direct materials 54%, direct labor 13%, and manufacturing overhead 33%. Note that the direct labor component is the smallest. This component of product cost is dropping substantially because of automation. Companies are working hard to increase productivity by decreasing labor. A **Nissan Motor** plant in Tennessee produces Altima automobiles using only 15.74 labor hours per vehicle compared to 26 to 28 hours per vehicle at **Ford** and **Daimler** plants, for example. In some companies, direct labor has become as little as 5% of the total cost.

Allocating materials and labor costs to specific products is fairly straightforward. Good record keeping can tell a company how much plastic it used in making each type of gear, or how many hours of factory labor it took to assemble a part. But allocating overhead costs to specific products presents problems. How much of the purchasing agent's salary is attributable to the hundreds of different products made in the same plant? What about the grease that keeps the machines humming, or the computers that make sure paychecks come out on time? Boiled down to its simplest form, the question becomes: Which products cause the incurrence of which costs? In subsequent chapters we show various methods of allocating overhead to products.

#### ALTERNATIVE TERMINOLOGY

Some companies use terms such as **factory overhead**, **indirect manufacturing costs**, and **burden** instead of **manufacturing overhead**.

## Product versus Period Costs

Each of the manufacturing cost components—direct materials, direct labor, and manufacturing overhead—are product costs. As the term suggests, **product costs** are costs that are a necessary and integral part of producing the finished product. Companies record product costs, when incurred, as inventory. Under the matching principle, these costs do not become expenses until the company sells the finished goods inventory. At that point, the company records the expense as cost of goods sold.

**Period costs** are costs that are matched with the revenue of a specific time period rather than included as part of the cost of a salable product. These are non-manufacturing costs. Period costs include selling and administrative expenses. In order to determine net income, companies deduct these costs from revenues in the period in which they are incurred.

Illustration 19-3 summarizes these relationships and cost terms. Our main concern in this chapter is with product costs.

### STUDY OBJECTIVE 4

Distinguish between product and period costs.

### ALTERNATIVE TERMINOLOGY

Product costs are also called *inventoriable costs*.

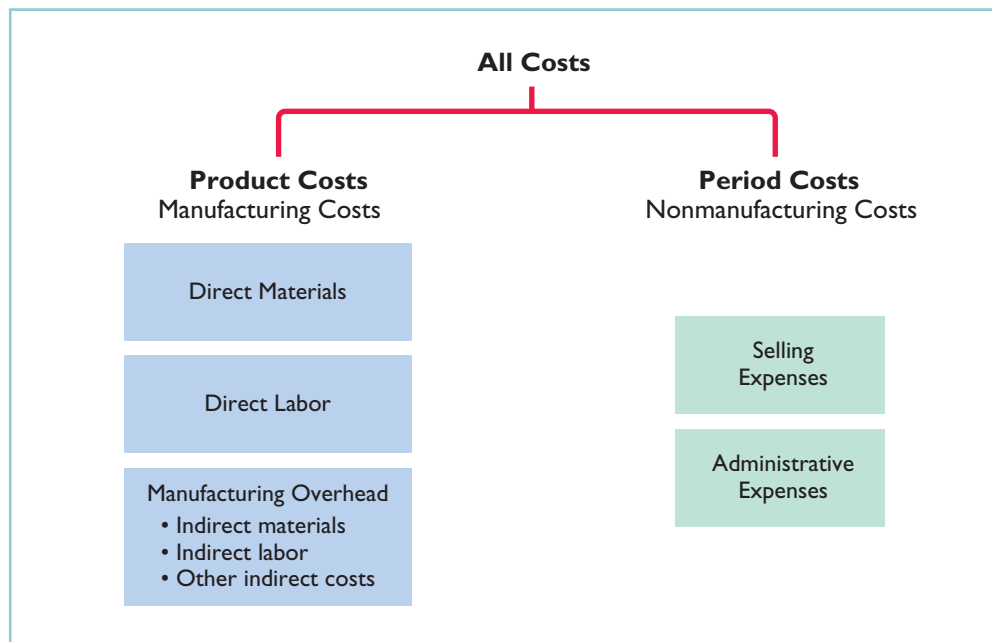


Illustration 19-3  
Product versus period costs

## DO IT!

A bicycle company has these costs:

- |                               |   |
|-------------------------------|---|
| Tires                         | Office utilities expense                      |
| Advertising                   | Salaries of employees who put tires on wheels |
| Factory building depreciation | Spokes  |
| Wheel lubricant               | Salaries of factory maintenance employees     |
| Salary of factory manager     | Handlebars                                    |

### MANAGERIAL COST CONCEPTS

Classify each cost as a period or a product cost. Within the product cost category, indicate if the cost is part of direct materials (DM), direct labor (DL), or manufacturing overhead (MO).

### action plan

- ✓ Product costs are costs that are a necessary and integral part of producing the finished product.
- ✓ Direct materials can be physically and directly associated with the finished product.
- ✓ Direct labor is the work of factory employees that can be physically and directly associated with the finished product.
- ✓ Manufacturing overhead includes any costs that are indirectly associated with the finished product.
- ✓ Period costs are costs that are matched with the revenue of a specific time period. They are nonmanufacturing costs.

### Solution

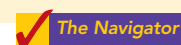
*Period costs:*

Office utilities expense  
Advertising

*Product costs:*

Tires (DM)	Salaries of employees who put tires on wheels (DL)
Factory building depreciation (MO)	Spokes (DM)
Wheel lubricant (MO)	Salaries of factory maintenance employees (MO)
Salary of factory manager (MO)	Handlebars (DM)

Related exercise material: BE19-4, BE19-5, BE19-6, BE19-7, E19-2, E19-3, E19-4, E19-5, E19-6, E19-7, and **DO IT!** 19-2.



## MANUFACTURING COSTS IN FINANCIAL STATEMENTS

### STUDY OBJECTIVE 5

Explain the difference between a merchandising and a manufacturing income statement.

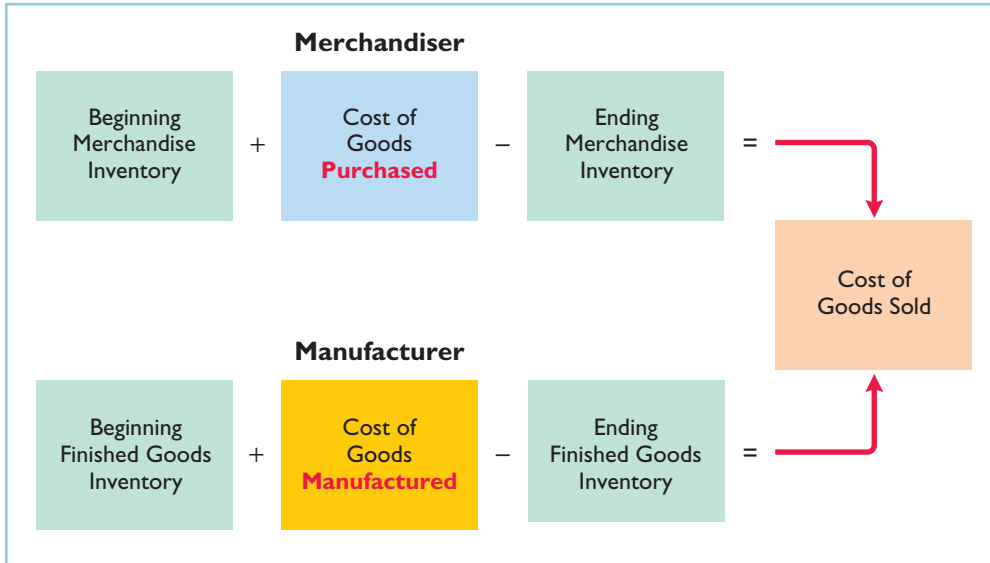
The financial statements of a manufacturer are very similar to those of a merchandiser. For example, you will find many of the same sections and same accounts in the financial statements of **Procter & Gamble** that you find in the financial statements of **Dick's Sporting Goods**. The principal differences between their financial statements occur in two places: the cost of goods sold section in the income statement and the current assets section in the balance sheet.

### Income Statement

Under a periodic inventory system, the income statements of a merchandiser and a manufacturer differ in the cost of goods sold section. Merchandisers compute cost of goods sold by adding the beginning merchandise inventory to the **cost of goods purchased** and subtracting the ending merchandise inventory. Manufacturers compute cost of goods sold by adding the beginning finished goods inventory to the **cost of goods manufactured** and subtracting the ending finished goods inventory. Illustration 19-4 (next page) shows these different methods.

Illustration 19-5 (next page) shows the different presentations of the cost of goods sold sections for merchandising and manufacturing companies. The other sections of an income statement are similar for merchandisers and manufacturers.

A number of accounts are involved in determining the cost of goods manufactured. To eliminate excessive detail, income statements typically show only the total cost of goods manufactured. A separate statement, called a Cost of Goods Manufactured Schedule, presents the details. (For more information, see the discussion on page 854 and Illustration 19-7.)



**Illustration 19-4**  
Cost of goods sold components

**HELPFUL HINT**

We assume a periodic inventory system in this illustration.

**Illustration 19-5**  
Cost of goods sold sections of merchandising and manufacturing income statements

MERCHANTISING COMPANY	MANUFACTURING COMPANY
Income Statement (partial) For the Year Ended December 31, 2010	Income Statement (partial) For the Year Ended December 31, 2010
Cost of goods sold	Cost of goods sold
<b>Merchandise inventory, January 1</b>	<b>Finished goods inventory, January 1</b>
<b>Cost of goods purchased</b>	<b>Cost of goods manufactured</b>
\$ 70,000	\$ 90,000
650,000	370,000
Cost of goods available for sale	Cost of goods available for sale
<b>Merchandise inventory, December 31</b>	<b>Finished goods inventory, December 31</b>
720,000	460,000
400,000	80,000
\$320,000	\$380,000
Cost of goods sold	Cost of goods sold

**DETERMINING THE COST OF GOODS MANUFACTURED**

An example may help show how companies determine the cost of goods manufactured. Assume that **Dell** has a number of computers in various stages of production on January 1. In total, these partially completed units are called **beginning work in process inventory**. The costs the company assigns to beginning work in process inventory are based on the **manufacturing costs incurred in the prior period**.

**STUDY OBJECTIVE 6**  
Indicate how cost of goods manufactured is determined.

Dell first uses the manufacturing costs incurred in the current year to complete the work that was in process on January 1. It then incurs manufacturing costs for production of new orders. The sum of the direct materials costs, direct labor costs, and manufacturing overhead incurred in the current year is the **total manufacturing costs** for the current period.

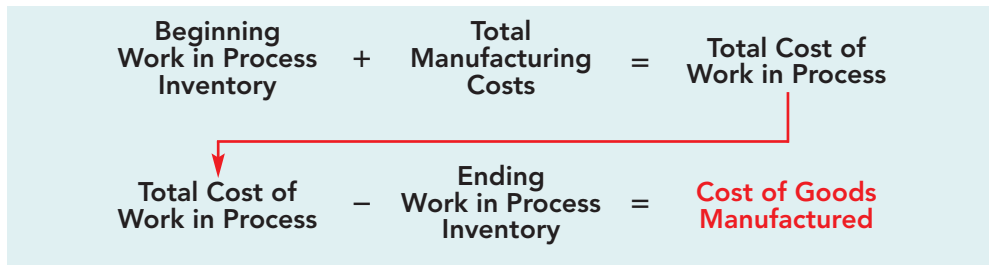
We now have two cost amounts: (1) the cost of the beginning work in process and (2) the total manufacturing costs for the current period. The sum of these costs is the **total cost of work in process** for the year.

At the end of the year, Dell may have some computers that are only partially completed. The costs of these units become the cost of the **ending work in process inventory**. To find the **cost of goods manufactured**, we subtract this cost from the total cost of work in process. Illustration 19-6 (next page) shows the formula for determining the cost of goods manufactured.

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**Illustration 19-6**

Cost of goods manufactured formula



**COST OF GOODS MANUFACTURED SCHEDULE**

The **cost of goods manufactured schedule** reports cost elements used in calculating cost of goods manufactured. Illustration 19-7 shows the schedule for Olsen Manufacturing Company (using assumed data). The schedule presents detailed data for direct materials and for manufacturing overhead.

Review Illustration 19-6 and then examine the cost of goods manufactured schedule in Illustration 19-7. You should be able to distinguish between “Total manufacturing costs” and “Cost of goods manufactured.” The difference is the effect of the change in work in process during the period.

**Illustration 19-7**

Cost of goods manufactured schedule

OLSEN MANUFACTURING COMPANY			
Cost of Goods Manufactured Schedule			
For the Year Ended December 31, 2010			
<b>Work in process, January 1</b>			<b>\$ 18,400</b>
<b>Direct materials</b>			
Raw materials inventory, January 1	\$ 16,700		
Raw materials purchases	<u>152,500</u>		
Total raw materials available for use	169,200		
Less: Raw materials inventory, December 31	<u>22,800</u>		
Direct materials used		\$146,400	
<b>Direct labor</b>		175,600	
<b>Manufacturing overhead</b>			
Indirect labor	14,300		
Factory repairs	12,600		
Factory utilities	10,100		
Factory depreciation	9,440		
Factory insurance	<u>8,360</u>		
Total manufacturing overhead		<u>54,800</u>	
<b>Total manufacturing costs</b>			<b><u>376,800</u></b>
Total cost of work in process			395,200
<b>Less: Work in process, December 31</b>			<b><u>25,200</u></b>
<b>Cost of goods manufactured</b>			<b><u><u>\$370,000</u></u></b>

**DO IT!**

**COST OF GOODS MANUFACTURED**

The following information is available for Keystone Manufacturing Company.

	<u>March 1</u>	<u>March 31</u>
Raw material inventory	\$12,000	\$10,000
Work in process inventory	2,500	4,000

Materials purchased in March	\$ 90,000
Direct labor in March	75,000
Manufacturing overhead in March	220,000

Prepare the cost of goods manufactured schedule for the month of March.

**Solution**

**KEYSTONE MANUFACTURING COMPANY**

Cost of Goods Manufactured Schedule  
For the Month Ended March 31

Work in process, March 1		\$ 2,500
Direct materials		
Raw materials, March 1	\$ 12,000	
Raw material purchases	90,000	
Total raw materials available for use	102,000	
Less: Raw materials, March 31	10,000	
Direct materials used		\$ 92,000
Direct labor		75,000
Manufacturing overhead		220,000
Total manufacturing costs		387,000
Total cost of work in process		389,500
Less: Work in process, March 31		4,000
Cost of goods manufactured		<u>\$385,500</u>

**action plan**


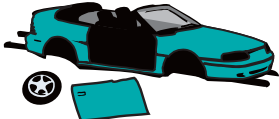

- ✓ Start with beginning work in process as the first item in the cost of goods manufactured schedule.
- ✓ Sum direct materials used, direct labor, and total manufacturing overhead to determine total manufacturing costs.
- ✓ Sum beginning work in process and total manufacturing costs to determine total cost of work in process.
- ✓ Cost of goods manufactured is the total cost of work in process less ending work in process.

Related exercise material: BE19-8, BE19-10, BE19-11, E19-8, E19-9, E19-10, E19-11, E19-12, E19-13, E19-14, E19-15, E19-16, E19-17, and **DO IT!** 19-3.



**Balance Sheet**

The balance sheet for a merchandising company shows just one category of inventory. In contrast, the balance sheet for a manufacturer may have three inventory accounts, as shown in Illustration 19-8.

<p><b>Raw Materials Inventory</b></p>  <p>Shows the cost of raw materials on hand.</p>	<p><b>Work in Process Inventory</b></p>  <p>Shows the cost applicable to units that have been started into production but are only partially completed.</p>	<p><b>Finished Goods Inventory</b></p>  <p>Shows the cost of completed goods on hand.</p>
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**Illustration 19-8**  
Inventory accounts for a manufacturer

Finished Goods Inventory is to a manufacturer what Merchandise Inventory is to a merchandiser. Each of these classifications represents the goods that are available for sale.

The current assets sections presented in Illustration 19-9 (page 856) contrast the presentations of inventories for merchandising and manufacturing companies. Manufacturing companies generally list their inventories in the order of their liquidity—the order in which they are expected to be realized in cash. Thus, finished goods inventory comes first. The remainder of the balance sheet is similar for the two types of companies.

**STUDY OBJECTIVE 7**

Explain the difference between a merchandising and a manufacturing balance sheet.

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MERCHANDISING COMPANY		MANUFACTURING COMPANY	
Balance Sheet December 31, 2010		Balance Sheet December 31, 2010	
Current assets		Current assets	
Cash	\$100,000	Cash	\$180,000
Receivables (net)	210,000	Receivables (net)	210,000
<b>Merchandise inventory</b>	<b>400,000</b>	<b>Inventories</b>	
Prepaid expenses	22,000	<b>Finished goods</b>	<b>\$80,000</b>
Total current assets	<u>\$732,000</u>	<b>Work in process</b>	<b>25,200</b>
		<b>Raw materials</b>	<b>22,800</b>
		Prepaid expenses	<u>18,000</u>
		Total current assets	<u>\$536,000</u>

**Illustration 19-9**

Current assets sections of merchandising and manufacturing balance sheets



For expanded coverage, go to the Student Companion site and select Chapter 19, Accounting Cycle (Worksheet) for a Manufacturing Company.

Each step in the accounting cycle for a merchandiser applies to a manufacturer. For example, prior to preparing financial statements, manufacturers make adjusting entries. The adjusting entries are essentially the same as those of a merchandiser. The closing entries are also similar for manufacturers and merchandisers.

## Cost Concepts—A Review

You have learned a number of cost concepts in this chapter. Because many of these concepts are new, here we provide an extended example for review.

Assume that Northridge Company manufactures and sells pre-hung metal doors. Recently, it also has decided to start selling pre-hung wood doors. The company will use an old warehouse that it owns to manufacture the new product. Northridge identifies the following costs associated with manufacturing and selling the pre-hung wood doors.

1. The material cost (wood) for each door is \$10.
2. Labor costs required to construct a wood door are \$8 per door.
3. Depreciation on the factory equipment used to make the wood doors is \$25,000 per year.
4. Property taxes on the factory building used to make the wood doors are \$6,000 per year.
5. Advertising costs for the pre-hung wood doors total \$2,500 per month or \$30,000 per year.
6. Sales commissions related to pre-hung wood doors sold are \$4 per door.
7. Salaries for employees who maintain the factory facilities are \$28,000.
8. The salary of the plant manager in charge of pre-hung wood doors is \$70,000.
9. The cost of shipping pre-hung wood doors is \$12 per door sold.

Illustration 19-10 shows how Northridge would assign these manufacturing and selling costs to the various categories.

Cost Item	Product Costs			Period Costs
	Direct Materials	Direct Labor	Manufacturing Overhead	
1. Material cost (\$10 per door)	X			
2. Labor costs (\$8 per door)		X		
3. Depreciation on factory equipment (\$25,000 per year)			X	
4. Property taxes on factory building (\$6,000 per year)			X	
5. Advertising costs (\$30,000 per year)				X
6. Sales commissions (\$4 per door)				X
7. Maintenance salaries (factory facilities) (\$28,000 per year)			X	
8. Salary of plant manager (\$70,000)			X	
9. Cost of shipping pre-hung doors (\$12 per door)				X

**Illustration 19-10**  
Assignment of costs to cost categories

Remember that total manufacturing costs are the sum of the **product costs**—direct materials, direct labor, and manufacturing overhead. If Northridge Company produces 10,000 pre-hung wood doors the first year, the total manufacturing costs would be \$309,000 as shown in Illustration 19-11.

Cost Number and Item	Manufacturing Cost
1. Material cost (\$10 × 10,000)	\$100,000
2. Labor cost (\$8 × 10,000)	80,000
3. Depreciation on factory equipment	25,000
4. Property taxes on factory building	6,000
7. Maintenance salaries (factory facilities)	28,000
8. Salary of plant manager	70,000
<b>Total manufacturing costs</b>	<b>\$309,000</b>

**Illustration 19-11**  
Computation of total manufacturing costs

Knowing the total manufacturing costs, Northridge can compute the manufacturing cost per unit. Assuming 10,000 units, the cost to produce one pre-hung wood door is \$30.90 (\$309,000 ÷ 10,000 units).

In subsequent chapters we will use extensively the cost concepts discussed in this chapter. Study Illustration 19-10 carefully. If you do not understand any of these classifications, go back and reread the appropriate section in this chapter.



## MANAGERIAL ACCOUNTING TODAY

### STUDY OBJECTIVE 8

Identify trends in managerial accounting.

In recent years, the competitive environment for U.S. business has changed significantly. For example, the airline, financial services, and telecommunications industries have been deregulated. Global competition has intensified. The world economy now has the European Union, NAFTA, and ASEAN. Countries like China and India are becoming economic powerhouses. As indicated earlier, managerial accountants must be forward-looking, acting as advisors and information providers to different parts of the organization. Some of the issues they face are discussed below.

### Service-Industry Trends

The Feature Story notes that at the peak of its success as a personal computer manufacturer, **Compaq** purchased **Digital Equipment**. Its management believed that the future of computing was in providing computer services, rather than in manufacturing computer hardware. In fact, the U.S. economy in general has shifted toward an emphasis on providing services, rather than goods. Today over 50% of U.S. workers work in service companies, and that percentage is projected to increase in coming years. Much of this chapter focused on manufacturers, but most of the techniques that you will learn in this course apply equally to service companies.



### ETHICS NOTE

Do telecommunications companies have an obligation to provide service to remote or low-user areas for a fee that may be less than the cost of the service?

Managers of service companies look to managerial accounting to answer many questions. In some instances the managerial accountant may need to develop new systems for measuring the cost of serving individual customers. In others, companies may need new operating controls to improve the quality and efficiency of specific services. Many of the examples we present in subsequent chapters will be based on service companies.

### Managerial Accounting Practices

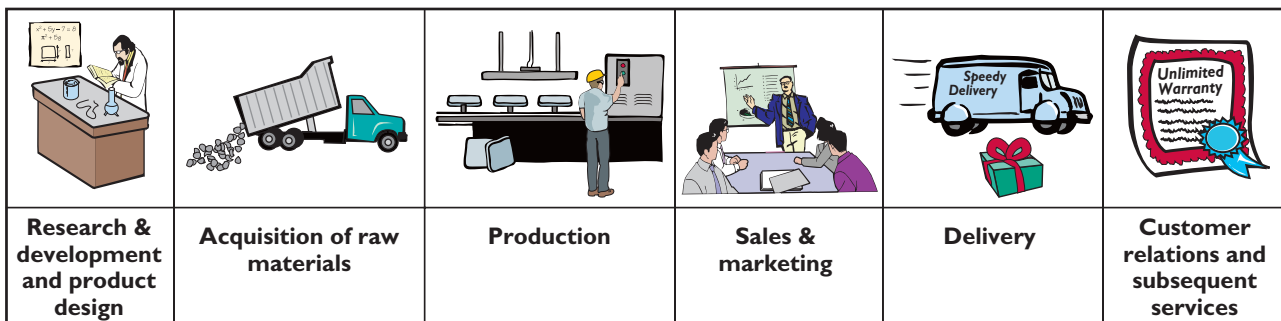
As discussed earlier, the practice of managerial accounting has changed significantly in recent years to better address the needs of managers. The following sections explain some recent managerial accounting practices.

#### THE VALUE CHAIN

The **value chain** refers to all activities associated with providing a product or service. For a manufacturer these include research and development, product design, acquisition of raw materials, production, sales and marketing, delivery, customer relations, and subsequent service. Illustration 19-12 depicts the value chain for a manufacturer. In recent years, companies have made huge strides in analyzing all stages of the value chain in an effort to improve productivity and eliminate waste. Japanese automobile manufacturer **Toyota** pioneered many of these innovations.

Illustration 19-12

A manufacturer's value chain



In the 1980s many companies purchased giant machines to replace humans in the manufacturing process. These machines were designed to produce large batches of products. In recent years these large-batch manufacturing processes have been recognized as wasteful. They require vast amounts of inventory storage capacity and considerable movement of materials. Consequently, many companies have reengineered their manufacturing processes. As one example, the manufacturing company **Pratt and Whitney** has replaced many large machines with smaller, more flexible ones and has begun reorganizing its plants for more efficient flow of goods. Pratt and Whitney was able to reduce the time that its turbine engine blades spend in the grinding section of its factory from 10 days down to 2 hours. It cut the total amount of time spent making a blade from 22 days to 7 days. Analysis of the value chain has made companies far more responsive to customer needs and has improved profitability.

### JUST-IN-TIME INVENTORY METHODS

Many companies have significantly lowered inventory levels and costs using **just-in-time (JIT) inventory** methods. Under a just-in-time method, goods are manufactured or purchased just in time for use. As noted in the Feature Story, **Dell** is famous for having developed a system for making computers in response to individual customer requests. Even though each computer is custom-made to meet each customer's specifications, it takes Dell less than 48 hours to assemble the computer and put it on a truck. By integrating its information systems with those of its suppliers, Dell reduced its inventories to nearly zero. This is a huge advantage in an industry where products become obsolete nearly overnight.



#### ETHICS NOTE

Does just-in-time inventory justify "just-in-time" employees obtained through temporary employment services?

### QUALITY

JIT inventory systems require an increased emphasis on product quality. If products are produced only as they are needed, it is very costly for the company to have to stop production because of defects or machine breakdowns. Many companies have installed **total quality management (TQM)** systems to reduce defects in finished products. The goal is to achieve zero defects. These systems require timely data on defective products, rework costs, and the cost of honoring warranty contracts. Often, companies use this information to help redesign the product in a way that makes it less prone to defect. Or they may use the information to reengineer the production process to reduce setup time and decrease the potential for error. TQM systems also provide information on nonfinancial measures such as customer satisfaction, number of service calls, and time to generate reports. Attention to these measures, which employees can control, leads to increased profitability.

### ACTIVITY-BASED COSTING

As discussed earlier, overhead costs have become an increasingly large component of product and service costs. By definition, overhead costs cannot be directly traced to individual products. But to determine each product's cost, overhead must be **allocated** to the various products. In order to obtain more accurate product costs, many companies now allocate overhead using **activity-based costing (ABC)**. Under ABC, companies allocate overhead based on each product's use of activities in making the product. For example, companies can keep track of their cost of setting up machines for each batch of a production process. Then companies can allocate part of the total set-up cost to a particular product based on the number of set-ups that product required.

Activity-based costing is beneficial because it results in more accurate product costing and in more careful scrutiny of all activities in the value chain. For example, if a product's cost is high because it requires a high number of set-ups, management will be motivated to determine how to produce the product using the optimal number of

machine set-ups. Both manufacturing and service companies now widely use ABC. **Allied Signal** and **Coca-Cola** have both enjoyed improved results from ABC. **Fidelity Investments** uses ABC to identify which customers cost the most to serve.

## MANAGEMENT INSIGHT



### Bananas Receive Special Treatment

When it comes to total quality management, few companies can compare with **Chiquita Brands International**. Grocery store customers are very picky about bananas—bad bananas are consistently the number one grocery store complaint. Because bananas often account for up to 3% of a grocery store's sales, Chiquita goes to great lengths to protect the popular fruit. While bananas are in transit from Central America, “black box” recording devices attached to shipping crates ensure that they are kept in an environment of 90% humidity and an unvarying 55-degree temperature. Upon arrival in the U.S., bananas are ripened in airtight warehouses that use carefully monitored levels of ethylene gas. Regular checks are made of each warehouse using ultrasonic detectors that can detect leaks the size of a pinhole. Says one grocery store executive, “No other item in the store has this type of attention and resources devoted to it.”

**Source:** Devon Spurgeon, “When Grocers in U.S. Go Bananas Over Bad Fruit, They Call Laubenthal,” *Wall Street Journal*, August 14, 2000, p. A1.



Why is it important to keep track of costs that are incurred to improve product quality?

## BALANCED SCORECARD

As companies implement various business practice innovations, managers sometimes focus too enthusiastically on the latest innovation, to the detriment of other areas of the business. For example, in focusing on improving quality, companies sometimes have lost sight of cost/benefit considerations. Similarly, in focusing on reducing inventory levels through just-in-time, companies sometimes have lost sales due to inventory shortages. The **balanced scorecard** is a performance-measurement approach that uses both financial and nonfinancial measures to evaluate all aspects of a company's operations in an **integrated** fashion. The performance measures are linked in a cause-and-effect fashion to ensure that they all tie to the company's overall objectives.

For example, the company may desire to increase its return on assets, a common financial performance measure (calculated as net income divided by average total assets). It will then identify a series of linked goals. If the company accomplishes each goal, the ultimate result will be an increase in return on assets. For example, in order to increase return on assets, sales must increase. In order to increase sales, customer satisfaction must be increased. In order to increase customer satisfaction, product defects must be reduced. In order to reduce product defects, employee training must be increased. Note the linkage, which starts with employee training and ends with return on assets. Each objective will have associated performance measures.

The use of the balanced scorecard is widespread among well-known and respected companies. For example, **Hilton Hotels Corporation** uses the balanced scorecard to evaluate the performance of employees at all of its hotel chains. **Wal-Mart** employs the balanced scorecard, and actually extends its use to evaluation of its suppliers. For example, Wal-Mart recently awarded **Welch Company** the “Dry Grocery Division Supplier of the Year Award” for its balanced scorecard results. We discuss the balanced scorecard further in Chapter 25.

**DO IT!**

Match the descriptions that follow with the corresponding terms.

**Descriptions:**

1. \_\_\_\_\_ All activities associated with providing a product or service.
2. \_\_\_\_\_ A method of allocating overhead based on each product's use of activities in making the product.
3. \_\_\_\_\_ Systems implemented to reduce defects in finished products with the goal of achieving zero defects.
4. \_\_\_\_\_ A performance-measurement approach that uses both financial and nonfinancial measures, tied to company objectives, to evaluate a company's operations in an integrated fashion.
5. \_\_\_\_\_ Inventory system in which goods are manufactured or purchased just as they are needed for use.

**Terms:**

- a. Activity-based costing
- b. Balanced scorecard
- c. Just-in-time (JIT) inventory
- d. Total quality management (TQM)
- e. Value chain

**TRENDS IN MANAGERIAL ACCOUNTING**

**action plan**

- ✓ Develop a forward-looking view, in order to advise and provide information to various members of the organization.
- ✓ Understand current business trends and issues.

**Solution**

1. e    2. a    3. d    4. b    5. c

Related exercise material: E19-18 and **DO IT!** 19-4.



**Comprehensive DO IT! 1**



Giant Manufacturing Co. specializes in manufacturing different models of bicycles. Assume that the market has responded enthusiastically to a new model, the Jaguar. As a result, the company has established a separate manufacturing facility to produce these bicycles. The company produces 1,000 of these bicycles per month. Giant's monthly manufacturing cost and other expenses data related to these bicycles are as follows.

1. Rent on manufacturing equipment (lease cost)	\$2,000/month	8. Miscellaneous materials (lubricants, solders, etc.)	\$1.20/bicycle
2. Insurance on manufacturing building	\$750/month	9. Property taxes on manufacturing building	\$2,400/year
3. Raw materials (frames, tires, etc.)	\$80/bicycle	10. Manufacturing supervisor's salary	\$3,000/month
4. Utility costs for manufacturing facility	\$1,000/month	11. Advertising for bicycles	\$30,000/year
5. Supplies for administrative office	\$800/month	12. Sales commissions	\$10/bicycle
6. Wages for assembly line workers in manufacturing facility	\$30/bicycle	13. Depreciation on manufacturing building	\$1,500/month
7. Depreciation on office equipment	\$650/month		

**Instructions**

(a) Prepare an answer sheet with the following column headings.

Cost Item	Product Costs			Period Costs
	Direct Materials	Direct Labor	Manufacturing Overhead	

Enter each cost item on your answer sheet, placing an “X” mark under the appropriate headings.

(b) Compute total manufacturing costs for the month.

**Solution to Comprehensive DO IT! 1**

Cost Item	Product Costs			Period Costs
	Direct Materials	Direct Labor	Manufacturing Overhead	
1. Rent on manufacturing equipment (\$2,000/month)			X	
2. Insurance on manufacturing building (\$750/month)			X	
3. Raw materials (\$80/bicycle)	X			
4. Manufacturing utilities (\$1,000/month)			X	
5. Office supplies (\$800/month)				X
6. Wages for workers (\$30/bicycle)		X		
7. Depreciation on office equipment (\$650/month)				X
8. Miscellaneous materials (\$1.20/bicycle)			X	
9. Property taxes on manufacturing building (\$2,400/year)			X	
10. Manufacturing supervisor’s salary (\$3,000/month)			X	
11. Advertising cost (\$30,000/year)				X
12. Sales commissions (\$10/bicycle)				X
13. Depreciation on manufacturing building (\$1,500/month)			X	

Cost Item	Manufacturing Cost
Rent on manufacturing equipment	\$ 2,000
Insurance on manufacturing building	750
Raw materials ( $\$80 \times 1,000$ )	80,000
Manufacturing utilities	1,000
Labor ( $\$30 \times 1,000$ )	30,000
Miscellaneous materials ( $\$1.20 \times 1,000$ )	1,200
Property taxes on manufacturing building ( $\$2,400 \div 12$ )	200
Manufacturing supervisor’s salary	3,000
Depreciation on manufacturing building	1,500
Total manufacturing costs	\$119,650

Comprehensive **DO IT!** 2

Superior Manufacturing Company has the following cost and expense data for the year ending December 31, 2010.

Raw materials, 1/1/10	\$ 30,000	Insurance, factory	\$ 14,000
Raw materials, 12/31/10	20,000	Property taxes, factory building	6,000
Raw materials purchases	205,000	Sales (net)	1,500,000
Indirect materials	15,000	Delivery expenses	100,000
Work in process, 1/1/10	80,000	Sales commissions	150,000
Work in process, 12/31/10	50,000	Indirect labor	90,000
Finished goods, 1/1/10	110,000	Factory machinery rent	40,000
Finished goods, 12/31/10	120,000	Factory utilities	65,000
Direct labor	350,000	Depreciation, factory building	24,000
Factory manager's salary	35,000	Administrative expenses	300,000

**Instructions**

- Prepare a cost of goods manufactured schedule for Superior Company for 2010.
- Prepare an income statement for Superior Company for 2010.
- Assume that Superior Company's ledgers show the balances of the following current asset accounts: Cash \$17,000, Accounts Receivable (net) \$120,000, Prepaid Expenses \$13,000, and Short-term Investments \$26,000. Prepare the current assets section of the balance sheet for Superior Company as of December 31, 2010.

**Solution to Comprehensive DO IT! 2**

(a)	<b>SUPERIOR MANUFACTURING COMPANY</b>		
	Cost of Goods Manufactured Schedule		
	For the Year Ended December 31, 2010		
Work in process, 1/1			\$ 80,000
Direct materials			
Raw materials inventory, 1/1	\$ 30,000		
Raw materials purchases	<u>205,000</u>		
Total raw materials available for use	235,000		
Less: Raw materials inventory, 12/31	<u>20,000</u>		
Direct materials used		\$215,000	
Direct labor		350,000	
Manufacturing overhead			
Indirect labor	90,000		
Factory utilities	65,000		
Factory machinery rent	40,000		
Factory manager's salary	35,000		
Depreciation on building	24,000		
Indirect materials	15,000		
Factory insurance	14,000		
Property taxes	<u>6,000</u>		
Total manufacturing overhead		<u>289,000</u>	
Total manufacturing costs			<u>854,000</u>
Total cost of work in process			934,000
Less: Work in process, 12/31			<u>50,000</u>
Cost of goods manufactured			<u><u>\$884,000</u></u>

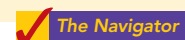
**action plan**

- ✓ Start with beginning work in process as the first item in the cost of goods manufactured schedule.
- ✓ Sum direct materials used, direct labor, and total manufacturing overhead to determine total manufacturing costs.
- ✓ Sum beginning work in process and total manufacturing costs to determine total cost of work in process.
- ✓ Cost of goods manufactured is the total cost of work in process less ending work in process.
- ✓ In the cost of goods sold section of the income statement, show beginning and ending finished goods inventory and cost of goods manufactured.
- ✓ In the balance sheet, list manufacturing inventories in the order of their expected realization in cash, with finished goods first.

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(b) SUPERIOR MANUFACTURING COMPANY			
Income Statement			
For the Year Ended December 31, 2010			
Sales (net)			\$1,500,000
Cost of goods sold			
Finished goods inventory, January 1	\$110,000		
Cost of goods manufactured	884,000		
Cost of goods available for sale	994,000		
Less: Finished goods inventory, December 31	120,000		
Cost of goods sold		<u>874,000</u>	
Gross profit			626,000
Operating expenses			
Administrative expenses	300,000		
Sales commissions	150,000		
Delivery expenses	100,000		
Total operating expenses			<u>550,000</u>
Net income			<u>\$ 76,000</u>

(c) SUPERIOR MANUFACTURING COMPANY			
Balance Sheet (partial)			
December 31, 2010			
Current assets			
Cash			\$ 17,000
Short-term investments			26,000
Accounts receivable (net)			120,000
Inventories			
Finished goods	\$120,000		
Work in process	50,000		
Raw materials	<u>20,000</u>		190,000
Prepaid expenses			<u>13,000</u>
Total current assets			<u>\$366,000</u>



## SUMMARY OF STUDY OBJECTIVES



- 1 Explain the distinguishing features of managerial accounting.** The *primary users* of managerial accounting reports are internal users, who are officers, department heads, managers, and supervisors in the company. Managerial accounting issues internal reports as frequently as the need arises. The purpose of these reports is to provide special-purpose information for a particular user for a specific decision. The content of managerial accounting reports pertains to subunits of the business, may be very detailed, and may extend beyond the double-entry accounting system. The reporting standard is relevance to the decision being made. No independent audits are required in managerial accounting.
- 2 Identify the three broad functions of management.** The three functions are planning, directing, and controlling. Planning requires management to look ahead and to estab-

lish objectives. Directing involves coordinating the diverse activities and human resources of a company to produce a smooth-running operation. Controlling is the process of keeping the activities on track.

- 3 Define the three classes of manufacturing costs.** Manufacturing costs are typically classified as either (1) direct materials, (2) direct labor, or (3) manufacturing overhead. Raw materials that can be physically and directly associated with the finished product during the manufacturing process are called direct materials. The work of factory employees that can be physically and directly associated with converting raw materials into finished goods is considered direct labor. Manufacturing overhead consists of costs that are indirectly associated with the manufacture of the finished product.

- 4 Distinguish between product and period costs.** Product costs are costs that are a necessary and integral part of producing the finished product. Product costs are also called inventoriable costs. Under the matching principle, these costs do not become expenses until the company sells the finished goods inventory. Period costs are costs that are identified with a specific time period rather than with a salable product. These costs relate to non-manufacturing costs and therefore are not inventoriable costs.
- 5 Explain the difference between a merchandising and a manufacturing income statement.** The difference between a merchandising and a manufacturing income statement is in the cost of goods sold section. A manufacturing cost of goods sold section shows beginning and ending finished goods inventories and the cost of goods manufactured.
- 6 Indicate how cost of goods manufactured is determined.** Companies add the cost of the beginning work in process to the total manufacturing costs for the current year to arrive at the total cost of work in process for the year. They then subtract the ending work in process from

the total cost of work in process to arrive at the cost of goods manufactured.

- 7 Explain the difference between a merchandising and a manufacturing balance sheet.** The difference between a merchandising and a manufacturing balance sheet is in the current assets section. The current assets section of a manufacturing company's balance sheet presents three inventory accounts: finished goods inventory, work in process inventory, and raw materials inventory.
- 8 Identify trends in managerial accounting.** Managerial accounting has experienced many changes in recent years. Among these are a shift toward addressing the needs of service companies and improving practices to better meet the needs of managers. Improved practices include a focus on managing the value chain through techniques such as just-in-time inventory and total quality management. In addition, techniques such as activity-based costing (ABC) have been developed to improve decision making. Finally, the balanced scorecard is now used by many companies in order to attain a more comprehensive view of the company's operations.



## GLOSSARY

**Activity-based costing (ABC)** A method of allocating overhead based on each product's use of activities in making the product. (p. 859).

**Balanced scorecard** A performance-measurement approach that uses both financial and nonfinancial measures, tied to company objectives, to evaluate a company's operations in an integrated fashion. (p. 860).

**Cost of goods manufactured** Total cost of work in process less the cost of the ending work in process inventory. (p. 853).

**Direct labor** The work of factory employees that can be physically and directly associated with converting raw materials into finished goods. (p. 850).

**Direct materials** Raw materials that can be physically and directly associated with manufacturing the finished product. (p. 850).

**Indirect labor** Work of factory employees that has no physical association with the finished product, or for which it is impractical to trace the costs to the goods produced. (p. 850).

**Indirect materials** Raw materials that do not physically become part of the finished product or cannot be traced because their physical association with the finished product is too small. (p. 850).

**Just-in-time (JIT) inventory** Inventory system in which goods are manufactured or purchased just in time for use. (p. 859).

**Managerial accounting** A field of accounting that provides economic and financial information for managers and other internal users. (p. 844).

**Manufacturing overhead** Manufacturing costs that are indirectly associated with the manufacture of the finished product. (p. 850).

**Period costs** Costs that are matched with the revenue of a specific time period and charged to expense as incurred. (p. 851).

**Product costs** Costs that are a necessary and integral part of producing the finished product. (p. 851).

**Sarbanes-Oxley Act of 2002 (SOX)** Law passed by Congress in 2002, intended to reduce unethical corporate behavior. (p. 848).

**Total cost of work in process** Cost of the beginning work in process plus total manufacturing costs for the current period. (p. 853).

**Total manufacturing costs** The sum of direct materials, direct labor, and manufacturing overhead incurred in the current period. (p. 853).

**Total quality management (TQM)** Systems implemented to reduce defects in finished products with the goal of achieving zero defects. (p. 859).

**Value chain** All activities associated with providing a product or service. (p. 858).







## SELF-STUDY QUESTIONS

Answers are at the end of the chapter.

- (SO 1) 1. Managerial accounting:
- is governed by generally accepted accounting principles.
  - places emphasis on special-purpose information.
  - pertains to the entity as a whole and is highly aggregated.
  - is limited to cost data.

- (SO 2) 2. The management of an organization performs several broad functions. They are:
- planning, directing, and selling.
  - planning, directing, and controlling.
  - planning, manufacturing, and controlling.
  - directing, manufacturing, and controlling.

- (SO 2) 3. After passage of the Sarbanes-Oxley Act of 2002:
- reports prepared by managerial accountants must be audited by CPAs.
  - CEOs and CFOs must certify that financial statements give a fair presentation of the company's operating results.
  - the audit committee, rather than top management, is responsible for the company's financial statements.
  - reports prepared by managerial accountants must comply with generally accepted accounting principles (GAAP).

- (SO 3) 4. Direct materials are a:

	Product Cost	Manufacturing Overhead	Period Cost
a.	Yes	Yes	No
b.	Yes	No	No
c.	Yes	Yes	Yes
d.	No	No	No

- (SO 3) 5. Which of the following costs would a computer manufacturer include in manufacturing overhead?
- The cost of the disk drives.
  - The wages earned by computer assemblers.
  - The cost of the memory chips.
  - Depreciation on testing equipment.

- (SO 3) 6. Which of the following is *not* an element of manufacturing overhead?
- Sales manager's salary.
  - Plant manager's salary.
  - Factory repairman's wages.
  - Product inspector's salary.

- (SO 4) 7. Indirect labor is a:
- nonmanufacturing cost.
  - raw material cost.
  - product cost.
  - period cost.

- (SO 4) 8. Which of the following costs are classified as a period cost?
- Wages paid to a factory custodian.
  - Wages paid to a production department supervisor.
  - Wages paid to a cost accounting department supervisor.
  - Wages paid to an assembly worker.

9. For the year, Redder Company has cost of goods manufactured of \$600,000, beginning finished goods inventory of \$200,000, and ending finished goods inventory of \$250,000. The cost of goods sold is:

- \$450,000.
- \$500,000.
- \$550,000.
- \$600,000.

10. Cost of goods available for sale is reported on the income statement of:

- a merchandising company but not a manufacturing company.
- a manufacturing company but not a merchandising company.
- a merchandising company and a manufacturing company.
- neither a manufacturing company nor a merchandising company.

11. A cost of goods manufactured schedule shows beginning and ending inventories for:

- raw materials and work in process only.
- work in process only.
- raw materials only.
- raw materials, work in process, and finished goods.

12. The formula to determine the cost of goods manufactured is:

- Beginning raw materials inventory + Total manufacturing costs – Ending work in process inventory.
- Beginning work in process inventory + Total manufacturing costs – Ending finished goods inventory.
- Beginning finished good inventory + Total manufacturing costs – Ending finished goods inventory.
- Beginning work in process inventory + Total manufacturing costs – Ending work in process inventory.

13. A manufacturer may report three inventories in its balance sheet: (1) raw materials, (2) work in process, and (3) finished goods. Indicate in what sequence these inventories generally appear on a balance sheet.

- (1), (2), (3)
- (2), (3), (1)
- (3), (1), (2)
- (3), (2), (1)

14. Which of the following managerial accounting techniques attempts to allocate manufacturing overhead in a more meaningful fashion?

- Just-in-time inventory.
- Total-quality management.
- Balanced scorecard.
- Activity-based costing.

15. Examples of recent trends in the economic environment of U.S. businesses are:

- increasing deregulation, decreasing global competition, and a shift toward providing services rather than goods.
- increasing deregulation, increasing global competition, and a shift toward providing goods rather than services.

- c. decreasing deregulation, decreasing global competition, and a shift toward providing services rather than goods.
- d. increasing deregulation, increasing global competition, and a shift toward providing services rather than goods.

Go to the book's companion website, [www.wiley.com/college/veygandt](http://www.wiley.com/college/veygandt), for Additional Self-Study questions.



## QUESTIONS

1. (a) "Managerial accounting is a field of accounting that provides economic information for all interested parties." Do you agree? Explain.  
(b) Mary Barrett believes that managerial accounting serves only manufacturing firms. Is Mary correct? Explain.
2. Distinguish between managerial and financial accounting as to (a) primary users of reports, (b) types and frequency of reports, and (c) purpose of reports.
3. How does the content of reports and the verification of reports differ between managerial and financial accounting?
4. In what ways can the budgeting process create incentives for unethical behavior?
5. Karen Fritz is studying for the next accounting mid-term examination. Summarize for Karen what she should know about management functions.
6. "Decision making is management's most important function." Do you agree? Why or why not?
7. What new rules were enacted under the Sarbanes-Oxley Act to address unethical accounting practices?
8. Stan Kaiser is studying for his next accounting examination. Explain to Stan what he should know about the differences between the income statements for a manufacturing and for a merchandising company.
9. Terry Lemay is unclear as to the difference between the balance sheets of a merchandising company and a manufacturing company. Explain the difference to Terry.
10. How are manufacturing costs classified?
11. Matt Litkee claims that the distinction between direct and indirect materials is based entirely on physical association with the product. Is Matt correct? Why?
12. Megan Neill is confused about the differences between a product cost and a period cost. Explain the differences to Megan.
13. Identify the differences in the cost of goods sold section of an income statement between a merchandising company and a manufacturing company.
14. The determination of the cost of goods manufactured involves the following factors: (A) beginning work in process inventory, (B) total manufacturing costs, and (C) ending work in process inventory. Identify the meaning of  $x$  in the following formulas:  
(a)  $A + B = x$   
(b)  $A + B - C = x$
15. Ohmie Manufacturing has beginning raw materials inventory \$12,000, ending raw materials inventory \$15,000, and raw materials purchases \$170,000. What is the cost of direct materials used?
16. Neff Manufacturing Inc. has beginning work in process \$26,000, direct materials used \$240,000, direct labor \$200,000, total manufacturing overhead \$180,000, and ending work in process \$32,000. What are total manufacturing costs?
17. Using the data in Q16, what are (a) the total cost of work in process and (b) the cost of goods manufactured?
18. In what order should manufacturing inventories be listed in a balance sheet?
19. What is the value chain? Describe, in sequence, the main components of a manufacturer's value chain.
20. Why is product quality important for companies that implement a just-in-time inventory system?
21. Explain what is meant by "balanced" in the balanced scorecard approach.
22. What is activity-based costing, and what are its potential benefits?

## BRIEF EXERCISES



**BE19-1** Complete the following comparison table between managerial and financial accounting.

*Distinguish between managerial and financial accounting.*

	<u>Financial Accounting</u>	<u>Managerial Accounting</u>
Primary users		
Types of reports		
Frequency of reports		
Purpose of reports		
Content of reports		
Verification		

(SO 1)

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Identify important regulatory changes.

(SO 2)

**BE19-2** The Sarbanes Oxley Act of 2002 (SOX) has important implications for the financial community. Explain two implications of SOX.

Identify the three management functions.

(SO 2)

**BE19-3** Listed below are the three functions of the management of an organization.

1. Planning 2. Directing 3. Controlling

Identify which of the following statements best describes each of the above functions.

- (a) \_\_\_ require(s) management to look ahead and to establish objectives. A key objective of management is to add value to the business.  
 (b) \_\_\_ involves coordinating the diverse activities and human resources of a company to produce a smooth-running operation. This function relates to the implementation of planned objectives.  
 (c) \_\_\_ is the process of keeping the activities on track. Management must determine whether goals are being met and what changes are necessary when there are deviations.

Classify manufacturing costs.

(SO 3)

**BE19-4** Determine whether each of the following costs should be classified as direct materials (DM), direct labor (DL), or manufacturing overhead (MO).

- (a) \_\_\_ Frames and tires used in manufacturing bicycles.  
 (b) \_\_\_ Wages paid to production workers.  
 (c) \_\_\_ Insurance on factory equipment and machinery.  
 (d) \_\_\_ Depreciation on factory equipment.

Classify manufacturing costs.

(SO 3)

**BE19-5** Indicate whether each of the following costs of an automobile manufacturer would be classified as direct materials, direct labor, or manufacturing overhead.

- (a) \_\_\_ Windshield. (e) \_\_\_ Factory machinery lubricants.  
 (b) \_\_\_ Engine. (f) \_\_\_ Tires.  
 (c) \_\_\_ Wages of assembly line worker. (g) \_\_\_ Steering wheel.  
 (d) \_\_\_ Depreciation of factory machinery. (h) \_\_\_ Salary of painting supervisor.

Identify product and period costs.

(SO 4)

**BE19-6** Identify whether each of the following costs should be classified as product costs or period costs.

- (a) \_\_\_ Manufacturing overhead. (d) \_\_\_ Advertising expenses.  
 (b) \_\_\_ Selling expenses. (e) \_\_\_ Direct labor.  
 (c) \_\_\_ Administrative expenses. (f) \_\_\_ Direct material.

Classify manufacturing costs.

(SO 3)

**BE19-7** Presented below are Lang Company's monthly manufacturing cost data related to its personal computer products.

(a) Utilities for manufacturing equipment	\$116,000
(b) Raw material (CPU, chips, etc.)	\$ 85,000
(c) Depreciation on manufacturing building	\$880,000
(d) Wages for production workers	\$191,000

Enter each cost item in the following table, placing an "X" under the appropriate headings.

	Product Costs		
	Direct Materials	Direct Labor	Factory Overhead
(a)			
(b)			
(c)			
(d)			

Compute total manufacturing costs and total cost of work in process.

(SO 6)

**BE19-8** Francum Manufacturing Company has the following data: direct labor \$229,000, direct materials used \$180,000, total manufacturing overhead \$208,000, and beginning work in process \$25,000. Compute (a) total manufacturing costs and (b) total cost of work in process.

Prepare current assets section.

(SO 7)

**BE19-9** In alphabetical order below are current asset items for Dieker Company's balance sheet at December 31, 2010. Prepare the current assets section (including a complete heading).

Accounts receivable	\$200,000
Cash	62,000
Finished goods	71,000
Prepaid expenses	38,000
Raw materials	73,000
Work in process	87,000

**BE19-10** Presented below are incomplete manufacturing cost data. Determine the missing amounts for three different situations.

Determine missing amounts in computing total manufacturing costs.

	Direct Materials Used	Direct Labor Used	Factory Overhead	Total Manufacturing Costs
(1)	\$25,000	\$61,000	\$ 50,000	?
(2)	?	\$75,000	\$140,000	\$296,000
(3)	\$55,000	?	\$111,000	\$310,000

(SO 6)

**BE19-11** Use the same data from BE19-10 above and the data below. Determine the missing amounts.

Determine missing amounts in computing cost of goods manufactured.

	Total Manufacturing Costs	Work in Process (1/1)	Work in Process (12/31)	Cost of Goods Manufactured
(1)	?	\$120,000	\$82,000	?
(2)	\$296,000	?	\$98,000	\$321,000
(3)	\$310,000	\$463,000	?	\$715,000

(SO 6)

## DO IT! REVIEW



**DO IT! 19-1** Indicate whether the following statements are true or false.

Identify managerial accounting concepts.

1. Managerial accountants explain and report manufacturing and nonmanufacturing costs, determine cost behaviors, and perform C-V-P analysis, but are not involved in the budget process.
2. Financial accounting reports pertain to subunits of the business and are very detailed.
3. Managerial accounting reports must follow GAAP and are audited by CPAs.
4. Managers' activities and responsibilities can be classified into three broad functions: planning, directing, and controlling.
5. As a result of the Sarbanes-Oxley Act of 2002 (SOX), top managers must certify that the company maintains an adequate system of internal control.
6. Management accountants follow a code of ethics developed by the Institute of Management Accountants.

(SO 1, 2)

**DO IT! 19-2** A music company has these costs:

Identify managerial cost concepts.

Advertising	Paper inserts for CD cases
Blank CDs	CD plastic cases
Depreciation of CD image burner	Salaries of sales representatives
Salary of factory manager	Salaries of factory maintenance employees
Factory supplies used	Salaries of employees who burn music onto CDs

(SO 3, 4)

Classify each cost as a period or a product cost. Within the product cost category, indicate if the cost is part of direct materials (DM), direct labor (DL), or manufacturing overhead (MO).

**DO IT! 19-3** The following information is available for Kopps Manufacturing Company.

Prepare cost of goods manufactured schedule.

	April 1	April 31
Raw material inventory	\$10,000	\$14,000
Work in process inventory	5,000	3,500
Materials purchased in April	\$ 98,000	
Direct labor in April	60,000	
Manufacturing overhead in April	180,000	

(SO 6)

Prepare the cost of goods manufactured schedule for the month of April.

**DO IT! 19-4** Match the descriptions that follow with the corresponding terms.

Identify trends in managerial accounting.

Descriptions:

1. \_\_\_\_\_ Inventory system in which goods are manufactured or purchased just as they are needed for use.
2. \_\_\_\_\_ A method of allocating overhead based on each product's use of activities in making the product.

(SO 8)

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3. \_\_\_\_\_ Systems that are especially important to firms adopting just-in-time inventory methods.
4. \_\_\_\_\_ One part of the value chain for a manufacturing company.
5. \_\_\_\_\_ The U.S. economy is trending towards this.
6. \_\_\_\_\_ A performance-measurement approach that uses both financial and nonfinancial measures, tied to company objectives, to evaluate a company's operations in an integrated fashion.

Terms:

- (a) Activity-based costing
- (b) Balanced scorecard
- (c) Total quality management (TQM)
- (d) Research and development, and product design
- (e) Service industries
- (f) Just-in-time (JIT) inventory

### EXERCISES



Identify distinguishing features of managerial accounting.

(SO 1)

**E19-1** Chris Martin has prepared the following list of statements about managerial accounting and financial accounting.

1. Financial accounting focuses on providing information to internal users.
2. Analyzing cost-volume-profit relationships is part of managerial accounting.
3. Preparation of budgets is part of financial accounting.
4. Managerial accounting applies only to merchandising and manufacturing companies.
5. Both managerial accounting and financial accounting deal with many of the same economic events.
6. Managerial accounting reports are prepared only quarterly and annually.
7. Financial accounting reports are general-purpose reports.
8. Managerial accounting reports pertain to subunits of the business.
9. Managerial accounting reports must comply with generally accepted accounting principles.
10. Although managerial accountants are expected to behave ethically, there is no code of ethical standards for managerial accountants.

#### Instructions

Identify each statement as true or false. If false, indicate how to correct the statement.

Classify costs into three classes of manufacturing costs.

(SO 3)

**E19-2** Presented below is a list of costs and expenses usually incurred by Burrard Corporation, a manufacturer of furniture, in its factory.

1. Salaries for assembly line inspectors.
2. Insurance on factory machines.
3. Property taxes on the factory building.
4. Factory repairs.
5. Upholstery used in manufacturing furniture.
6. Wages paid to assembly line workers.
7. Factory machinery depreciation.
8. Glue, nails, paint, and other small parts used in production.
9. Factory supervisors' salaries.
10. Wood used in manufacturing furniture.

#### Instructions

Classify the above items into the following categories: (a) direct materials, (b) direct labor, and (c) manufacturing overhead.

Identify types of cost and explain their accounting.

(SO 3, 4)

**E19-3** Coldplay Corporation incurred the following costs while manufacturing its product.

Materials used in product	\$100,000	Advertising expense	\$45,000
Depreciation on plant	60,000	Property taxes on plant	14,000
Property taxes on store	7,500	Delivery expense	21,000
Labor costs of assembly-line workers	110,000	Sales commissions	35,000
Factory supplies used	13,000	Salaries paid to sales clerks	50,000

**Instructions**

- (a) Identify each of the costs as direct materials, direct labor, manufacturing overhead, or period costs.
- (b) Explain the basic difference in accounting for product costs and period costs.

**E19-4** Caroline Company reports the following costs and expenses in May.

Factory utilities	\$ 11,500	Direct labor	\$69,100
Depreciation on factory equipment	12,650	Sales salaries	46,400
Depreciation on delivery trucks	3,800	Property taxes on factory building	2,500
Indirect factory labor	48,900	Repairs to office equipment	1,300
Indirect materials	80,800	Factory repairs	2,000
Direct materials used	137,600	Advertising	18,000
Factory manager's salary	8,000	Office supplies used	2,640

Determine the total amount of various types of costs.

(SO 3, 4)



**Instructions**

From the information, determine the total amount of:

- (a) Manufacturing overhead.
- (b) Product costs.
- (c) Period costs.

**E19-5** Sota Company is a manufacturer of personal computers. Various costs and expenses associated with its operations are as follows.

Classify various costs into different cost categories.

(SO 3, 4)

1. Property taxes on the factory building.
2. Production superintendents' salaries.
3. Memory boards and chips used in assembling computers.
4. Depreciation on the factory equipment.
5. Salaries for assembly line quality control inspectors.
6. Sales commissions paid to sell personal computers.
7. Electrical components used in assembling computers.
8. Wages of workers assembling personal computers.
9. Soldering materials used on factory assembly lines.
10. Salaries for the night security guards for the factory building.

The company intends to classify these costs and expenses into the following categories: (a) direct materials, (b) direct labor, (c) manufacturing overhead, and (d) period costs.

**Instructions**

List the items (1) through (10). For each item, indicate the cost category to which it belongs.

**E19-6** The administrators of San Diego County's Memorial Hospital are interested in identifying the various costs and expenses that are incurred in producing a patient's X-ray. A list of such costs and expenses is presented below.

Classify various costs into different cost categories.

(SO 3)

1. Salaries for the X-ray machine technicians.
2. Wages for the hospital janitorial personnel.
3. Film costs for the X-ray machines.
4. Property taxes on the hospital building.
5. Salary of the X-ray technicians' supervisor.
6. Electricity costs for the X-ray department.
7. Maintenance and repairs on the X-ray machines.
8. X-ray department supplies.
9. Depreciation on the X-ray department equipment.
10. Depreciation on the hospital building.

The administrators want these costs and expenses classified as: (a) direct materials, (b) direct labor, or (c) service overhead.

**Instructions**

List the items (1) through (10). For each item, indicate the cost category to which the item belongs.

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Classify various costs into different cost categories.

(SO 4)

**E19-7** Rapid Delivery Service reports the following costs and expenses in June 2010.

Indirect materials	\$ 5,400	Drivers' salaries	\$11,000
Depreciation on delivery equipment	11,200	Advertising	1,600
Dispatcher's salary	5,000	Delivery equipment repairs	300
Property taxes on office building	870	Office supplies	650
CEO's salary	12,000	Office utilities	990
Gas and oil for delivery trucks	2,200	Repairs on office equipment	180

### Instructions

Determine the total amount of (a) delivery service (product) costs and (b) period costs.

Compute cost of goods manufactured and sold.

(SO 5, 6)

**E19-8** Coldplay Corporation incurred the following costs while manufacturing its product.

Materials used in product	\$100,000	Advertising expense	\$45,000
Depreciation on plant	60,000	Property taxes on plant	14,000
Property taxes on store	7,500	Delivery expense	21,000
Labor costs of assembly-line workers	110,000	Sales commissions	35,000
Factory supplies used	23,000	Salaries paid to sales clerks	50,000

Work-in-process inventory was \$12,000 at January 1 and \$15,500 at December 31. Finished goods inventory was \$60,000 at January 1 and \$55,600 at December 31.

### Instructions

(a) Compute cost of goods manufactured.

(b) Compute cost of goods sold.

Determine missing amounts in cost of goods manufactured schedule.

(SO 6)

**E19-9** An incomplete cost of goods manufactured schedule is presented below.

### CEPEDA MANUFACTURING COMPANY

Cost of Goods Manufactured Schedule  
For the Year Ended December 31, 2010

Work in process (1/1)		\$210,000
Direct materials		
Raw materials inventory (1/1)	\$ ?	
Add: Raw materials purchases	158,000	
Total raw materials available for use	?	
Less: Raw materials inventory (12/31)	12,500	
Direct materials used		\$190,000
Direct labor		?
Manufacturing overhead		
Indirect labor	\$ 18,000	
Factory depreciation	36,000	
Factory utilities	68,000	
Total overhead		122,000
Total manufacturing costs		?
Total cost of work in process		?
Less: Work in process (12/31)		81,000
Cost of goods manufactured		\$510,000

### Instructions

Complete the cost of goods manufactured schedule for Cepeda Manufacturing Company.

Determine the missing amount of different cost items.

(SO 6)

**E19-10** Manufacturing cost data for Criqui Company are presented below.

	<u>Case A</u>	<u>Case B</u>	<u>Case C</u>
Direct materials used	(a)	\$58,400	\$130,000
Direct labor	\$ 57,000	86,000	(g)
Manufacturing overhead	46,500	81,600	102,000

Total manufacturing costs	185,650	(d)	253,700
Work in process 1/1/10	(b)	16,500	(h)
Total cost of work in process	221,500	(e)	337,000
Work in process 12/31/10	(c)	11,000	70,000
Cost of goods manufactured	185,275	(f)	(i)

**Instructions**

Indicate the missing amount for each letter (a) through (i).

**E19-11** Incomplete manufacturing cost data for Ikerd Company for 2010 are presented as follows for four different situations.

*Determine the missing amount of different cost items, and prepare a condensed cost of goods manufactured schedule.*

	<b>Direct Materials Used</b>	<b>Direct Labor Used</b>	<b>Manufacturing Overhead</b>	<b>Total Manufacturing Costs</b>	<b>Work in Process 1/1</b>	<b>Work in Process 12/31</b>	<b>Cost of Goods Manufactured</b>
(1)	\$127,000	\$140,000	\$ 77,000	(a)	\$33,000	(b)	\$360,000
(2)	(c)	200,000	132,000	\$450,000	(d)	\$40,000	470,000
(3)	80,000	100,000	(e)	245,000	60,000	80,000	(f)
(4)	70,000	(g)	75,000	288,000	45,000	(h)	270,000

(SO 6)

**Instructions**

(a) Indicate the missing amount for each letter.

(b) Prepare a condensed cost of goods manufactured schedule for situation (1) for the year ended December 31, 2010.

**E19-12** Aikman Corporation has the following cost records for June 2010.

Indirect factory labor	\$ 4,500	Factory utilities	\$ 400
Direct materials used	20,000	Depreciation, factory equipment	1,400
Work in process, 6/1/10	3,000	Direct labor	30,000
Work in process, 6/30/10	3,800	Maintenance, factory equipment	1,800
Finished goods, 6/1/10	5,000	Indirect materials	2,200
Finished goods, 6/30/10	7,500	Factory manager's salary	3,000

*Prepare a cost of goods manufactured schedule and a partial income statement.*

(SO 5, 6)



**Instructions**

(a) Prepare a cost of goods manufactured schedule for June 2010.

(b) Prepare an income statement through gross profit for June 2010 assuming net sales are \$87,100.

**E19-13** Sara Collier, the bookkeeper for Danner, Cheney, and Howe, a political consulting firm, has recently completed an accounting course at her local college. One of the topics covered in the course was the cost of goods manufactured schedule. Sara wondered if such a schedule could be prepared for her firm. She realized that, as a service-oriented company, it would have no Work in Process inventory to consider.

*Classify various costs into different categories and prepare cost of services provided schedule.*

(SO 4, 5, 6)

Listed below are the costs her firm incurred for the month ended August 31, 2010.

Supplies used on consulting contracts	\$ 1,200
Supplies used in the administrative offices	1,500
Depreciation on equipment used for contract work	900
Depreciation used on administrative office equipment	1,050
Salaries of professionals working on contracts	12,600
Salaries of administrative office personnel	7,700
Janitorial services for professional offices	400
Janitorial services for administrative offices	500
Insurance on contract operations	800
Insurance on administrative operations	900
Utilities for contract operations	1,400
Utilities for administrative offices	1,300

**Instructions**

(a) Prepare a schedule of cost of contract services provided (similar to a cost of goods manufactured schedule) for the month.

(b) For those costs not included in (a), explain how they would be classified and reported in the financial statements.



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Prepare a cost of goods manufactured schedule and a partial income statement.

(SO 5, 6, 7)

**E19-14** The following information is available for Sassafras Company.

	<u>January 1, 2010</u>	<u>2010</u>	<u>December 31, 2010</u>
Raw materials inventory	\$ 21,000		\$30,000
Work in process inventory	13,500		17,200
Finished goods inventory	27,000		21,000
Materials purchased		\$150,000	
Direct labor		200,000	
Manufacturing overhead		180,000	
Sales		900,000	

### Instructions

- Compute cost of goods manufactured.
- Prepare an income statement through gross profit.
- Show the presentation of the ending inventories on the December 31, 2010, balance sheet.
- How would the income statement and balance sheet of a merchandising company be different from Sassafras's financial statements?

Indicate in which schedule or financial statement(s) different cost items will appear.

(SO 5, 6, 7)

**E19-15** Corbin Manufacturing Company produces blankets. From its accounting records it prepares the following schedule and financial statements on a yearly basis.

- Cost of goods manufactured schedule.
- Income statement.
- Balance sheet.

The following items are found in its ledger and accompanying data.

- |                                      |   |
|--------------------------------------|---|
| 1. Direct labor                      | 9. Factory maintenance salaries         |
| 2. Raw materials inventory, 1/1      | 10. Cost of goods manufactured          |
| 3. Work in process inventory, 12/31  | 11. Depreciation on delivery equipment  |
| 4. Finished goods inventory, 1/1     | 12. Cost of goods available for sale    |
| 5. Indirect labor                    | 13. Direct materials used               |
| 6. Depreciation on factory machinery | 14. Heat and electricity for factory    |
| 7. Work in process, 1/1              | 15. Repairs to roof of factory building |
| 8. Finished goods inventory, 12/31   | 16. Cost of raw materials purchases     |

### Instructions

List the items (1)–(16). For each item, indicate by using the appropriate letter or letters, the schedule and/or financial statement(s) in which the item will appear.

Prepare a cost of goods manufactured schedule, and present the ending inventories of the balance sheet.

(SO 6, 7)



**E19-16** An analysis of the accounts of Chamberlin Manufacturing reveals the following manufacturing cost data for the month ended June 30, 2010.

<u>Inventories</u>	<u>Beginning</u>	<u>Ending</u>
Raw materials	\$9,000	\$13,100
Work in process	5,000	7,000
Finished goods	9,000	6,000

Costs incurred: Raw materials purchases \$54,000, direct labor \$57,000, manufacturing overhead \$19,900. The specific overhead costs were: indirect labor \$5,500, factory insurance \$4,000, machinery depreciation \$4,000, machinery repairs \$1,800, factory utilities \$3,100, miscellaneous factory costs \$1,500. Assume that all raw materials used were direct materials.

### Instructions

- Prepare the cost of goods manufactured schedule for the month ended June 30, 2010.
- Show the presentation of the ending inventories on the June 30, 2010, balance sheet.

Determine the amount of cost to appear in various accounts, and indicate in which financial statements these accounts would appear.

(SO 5, 6, 7)

**E19-17** Todd Motor Company manufactures automobiles. During September 2010 the company purchased 5,000 head lamps at a cost of \$9 per lamp. Todd withdrew 4,650 lamps from the warehouse during the month. Fifty of these lamps were used to replace the head lamps in autos used by traveling sales staff. The remaining 4,600 lamps were put in autos manufactured during the month.

Of the autos put into production during September 2010, 90% were completed and transferred to the company's storage lot. Of the cars completed during the month, 75% were sold by September 30.

**Instructions**

- (a) Determine the cost of head lamps that would appear in each of the following accounts at September 30, 2010: Raw Materials, Work in Process, Finished Goods, Cost of Goods Sold, and Selling Expenses.
- (b) Write a short memo to the chief accountant, indicating whether and where each of the accounts in (a) would appear on the income statement or on the balance sheet at September 30, 2010.

**E19-18** The following is a list of terms related to managerial accounting practices.

1. Activity-based costing.
2. Just-in-time inventory.
3. Balanced scorecard.
4. Value chain.

*Identify various managerial accounting practices.*

(SO 8)

**Instructions**

Match each of the terms with the statement below that best describes the term.

- (a) \_\_\_ A performance-measurement technique that attempts to consider and evaluate all aspects of performance using financial and nonfinancial measures in an integrated fashion.
- (b) \_\_\_ The group of activities associated with providing a product or service.
- (c) \_\_\_ An approach used to reduce the cost associated with handling and holding inventory by reducing the amount of inventory on hand.
- (d) \_\_\_ A method used to allocate overhead to products based on each product's use of the activities that cause the incurrence of the overhead cost.

**EXERCISES: SET B**



Visit the book's companion website at [www.wiley.com/college/veygandt](http://www.wiley.com/college/veygandt), and choose the Student Companion site, to access Exercise Set B.

**PROBLEMS: SET A**



**P19-1A** Bjerg Company specializes in manufacturing a unique model of bicycle helmet. The model is well accepted by consumers, and the company has enough orders to keep the factory production at 10,000 helmets per month (80% of its full capacity). Bjerg's monthly manufacturing cost and other expense data are as follows.

*Classify manufacturing costs into different categories and compute the unit cost.*

(SO 3, 4)

Rent on factory equipment	\$ 7,000
Insurance on factory building	1,500
Raw materials (plastics, polystyrene, etc.)	75,000
Utility costs for factory	900
Supplies for general office	300
Wages for assembly line workers	43,000
Depreciation on office equipment	800
Miscellaneous materials (glue, thread, etc.)	1,100
Factory manager's salary	5,700
Property taxes on factory building	400
Advertising for helmets	14,000
Sales commissions	7,000
Depreciation on factory building	1,500

**Instructions**

- (a) Prepare an answer sheet with the following column headings.

<u>Cost Item</u>	<u>Product Costs</u>			<u>Period Costs</u>
	<u>Direct Materials</u>	<u>Direct Labor</u>	<u>Manufacturing Overhead</u>	

- (a) DM \$75,000
- DL \$43,000
- MO \$18,100
- PC \$22,100

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Enter each cost item on your answer sheet, placing the dollar amount under the appropriate headings. Total the dollar amounts in each of the columns.

(b) Compute the cost to produce one helmet.

*Classify manufacturing costs into different categories and compute the unit cost.*

(SO 3, 4)

**P19-2A** Copa Company, a manufacturer of stereo systems, started its production in October 2010. For the preceding 3 years Copa had been a retailer of stereo systems. After a thorough survey of stereo system markets, Copa decided to turn its retail store into a stereo equipment factory.

Raw materials cost for a stereo system will total \$74 per unit. Workers on the production lines are on average paid \$12 per hour. A stereo system usually takes 5 hours to complete. In addition, the rent on the equipment used to assemble stereo systems amounts to \$4,900 per month. Indirect materials cost \$5 per system. A supervisor was hired to oversee production; her monthly salary is \$3,000.

Factory janitorial costs are \$1,300 monthly. Advertising costs for the stereo system will be \$8,500 per month. The factory building depreciation expense is \$7,200 per year. Property taxes on the factory building will be \$9,000 per year.

**Instructions**

(a) Prepare an answer sheet with the following column headings.

- (a) DM \$96,200
- DL \$78,000
- MO \$17,050
- PC \$ 8,500

Cost Item	Product Costs			Period Costs
	Direct Materials	Direct Labor	Manufacturing Overhead	

Assuming that Copa manufactures, on average, 1,300 stereo systems per month, enter each cost item on your answer sheet, placing the dollar amount per month under the appropriate headings. Total the dollar amounts in each of the columns.

(b) Compute the cost to produce one stereo system.

*Indicate the missing amount of different cost items, and prepare a condensed cost of goods manufactured schedule, an income statement, and a partial balance sheet.*

(SO 5, 6, 7)

**P19-3A** Incomplete manufacturing costs, expenses, and selling data for two different cases are as follows.

	Case	
	1	2
Direct Materials Used	\$ 7,600	\$ (g)
Direct Labor	5,000	8,000
Manufacturing Overhead	8,000	4,000
Total Manufacturing Costs	(a)	18,000
Beginning Work in Process Inventory	1,000	(h)
Ending Work in Process Inventory	(b)	3,000
Sales	24,500	(i)
Sales Discounts	2,500	1,400
Cost of Goods Manufactured	17,000	22,000
Beginning Finished Goods Inventory	(c)	3,300
Goods Available for Sale	18,000	(j)
Cost of Goods Sold	(d)	(k)
Ending Finished Goods Inventory	3,400	2,500
Gross Profit	(e)	7,000
Operating Expenses	2,500	(l)
Net Income	(f)	5,000

**Instructions**

- (a) Indicate the missing amount for each letter.
- (b) Prepare a condensed cost of goods manufactured schedule for Case 1.
- (c) Prepare an income statement and the current assets section of the balance sheet for Case 1. Assume that in Case 1 the other items in the current assets section are as follows: Cash \$4,000, Receivables (net) \$15,000, Raw Materials \$600, and Prepaid Expenses \$400.

- (b) Ending WIP \$4,600
- (c) Current assets \$28,000

**P19-4A** The following data were taken from the records of Stellar Manufacturing Company for the fiscal year ended June 30, 2010.

Raw Materials		Factory Insurance	\$ 4,600
Inventory 7/1/09	\$ 48,000	Factory Machinery	
Raw Materials		Depreciation	16,000
Inventory 6/30/10	39,600	Factory Utilities	27,600
Finished Goods		Office Utilities Expense	8,650
Inventory 7/1/09	96,000	Sales	554,000
Finished Goods		Sales Discounts	4,200
Inventory 6/30/10	95,900	Plant Manager's Salary	29,000
Work in Process		Factory Property Taxes	9,600
Inventory 7/1/09	19,800	Factory Repairs	1,400
Work in Process		Raw Materials Purchases	96,400
Inventory 6/30/10	18,600	Cash	32,000
Direct Labor	149,250		
Indirect Labor	24,460		
Accounts Receivable	27,000		

Prepare a cost of goods manufactured schedule, a partial income statement, and a partial balance sheet.

(SO 5, 6, 7)



**Instructions**

- Prepare a cost of goods manufactured schedule. (Assume all raw materials used were direct materials.)
- Prepare an income statement through gross profit.
- Prepare the current assets section of the balance sheet at June 30, 2010.

(a) CGM \$367,910

(b) Gross profit \$181,790

(c) Current assets \$213,100

**P19-5A** Tombert Company is a manufacturer of computers. Its controller resigned in October 2010. An inexperienced assistant accountant has prepared the following income statement for the month of October 2010.

Prepare a cost of goods manufactured schedule and a correct income statement.

(SO 5, 6)



**TOMBERT COMPANY**

Income Statement

For the Month Ended October 31, 2010

Sales (net)		\$780,000
Less: Operating expenses		
Raw materials purchases	\$264,000	
Direct labor cost	190,000	
Advertising expense	90,000	
Selling and administrative salaries	75,000	
Rent on factory facilities	60,000	
Depreciation on sales equipment	45,000	
Depreciation on factory equipment	31,000	
Indirect labor cost	28,000	
Utilities expense	12,000	
Insurance expense	8,000	803,000
Net loss		<u><u>\$(23,000)</u></u>

Prior to October 2010 the company had been profitable every month. The company's president is concerned about the accuracy of the income statement. As her friend, you have been asked to review the income statement and make necessary corrections. After examining other manufacturing cost data, you have acquired additional information as follows.

- Inventory balances at the beginning and end of October were:

	<u>October 1</u>	<u>October 31</u>
Raw materials	\$18,000	\$34,000
Work in process	16,000	14,000
Finished goods	30,000	48,000

- Only 70% of the utilities expense and 60% of the insurance expense apply to factory operations. The remaining amounts should be charged to selling and administrative activities.

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**Instructions**

- (a) CGM \$572,200
  - (b) NI \$ 9,000
- (a) Prepare a schedule of cost of goods manufactured for October 2010.  
 (b) Prepare a correct income statement for October 2010.

**PROBLEMS: SET B**

*Classify manufacturing costs into different categories and compute the unit cost.*

(SO 3, 4)

**P19-1B** Petra Company specializes in manufacturing motorcycle helmets. The company has enough orders to keep the factory production at 1,000 motorcycle helmets per month. Petra's monthly manufacturing cost and other expense data are as follows.

Maintenance costs on factory building	\$ 1,500
Factory manager's salary	4,000
Advertising for helmets	8,000
Sales commissions	5,000
Depreciation on factory building	700
Rent on factory equipment	6,000
Insurance on factory building	3,000
Raw materials (plastic, polystyrene, etc.)	20,000
Utility costs for factory	800
Supplies for general office	200
Wages for assembly line workers	54,000
Depreciation on office equipment	500
Miscellaneous materials (glue, thread, etc.)	2,000

**Instructions**

- (a) DM \$20,000
- DL \$54,000
- MO \$18,000
- PC \$13,700

(a) Prepare an answer sheet with the following column headings.

	<b>Product Costs</b>			
<b>Cost Item</b>	<b>Direct Materials</b>	<b>Direct Labor</b>	<b>Manufacturing Overhead</b>	<b>Period Costs</b>

Enter each cost item on your answer sheet, placing the dollar amount under the appropriate headings. Total the dollar amounts in each of the columns.

(b) Compute the cost to produce one motorcycle helmet.

*Classify manufacturing costs into different categories and compute the unit cost.*

(SO 3, 4)

**P19-2B** Net Play Company, a manufacturer of tennis rackets, started production in November 2010. For the preceding 5 years Net Play had been a retailer of sports equipment. After a thorough survey of tennis racket markets, Net Play decided to turn its retail store into a tennis racket factory.

Raw materials cost for a tennis racket will total \$23 per racket. Workers on the production lines are paid on average \$13 per hour. A racket usually takes 2 hours to complete. In addition, the rent on the equipment used to produce rackets amounts to \$1,300 per month. Indirect materials cost \$3 per racket. A supervisor was hired to oversee production; her monthly salary is \$3,500.

Janitorial costs are \$1,400 monthly. Advertising costs for the rackets will be \$6,000 per month. The factory building depreciation expense is \$8,400 per year. Property taxes on the factory building will be \$7,200 per year.

**Instructions**

- (a) DM \$57,500
- DL \$65,000
- MO \$15,000
- PC \$ 6,000

(a) Prepare an answer sheet with the following column headings.

	<b>Product Costs</b>			
<b>Cost Item</b>	<b>Direct Materials</b>	<b>Direct Labor</b>	<b>Manufacturing Overhead</b>	<b>Period Costs</b>

Assuming that Net Play manufactures, on average, 2,500 tennis rackets per month, enter each cost item on your answer sheet, placing the dollar amount per month under the appropriate headings. Total the dollar amounts in each of the columns.

(b) Compute the cost to produce one racket.

**P19-3B** Incomplete manufacturing costs, expenses, and selling data for two different cases are as follows.

	Case	
	A	B
Direct Materials Used	\$ 6,300	\$ (g)
Direct Labor	3,000	4,000
Manufacturing Overhead	6,000	5,000
Total Manufacturing Costs	(a)	16,000
Beginning Work in Process Inventory	1,000	(h)
Ending Work in Process Inventory	(b)	2,000
Sales	22,500	(i)
Sales Discounts	1,500	1,200
Cost of Goods Manufactured	15,800	20,000
Beginning Finished Goods Inventory	(c)	5,000
Goods Available for Sale	18,300	(j)
Cost of Goods Sold	(d)	(k)
Ending Finished Goods Inventory	1,200	2,500
Gross Profit	(e)	6,000
Operating Expenses	2,700	(l)
Net Income	(f)	2,200

Indicate the missing amount of different cost items, and prepare a condensed cost of goods manufactured schedule, an income statement, and a partial balance sheet.

(SO 5, 6, 7)

**Instructions**

- (a) Indicate the missing amount for each letter.
- (b) Prepare a condensed cost of goods manufactured schedule for Case A.
- (c) Prepare an income statement and the current assets section of the balance sheet for Case A. Assume that in Case A the other items in the current assets section are as follows: Cash \$3,000, Receivables (net) \$10,000, Raw Materials \$700, and Prepaid Expenses \$200.

(c) Current assets \$15,600

**P19-4B** The following data were taken from the records of Dosey Manufacturing Company for the year ended December 31, 2010.

Raw Materials Inventory 1/1/10	\$ 47,000	Factory Insurance	\$ 7,400
Raw Materials Inventory 12/31/10	44,200	Factory Machinery Depreciation	7,700
Finished Goods Inventory 1/1/10	85,000	Factory Utilities	12,900
Finished Goods Inventory 12/31/10	67,800	Office Utilities Expense	8,600
Work in Process Inventory 1/1/10	9,500	Sales	465,000
Work in Process Inventory 12/31/10	8,000	Sales Discounts	2,500
Direct Labor	145,100	Plant Manager's Salary	40,000
Indirect Labor	18,100	Factory Property Taxes	6,100
Accounts Receivable	27,000	Factory Repairs	800
		Raw Materials Purchases	62,500
		Cash	28,000

Prepare a cost of goods manufactured schedule, a partial income statement, and a partial balance sheet.

(SO 5, 6, 7)



**Instructions**

- (a) Prepare a cost of goods manufactured schedule. (Assume all raw materials used were direct materials.)
- (b) Prepare an income statement through gross profit.
- (c) Prepare the current assets section of the balance sheet at December 31.

(a) CGM \$304,900

(b) Gross profit \$140,400

(c) Current assets \$175,000

Prepare a cost of goods manufactured schedule and a correct income statement.

(SO 5, 6)



**P19-5B** Cinta Company is a manufacturer of toys. Its controller resigned in August 2010. An inexperienced assistant accountant has prepared the following income statement for the month of August 2010.

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**CINTA COMPANY**  
Income Statement  
For the Month Ended August 31, 2010

Sales (net)		\$675,000
Less: Operating expenses		
Raw materials purchases	\$220,000	
Direct labor cost	160,000	
Advertising expense	75,000	
Selling and administrative salaries	70,000	
Rent on factory facilities	60,000	
Depreciation on sales equipment	50,000	
Depreciation on factory equipment	35,000	
Indirect labor cost	20,000	
Utilities expense	10,000	
Insurance expense	5,000	
	705,000	
Net loss		\$(30,000)

Prior to August 2010 the company had been profitable every month. The company's president is concerned about the accuracy of the income statement. As her friend, you have been asked to review the income statement and make necessary corrections. After examining other manufacturing cost data, you have acquired additional information as follows.

1. Inventory balances at the beginning and end of August were:

	August 1	August 31
Raw materials	\$19,500	\$30,000
Work in process	25,000	21,000
Finished goods	40,000	59,000

2. Only 50% of the utilities expense and 70% of the insurance expense apply to factory operations; the remaining amounts should be charged to selling and administrative activities.

**Instructions**

(a) CGM \$497,000  
(b) NL \$ (4,500)

- (a) Prepare a cost of goods manufactured schedule for August 2010.
- (b) Prepare a correct income statement for August 2010.

**PROBLEMS: SET C**

Visit the book's companion website at [www.wiley.com/college/weygandt](http://www.wiley.com/college/weygandt), and choose the Student Companion site, to access Problem Set C.

**WATERWAYS CONTINUING PROBLEM**

*The Waterways Problem starts in this chapter and continues in every chapter. Here, we provide some details about the company introduced in this new continuing problem. You will find the complete problem for each chapter at the book's companion website*

(Note: The Waterways problem begins in Chapter 19 and continues in every managerial-accounting chapter. You can also find this problem at the book's Student Companion site.)

**WCP19** Waterways Corporation is a private corporation formed for the purpose of providing the products and the services needed to irrigate farms, parks, commercial projects, and private lawns. It has a centrally located factory in a U.S. city that manufactures the products it markets to retail outlets across the nation. It also maintains a division that provides installation and warranty servicing in six metropolitan areas.

The mission of Waterways is to manufacture quality parts that can be used for effective irrigation projects that also conserve water. By that effort, the company hopes to satisfy its customers, provide rapid and responsible service, and serve the community and the employees who represent them in each community.

The company has been growing rapidly, so management is considering new ideas to help the company continue its growth and maintain the high quality of its products.

Waterways was founded by Will Winkman, who is the company president and chief executive officer (CEO). Working with him from the company's inception was Will's brother, Ben, whose sprinkler designs and ideas about the installation of proper systems have been a major basis of the company's success. Ben is the vice president who oversees all aspects of design and production in the company.

The factory itself is managed by Todd Senter who hires his line managers to supervise the factory employees. The factory makes all of the parts for the irrigation systems. The purchasing department is managed by Hector Hines.

The installation and training division is overseen by vice president Henry Writer, who supervises the managers of the six local installation operations. Each of these local managers hires his or her own local service people. These service employees are trained by the home office under Henry Writer's direction because of the uniqueness of the company's products.

There is a small human resources department under the direction of Sally Fenton, a vice president who handles the employee paperwork, though hiring is actually performed by the separate departments. Sam Totter is the vice president who heads the sales and marketing area; he oversees 10 well-trained salespeople.

The accounting and finance division of the company is headed by Abe Headman, who is the chief financial officer (CFO) and a company vice president; he is a member of the Institute of Management Accountants and holds a certificate in management accounting. He has a small staff of Certified Public Accountants, including a controller and a treasurer, and a staff of accounting input operators who maintain the financial records.



Go to the book's companion website,  
[www.wiley.com/college/veygandt](http://www.wiley.com/college/veygandt),  
to see the completion of this problem.

## BROADENING YOUR PERSPECTIVE

### Decision Making Across the Organization

**BYP19-1** Mismatch Manufacturing Company specializes in producing fashion outfits. On July 31, 2010, a tornado touched down at its factory and general office. The inventories in the warehouse and the factory were completely destroyed as was the general office nearby. Next morning, through a careful search of the disaster site, however, Ross Clarkson, the company's controller, and Catherine Harper, the cost accountant, were able to recover a small part of manufacturing cost data for the current month.

"What a horrible experience," sighed Ross. "And the worst part is that we may not have enough records to use in filing an insurance claim."

"It was terrible," replied Catherine. "However, I managed to recover some of the manufacturing cost data that I was working on yesterday afternoon. The data indicate that our direct labor cost in July totaled \$240,000 and that we had purchased \$345,000 of raw materials. Also, I recall that the amount of raw materials used for July was \$350,000. But I'm not sure this information will help. The rest of our records are blown away."

"Well, not exactly," said Ross. "I was working on the year-to-date income statement when the tornado warning was announced. My recollection is that our sales in July were \$1,260,000 and our gross profit ratio has been 40% of sales. Also, I can remember that our cost of goods available for sale was \$770,000 for July."

"Maybe we can work something out from this information!" exclaimed Catherine. "My experience tells me that our manufacturing overhead is usually 60% of direct labor."

"Hey, look what I just found," cried Catherine. "It's a copy of this June's balance sheet, and it shows that our inventories as of June 30 are Finished goods \$38,000, Work in process \$25,000, and Raw materials \$19,000."





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“Super,” yelled Ross. “Let’s go work something out.”

In order to file an insurance claim, Mismatch Company must determine the amount of its inventories as of July 31, 2010, the date of the tornado touchdown.

### Instructions

With the class divided into groups, determine the amount of cost in the Raw Materials, Work in Process, and Finished Goods inventory accounts as of the date of the tornado touchdown.

## MANAGERIAL ANALYSIS

**BYP19-2** Love All is a fairly large manufacturing company located in the southern United States. The company manufactures tennis rackets, tennis balls, tennis clothing, and tennis shoes, all bearing the company’s distinctive logo, a large green question mark on a white flocked tennis ball. The company’s sales have been increasing over the past 10 years.

The tennis racket division has recently implemented several advanced manufacturing techniques. Robot arms hold the tennis rackets in place while glue dries, and machine vision systems check for defects. The engineering and design team uses computerized drafting and testing of new products. The following managers work in the tennis racket division.

Andre Agassi, Sales Manager (supervises all sales representatives).

Serena Williams, technical specialist (supervises computer programmers).

Pete Sampras, cost accounting manager (supervises cost accountants).

Andy Roddick, production supervisor (supervises all manufacturing employees).

Venus Williams, engineer (supervises all new-product design teams).

### Instructions

- What are the primary information needs of each manager?
- Which, if any, financial accounting report(s) is each likely to use?
- Name one special-purpose management accounting report that could be designed for each manager. Include the name of the report, the information it would contain, and how frequently it should be issued.

## REAL-WORLD FOCUS

**BYP19-3** **Anchor Glass Container Corporation**, the third largest manufacturer of glass containers in the U.S., supplies beverage and food producers and consumer products manufacturers nationwide. Parent company **Consumers Packaging Inc.** (*Toronto Stock Exchange*: CGC) is a leading international designer and manufacturer of glass containers.

The following management discussion appeared in a recent annual report of Anchor Glass.

### ANCHOR GLASS CONTAINER CORPORATION

#### Management Discussion

**Cost of Products Sold** Cost of products sold as a percentage of net sales was 89.3% in the current year compared to 87.6% in the prior year. The increase in cost of products sold as a percentage of net sales principally reflected the impact of operational problems during the second quarter of the current year at a major furnace at one of the Company’s plants, higher downtime, and costs and expenses associated with an increased number of scheduled capital improvement projects, increases in labor, and certain other manufacturing costs (with no corresponding selling price increases in the current year). Reduced fixed costs from the closing of the Streator, Illinois, plant in June of the current year and productivity and efficiency gains partially offset these cost increases.

### Instructions

What factors affect the costs of products sold at Anchor Glass Container Corporation?

## EXPLORING THE WEB

**BYP19-4** The Institute of Management Accountants (IMA) is an organization dedicated to excellence in the practice of management accounting and financial management.

**Address:** [www.imanet.org](http://www.imanet.org), or go to [www.wiley.com/college/veygandt](http://www.wiley.com/college/veygandt)



### Instructions

At the IMA's home page, locate the answers to the following questions.

- How many members does the IMA have, and what are their job titles?
- What are some of the benefits of joining the IMA as a student?
- Use the chapter locator function to locate the IMA chapter nearest you, and find the name of the chapter president.

## COMMUNICATION ACTIVITY

**BYP19-5** Refer to Problem 19-5A and add the following requirement.

Prepare a letter to the president of the company, Sue Tombert, describing the changes you made. Explain clearly why net income is different after the changes. Keep the following points in mind as you compose your letter.

- This is a letter to the president of a company, who is your friend. The style should be generally formal, but you may relax some requirements. For example, you may call the president by her first name.
- Executives are very busy. Your letter should tell the president your main results first (for example, the amount of net income).
- You should include brief explanations so that the president can understand the changes you made in the calculations.

## ETHICS CASE

**BYP19-6** Wayne Terrago, controller for Robbin Industries, was reviewing production cost reports for the year. One amount in these reports continued to bother him—advertising. During the year, the company had instituted an expensive advertising campaign to sell some of its slower-moving products. It was still too early to tell whether the advertising campaign was successful.

There had been much internal debate as how to report advertising cost. The vice president of finance argued that advertising costs should be reported as a cost of production, just like direct materials and direct labor. He therefore recommended that this cost be identified as manufacturing overhead and reported as part of inventory costs until sold. Others disagreed. Terrago believed that this cost should be reported as an expense of the current period, based on the conservatism principle. Others argued that it should be reported as Prepaid Advertising and reported as a current asset.

The president finally had to decide the issue. He argued that these costs should be reported as inventory. His arguments were practical ones. He noted that the company was experiencing financial difficulty and expensing this amount in the current period might jeopardize a planned bond offering. Also, by reporting the advertising costs as inventory rather than as prepaid advertising, less attention would be directed to it by the financial community.

### Instructions

- Who are the stakeholders in this situation?
- What are the ethical issues involved in this situation?
- What would you do if you were Wayne Terrago?

## "All About You" Activity



**BYP19-7** The primary purpose of managerial accounting is to provide information useful for management decisions. Many of the managerial accounting techniques that you learn in this course will be useful for decisions you make in your everyday life.

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### Instructions

For each of the following managerial accounting techniques, read the definition provided and then provide an example of a personal situation that would benefit from use of this technique.

- (a) Break-even analysis (page 986).      (c) Balanced scorecard (page 860).  
(b) Budgeting (page 1018).              (d) Capital budgeting (page 1166).



### Answers to Insight and Accounting Across the Organization Questions

#### p. 846 Even the Best Have to Get Better

Q: What are some of the steps that this company has taken in order to ensure that production meets demand?

A: *The company has organized flexible teams, with jobs arranged by the amount of time a task takes. Employees now are multiskilled, so they can switch between tasks and products. Also, the stores now provide sales data more quickly to the manufacturing facility, so that production levels can be changed more quickly to respond to demand.*

#### p. 860 Bananas Receive Special Treatment

Q: Why is it important to keep track of costs that are incurred to improve product quality?

A: *Most companies are concerned about product quality, but managers need to consider the cost/benefit tradeoff. If you spend too much on improving product quality, your customers might not be willing to pay the price needed to recover costs. Therefore it is very important that Chiquita closely track all of the costs that it incurs to protect the bananas, to ensure that these costs are factored into the price that it ultimately charges for the bananas.*

### Answers to Self-Study Questions

1. b   2. b   3. b   4. b   5. d   6. a   7. c   8. c   9. c   10. c   11. a   12. d   13. d  
14. d   15. d

