Solutions for Managerial Accounting 16th Edition by Warren

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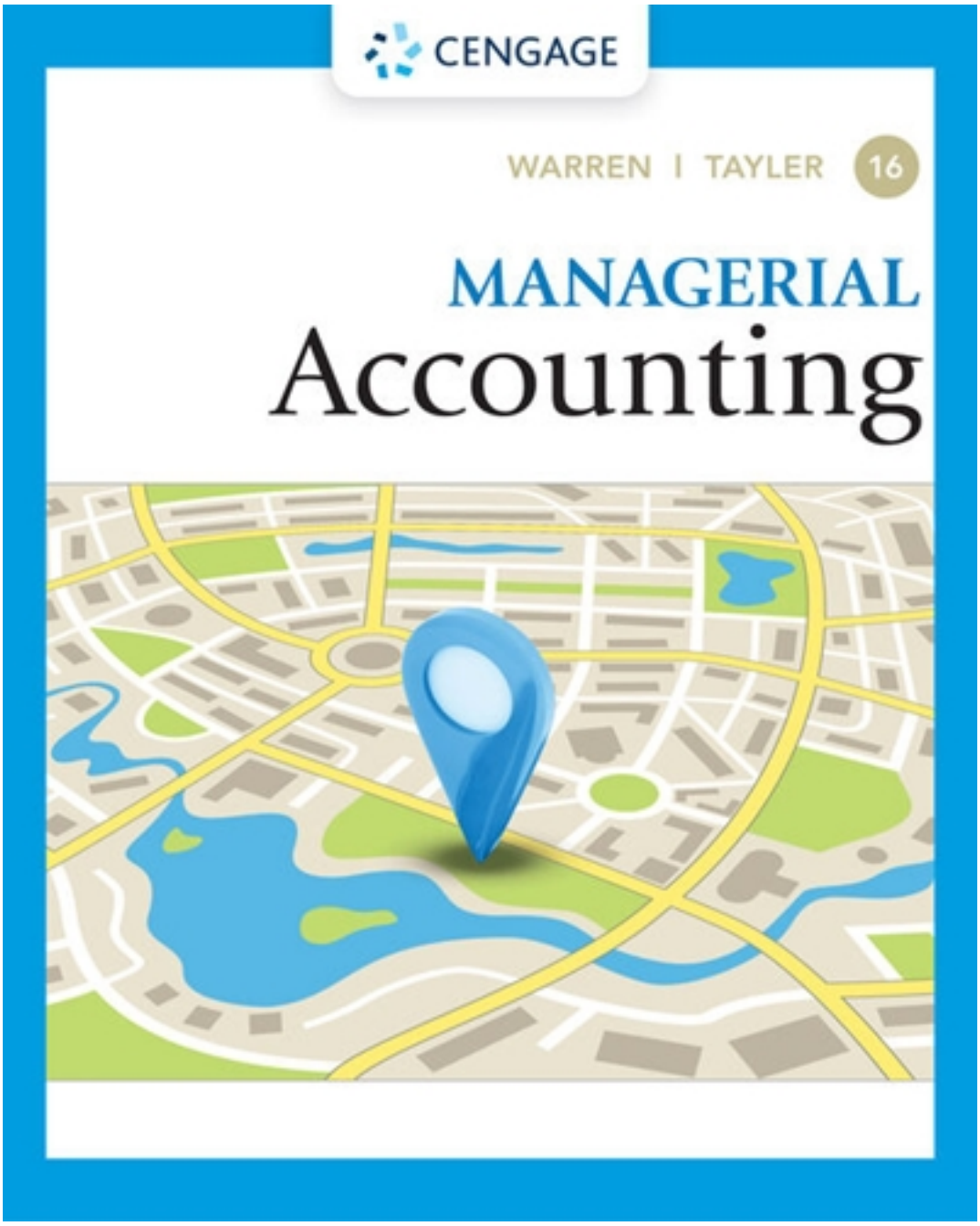

Solutions

Instructor Manual

Warren/Tayler, Managerial Accounting, 16e, 2023, 9780357715222, Chapter 1: Introduction to Managerial Accounting

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Purpose and Perspective of the Chapter

The purpose of Chapter 1 is to introduce students to managerial accounting and how it differs from financial accounting. Managerial accounting provides information to internal users. Managers use this information to plan, measure, evaluate, and control the performance of the business. Managerial accounting information includes historical data to evaluate performance and estimated data to assist in making future decisions. Financial accounting is reported at fixed intervals and provides information to assist external users in making decisions. These external users include shareholders, creditors, government agencies, and the general public.

Students will also learn how managerial accounting relates to manufacturing and service businesses. Within manufacturing, costs can be divided into three categories: direct materials, direct labor, and factory overhead. Direct costs can be directly connected to a specific cost object, while indirect costs are those that cannot be traced conveniently to a cost object. Costs other than direct materials and direct labor that are incurred in the manufacturing process are classified as factory overhead cost. Costs can be divided into product and period costs. Product costs consist of manufacturing costs, direct materials, direct labor, and factory overhead. Period costs are selling and administrative costs.

Financial statements for manufacturing entities are somewhat more complex than for retail or service businesses. For example, manufacturers have three inventory accounts on their balance sheets for raw materials, work-in-process and finished goods. These inventories are reported, along with the costs of production, in a cost of goods manufactured statement. This information is used to determine the cost of goods sold on the income statement.

Finally, service businesses look at utilization rates to measure the use of fixed assets in serving customers. Examples are provided of service industries and businesses, and differences are explained between the use of managerial accounting in manufacturing and service entities.

Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Resource Center.

- Educator's Guide
- PowerPoint® slides
- Test bank powered by Cognero®

List of Student Downloads

Students should download the following items from the Student Companion Center to complete the activities and assignments related to this chapter:

- Dataset for Take It Further 1-7, Data Analytics: Cost analyses

Chapter Objectives

The following objectives are addressed in this chapter:

Obj. 1 Describe how managerial accounting supports the management process, its differences with financial accounting, and its place within the organization.
Obj. 2 Describe and illustrate the nature of manufacturing operations, including different types and classifications of costs.
Obj. 3 Describe and illustrate financial statements for a manufacturing business, including the balance sheet, statement of cost of goods manufactured, and income statement.
Obj. 4 Describe and illustrate utilization rates in evaluating performance for service companies.

Complete List of Chapter Activities and Assessments

For additional guidance refer to the Teaching Online Guide.

Chapter Objective	PPT slide	Activity/Assessment
Obj. 1	2	Icebreaker
Obj. 1	12–13	Discussion Activity 1
Obj. 2	21–22	Knowledge Check Activity 1
Obj. 2	26–27	Knowledge Check Activity 2
Obj. 3	35–36	Knowledge Check Activity 3
Obj. 4	40–41	Discussion Activity 2

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Key Terms

Chief accounting officer (CAO): A vice president of accounting who reports to the CFO and oversees technical accounting, accounting policy, credit, collections, tax, treasury, and internal audit functions.

Chief executive officer (CEO): The highest-ranking person in a company.

Chief financial officer (CFO): An executive vice president responsible for overseeing the financial activities of an entire company.

Control: The process by which management takes actions to encourage specific behaviors or outcomes.

Controller: The manager of the accounting function of a vertical (business unit).

Conversion costs: The combination of direct labor and factory overhead costs; in lean accounting, the account in which is accumulated the costs of direct labor and factory overhead.

Cost: A sacrifice made to obtain some benefit.

Cost object: A product, sales territory, department, or activity to which costs are assigned, depending on the decision-making needs of management.

Cost of goods manufactured: The total cost of making and finishing a product.

Cost of goods sold: The cost of merchandise sold recognized as an expense; the cost of finished goods available for sale minus the ending finished goods inventory.

Data analytics: The science of analyzing large amounts of raw data, sometimes called "big data," to discover patterns, identify anomalies, or gain other useful insights for decision making.

Direct costs: Costs that are identified with and traced to a cost object.

Direct labor cost: The wages of factory workers who are directly involved in converting materials into a finished product.

Direct materials cost: The cost of materials that are an integral part of the finished product.

Evaluation: The management process by which management monitors operations by comparing actual and expected results.

Factory burden: Costs, other than direct materials and direct labor costs, that are incurred in the manufacturing process. Also called manufacturing overhead, factory overhead cost, or simply overhead.

Factory overhead cost: Costs, other than direct materials and direct labor costs, that are incurred in the manufacturing process. Also called manufacturing overhead, factory burden, or simply overhead.

Financial accounting: The branch of accounting that is concerned with recording transactions using generally accepted accounting principles (GAAP) for a business or other economic unit and with a periodic preparation of various statements from such records.

Finished goods inventory: The direct materials costs, direct labor costs, and factory overhead costs of finished products that have not been sold.

Horizontals: Departments within a company that do not develop products but provide services to the various verticals and other horizontals.

Indirect costs: Costs that are not identified with or traced to a cost object.

Indirect labor: Labor costs that are not directly traced to the finished product; any labor needed to make a product that is not directly traced to the product.

Indirect materials: Materials costs that are not directly traced to the finished product; any materials needed to make a product that are not directly traced to the product.

Management accounting: The branch of accounting that uses both historical and estimated data in providing information that management uses in conducting daily operations, in planning future operations, and in developing overall business strategies. Also called managerial accounting.

Management by exception: The philosophy of focusing evaluation on "unexpected" good or bad performance.

Management process: The four basic management functions of (1) strategic planning, (2) measurement, (3) evaluation, and (4) control.

Managerial accounting: The branch of accounting that uses both historical and estimated data in providing information that management uses in conducting daily operations, in planning future operations, and in developing overall business strategies. Also called management accounting.

Manufacturing overhead: Costs, other than direct materials and direct labor costs, that are incurred in the manufacturing process. Also called factory overhead cost, factory burden, or simply overhead.

Materials inventory: The cost of materials that have not yet entered into the manufacturing process.

Measurement: The management process where managers develop and agree upon performance metrics on how well the company is achieving its objectives.

Operational planning: Developing short-term actions for managing the day-to-day operations of a company.

Overhead: Costs, other than direct materials and direct labor costs, that are incurred in the manufacturing process. Also called manufacturing overhead, factory overhead cost, or factory burden.

Period costs: Selling and administrative expenses incurred in marketing the product, delivering the product, or managing the company and not directly related to manufacturing the product.

Prime costs: The combination of direct materials and direct labor costs.

Product costs: The three components of manufacturing cost: direct materials, direct labor, and factory overhead costs.

Statement of cost of goods manufactured: A statement prepared by manufacturing companies that summarizes the cost of goods manufactured during the period.

Strategic planning: Developing long-term actions to achieve a company's objectives.

Utilization rate: A measure of the use of a fixed asset in serving customers relative to the asset's capacity.

Verticals: Business units often structured as separate businesses within a parent company that develop products sold directly to consumers.

Work in process inventory: The direct materials costs, the direct labor costs, and the applied factory overhead costs that have entered into the manufacturing process but are associated with products that have not been finished.

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What's New in This Chapter

The following elements are improvements in this chapter from the previous edition:

- The sections covering the management process and the role of managerial accounting have received a significant rewrite, emphasizing the four basic functions of strategic planning, measurement, evaluation, and control.
- Exhibit 15 on the flow of manufacturing costs has been reworked.
- A new Business Insight box titled "Managerial Accounting and Ordering at Subway" has been added.

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Chapter Outline

In the outline below, each element includes references (in parentheses) to related content. "CH.##" refers to the chapter objective; "PPT Slide #" refers to the slide number in the PowerPoint deck for this chapter (provided in the PowerPoints section of the Instructor Resource Center); and, as applicable for each discipline, accreditation or certification standards ("BL 1.3.3"). Introduce the chapter and use the Ice Breaker in the PPT if desired, and if one is provided for this chapter. Review learning objectives for Chapter 1. (PPT Slide 3).

I. Managerial Accounting (1-1, PPT Slides 4–13, BUSPROG: Analytic, AICPA: FN-Measurement)

a. **Icebreaker:** *Students have likely already taken a course in financial accounting and have heard of the certified public accountant (CPA) as a career choice. Perhaps they know a CPA among their family and/or friends. Managerial accounting is less well known. How many people have heard of a certified management accountant (CMA)? In groups of four to five students, discuss what managerial accounting is about and how it can differ from financial accounting. Is anyone in your group interested in pursuing a career in management accounting, sometimes referred to as corporate or non-public accounting? Pick a group spokesperson and share your group's thoughts with the class.* (PPT Slide 2)
b. Managerial accounting, sometimes called management accounting, is the process of developing information and management tools to achieve an organization's objectives.
c. The management process is composed of the following four basic functions:
    - Strategic planning
    - Measurement
    - Evaluation
    - Control
d. Strategic planning is where the management process begins to develop long-term objectives and normally involves a time horizon of five to ten years.
e. Operational planning develops short-term actions for managing the day-to-day operations of the company.
f. Measurement is the process where managers develop and agree upon performance metrics on how well the company is achieving its objectives.
g. Evaluation is the process by which management monitors operations by comparing actual and expected results.
h. Control is the process by which management takes actions to encourage specific behaviors or outcomes.
i. Exhibit 1 (PPT Slide 6) provides the managerial accounting schema which describes the primary roles of managerial accounting.
j. Managerial accounting develops a variety of tools for management to use in analyzing information and making decisions, including:
    i. Cost-volume-profit analysis for determining the sales necessary to break even or earn a target profit
    ii. Budgeting for resource planning
    iii. Decentralization for assessing operations that are centralized or distributed throughout the company
    iv. Differential analysis for comparing the profitability of various options
    v. Capital investment analysis for use in deciding among long-term assets to purchase
k. Exhibit 2 (PPT Slide 8) shows the differences between financial statements and managerial accounting reports.

l. Considerations and choices in developing costing information include:
   i. What cost system should we use to record and report the cost of a product?
   ii. How do we allocate overhead costs, such as equipment depreciation, to products?
   iii. How do we allocate support department costs, such as factory janitorial costs, to products?
   iv. How do we allocate joint manufacturing costs to products?
   v. How do we report fixed production costs, such as factory supervisory salaries?
   vi. How do we determine and report variances (differences) between actual and planned costs?

m. Most large companies are organized in terms of "verticals" and "horizontals."
   i. Verticals are sometimes referred to as business units, because they are often structured as separate businesses within the parent company. Verticals develop products that are sold directly to customers.
   ii. Horizontals are departments within the company that are not responsible for developing products. Horizontals provide services to the various verticals and other horizontals.

n. Exhibit 3 (PPT Slide 11) shows a partial organization chart for McAfee.

o. **Discussion Activity 1:** *What do you think of the role of managerial accounting in manufacturing and service industries? In groups of three to four students, select an industry, such as airlines, telecommunications, health care, smartphone manufacturers, pharmaceuticals, among others. Discuss how using managerial accounting techniques can directly benefit the specific industry chosen. Select a spokesperson from your group to share your findings with the class.* (PPT Slides 12–13)
   - No matter the industry chosen, the managerial accounting toolbox can be very helpful in decision making. For example, airlines want to know how many passengers are needed for individual flights to be profitable, and they often cancel or add flights based on these analyses. In a manufacturing environment, factories will adjust their production based on the budgeted sales and the break-even sales required to cover their costs.
   - With all the needs of businesses in various industries, there will be a robust discussion of how managerial accounting can help with significant management decisions.

II. Manufacturing Operations (1-2, PPT Slides 14–27, BUSPROG: Analytic, AICPA: FN-Measurement)

a. The operations of a business can be classified as service, retail, or manufacturing. Most of the managerial accounting concepts that apply to manufacturing businesses also apply to service and retail businesses.
b. As a basis for illustration of manufacturing operations, a guitar manufacturer, Legend Guitars, is used in this chapter.
c. Exhibit 4 (PPT Slide 14) illustrates the guitar-making operations of Legend Guitars.
d. A cost is a sacrifice made to obtain some benefit and, in managerial accounting, costs are often assigned to a cost object.
e. A cost object can be anything to which costs are assigned and will vary depending upon the decision-making needs of management.
f. Direct costs are identified with and can be traced to a cost object.
g. Indirect costs are not identified with or traced to a cost object.
h. Exhibit 8 (PPT Slide 17) shows the three manufacturing costs of Legend Guitars: direct materials, direct labor, and manufacturing overhead.
i. Manufactured products begin with raw materials that are converted into finished products.
j. To be classified as a direct materials cost, the cost must be both of the following:
    - An integral part of the finished product
    - A significant portion of the total cost of the product
k. Examples of direct materials costs include the following:
    - The cost of the wood used in producing a guitar
    - The cost of electronic components for a television
    - Silicon wafers for microcomputer chips
    - Tires for an automobile
l. Most manufacturing processes use employees to convert materials into finished products.
m. The cost of employee wages that is an integral part of the finished product is classified as direct labor cost.
n. A direct labor cost must meet both of the following criteria:
    i. An integral part of the finished product
    ii. A significant portion of the total cost of the product
o. Examples of direct labor costs include the following:
    i. The wages of employees who cut guitars out of raw lumber and assemble them
    ii. Mechanics' wages for repairing an automobile
    iii. Assemblers' wages for assembling a laptop computer
p. Costs other than direct materials cost and direct labor that are incurred in the manufacturing process are combined and classified as factory overhead cost (sometimes called manufacturing overhead or factory burden).

q. All factory overhead costs are indirect costs of the product.
r. Some factory overhead costs include the following:
    i. Heating and lighting the factory
    ii. Repairing and maintaining factory equipment
    iii. Property taxes on factory buildings and land
    iv. Insurance on factory buildings
    v. Depreciation of factory plant and equipment
s. **Knowledge Check Activity 1:** *For a manufacturer, which of the following would be considered a factory overhead cost?* (PPT Slides 21–22)
    - The answer is electricity costs in a furniture manufacturing facility
    - Costs other than direct materials cost and direct labor that are incurred in the manufacturing process, such as electricity costs, are considered a factory overhead cost.
t. Exhibit 9 (PPT Slide 23) illustrates the prime costs and conversion costs at Legend Guitars.
u. Exhibit 10 (PPT Slide 24) shows examples of product costs and period costs at Legend Guitars.
v. Exhibit 11 (PPT Slide 25) shows a flowchart of product costs, period costs, and financial statements.
w. **Knowledge Check Activity 2:** *Which of the following would be considered a period cost?* (PPT Slides 26–27)
    - The answer is sales manager's salary.
    - Any cost that is incurred in the factory or manufacturing process is a product cost. The sales manager's salary would be an administrative cost, which is considered a period cost.

III. Financial Statements for a Manufacturing Business (1-3, PPT Slides 28–36, BUSPROG: Analytic, AICPA: FN-Measurement)

a. The statement of stockholders' equity and statement of cash flows for a manufacturing business are similar to those for service and retail businesses.
b. However, the balance sheet and income statement for a manufacturing business are more complex.
c. This is because a manufacturer makes the products that it sells and, thus, must record and report product costs.
d. The reporting of product costs primarily affects the balance sheet and the income statement.
e. A manufacturing business reports three types of inventory on its balance sheet as follows:
    i. Materials inventory (sometimes called raw materials inventory) consists of the costs of the direct and indirect materials that have not yet entered the manufacturing process.

ii. Work in process inventory consists of the direct materials, direct labor, and factory overhead costs for products that have entered the manufacturing process but are not yet completed (in process).
iii. Finished goods inventory consists of completed (or finished) products that have not yet been sold.

f. Exhibit 12 (PPT Slide 30) shows a balance sheet presentation of inventory in retail and manufacturing companies.
g. Exhibit 13 (PPT Slide 31) shows income statements for retail and manufacturing businesses.
h. A retail business determines its cost of goods sold by first adding its net purchases for the period to its beginning inventory.
i. This determines inventory available for sale during the period. The ending inventory is then subtracted to determine the cost of goods sold.
j. A manufacturing business makes the products it sells using direct materials, direct labor, and factory overhead.
   i. A manufacturing business must determine its cost of goods manufactured during the period.
   ii. The cost of goods manufactured is determined by preparing a statement of cost of goods manufactured.
k. Exhibit 14 (PPT Slide 33) shows a manufacturing company's income statement with a statement of cost of goods manufactured.
l. Exhibit 15 (PPT Slide 34) illustrates the flow of manufacturing costs.
m. **Knowledge Check Activity 3:** *Which of the following is calculated for both a manufacturer and a retail business?* (PPT Slides 35–36)
   - The answer is cost of goods sold.
   - Both a manufacturer and a retail business would need to calculate their cost of goods sold to report on the income statement. Only a manufacturer would need to calculate the ending balances of raw materials and work in process inventories, as well as create a statement of cost of goods manufactured.

IV. Analysis for Decision Making: Utilization Rates (1-4, PPT Slides 37–41, BUSPROG: Analytic, AICPA: FN-Measurement)

a. A utilization rate measures the use of a fixed asset in serving customers relative to the asset's capacity.
b. A higher utilization rate is considered favorable, while a lower utilization rate is considered unfavorable.
c. Different service industries will have different names and computations used for measuring utilization rates.
d. In the hotel industry, for example, utilization is measured by the occupancy rate, which is computed as:

i. Occupancy Rate = Guest Nights/Available room nights.
ii. Guest nights = Number of guests × Number of nights per visit (per time period)
iii. Available room nights = Number of available rooms × Number of nights per time period

e. Exhibit 16 (PPT Slide 38) lists examples of service industries, services, and companies.
f. Exhibit 17 (PPT Slide 39) lists managerial accounting differences between manufacturing and service companies.
g. **Discussion Activity 2:** *Service businesses often have a unique item that can be used as a utilization rate, such as the example of guest nights in the hotel industry. In groups of three to four students, think about service businesses and what they may use for a possible utilization rate. Consider transportation, shipping, banking, and repair service industries, among others. Share your findings with your class.* (PPT Slides 40–41)
   - Students likely found many examples in service businesses and possible utilizations rates. For example, companies such as FedEx and UPS may use a rate per mile on their delivery truck and airplanes. Auto repair facilities may use specific machinery that reflects the costs associated with services, such as a machine used for front-end alignments.
   - Businesses continue to rely on fixed assets and technological advancements to lower costs and provide services.

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Discussion Questions

You can assign these questions several ways: in a discussion forum in your LMS; as whole-class discussions in person; or as a partner or group activity in class.

1. Discussion: Managerial Accounting Tools (Managerial Accounting, 1-1, PPT Slide 7) Duration 10 minutes.
   a. What are some of the more popular managerial accounting tools and how do they help management in decision making?
      i. Answer: One of the more popular managerial accounting tools is cost-volume-profit analysis, which is also known as break-even. It is important for both manufacturers and service businesses to know how many products or services they must sell to cover their costs. Once that amount is determined, they know they will be attaining profit. Without knowing the break-even point, businesses are not able to ascertain when they will be profitable. Another popular tool is budgeting. In addition to planning for revenues, control of expenses is a very important part of managing a

business. Budgets provide a roadmap of likely scenarios that can be used to communicate a company's goals throughout an organization. They can also be used to determine why the goals were not met. A budget provides a "blueprint" of goals for a company to attain, and it is more likely to be successful if it is carefully planned by multiple levels of management and employee input.

2. Discussion: Difference Between Direct and Indirect Costs (Manufacturing Operations, 1-2, PPT Slide 15) Duration 10 minutes.
    a. What is the difference between direct and indirect costs, and why are they kept separate?
        i. Answer: Direct costs can be traced to a specific object or task. For example, when manufacturing products, a part that is identifiable, such as a tire on an automobile, is easily traced to each car that is produced. These costs can be tracked with a specific quantity known for each product. Essentially, direct costs are easier to "see" and know the specific costs per item produced. Indirect costs are much more challenging to identify per product. Items such as factory rent, indirect labor from factory supervisors, or depreciation on machinery cannot easily be traced to each individual product made. For example, heating or cooling a production facility will depend on outdoor temperature changes, thus energy costs cannot be easily traced to individual products. Likewise, the production supervisors' salaries will remain the same regardless of how many products were actually made within a specific time period. Of course, indirect costs must be tracked as well to determine the overall cost of goods manufactured.

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Additional Activities and Assignments

1. **Writing Exercise:** *Violating GAAP* (Analytic, Critical Thinking, 1-1, PPT Slides 4–8) Duration 15 minutes.
    a. Instruct students to write an answer to the following question: Why is it permissible to violate generally accepted accounting principles (GAAP) when preparing reports used strictly by company management?
        i. Answer: Since these reports are for internal use only, they do not provide any influence to investors about decisions to invest in the company. These reports are for management to aid in the decision-making process. It should be clear to all users that these reports may not follow GAAP.

2. **Internet Activity:** *Becoming a Certified Management Accountant* (Analytic, Critical Thinking, 1-1, PPT Slides 4–13) Duration 15 minutes.
    a. Go online to the Institute of Certified Management Accountants' website: imanet.org. Click on CMA Certification and then the Overview. In groups of 3-4 students, look at the data listed on the webpage, including exam content, exam pass rates, qualifications to take the exam, and any other valuable information that you can share with the class. Would you consider pursuing this certification? If so, state your reasons.
        i. Answer: Students will find various statistics and other information on the webpage, including pass rates, specific topic areas tested on the exam, the number of CMAs worldwide, and perhaps some videos of success stories for CMA certification holders. Encourage students to consider this specialty area in accounting, especially if they prefer a corporate environment or have entrepreneurial aspirations.

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Additional Resources

Cengage Video Resources

A new, assignable Video Library is available in CNOWv2 for this title. To access the video library, login to CNOWv2, navigate to the Assignment Creation Wizard, and select Homework. The video library is shown within the expanded list of available homework items for each chapter. This chapter includes the following videos:

- 1 Quick Lesson video
- 3 Tell Me More videos (1 for each learning objective)
- 10 Show Me How videos

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CHAPTER 15 (FIN MAN); CHAPTER 1 (MAN)
INTRODUCTION TO MANAGERIAL ACCOUNTING

DISCUSSION QUESTIONS

1. Managerial accounting is the process of developing information and management tools to achieve an organization's objectives. The management process is composed of four basic functions: strategic planning, measurement, evaluation, and control. Strategic planning is the process of developing long-term objectives. Measurement is the process of developing and agreeing upon performance metrics on how well the company is achieving its objectives. Evaluation is the process by which management monitors operations by comparing actual and expected results. Control is the process by which management takes actions to encourage specific behaviors or outcomes.

2. Financial accounting and managerial accounting are different in several ways. Financial accounting information is reported in statements that are useful to persons or groups outside of a company. These statements objectively report the results of operations for fixed periods of time and the financial condition of the business under generally accepted accounting principles. Managerial accounting information uses both subjective and objective information to meet the specific needs of management. This non-GAAP information can be reported periodically or as needed by management and can be reported for the entire entity or for segments of the organization. This information includes (i) historical data, which provide objective measures of past operations, and (ii) estimated data, which provide subjective estimates about future decisions.

3. **a.** Vertical units are structured as separate businesses within a company and normally develop and sell products directly to customers. Horizontal units are not responsible for developing and selling products, but provide services to other horizontal and vertical units within the company.
b. The accounting and legal departments are horizontal units within a company.
c. A consumer products division would be considered a vertical unit within a company.

4. Direct materials cost

5. Prime costs are the combination of direct materials and direct labor costs, while conversion costs are the combination of direct labor costs and factory overhead costs.

6. Product costs are composed of three elements of manufacturing costs: direct materials cost, direct labor cost, and factory overhead cost. These costs are treated as assets until the product is sold. Period costs consist of selling and administrative expenses that are used in generating revenue during the current period. They are recognized as expenses on the current period's income statement.

7. The three inventory accounts for a manufacturing business are as follows:
a. Finished goods inventory consists of completed (or finished) products that have not been sold.
b. Work in process inventory consists of the direct materials, direct labor, and factory overhead costs for products that have entered the manufacturing process, but are not yet completed.
c. Materials inventory consists of the costs of the direct and indirect materials that have not entered the manufacturing process.

8. The cost of finished goods and the cost of work in process include the following:
a. Direct materials—the costs of materials that enter directly into the finished product.
b. Direct labor—the wages of factory workers who convert materials into a finished product.
c. Factory overhead—the costs, other than direct materials and direct labor, that are incurred in the manufacturing process.

DISCUSSION QUESTIONS (Continued)

9. The manufacturing costs incurred during a period include direct materials used in production plus the direct labor and factory overhead costs incurred during the period. The cost of goods manufactured for a period is computed by adjusting the manufacturing costs incurred during the period for the effects of beginning and ending work in process. Beginning work in process inventory is added and ending work in process is subtracted from the manufacturing costs incurred during a period to arrive at the cost of goods manufactured for the period.

10. A retail business purchases merchandise (products) in a finished state for resale to customers. The cost of product sold is called *cost of goods sold.* A manufacturer makes the product it sells using direct materials, direct labor, and factory overhead, which make up the cost of goods manufactured included in the "Cost of goods sold" section of the income statement.

BASIC EXERCISES

BE 15–1 (FIN MAN); BE 1–1 (MAN)

Strategic planning (a)
Evaluation (c)
Control (b)

BE 15–2 (FIN MAN); BE 1–2 (MAN)

a. DM
b. DL
c. FO
d. FO

BE 15–3 (FIN MAN); BE 1–3 (MAN)

a. P
b. B
c. C
d. C

BE 15–4 (FIN MAN); BE 1–4 (MAN)

a. Period cost
b. Product cost
c. Period cost
d. Product cost

BE 15–5 (FIN MAN); BE 1–5 (MAN)

a.	**Work in process inventory, June 1**		**$ 70,200**
	Cost of direct materials used in production	**$260,000**	
	Direct labor	**340,000**	
	Factory overhead	**182,300**	
	Total manufacturing costs incurred in June		**782,300**
	Total manufacturing costs		**$852,500**
	Work in process inventory, June 30		**(74,000)**
	Cost of goods manufactured		**$778,500**
b.	**Finished goods inventory, June 1**		**$ 33,300**
	Cost of goods manufactured		**778,500**
	Cost of finished goods available for sale		**$811,800**
	Finished goods inventory, June 30		**(44,100)**
	Cost of goods sold		**$767,700**

BE 15–6 (FIN MAN); BE 1–6 (MAN)

a.

Number of Guests	Nights per Visit	Guest Nights
4,400	1	4,400
1,800	2	3,600
750	3	2,250
600	4	2,400
20	5	100
		12,750

b. 15,000 available room nights (500 rooms × 30 nights in June)

c. $$\text{Occupancy Rate} = \frac{\text{Guest Nights}}{\text{Available Room Nights}}$$

$$\text{Occupancy Rate} = \frac{12{,}750}{15{,}000} = 85\%$$

d. The utilization (occupancy) rate has improved from 82% in the prior year to 85% in the current year.

EXERCISES

Ex. 15–1 (FIN MAN); Ex. 1–1 (MAN)

a. Direct materials cost
b. Factory overhead cost
c. Direct materials cost
d. Direct materials cost
e. Direct materials cost
f. Factory overhead cost
g. Direct materials cost
h. Factory overhead cost
i. Direct labor cost

Ex. 15–2 (FIN MAN); Ex. 1–2 (MAN)

a. Factory overhead cost
b. Direct materials cost
c. Factory overhead cost
d. Factory overhead cost
e. Direct materials cost
f. Factory overhead cost
g. Direct materials cost
h. Factory overhead cost
i. Direct materials cost
j. Direct labor cost

Ex. 15–3 (FIN MAN); Ex. 1–3 (MAN)

b, e, g, h

Ex. 15–4 (FIN MAN); Ex. 1–4 (MAN)

a. Period cost
b. Period cost
c. Product cost
d. Product cost
e. Product cost
f. Period cost
g. Product cost
h. Period cost
i. Product cost
j. Period cost
k. Period cost
l. Product cost
m. Product cost
n. Period cost
o. Period cost
p. Product cost
q. Product cost

Ex. 15–5 (FIN MAN); Ex. 1–5 (MAN)

a. cost object
b. product
c. conversion
d. operational planning
e. cost
f. work in process inventory
g. decreases

Ex. 15–6 (FIN MAN); Ex. 1–6 (MAN)

a. electricity used to run assembly line
b. prime
c. strategic
d. period
e. evaluation
f. indirect
g. product

Ex. 15–7 (FIN MAN); Ex. 1–7 (MAN)

a. indirect
b. direct
c. indirect
d. indirect
e. direct
f. indirect
g. indirect
h. indirect
i. indirect
j. indirect
k. indirect
l. direct

Ex. 15–8 (FIN MAN); Ex. 1–8 (MAN)

a. The errors in the manufacturing cost report are as follows:

1. The maintenance salaries of $84,400 and indirect materials of $56,200 should be included as factory overhead.

2. The factory overhead incorrectly includes the following items: sales salaries of $348,750, promotional expenses of $315,000, corporate office insurance and property taxes of $219,400, and corporate office depreciation of $90,000. These items should not be included as factory overhead.

b. The corrected report is as follows:

Marching Ants Inc. Manufacturing Costs For the Quarter Ended June 30		
Cost of direct materials used in production		$ 551,300
Direct labor		478,100
Factory overhead:		
Maintenance salaries	$ 84,400	
Indirect materials	56,200	
Supervisor salaries	517,500	
Heat, light, and power	140,650	
Insurance and property taxes—plant	151,900	
Depreciation—plant and equipment	123,750	
Total factory overhead		1,074,400
Total		$2,103,800

Ex. 15–9 (FIN MAN); Ex. 1–9 (MAN)

a.

Sorensen Manufacturing Company Income Statement For the Month Ended January 31		
Revenues		$1,200,000
Cost of goods sold		(675,000)
Gross profit		$ 525,000
Operating expenses:		
Selling expenses	$215,000	
Administrative expenses	125,000	
Total operating expenses		(340,000)
Net income		$ 185,000

b. Inventory balances on January 31:

Materials ($250,000 – $180,000)	$70,000
Work in Process ($180,000 + $450,000 + $180,000 – $760,000)	$50,000
Finished Goods ($760,000 – $675,000)	$85,000

Ex. 15–10 (FIN MAN); Ex. 1–10 (MAN)

Diesel Additives Company Balance Sheet August 31		
Current assets:		
Cash		$167,500
Accounts receivable		348,200
Inventories:		
Materials	$26,800	
Work in process	61,100	
Finished goods	89,400	
Total inventories		177,300
Supplies		13,800
Prepaid insurance		9,000
Total current assets		$715,800

Ex. 15–11 (FIN MAN); Ex. 1–11 (MAN)

Materials inventory, September 1	$ 235,200
Materials purchased during September	815,900
Cost of materials available for use	$1,051,100
Materials inventory, September 30	(203,000)
Cost of direct materials used in production	$ 848,100

Ex. 15–12 (FIN MAN); Ex. 1–12 (MAN)

a. $352,410 ($19,660 + $332,750)
b. $328,910 ($352,410 – $23,500)
c. $474,120 ($515,770 – $41,650)
d. $461,770 ($515,770 – $54,000)
e. $165,000 ($1,240,000 – $1,075,000)
f. $172,000 ($1,240,000 – $1,068,000)

Ex. 15–13 (FIN MAN); Ex. 1–13 (MAN)

Work in process inventory, January 1		$ 430,400
Manufacturing costs incurred during January:		
Cost of direct materials used in production	$1,287,200	
Direct labor	1,720,500	
Factory overhead	3,600,700	
Total manufacturing costs incurred		6,608,400
Total manufacturing costs		$7,038,800
Work in process inventory, January 31		(391,200)
Cost of goods manufactured		$6,647,600

Ex. 15–14 (FIN MAN); Ex. 1–14 (MAN)

a. $942,500 ($116,600 + $825,900)
b. $812,500 ($942,500 – $130,000)
c. $501,120 ($540,000 – $38,880)
d. $470,000 ($540,000 – $70,000)
e. $920,000 ($1,100,000 – $180,000)
f. $155,000 ($1,100,000 – $945,000)

Ex. 15–15 (FIN MAN); Ex. 1–15 (MAN)

a.

Firetree Manufacturing Company
Statement of Cost of Goods Manufactured
For the Month Ended March 31

Work in process inventory, March 1			$ 428,700
Direct materials:			
Materials inventory, March 1	$ 240,000		
Purchases	2,673,500		
Cost of materials available for use	$2,913,500		
Materials inventory, March 31	(195,200)		
Cost of direct materials used in production		$2,718,300	
Direct labor		3,200,000	
Factory overhead:			
Indirect labor	$ 320,000		
Machinery depreciation	213,000		
Heat, light, and power	174,000		
Supplies	36,100		
Property taxes	30,000		
Miscellaneous costs	48,200		
Total factory overhead		821,300	
Total manufacturing costs incurred in March			6,739,600
Total manufacturing costs			$7,168,300
Work in process inventory, March 31			(510,400)
Cost of goods manufactured			$6,657,900

b.

Finished goods inventory, March 1	$ 582,100
Cost of goods manufactured	6,657,900
Cost of finished goods available for sale	$7,240,000
Finished goods inventory, March 31	(614,400)
Cost of goods sold	$6,625,600

Ex. 15–16 (FIN MAN); Ex. 1–16 (MAN)

a.	Finished goods inventory, January 1		$ 880,000
	Cost of goods manufactured		4,490,000
	Cost of finished goods available for sale		$5,370,000
	Finished goods inventory, January 31		(775,000)
	Cost of goods sold		$4,595,000
b.	Sales		$ 6,600,000
	Cost of goods sold		(4,595,000)
	Gross profit		$ 2,005,000
c.	Gross profit		$2,005,000
	Operating expenses:		
	Selling expenses	$530,000	
	Administrative expenses	340,000	
	Total operating expenses		(870,000)
	Net income		$1,135,000

Ex. 15–17 (FIN MAN); Ex. 1–17 (MAN)

a.	Sales		$ 792,000
	Less gross profit		(462,000)
	Cost of goods sold		$ 330,000
b.	Cost of goods manufactured		$ 396,000
	Less cost of goods sold		(330,000)
	Finished goods inventory		$ 66,000
c.	Purchased materials		$244,200
	Less materials inventory		(33,000)
	Direct materials cost		$211,200
d.	Total manufacturing costs		$ 455,400
	Less: Direct materials	$211,200	
	Factory overhead costs (indirect labor and factory depreciation)*	198,000	(409,200)
	Direct labor cost		$ 46,200

* $171,600 + $26,400

e.	Total manufacturing costs		$ 455,400
	Less cost of goods manufactured		(396,000)
	Work in process inventory		$ 59,400

PROBLEMS

Prob. 15–1A (FIN MAN); Prob. 1–1A (MAN)

Cost	Product Costs			Period Costs	
	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense
a.					X
b.				X	
c.	X				
d.	X				
e.			X		
f.				X	
g.					X
h.			X		
i.			X		
j.			X		
k.	X				
l.	X				
m.	X				
n.			X		
o.	X				
p.			X		
q.			X		
r.	X				
s.			X		
t.				X	
u.			X		
v.					X
w.			X		
x.				X	
y.		X			
z.			X		

Prob. 15–2A (FIN MAN); Prob. 1–2A (MAN)

Cost	Product Costs			Period Costs	
	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense
a.			X		
b.	X				
c.	X				
d.			X		
e.				X	
f.				X	
g.			X		
h.					X
i.			X		
j.			X		
k.			X		
l.					X
m.					X
n.			X		
o.			X		
p.					X
q.			X		
r.			X		
s.			X		
t.			X		
u.					X
v.				X	
w.		X			
x.			X		

Prob. 15–3A (FIN MAN); Prob. 1–3A (MAN)

1. **The most logical definition for the final cost object would be the patient. The reason is that the cost can be accumulated at the patient level for billing and insurance reimbursement purposes.**

2.

Cost	Direct	Indirect
a.		X
b.	X	
c.	X	
d.		X
e.		X
f.	X	
g.		X
h.		X
i.	X	
j.		X
k.		X
l.	X	
m.		X
n.	X	
o.		X
p.	X	
q.		X
r.		X
s.		X
t.		X
u.		X

Prob. 15–4A (FIN MAN); Prob. 1–4A (MAN)

1. Rainier Company

a. $111,500 ($950,000 + $100,000 – $938,500)
b. $5,598,500 ($938,500 + $2,860,000 + $1,800,000)
c. $5,616,500 ($5,598,500 + $400,000 – $382,000)
d. $5,635,000 ($615,000 + $5,616,500 – $596,500)
e. $3,585,000 ($9,220,000 – $5,635,000)
f. $2,585,000 ($3,585,000 – $1,000,000)

Yakima Company

a. $708,200 ($48,200 + $710,000 – $50,000)
b. $1,330,000 ($2,484,200 – $708,200 – $446,000)
c. $169,100 ($2,660,600 – $2,491,500)
d. $211,500 ($2,491,500 + $190,000 – $2,470,000)
e. $2,080,000 ($4,550,000 – $2,470,000)
f. $580,000 ($2,080,000 – $1,500,000)

2.

Yakima Company
Statement of Cost of Goods Manufactured
For the Month Ended May 31

Work in process inventory, May 1			$ 176,400
Direct materials:			
Materials inventory, May 1	$ 48,200		
Purchases	710,000		
Cost of materials available for use	$758,200		
Materials inventory, May 31	(50,000)		
Cost of direct materials used		$ 708,200	
Direct labor		1,330,000	
Factory overhead		446,000	
Total manufacturing costs incurred in May			2,484,200
Total manufacturing costs			$2,660,600
Work in process inventory, May 31			(169,100)
Cost of goods manufactured			$2,491,500

Prob. 15–4A (FIN MAN); Prob. 1–4A (MAN) (Concluded)

3.

Yakima Company Income Statement For the Month Ended May 31		
Sales		$ 4,550,000
Cost of goods sold:		
Finished goods inventory, May 1	$ 190,000	
Cost of goods manufactured	2,491,500	
Cost of finished goods available for sale	$2,681,500	
Finished goods inventory, May 31	(211,500)	
Cost of goods sold		(2,470,000)
Gross profit		$ 2,080,000
Operating expenses		(580,000)
Net income		$ 1,500,000

Prob. 15–5A (FIN MAN); Prob. 1–5A (MAN)

1.

Robstown Corporation Statement of Cost of Goods Manufactured For the Year Ended December 31, 20Y8			
Work in process inventory, January 1, 20Y8			$ 63,900
Direct materials:			
Materials inventory, January 1, 20Y8	$ 44,250		
Purchases	556,600		
Cost of materials available for use	$600,850		
Materials inventory, December 31, 20Y8	(31,700)		
Cost of direct materials used in production		$ 569,150	
Direct labor		1,100,000	
Factory overhead:			
Indirect labor	$115,000		
Depreciation expense—factory equipment	80,000		
Heat, light, and power—factory	53,300		
Property taxes—factory	40,000		
Rent expense—factory	27,000		
Supplies—factory	9,500		
Miscellaneous costs—factory	11,400		
Total factory overhead		336,200	
Total manufacturing costs incurred in 20Y8			2,005,350
Total manufacturing costs			$2,069,250
Work in process inventory, December 31, 20Y8			(80,000)
Cost of goods manufactured			$1,989,250

Prob. 15–5A (FIN MAN); Prob. 1–5A (MAN) (Concluded)

2.

Robstown Corporation Income Statement For the Year Ended December 31, 20Y8			
Sales			$ 3,850,000
Cost of goods sold:			
Finished goods inventory, January 1, 20Y8		$ 101,200	
Cost of goods manufactured		1,989,250	
Cost of finished goods available for sale		$2,090,450	
Finished goods inventory,			
December 31, 20Y8		(99,800)	
Cost of goods sold			(1,990,650)
Gross profit			$ 1,859,350
Operating expenses:			
Administrative expenses:			
Office salaries expense	$318,000		
Depreciation expense—office			
equipment	30,000		
Property taxes—office building	25,000	$ 373,000	
Selling expenses:			
Advertising expense	$400,000		
Sales salaries expense	200,000	600,000	
Total operating expenses			(973,000)
Net income			$ 886,350

Prob. 15–1B (FIN MAN); Prob. 1–1B (MAN)

Cost	Product Costs			Period Costs	
	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense
a.					X
b.			X		
c.				X	
d.				X	
e.	X				
f.			X		
g.			X		
h.			X*		
i.			X		
j.	X				
k.		X			
l.			X		
m.			X		
n.			X		
o.		X			
p.	X				
q.			X		
r.			X		
s.			X		
t.			X		
u.				X	
v.	X				
w.	X				
x.			X		
y.					X
z.	X				

* Item h might also be classified as direct materials cost if the cost is significant because it can be directly traced to the end product.

Prob. 15–2B (FIN MAN); Prob. 1–2B (MAN)

Cost	Product Costs			Period Costs	
	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense
a.				X	
b.					X
c.	X				
d.			X		
e.				X	
f.			X		
g.			X		
h.		X*			
i.			X		
j.	X				
k.			X		
l.	X				
m.			X		
n.	X				
o.					X
p.			X		
q.			X		
r.				X	
s.	X				
t.				X	
u.	X				
v.		X			
w.					X
x.				X	

* Health insurance premiums are employment benefits for direct labor and are included as part of the direct labor cost.

Prob. 15–3B (FIN MAN); Prob. 1–3B (MAN)

1. **The most logical definition for the final cost object would be a hotel guest. Guests consume services such as a meal, a night's stay in a hotel room, room service, a telephone call, etc.**

2.

Cost	Direct	Indirect
a.		X
b.		X
c.		X
d.	X	
e.	X	
f.	X	
g.		X
h.		X
i.	X	
j.		X
k.	X	
l.		X
m.		X
n.	X	
o.		X
p.		X
q.	X	
r.		X
s.	X	
t.		X
u.		X
v.	X	
w.		X

Prob. 15–4B (FIN MAN); Prob. 1–4B (MAN)

1. On Company

a. $30,800 ($282,800 + $65,800 – $317,800)
b. $854,000 ($317,800 + $387,800 + $148,400)
c. $800,800 ($854,000 + $119,000 – $172,200)
d. $827,400 ($224,000 + $800,800 – $197,400)
e. $299,600 ($1,127,000 – $827,400)
f. $182,000 ($299,600 – $117,600)

Off Company

a. $581,560 ($685,720* + $91,140 – $195,300)
b. $685,720 ($1,519,000 – $256,060 – $577,220)
c. $195,300 ($1,727,320 – $1,532,020)
d. $256,060 ($1,532,020 + $269,080 – $1,545,040)
e. $399,280 ($1,944,320 – $1,545,040)
f. $234,360 ($399,280 – $164,920)

*** *Note:* The student must calculate part (b) prior to calculating part (a) because the solution to part (b) is needed as an input to part (a).**

2.

On Company Statement of Cost of Goods Manufactured For the Month Ended December 31			
Work in process inventory, December 1			$ 119,000
Direct materials:			
Materials inventory, December 1	$ 65,800		
Purchases	282,800		
Cost of materials available for use	$348,600		
Materials inventory, December 31	(30,800)		
Cost of direct materials used in production		$317,800	
Direct labor		387,800	
Factory overhead		148,400	
Total manufacturing costs incurred in December			854,000
Total manufacturing costs			$ 973,000
Work in process inventory, December 31			(172,200)
Cost of goods manufactured			$ 800,800

Prob. 15–4B (FIN MAN); Prob. 1–4B (MAN) (Concluded)

3.

On Company Income Statement For the Month Ended December 31		
Sales		$1,127,000
Cost of goods sold:		
Finished goods inventory, December 1	$ 224,000	
Cost of goods manufactured	800,800	
Cost of finished goods available for sale	$1,024,800	
Finished goods inventory, December 31	(197,400)	
Cost of goods sold		(827,400)
Gross profit		$ 299,600
Operating expenses		(117,600)
Net income		$ 182,000

Prob. 15–5B (FIN MAN); Prob. 1–5B (MAN)

1.

Shanika Company Statement of Cost of Goods Manufactured For the Year Ended December 31, 20Y6			
Work in process inventory, January 1, 20Y6			$109,200
Direct materials:			
Materials inventory, January 1, 20Y6	$ 77,350		
Purchases	123,500		
Cost of materials available for use	$200,850		
Materials inventory, December 31, 20Y6	(95,550)		
Cost of direct materials used in production		$105,300	
Direct labor		186,550	
Factory overhead:			
Indirect labor	$ 23,660		
Depreciation expense—factory equipment	14,560		
Heat, light, and power—factory	5,850		
Property taxes—factory	4,095		
Rent expense—factory	6,825		
Supplies—factory	3,250		
Miscellaneous costs—factory	4,420		
Total factory overhead		62,660	
Total manufacturing costs incurred in 20Y6			354,510
Total manufacturing costs			$463,710
Work in process inventory, December 31, 20Y6			(96,200)
Cost of goods manufactured			$367,510

Prob. 15–5B (FIN MAN); Prob. 1–5B (MAN) (Concluded)

2.

Shanika Company Income Statement For the Year Ended December 31, 20Y6			
Sales			$ 864,500
Cost of goods sold:			
Finished goods inventory, January 1, 20Y6		$ 113,750	
Cost of goods manufactured		367,510	
Cost of finished goods available for sale		$ 481,260	
Finished goods inventory,			
December 31, 20Y6		(100,100)	
Cost of goods sold			(381,160)
Gross profit			$ 483,340
Operating expenses:			
Administrative expenses:			
Office salaries expense	$ 77,350		
Depreciation expense—office equipment	22,750		
Property taxes—headquarters building	13,650	$ 113,750	
Selling expenses:			
Advertising expense	$ 68,250		
Sales salaries expense	136,500	204,750	
Total operating expenses			(318,500)
Net income			$ 164,840

MAKE A DECISION

MAD 15–1 (FIN MAN); MAD 1–1 (MAN)

a. Comfort Plus:

Number of Guests		Nights per Visit		Guest Nights
3,680	×	1	=	3,680
1,100	×	2	=	2,200
500	×	3	=	1,500
Total guest nights				7,380

Connors:

Number of Guests		Nights per Visit		Guest Nights
4,390	×	1	=	4,390
700	×	2	=	1,400
800	×	3	=	2,400
Total guest nights				8,190

b. Comfort Plus: 300 rooms × 30 days = 9,000 available room nights for April
Connors: 350 rooms × 30 days = 10,500 available room nights for April

c. $$\text{Occupancy Rate} = \frac{\text{Guest Nights}}{\text{Available Room Nights}}$$

$$\text{Comfort Plus: } \frac{7{,}380}{9{,}000} = 82\%$$

$$\text{Connors: } \frac{8{,}190}{10{,}500} = 78\%$$

d. Comfort Plus has the better occupancy rate at 82% of capacity, compared to Connors' occupancy rate of 78%.

MAD 15–2 (FIN MAN); MAD 1–2 (MAN)

a. The occupancy change is unfavorable for Hilton Hotels. Occupancy for Hilton decreased from 75.7% to 40.3%, or a 35.4 percentage point decrease over the year.

b. The occupancy change is unfavorable for Marriott International. Occupancy for Marriott decreased from 73.7% to 31.4%, or a 42.3 percentage point decrease over the year.

c. Hilton Hotels has a better occupancy rate than Marriott International for the two years provided. This can be seen both by the occupancy percentage comparisons for each year (75.7% vs. 73.7% in 2019 and 40.3% vs. 31.4% in 2020) and by the slightly smaller decrease in occupancy for the year (35.4 percentage points for Hilton vs. 42.3 percentage points for Marriott).

MAD 15–2 (FIN MAN); MAD 1–2 (MAN) (Concluded)

d. An important question beyond occupancy is the price at which the rooms are sold. Price will influence occupancy. For example, it is possible to increase occupancy by reducing price. However, a reduced price may reduce revenue by more than the revenue increase achieved by increased occupancy. Thus, hotels also need to monitor the average daily price for which room nights are sold.

Note: **In this case, Hilton Hotels had an average room price of $114.03 in 2020 (down from $144.79 in 2019), while Marriott had an average room price of $151.51 in 2020 (down from $182.60 in 2019). Thus, while both hotels saw a decrease in price, and while Marriott had a lower occupancy rate, Marriott made more revenue per room night in 2020 than did Hilton. Thus, Marriott's overall performance appears more favorable than what could be determined by just the occupancy data.**

Further, understanding the long-term impact of pandemic-related demand at Hilton and Marriott is important. For example, it is important to investigate how travel was affected in the areas served by Hilton and Marriott, and how sanitation changes at these hotels could influence future demand.

MAD 15–3 (FIN MAN); MAD 1–3 (MAN)

a.

	Number of Guests		Average Length of Visit (in Nights)		Guest Nights (Number of Guests × Average Length of Visit)
Sunrise Suites	183,600	×	1.5	=	275,400
Nationwide Inns	228,000	×	1.2	=	273,600

b.

	Number of Hotels		Average Number of of Rooms per Hotel		Days in June		Room Nights for June
Sunrise Suites	120	×	90	×	30	=	324,000
Nationwide Inns	150	×	76	×	30	=	342,000

c. $$\text{Occupancy Rate} = \frac{\text{Guest Nights}}{\text{Available Room Nights}}$$

$$\text{Sunrise Suites: } \frac{275{,}400}{324{,}000} = 85\%$$

$$\text{Nationwide Inns: } \frac{273{,}600}{342{,}000} = 80\%$$

d. Sunrise Suites had the better occupancy rate during June, with 85% compared to Nationwide Inns' occupancy rate of 80%. Additional analyses should evaluate the average price per room, since price can influence the occupancy rate and there can be a trade-off between average room price and occupancy.

MAD 15–4 (FIN MAN); MAD 1–4 (MAN)

a.

	April	May	June
Admitted patients	1,440	1,860	2,250
Average length of stay per patient	× 4.0	× 3.5	× 3.0
In-patient days	5,760	6,510	6,750

b. Available beds:

	Private	Semi-Private	Total
Number of rooms	100	100	
Beds per room	× 1	× 2	
Total bed capacity	100	200	300

Available bed days:

	April	May	June
Bed capacity	300	300	300
Days per month	× 30	× 31	× 30
Available bed days	9,000	9,300	9,000

c. Occupancy rate:

	April	May	June
In-patient days [from (a)]	5,760	6,510	6,750
Available bed days [from (b)]	÷ 9,000	÷ 9,300	÷ 9,000
Occupancy rate	64%	70%	75%

d. The occupancy rate increased from April to May and again from May to June. This suggests the hospital bed capacity is being utilized more efficiently over time. A closer examination of the data reveals that the average length of stay is declining, while the number of admissions is increasing. The average length of stay may be declining because of greater efficiency in delivering health care, assuming no change in treatment mix is being provided over the three months. This potential improvement provides greater capacity to accept new patients, as can be seen from the three-month data. Thus, the reduced length of stay and greater occupancy are both contributing to the hospital's ability to serve more patients per month.

MAD 15–5 (FIN MAN); MAD 1–5 (MAN)

a. Available seat capacity for each flight number for June:

Number of seats per flight	180
Number of flights in June (one per day)	× 30
Total seat capacity per flight number (June)	5,400

b.

Flight Number	Number of Seats Sold	Available Seat Capacity [from (a)]	Passenger Load*
57	5,130	5,400	95%
85	2,592	5,400	48%
94	2,376	5,400	44%

*** Number of seats sold ÷ Available seat capacity**

c. The passenger load information indicates that Flight 57 flies very near to capacity, but Flights 85 and 94 fly at less than half of capacity. This suggests the management of Eastern Skies is offering too much capacity for the morning flights to Chicago. One solution would be to use smaller aircraft for Flights 85 and 94 so as to better match capacity with demand. Alternatively, Eastern could consolidate the two flights into one flight that could depart at some time between the two original times, such as 10:45 AM. Passengers could then migrate to the new flight, resulting in a better utilization of the remaining flight.

TAKE IT FURTHER

TIF 15–1 (FIN MAN); TIF 1–1 (MAN)

Brian has behaved unethically and violated several of the IMA's principles of ethical conduct. By determining the price of the lumber that he is buying, Brian has created a conflict-of-interest situation that violates the principle of objectivity. For professionals to be objective, they must make decisions that are not influenced by their personal feelings or result in personal gains. Since Brian is in a position to directly influence the price that he will pay for the lumber, he cannot be objective. Thus, although it is appropriate for Brian to take advantage of Avett's policy of allowing employees to purchase materials at cost, he should have had someone else (such as his supervisor) determine the amount that he owed for the lumber. Clearly, selecting the lowest price has opened the door for criticism.

TIF 15–2 (FIN MAN); TIF 1–2 (MAN)

Answers may vary slightly by restaurant chosen. A suggested answer for a pizza restaurant follows:

Cost	Direct Materials	Direct Labor	Overhead	Selling Expenses
Ingredients	X			
Cook wages		X		
Manager salary			X	
Depreciation on equipment and fixtures			X	
Coupon costs				X
Advertising				X
To-go boxes	X			
Disposable plates, utensils, cups	X			
Nondisposable plates, utensils, cups			X	
Repair costs			X	
Property taxes			X	
Store depreciation			X	
Cashier salary			X	
Beverages	X			
Building heat and A/C			X	
Salad ingredients	X			
Delivery person wages		X		
Power costs for ovens			X	

In service businesses, the distinction between direct labor and overhead will not always be clear.

TIF 15–3 (FIN MAN); TIF 1–3 (MAN)

Memo

To: Todd Johnson

From: A+ Student

Re: Financial vs. Managerial Accounting Information

The objectives of financial and managerial accounting are quite different, and your statement does not fully consider these differences. In one sense, your statement may be appropriate at high levels in the organization. For example, it is appropriate to evaluate a division manager who is responsible for the overall performance of a division using the same financial performance measures that shareholders use to evaluate the company. However, these measures are not appropriate for evaluating managerial decision making below the division level. At these levels, summary financial performance measures do not provide the relevant information needed to direct and control the company's operations. Operational performance measures need to focus on measuring cost, quality, delivery time, equipment availability, inventory levels, scrap, waste, and efficiency. This list is much broader and more detailed than the financial statement numbers provided to the stockholders.

The stockholders' interest in profit is related to increasing shareholder value. Managers must increase long-term shareholder value by engaging in strategies that enhance people, product, and processes in the delivery of value to customers. These strategies can be measured by both financial and nonfinancial means. Therefore, managerial accounting information needs a much broader set of objective and subjective measures used internally in the organization to guide strategy and operations.

TIF 15–4 (FIN MAN); TIF 1–4 (MAN)

a. The vice president of the Information Systems Division can use managerial accounting information in a number of ways. For example, the vice president might use these data to determine resources that will be needed based on a projection of the amount and type of work required for the next period. Managerial accounting information would also be used to determine whether the bank should lease additional processing capacity or purchase a new central processing unit. In addition, managerial accounting information could be used to achieve better control over information systems activities by evaluating the costs of ongoing operations, based on the demand for information services.

b. The hospital administrator can use managerial accounting information in a number of ways. One way is for cost planning and control. The administrator could use managerial information to keep costs commensurate with services provided and to plan for staffing and nursing levels. This information can be used to determine the cost of various services and, thereby, in making decisions with respect to the amount of service that is appropriate in each case. The administrator can also use managerial accounting information to determine whether the hospital's costs are being covered by fixed payments from Medicare, Medicaid, or insurance. If not, the administrator needs to know the source of the cost overruns. Does the hospital allow too many procedures? Require longer bed days? Have resources that are underutilized (e.g., a cancer wing with three patients)?

c. The CEO of the food company will use managerial accounting information to support the control of the three divisions. Each of the three divisions will be subject to a number of financial goals. The CEO also needs to support strategic decision making. In this regard, the CEO needs managerial accounting information on the profitability of various product families, profitability of different regions, and profitability of various customer segments. This information can guide the CEO in allocating future effort and resources.

d. The copy shop manager needs fairly simple managerial accounting information. At the most basic level, the copy shop manager needs to know the costs of performing various copy tasks, such as one-sided copy, two-sided copy, collating, and binding. These activities will have some direct costs, such as paper, and some indirect costs, such as copy machine time. The manager will need to estimate the impact of both of these costs in order to price the various copy jobs to the public. Managerial accounting information will include the cost details necessary to price the various copy shop services at a level needed to cover equipment costs, lease expenses, and profit.

TIF 15–5 (FIN MAN); TIF 1–5 (MAN)

a. The High Times manager will use managerial accounting information to accumulate the costs associated with different menu items. The costs, direct and indirect, will help in determining the pricing strategy.

b. The plant manager is going to use cost information on scrap and rework to identify the amount of waste occurring in the plant. This measure of waste is fairly common in fabrication-type facilities. The measures can guide the plant manager to locations or products where significant waste is occurring. The plant manager can use the scrap and rework measures to guide operational improvement toward the location that is experiencing the greatest level of scrap or rework. The measures can also monitor improvement in rework and control the number of network hours charged by floor personnel.

c. The cost of ending inventory must be determined as financial statements are prepared. The division controller will likely require inventory valuation at the close of every month in order to have a good understanding of the month-by-month earnings of the division. The division controller will provide the ending inventory information by using managerial accounting information in determining the cost of products. To determine the appropriate cost, the product cost is multiplied by the units left in inventory.

d. The Maintenance Department manager needs to be able to plan the resources used by his department. The planning process involves identifying the required resources to fulfill the department's objective(s). For example, the Maintenance Department manager may know the repair histories of various machines. These histories can be used to forecast the repairs anticipated during the next year. The manager may also know that a new process will be brought online during the next year. New processes are frequently troublesome, so the manager will need to budget additional resources to accommodate introduction of the new technology.

TIF 15–6 (FIN MAN); TIF 1–6 (MAN)

1. Obie's bill has a number of points that should be considered. Some of the points, with the appropriate argument, are identified below.

- **The trip back to the shop resulted in an $80 labor charge. Obie should argue that the whole hour should not be billed. The hour is the result of stocking out of a circuit board on the truck. The circuit board should have been with the repair person. There was a board for the previous customer. However, because only one was stocked, the repair person had to go back to the shop. The trip back to the shop was nonproductive time that should not have been charged directly to Obie but should be part of Geek Gang's overhead cost to all customers. In other words, Obie should not be responsible for this mistake.**
- **The overtime premium should not have been charged to Obie. What if Obie was the first appointment in the morning? If he was, there would be no overtime premium. It's only random misfortune that Obie was the last client of the day and therefore received the overtime premium. Add to this the fact that the overtime would not have been necessary without the trip back to the shop, and the conclusion is that Obie should not be charged directly for overtime. The overtime premium should be part of Geek Gang's overhead charged to all clients equally. Obie should be charged the overtime only if the decision for overtime was caused by or required by Obie.**

Thus, the labor portion of the bill should only be $70 + $60 + $60 = $190.

There are other parts of the bill that should not be in dispute.

- **The materials storage and handling charge is a normal charge of maintaining a parts inventory for the benefit of clients that need parts.**
- **The fringe benefits and overhead added to the hourly rate are both reasonable. The fringe benefit attaches directly to the direct labor. Fringe benefits are just another form of compensation. The overhead must be covered by all customers. Therefore, including overhead in the hourly rate is the most logical method of covering these costs.**
- **The additional charge for the first hour is also reasonable. The first hour charge covers the costs of transit, which are directly attributable to making a home visit. Obie requires a home visit, so Obie should be responsible for the costs of making the visit. If Obie brought the computer to the shop, this cost would not be incurred.**

TIF 15–6 (FIN MAN); TIF 1–6 (MAN) (Concluded)

2. Cost	Direct Materials	Direct Labor	Overhead
Circuit board	X		
Storage and handling			X
Straight-time labor		X	
Fringe benefits*		X	
Overhead			X
Vehicle depreciation and fuel			X
Overtime premium			X

* Could be considered overhead.

TIF 15–7 (FIN MAN); TIF 1–7 (MAN) Tableau

Cost Classifications

Product	Costs	Charge Type	
Period Costs	Administrative Expenses	Administrative Wages	$ 225,945.00
		External Auditor Fees	42,256.00
		Management Salaries	753,767.00
		Total	$1,021,968.00
	Selling Expenses	Advertising	$ 25,235.00
		Total	$ 25,235.00
	Total		$1,047,203.00
Product Costs	Direct Labor Costs	Manufacturing Employees	$1,685,285.00
		Total	$1,685,285.00
	Direct Materials Costs	Freight	$ 102,577.00
		Raw Materials, Steel	1,452,127.00
		Raw Materials, Vinyl	553,153.00
		Total	$2,107,857.00
	Factory Overhead Costs	Electricity	$ 671,121.00
		Factory Equipment	357,125.00
		Packaging Materials	449,915.00
		Warehouse Lease	239,632.00
		Total	$1,717,793.00
	Total		$5,510,935.00

TIF 15–7 (FIN MAN); TIF 1–7 (MAN) Excel

Cost Classifications

Row Labels	Sum of Charge Amount
Period Cost	**$1,047,203.00**
Administrative Expenses	**$1,021,968.00**
Administrative Wages	$225,945.00
External Auditor Fees	$42,256.00
Management Salaries	$753,767.00
Selling Expenses	**$25,235.00**
Advertising	$25,235.00
Product Cost	**$5,510,935.00**
Direct Labor Costs	**$1,685,285.00**
Manufacturing Employee Wages	$1,685,285.00
Direct Materials Cost	**$2,107,857.00**
Freight	$102,577.00
Raw Materials, Steel	$1,452,127.00
Raw Materials, Vinyl Compound	$553,153.00
Factory Overhead Costs	**$1,717,793.00**
Electricity	$671,121.00
Factory Equipment Depreciation	$357,125.00
Packaging Materials	$449,915.00
Warehouse Lease	$239,632.00
Grand Total	**$6,558,138.00**

CERTIFIED MANAGEMENT ACCOUNTANT (CMA®) EXAMINATION QUESTIONS (ADAPTED)

1. b. **Sales commissions on cars would be part of the selling expense for the car dealership, not a manufacturing cost. Options (a) and (d) are direct material costs, while option (c) would be charged to factory overhead.**

2. c. **Plunkett's product costs are $656,100, and the period costs are $493,000, as follows:**

	Product Costs
Direct materials	$ 56,000
Direct labor	179,100
Overhead	421,000
Total	$656,100

	Period Costs
Selling expenses	$235,900
Administrative expenses	229,400
Fire loss	27,700
Total	$493,000

3. c. **Prime costs of $150,000 are the combination of direct material costs of $100,000 and direct labor costs of $50,000. Conversion costs of $130,000 are the combination of direct labor costs of $50,000 and overhead costs of $80,000.**

4. c. **Factory overhead includes those items that cannot be directly traced to any one particular product and/or is an insignificant part of the total cost. In this case, the wood screws and glue used in the production of school desks and chairs would most likely be classified as factory overhead.**