Workbook/Study Guide

for use with





Managerial Accounting
Ninth Edition

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Workbook/Study Guide for use with MANAGERIAL ACCOUNTING

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Preface

To The Student

This study guide supplements the ninth edition of *Managerial Accounting* by Ray H. Garrison and Eric W. Noreen. Each chapter of the study guide contains three major sections:

- 1. The Chapter Study Suggestions help you study more efficiently.
- 2. Chapter Highlights summarize in outline form the essential points in a chapter.
- 3. Review and Self Test questions and exercises test your knowledge of the material in the chapter. Solutions are provided. Caution: If you want to score well on exams, you must work out each solution on your own and then check to see whether your solution is correct by comparing it to the solution in the study guide. You cannot learn the material by simply reading the solution provided in the study guide. This does not work.

This study guide can be used as an integral part of the process of learning the material in a chapter. When used for this purpose, we recommend that you follow the steps below:

- 1. Read the Chapter Study Suggestions in this study guide.
- 2. Read the textbook chapter.
- 3. Read the outline in the *Chapter Highlights* section of the study guide. If you run across anything in the outline you don't understand, refer back to the textbook for a more detailed discussion.
- 4. Work the questions and exercises in the study guide and then compare your answers to those given in the study guide. If you find something you don't understand, refer to the textbook for help.
- 5. Work the homework problems assigned by your instructor.

Alternatively, the study guide can also be used as a very effective way to study for exams. Before reading the chapter in your textbook, read the *Chapter Study Suggestions* in this study guide. Then lay the study guide aside until it is time to prepare for an exam. The *Chapter Highlights* section of the study guide can then be used to review the essential material covered in the chapter. The *Review and Self Test* questions and exercises are excellent practice for exams. The questions and exercises in the study guide are particularly effective used in this way since they are likely to be similar to the questions and exercises your instructor will ask on an exam.

Remember, the study guide is not a substitute for the textbook. Rather, its purpose is to *supplement* the textbook by helping you to learn the material.

We welcome your suggestions and comments. You can write to us at the following address:

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Managerial Accounting and the Business Environment

Chapter Study Suggestions



This chapter describes the work that managers do and the kinds of information they need in order to do this work effectively. The chapter also describes important aspects of the contemporary business environment. The chapter is unusual in that there are almost no numerical problems to be worked. However, many new terms must be learned.

CHAPTER HIGHLIGHTS

- A. An organization is a group of people united for a common purpose. Organizations are run by managers who carry out three major activities: planning, directing and motivating, and controlling. All three of these functions involve decision-making.
- 1. Planning involves identifying alternatives and selecting the alternative that best furthers the organization's objectives.
- 2. Directing and motivating involves mobilizing people to carry out the plans and overseeing day-to-day activities.
- 3. Controlling involves obtaining feedback to ensure that all parts of the organization are following the plans.
- B. Financial and managerial accounting differ in a number of ways. In contrast to financial accounting, managerial accounting:
- 1. Focuses on providing data for internal uses.
 - 2. Places more emphasis on the future.
- 3. Emphasizes relevance and flexibility rather than precision.
- 4. Emphasizes the segments of an organization, rather than just looking at the organization as a whole.
- 5. Is not governed by Generally Acceptable Accounting Practices.
 - 6. Is not mandatory.
- C. In many industries today, a company that does not continually improve will find itself quickly overtaken by competitors. The text discusses four major approaches to improvement—Just-In-Time (JIT), Total Quality Management (TQM), Process Reengineering, and the Theory of Constraints (TOC). These approaches can be combined.
- D. The Just-In-Time (JIT) approach is based on the insight that reducing inventories—particularly work in process inventories—can be the key to improving operations. Companies maintain work in process inventories to protect against disruptions in the production process and as a con-

sequence of using large batch sizes. However, work in process inventories create a number of problems:

- 1. Work in process inventories tie up funds and take up space.
- 2. Work in process inventories increase the throughput time, which is the amount of time required to make a product. If there is an average of two weeks of work in process inventories, then it takes two weeks longer to complete a unit than if there were no work in process inventories. Long throughput time makes it difficult to respond quickly to customers and can be a major competitive disadvantage.
- 3. When work in process inventories are large, partially completed products are stored for long periods of time before being passed to the next workstation. Therefore, defects introduced at a workstation may not be noticed for quite some time. If a machine is out of calibration or incorrect procedures are being followed, many defective units will be produced before the problem is discovered. And when the defects are finally discovered, it may be very difficult to track down the source of the problem.
- 4. Because of long throughput time, units may be obsolete or out of fashion by the time they are finally completed.
- 5. Large work in process inventories encourage sloppy procedures and mask inefficiencies and problems in the production process. When inventories are reduced, these problems are uncovered and can be identified and dealt with.
- E. Just-In-Time (JIT) seeks improvement by reducing inventories to the absolute minimum levels possible.
- 1. "Just in time" means that raw materials are received just in time to go into production, subassemblies are completed just in time to be assembled into products, and products are completed just in time to be shipped to customers.
- 2. In JIT, the flow of goods is controlled by a "pull" approach; work is initiated only in response to customer orders.

- a. At the final assembly stage, a signal is sent to preceding workstations as to the exact amounts of parts and materials that will be needed over the next few hours to assemble products ordered by customers.
- b. In contrast, under conventional systems parts and material are "pushed" forward to the next workstation regardless of need. There is also a tendency in conventional systems to seek to "keep everyone busy." The result in both cases is a needless buildup of inventory.
- 3. *JIT purchasing* can be used by any company that has inventories, including retailers and wholesalers as well as manufacturers.
- a. In JIT purchasing, the company relies on a few ultra-reliable suppliers who are given long-term contracts. The suppliers must be very dependable since JIT makes the purchaser vulnerable to disruptions in its supplies. For want of a part, the whole assembly process might have to be shut down.
- b. In JIT purchasing, suppliers make frequent deliveries in small lots just before the goods are needed. Rather than deliver a week's or a month's supply of inventory at a time, the supplier may make several deliveries a day of small numbers of items that are needed immediately.
- c. In JIT purchasing, suppliers must deliver defect-free goods. In a JIT system, defects cannot be tolerated. Supplies must be so dependable that incoming goods from suppliers are not inspected for defects.
- F. In addition to JIT purchasing, a successful JIT system involves four key elements.
- 1. A JIT company often must improve its product flow lines by creating an individual flow line for each separate product. This may involve setting up a focused factory in which all the machines needed to make a particular product or family of products are brought together in one location. This is in contrast to a conventional, "functional plant layout" in which similar machines are grouped together in one location. When a functional plant layout is used, products must be moved long distances between work centers to be completed.

- 2. A JIT company must reduce the setup time that is required between batches. A batch is consists of a number of units of the same product that are produced together. Setups consist of the activities that must be performed whenever production is switched from making one type of unit to another. For example, if a plastic toy is being made in several different colors, each time there is a change in color from one batch to another, the vats containing the colored plastic must be emptied and thoroughly cleaned.
- 3. A JIT company should strive for zero defects. If any units in an order are defective, the whole production process would have to be restarted in order to replace the defective units. This would make it impossible to deliver the order on time.
- 4. A JIT company must develop a multiskilled and flexible work force that is capable of operating many different machines and of performing routine maintenance.
- G. Many benefits result from a JIT system. The most important are:
- 1. Working capital is increased by recovering funds that were tied up in inventories.
- 2. Usable space is increased. Areas previously used to store inventories are made available for other, more productive uses.
- 3. Throughput time is reduced, resulting in greater potential output and quicker response to customer needs.
- 4. Defect rates are reduced, resulting in less waste and greater customer satisfaction.
- H. Total Quality Management (TQM) is an approach to continuous improvement that focuses on the customer and that involves systematic problem-solving using teams of front-line workers. A variety of specific tools are available in TQM including benchmarking and the Plan-Do-Check-Act Cycle.
- 1. Benchmarking involves studying how a successful "world-class" company runs a particular operation. For example, a company trying to improve its customer service might study how Disney trains its employees.
- 2. The Plan-Do-Check-Act (PDCA) Cycle is a systematic, fact-based approach to continuous

improvement that resembles the scientific method. Exhibit 1-6 in the text illustrates the PDCA Cycle.

- a. In the Plan phase, the current process is studied, data are collected, and possible causes of the problem at hand are identified. A plan is developed to deal with the problem.
- b. In the Do phase, the plan is implemented and data are collected. This is done on a small scale if possible since at this point the team is rarely sure that the plan will work.
- c. In the Check phase, the data collected in the Do phase are analyzed to verify whether the expected improvement actually occurred.
- d. In the Act phase, the plan is implemented on a large scale if it was successful. If the plan was not successful in eliminating the problem, the cycle is started again with the Plan phase.
- 3. Perhaps the most important characteristics of TQM are that it empowers front-line workers to solve problems and it focuses attention on solving problems rather than on finger-pointing.
- I. Process Reengineering is a more radical approach to improvement than TQM. It involves completely redesigning business processes and it is often implemented by outside consultants.
- 1. In Process Reengineering, all of the steps in a business process are displayed as a flow-chart. Many of the stops are often unnecessary and are called *non-value-added activities*.
- 2. The process is then completely redesigned, eliminating non-value-added activities.
- 3. Process Reengineering should result in a streamlined process that uses fewer resources, takes less time, and generates fewer errors.
- 4. However, some managers fall into a trap. If Process Reengineering results in laying off workers who are no longer needed, employees will resist further Process Reengineering efforts and morale will suffer.
- J. The *Theory of Constraints (TOC)* is based on the idea that every organization has at least one constraint that prevents it from obtaining more of

its objective. For example, a machine that is slower than other machines on an assembly line will prevent the company from increasing its rate of output. To improve (in other words, increase its rate of output), the company must focus its improvement efforts on the constraint. Improvement efforts will be largely wasted if focused on machines that are not constraints.

K. Organizational Structure.

- 1. Almost all organizations are decentralized to some degree. *Decentralization* involves delegating decision-making authority to lower levels in the organization.
- 2. An organization chart shows the levels of responsibility and formal channels of communication in an organization. It shows who reports to whom in the organization. Exhibit 1-8 in the text provides an example of an organization chart.
- 3. A manager may occupy either a line position or a staff position.
- a. Line positions are directly related to achieving the basic objectives of the organization.
- b. Staff positions provide service, assistance, and specialized support to the line positions. They do not have direct authority over line positions. Accounting is a staff position.
- 4. The *controller* is the manager of the accounting department and often acts as a key adviser to top management.
- L. Ethics plays a vital role in an advanced market economy.
- 1. If people were generally dishonest, it would become more difficult for companies to raise investment funds, the quality of goods and services would decline, fewer goods and services would be available for sale, and prices would be higher.
- 2. The Institute of Management Accountants has issued Standards of Ethical Conduct for Practitioners of Management Accounting and Financial Management. This is a useful, practical guide for general managers as well as management accountants. The Standards for Ethical Conduct are reproduced in Exhibit 1-10 in the text.

REVIEW AND SELF TEST Questions and Exercises

True or False

Enter a T or an F in the blank to indicate whether the statement is true or false.

- ____ 1. Managerial accounting is as concerned with providing information to stockholders as it is with providing information to managers.
- 2. When carrying out their control function, managers obtain feedback to ensure that each part of the organization is following the plan.
- ____ 3. When carrying out their planning function, managers mobilize the organization's resources and oversee day-to-day operations.
- 4. The planning, directing and motivating, and control activities of a manager are kept separate from the manager's decision-making responsibilities.
- ____ 5. Managerial accounting focuses more on the segments of an organization than on the organization as a whole.
- _____ 6. Managerial accounting need not follow Generally Accepted Accounting Principles.
- ____ 7. An objective of a JIT system is to complete products just in time to ship to customers.
- 8. Under JIT, partially completed units are "pushed" from one workstation to another to ensure all workstations have enough work to keep busy.
- ____ 9. The maintenance of large work in process inventories helps reduce the number of defective units that are produced.
- ____ 10. A company will typically have fewer suppliers under JIT than under a conventional system.
- ___ 11. For JIT to operate successfully, all similar pieces of equipment (such as lathes or drill presses) must be grouped together.
- ___ 12. JIT requires an increase in funds to finance additional inventories.

- ___ 13. Total Quality Management involves a focus on serving the customer and systematic problem-solving using teams made up of front-line workers.
- ____ 14. The Plan-Do-Check-Act Cycle is used in the Theory of Constraints to eliminate constraints.
- ____ 15. In the plan phase of the Plan-Do-Check-Act Cycle, data are analyzed to identify the possible causes of a problem and a solution is proposed.
- ___ 16. Process Reengineering is less likely to result in employee resistance than Total Quality Management.
- ____ 17. Non-value-added activities are the constraints in the system.
- ____ 18. Efforts that are designed to improve the rate of output of a workstation should generally be focused on the constraint.
- ____ 19. The Standards of Ethical Conduct promulgated by the Institute of Management Accountants specifically states, among other things, that a management accountant should refuse all gifts and hospitality offered by one of the company's suppliers.

Multiple Choice

Choose the best answer or response by placing the identifying letter in the space provided.

- ____ 1. Staff positions: a) are not shown on the organization chart; b) are superior in authority to line positions; c) are subordinate in authority to line positions; d) none of these.
- 2. The controller: a) occupies a staff position; b) occupies a line position; c) has little influence in the decision-making process; d) none of these.
- ____ 3. Managerial accounting: a) is governed by Generally Accepted Accounting Principles; b)

places more emphasis on precision of data than does financial accounting; c) is not mandatory; d) is geared primarily to the past rather than to the future.

- 4. Financial and managerial accounting are similar in that: a) both emphasize reporting the performance of the entire organization rather than segments of the organization; b) both rely on the same accounting database; c) both focus on providing data for internal uses; d) none of these.
- ____ 5. In a decentralized organization, decisions are made: a) only by top management; b) only by managers occupying staff positions; c) at the lowest managerial level possible in the organization; d) none of these.
- ______6. In large part, "control" in an organization is achieved through: a) decentralization of decision making authority; b) obtaining feedback on how well the organization is moving toward its objectives; c) preparing an organization chart that shows both line and staff functions; d) none of these.

- ____ 7. Under JIT: a) the plant floor is laid out in a functional format with similar machines grouped together; b) focused factories are used; c) the plant floor is laid out in a single flow line through which all products pass; d) work in process inventories are maximized in order to ensure that all work stations have enough work to stay busy.
- _____ 8. Which of the following involves systematic problem-solving by teams consisting of front-line workers? a) The Theory of Constraints; b) Total Quality Management; c) Process Reengineering; d) Automation.
- 9. The Plan-Do-Check Act Cycle is used to: a) solve problems in Total Quality Management; b) manage constraints in The Theory of Constraints; c) redesign processes in Process Reengineering; d) none of these.

Answers to Questions and Exercises

True or False

- F The central purpose of managerial accounting is to provide information to managers. The information needs of shareholders are provided through financial accounting.
- 2. T This is what is meant by control.
- 3. F Planning involves deciding on the actions to be taken in order to achieve the organization's objectives; it does not involve overseeing day-to-day activities.
- 4. F Decision making is an integral part of planning, organizing, and controlling.
- 5. T The primary concern of managerial accounting is with the segments of an organization, rather than with the organization as a whole.
- T Managerial accounting need not conform to GAAP.
- T Under JIT, goods are produced and shipped only as needed to satisfy customer orders.
- F JIT operates under a "pull" approach in which partially completed units are passed to the next workstation only as needed to fill customer orders.
- 9. F Large work in process inventories increase defect rates. Because of delays in passing units on to the next workstation, problems are not detected until after many units have been affected.
- T Under JIT, a company uses only a few suppliers who deliver parts and materials on a frequent basis.
- 11. F Typically under JIT, all of the different pieces of equipment needed to manu-

- facture a product are placed on a single flow line, thus breaking up groupings of similar equipment.
- 12. F JIT reduces inventories and the need for funds to finance them.
- 13. T These are common characteristics of TOM.
- 14. F The Plan-Do-Check-Act Cycle is used in TQM, not TOC.
- 15. T This statement correctly describes the plan phase of the PDCA Cycle.
- 16. F The reverse is true. Process Reengineering tends to be imposed from above using outside specialists and it may lead to loss of jobs.
- 17. F A non-value-added activity is an activity that consumes resources or takes time that adds nothing of value. It may or may not be a constraint.
- 18. T The rate of output of the constraint determines the output of the entire system. Therefore, improvement efforts should ordinarily be focused on the constraint.
- 19. F The Standards state that the management accountant should "refuse any gift, favor, or hospitality that would influence or would appear to influence their actions." There is no absolute prohibition. For example, it would be okay to let a supplier pay for one's dinner while on a fact-finding trip to the supplier's plant. This is a common courtesy and it is extremely unlikely that this small favor would influence the management accountant's judgment.

Multiple Choice

- d Staff positions such as accounting do appear on the organization chart, but they are neither superior nor equal in authority to line positions. They serve the needs of line positions by providing essential services.
- 2. a The controller occupies a staff position that provides support to other positions within the organization.
- 3. c Managerial accounting is not required by any external law or regulation.
- 4. b Since it would be a waste of money to have two data collecting systems existing side by side, managerial accounting and financial accounting rely on much the same data.

- 5. c The purpose of decentralization is to move all decisions to the lowest managerial level possible in an organization.
- 6. b By obtaining feedback, management can see how well an organization is moving toward its objectives and thus control is maintained.
- 7. b Under JIT, the plant floor is laid out with many product flow lines—one for each family of products.
- 8. b Total Quality Management involves systematic problem-solving by teams consisting of front-line workers.
- 9. a The Plan-Do-Check-Act Cycle is used to solve problems in TQM.

Cost Terms, Concepts, and Classifications

Chapter Study Suggestions



This chapter introduces general cost terms that will be used throughout the book. The chapter also gives a broad overview of the flow of costs in a manufacturing company. (Chapter 3 covers cost flows in more depth.) As you read the chapter, note each new term and be sure you under-stand its meaning. It is important to keep in mind that costs are classified in many ways, depending upon how the costs will be used. This is the reason for so many different cost terms. To fit the cost terms into a framework, you should frequently refer to Exhibit 2-8 as you go through the chapter.

Exhibit 2-4 presents the schedule of cost of goods manufactured. You should memorize the format of this schedule, as well as the material in Exhibit 2-6. Learning this material will help you in Chapter 3 and will also lay a foundation for many chapters that follow.

CHAPTER HIGHLIGHTS

- A. Manufacturing costs are the costs involved in making a product. Manufacturing costs can be divided into three basic elements: direct materials, direct labor, and manufacturing overhead.
- 1. Direct materials are those materials that become an integral part of a finished product and can be conveniently traced into it.
- a. An example of direct materials would be the tires on a new Ford.
- b. Small material items, such as glue, are classified as *indirect materials* rather than as direct materials. It is too costly and inconvenient to trace such small costs to individual units.
- 2. Direct labor consists of those labor costs that can be easily traced to individual units of product. Direct labor is sometimes called touch labor.
- a. An example of direct labor would be a worker on a manufacturing assembly line.
- b. Other labor costs, such as supervisors and janitors, are treated as *indirect labor* rather than as direct labor. These costs cannot be traced to individual units of product since these individuals do not directly work on the product.
- 3. Manufacturing overhead consists of all manufacturing costs except direct materials and direct labor.
- a. Manufacturing overhead includes indirect materials, indirect labor, and other manufacturing costs such as factory rent, factory utilities, and depreciation on factory equipment and facilities.
- b. Synonyms for manufacturing overhead include factory overhead and indirect manufacturing costs.
- 4. The terms prime cost and conversion cost are also used to categorize manufacturing costs.
- a. *Prime cost* consists of direct materials plus direct labor.
- b. Conversion cost consists of direct labor plus manufacturing overhead.

- B. Nonmanufacturing costs are those costs involved with selling and administrative activities.
- 1. Selling, or marketing, costs include all costs associated with marketing finished products such as sales commissions, costs of delivery equipment, costs of finished goods warehouses, and advertising.
- 2. Administrative costs include all costs associated with the general administration of an organization, including secretarial salaries, depreciation of general administrative facilities and equipment, and executive compensation.
- C. For purposes of external financial reports, costs can be classified as product costs or period costs.
- 1. Period costs are expensed on the income statement in the period in which they are incurred. (By incurred, we mean the period in which the cost is accrued, not necessarily when it is paid. For example, remember from financial accounting that salaries are counted as costs not when they are paid, but when they are earned by employees. The cost is *incurred* in the period in which it is earned. Just continue to use the rules you learned in financial accounting.)
- 2. Product costs are matched with units of product and are recognized as an expense on the income statement only when the units are sold. Until that time, product costs are considered to be assets and are recognized on the balance sheet as inventory.
- 3. In a manufacturing company, product costs include direct materials, direct labor, and manufacturing overhead. Thus, in a manufacturing company, product costs and manufacturing costs are synonymous.
- 4. In a manufacturing company, period costs and nonmanufacturing costs are synonymous terms. Thus, the period costs are selling and administrative costs.

- 5. In a merchandising company such as Macy's or Walmart, product costs consist solely of the costs of products purchased from suppliers for resale to customers. All other costs are period costs.
- D. Income statements and balance sheets prepared by manufacturing firms differ from those prepared by merchandising firms.
- 1. The balance sheet of a manufacturing firm contains three inventory accounts: Raw Materials, Work in Process, and Finished Goods. By contrast, the balance sheet of a merchandising firm contains only one inventory account-Merchandise Inventory.
- a. Raw Materials inventory consists of materials on hand in stockrooms that will be used to make products.
- b. Work in Process consists of unfinished products.
- c. Finished Goods consists of units of product that are completed and ready for sale.
- 2. The income statement of a manufacturing firm contains an element termed cost of goods manufactured. You should study the schedule of cost of goods manufactured in Exhibit 2-4 in the text very carefully. If you have difficulty understanding this exhibit, look at Exhibit 2-5, which shows the same information in a different format.
- E. Manufacturing costs (direct materials, direct labor, and overhead) are also known as inventoriable costs.
- 1. The term inventoriable costs is used since direct materials, direct labor, and overhead costs are assigned to Work in Process and Finished Goods inventory accounts as they are incurred. If goods are either not completed or not sold at the end of a period, these costs will be included as part of these inventory accounts on the balance sheet.
- 2. You should study Exhibit 2-6 in the text with care. It shows the flow of manufacturing costs through inventory accounts and the way these costs become an expense (cost of goods sold) on the income statement. This is a key exhibit for Chapter 2.
- 3. We can summarize manufacturing and nonmanufacturing cost terms as follows:

Synonymous Cost Terms

Costs Involved

- Manufacturing costs
 Direct materials, direct labor, and manufactur-
- Product costs • Inventoriable costs

ing overhead

- Nonmanufacturing costs
 - Selling and administrative
- Period costs

expenses

- F. Computation of cost of goods manufactured, cost of goods sold, and preparation of the income statement.
- 1. Computing the cost of goods sold for a manufacturing company involves a number of steps. These steps rely on the following basic model that describes flows into and out of any inventory account.

Basic inventory flows: Beginning balance

- + Additions to inventory
- = Available
- Ending balance
- Withdrawals from inventory
- 2. To compute the raw materials used in production, this basic model is written as follows:

Beginning balance raw materials

- + Purchases of raw materials
- = Raw materials available for use
- Ending balance raw materials
- = Raw materials used in production

The raw materials used in production could include both direct materials and indirect materials. However, unless otherwise stated in a problem, you can assume that there are no indirect materials.

3. The next step is to compute the total manufacturing cost for the period. This is the sum of direct materials, direct labor, and manufacturing overhead costs:

Direct materials

- + Direct labor
- + Manufacturing overhead
- = Total manufacturing cost
- 4. The next step is to compute the cost of goods manufactured. This refers to the cost of the

goods that were *finished* during the period. To compute this figure, use the following version of the basic inventory flow model:

Beginning balance, work in process

- + Total manufacturing cost
- Ending balance, work in process
- Cost of goods manufactured

Note: We don't have any name for the sum of the beginning balance of the work in process inventory and total manufacturing cost, so it has been left out of the calculations.

5. The final step in the computation of cost of goods sold is also based on the inventory flow model:

Beginning balance, finished goods

- + Cost of goods manufactured
- = Goods available for sale
- Ending balance, finished goods
- Cost of goods sold
- 6. The income statement in a manufacturing firm may or may not show the computation of the cost of goods sold as above. In the summary income statement below, it is assumed that the details of the cost of goods sold computations are shown separately.

Sales

- Cost of goods sold
- = Gross margin
- Selling and administrative expenses
- Net income
- G. For purposes of describing how costs behave in response to changes in activity, costs are often classified as variable or fixed. For example, one might be interested in describing how the costs of admitting patients to a hospital behave in response to changes in the number of patients admitted. Or, one might be interested in how much it would cost for paint in a furniture factory if the output of the factory were increased by 10%.
- 1. Variable costs are those costs that vary, in total, in direct proportion to changes in the volume or level of activity within the relevant range. Exhibit 2-9 illustrates variable cost behavior. Examples of variable costs include direct materials, (usually) direct labor, commissions to sales-

persons, and cost of goods sold in a merchandising company such as a shoe store.

- 2. Fixed costs are those costs that remain constant in total amount within the relevant range. They include, for example, depreciation, supervisory salaries, and rent. Exhibit 2-9 illustrates fixed cost behavior.
- 3. The relevant range is the range of activity within which the assumptions about cost behavior can be considered valid. If there is a big enough change in activity (for example, a ten-fold increase in volume), even the "fixed" costs are likely to change. A ten-fold increase in volume would be outside the relevant range.
- H. For purposes of assigning costs to objects, costs are classified as direct or indirect.
- 1. Managers often want to know how much something (e.g., a product, a department, or a customer) costs. The item for which a cost is desired is called a *cost object*.
- 2. A direct cost is a cost that can be easily and conveniently traced to the cost object under consideration. For example, the salaries and commissions of salespersons in a department store's shoe department would be considered direct costs of the shoe department.
- 3. An *indirect cost* is a cost that cannot be easily and conveniently traced to the cost object. For example, the salary of the manager of a department store would be considered an indirect cost of the shoe department and other departments.
- I. For purposes of making decisions, the following cost terms are often used: differential costs, opportunity costs, and sunk costs.
- 1. Every decision involves choosing from among at least two alternatives. A difference in cost between two alternatives is called a *differential cost*. Only the differential costs are relevant in making a choice between two alternatives. Costs that are the same for the two alternatives do not matter and should be ignored.
- 2. An opportunity cost is the potential benefit given up by selecting one alternative over another. Opportunity costs are not recorded in accounting records. They represent a lost benefit rather than an out-of-pocket cost.