Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

SKU: 9781259969478-SOLUTIONS

Chapter 2
Cost Concepts and Behavior

Learning Objectives

1. Explain the basic concept of "cost."
2. Explain how costs are presented in financial statements.
3. Explain the process of cost allocation.
4. Understand how material, labor, and overhead costs are added to a product at each stage of the production process.
5. Define basic cost behaviors, including fixed, variable, semivariable, and step costs.
6. Identify the components of a product's costs.
7. Understand the distinction between financial and contribution margin income statements.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Chapter Overview

I. WHAT IS A COST?
- Cost versus Expenses

II. PRESENTATION OF COSTS IN FINANCIAL STATEMENTS
- Service Organizations
- Retail and Wholesale Companies
- Manufacturing Companies
- Direct and Indirect Manufacturing (Product) Costs
- Prime Costs and Conversion Costs
- Nonmanufacturing (Period) Costs

III. COST ALLOCATION
- Direct versus Indirect Costs

IV. DETAILS OF MANUFACTURING COST FLOWS

V. HOW COSTS FLOW THROUGH THE STATEMENTS
- Income Statements
- Cost of Goods Manufactured and Sold Statement

VI. COST BEHAVIOR
- Fixed versus Variable Costs

VII. COMPONENTS OF PRODUCT COSTS
- Unit Fixed Costs Can Be Misleading for Decision Making

VII. HOW TO MAKE COST INFORMATION MORE USEFUL FOR MANAGERS
- Gross Margin versus Contribution Margin Income Statements
- Developing Financial Statements for Decision Making

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Chapter Outline

- The cost accounting system records and maintains the use of economic resources by the organization.
    - The financial statements prepared by the firm for external reporting use information from the cost accounting system.
    - Cost accounting systems also provide information to help managers make better decisions. Managers need to understand the common terms used in cost accounting.
    - Companies are interested in the costs of their products and services for many reasons.
    - See the Business Application box "Calculating the Costs of E-Books versus Paper Books."

LO 2-1 Explain the basic concept of "cost."

WHAT IS A COST?

- Cost versus Expenses
    - **Cost** represents a sacrifice of resources (typically cash or a line of credit). The price of each item purchased measures the sacrifice made to acquire it.
        - **Expense** is a cost charged against (i.e., deducted from) revenue in an accounting period.
        - Cost initially recorded as an asset becomes an expense when the asset has been consumed (e.g., the prepaid rent becomes rent expense after the office space has been used for a period of time). Generally accepted accounting principles (GAAP) and regulations such as tax laws govern when and how costs are to be treated as expenses.
        - Cost accounting focuses on costs; expenses are referred to only in the context of external financial reporting (in this text).
    - The two major categories of costs are:
        - **Outlay cost:** a past, present, or future cash outflow, such as tuition, books, and fees paid for a college education, and
        - **Opportunity cost:** the forgone benefit that could have been realized from the best forgone alternative course of a resource, such as the time and income sacrificed to get a college education.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

See Demonstration Problem 1

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Managers tend to overlook or ignore opportunity costs while making decisions because:
  - No one can ever know all possible opportunities available at any moment.
  - Typical accounting system only records outlay costs but not opportunity costs.
- Opportunity costs are relevant for managerial decisions and should be captured in a well-designed cost accounting system.

LO 2-2 Explain how costs are presented in financial statements.

PRESENTATION OF COSTS IN FINANCIAL STATEMENTS

- **Operating profit** is the excess of operating revenues over the operating costs incurred to generate those revenues.
  - Operating profit differs from net income.
  - Net income is operating profit adjusted for interest, income taxes, extraordinary items, and other adjustments required to comply with GAAP or other regulations.
  - Information generated by the cost accounting system is used to help managers make decisions that improve firm value. It is a means to an end.
    - Such information is best (in terms of relevancy) for various decisions but not necessarily most accurate.
    - How the cost information is used in decision making and the costs of preparing and using such information should also be considered.
  - A generic income statement for a firm, a division, a product, or any unit has the following format:

Income statement

Revenue	xxx
Costs	(xx)
Operating profit	xxx

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Service Organizations
  - Service organizations provide customers an intangible product, such as advice and analyses. Labor costs and/or costs of information technology represent the most significant cost category for service organizations.
  - Exhibit 2.2 illustrates the income statement of a typical service company. Cost of services sold includes costs of billable hours, which are the hours billed to clients plus the cost of other items billed to clients. Costs that are not part of services billable to clients are included in the marketing and administrative costs.
- Retail and Wholesale Companies
  - Retail and wholesale companies sell but do not make a tangible product, such as food, clothes, or a book.
  - Exhibit 2.3 illustrates an income statement for a merchandising company. Cost of goods sold keeps track of the tangible goods the company buys and sells.
  - A typical income statement for a merchandising company has the following format:

Income Statement

Sales revenue	xxx
Cost of goods sold	(xx)
Gross margin	xxx
Marketing and administrative costs	(xx)
Operating profit	xxx

  - The cost of goods sold statement shows how the cost of goods sold was computed. The typical format follows:

Cost of Goods Sold Statement

Beginning inventory		xxx
Cost of goods purchased		
Merchandise cost	xxx	
Transportation-in costs	xxx	
Total costs of goods purchased		xxx
Cost of goods available for sale		xxx
Less cost of goods in ending inventory		(xx)
Cost of goods sold		xxx

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

        - The gross margin reflects the amount available to cover marketing and administrative costs and earn a profit.

        - Cost of goods sold includes only the actual costs of the goods that were sold. It does not include the costs required to sell them, such as the salaries of salespeople, which are marketing costs, or the salaries of top executives, which are administrative costs.

- Manufacturing Companies

    - Manufacturing companies make the goods for sale and need to know the different costs associated with making them.

- Direct and Indirect Manufacturing (Product) Costs

    - **Product costs** are those costs assigned to units of production and recognized (i.e., expensed) when the product is sold. Product costs follow the product through inventory.

        - **Direct manufacturing costs** are product costs that can be identified with units (or batches of units) at relatively low cost, including:

        - **Direct materials** are those that can be feasibly identified directly, at relatively low cost, with the product. (For manufacturers, direct materials are purchased parts, including transportation-in.) Direct materials are often called raw materials.

        - **Direct labor** represents labor costs that can be identified with the product at reasonable cost. Direct labor of workers transforms the materials into a finished product.

        - **Indirect manufacturing costs** are all product costs other than direct manufacturing costs, often referred to in total as manufacturing overhead.

        - **Manufacturing overhead** represents all other costs of transforming the materials into a finished product, including:

            - Indirect labor (the cost of workers who do not work directly on the product, yet are required so that the factory can operate, such as supervisors, maintenance workers, inventory storekeepers, etc.)

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

        - Indirect materials (materials not a part of the finished product but are necessary to manufacture it, such as lubricants, polishing and cleaning materials, etc.)

        - Other manufacturing costs (expenses incurred to keep the factory running, such as depreciation of the factory building and equipment, taxes and insurance on the factory assets, heat, light, power, etc.)

    - In practice, manufacturing overhead is also called factory burden, factory overhead, burden, factory expense, or just overhead.

- Prime Costs and Conversion Costs

    - **Prime costs** = Direct materials + Direct labor.

        - Companies with relatively low manufacturing overhead tend to focus on managing prime costs.

    - **Conversion costs** = Direct labor + Manufacturing overhead.

        - Conversion costs are the costs that convert direct materials into the final product. Companies with high direct labor and/or manufacturing overhead tend to emphasize more about conversion costs.

        - Exhibit 2.4 summarizes the relationship between prime costs, conversion costs, and the three elements of manufactured product costs: direct materials, direct labor, and manufacturing overhead.

- Nonmanufacturing (Period) Costs

    - **Period costs** (nonmanufacturing costs) are all other costs recognized for financial reporting when incurred, including marketing and administrative costs.

        - **Marketing costs** are the costs required to obtain customer orders and provide customers with finished products, including advertising, sales commissions, and shipping costs.

        - **Administrative costs** are the costs required to manage the organization and provide staff support, including executive and clerical salaries; costs for legal, financial, data processing, and accounting services; and building space for administrative personnel.

    - For financial accounting purposes, nonmanufacturing costs are expensed in the period incurred; for managerial purposes, however, these costs (especially advertising and commissions) may be assigned to products.

- The distinction between manufacturing and nonmanufacturing costs is not always clear-cut. Companies usually set their own guidelines and follow them consistently.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Service companies often have costs that are mostly indirect. Managing indirect costs is extremely important in these firms if they are to remain profitable.

- Most firms are made up of activities that combine features of all three types of activities (service, retailing, and manufacturing).

- In many of the firms which are usually considered to be of manufacturing type, virtually all employees are engaged in service-related activities.

LO 2-3 Explain the process of cost allocation.

COST ALLOCATION

- **Cost allocation** is the process of assigning indirect costs to product, services, people, business units, etc. Cost allocation is necessary when several departments share facilities or services.

  - **Cost object** is any end to which a cost is assigned. Examples include a unit of product or service, a department, or a customer.

  - **Cost pool** is the collection of costs to be assigned to the cost objects. Examples are department costs, rental costs, or travel costs a consultant incurs to visit multiple clients.

  - **Cost allocation rule** refers to the method or process used to assign costs in the cost pool to the cost objects.

- **Cost flow diagram** is a diagram or flowchart illustrating the cost allocation process.

  - Fundamental approach to cost allocation:

    - Identify the cost objects

    - Determine the cost pools

    - Select a cost allocation rule

  - Cost flow diagrams help managers understand

    - How a cost system works

    - The likely effects on the reported costs of different cost objects from changes in the cost allocation rule.

  - Exhibit 2.5 illustrates an example of cost flow diagram.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

See Demonstration Problem 2

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Direct versus Indirect Costs

  - **Direct cost** is any cost that can be directly (unambiguously) related to a cost object at reasonable cost; **indirect cost** is any cost that cannot be directly related to a cost object.

    - A cost may be direct to one cost object and indirect to another.

    - Whether a cost is considered direct or indirect also depends on the costs of linking it to the cost object. (See Business Application box, "Indirect Costs and Allocating Costs to Contracts.")

LO 2-4 Understand how material, labor, and overhead costs are added to a product at each stage of the production process.

DETAILS OF MANUFACTURING COST FLOWS

- Any production process involves three basic steps:

  - Delivering direct materials to receiving area, inspecting, and then placing in direct material inventory area (store).

  - Transporting direct materials to an assembly line and undergoing the production process. **Work in process** is a product in the production process but not yet complete.

  - Moving the product to separate area in factory with other completed products. **Finished goods** are products fully completed, but not yet sold.

- For manufacturing companies, there are three inventory accounts in a cost accounting system. Each inventory account is likely to have the following structure (in T-account):

Inventory Account
(Direct materials, Work-in-process, or Finished goods)

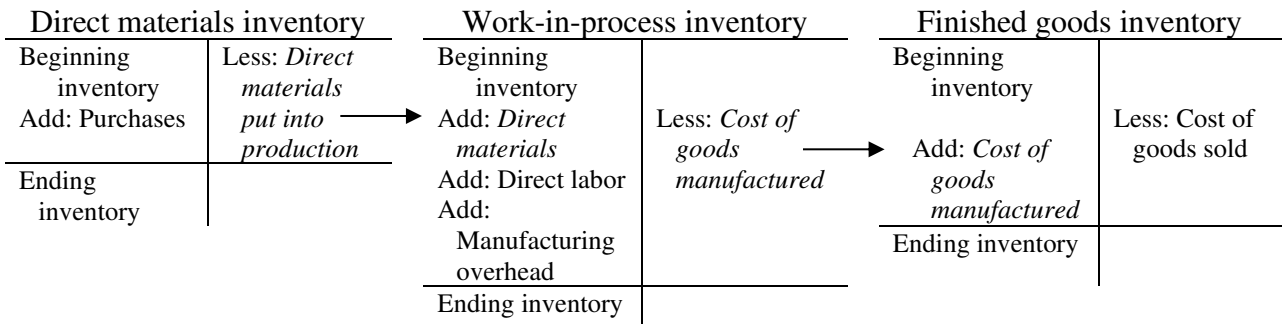
Beginning inventory *Debit: Additions*	*Credit: Withdrawals*
Ending inventory	

  - **Inventoriable costs** are costs added (debited) to inventory accounts.

- The cost flows coincide with the physical flows of goods in and out of their respective storage areas.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual



Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- The inventory account balances at the end of an accounting period appear on the balance sheet as part of the current assets.

- If the company uses just-in-time (JIT) inventory people in direct materials receiving department send the components to the machining line immediately; if not, people in this department send the components to a materials warehouse until it is needed for production.

HOW COSTS FLOW THROUGH THE STATEMENTS

- Income Statements – Exhibit 2.7 illustrates an income statement for a manufacturing firm.

- Cost of Goods Manufactured and Sold Statement – Exhibit 2.8 illustrates a cost of goods manufactured and sold statement for a manufacturing company.

  - A typical cost of goods sold statement for a manufacturing company is more complicated than that of a merchandising firm and has the following structure:

Cost of Goods Manufactured and Sold Statement

Beginning work-in-process inventory			xx
Manufacturing costs during the year:			
Direct materials			
Beginning inventory	xx		
Add: Purchase of direct materials	xx		
Direct materials available	xx		
Less ending inventory	(xx)		
Direct material put into production		xx	
Direct labor		xx	
Manufacturing overhead		xx	
Total manufacturing costs incurred			xx
Total work in process during the year			xx
Less ending work-in-process inventory			(xx)
Cost of goods manufactured			xx
Beginning finished goods inventory			xx
Finished goods available for sale			xx
Less ending finished goods inventory			(xx)
Cost of goods sold			xx

    - The three shaded areas deal with direct materials, work-in-process, and finished goods, respectively.

  - The cost of goods manufactured and sold statement is prepared through the internal reporting system and is for managerial use only.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Total manufacturing costs incurred equals the sum of direct material put into production, direct labor, and manufacturing overhead incurred during the period. Managers in production and operations give careful attention to these costs.

- The total cost of work in process during the year (i.e., the sum of the beginning work-in-process inventory and total manufacturing costs incurred) is a measure of the resources that have gone into production.

- Cost of goods manufactured represents the cost of goods that were finished during the year. Production departments usually have a goal for goods completed each period. Managers usually compare cost of goods manufactured to that goal to see whether the production departments are successful in meeting it.

- Beginning finished goods inventory and cost of goods manufactured together determine the cost of finished goods available for sale. The available finished goods either are sold and become cost of goods sold, or are still on hand as part of the ending finished goods inventory.

- The actual formats of financial statements vary a lot in practice. For managerial purposes, it is important that the format be tailored to what users want.

See Demonstration Problem 3

LO 2-5 Define basic cost behaviors, including fixed, variable, semivariable, and step costs.

COST BEHAVIOR

- Fixed Versus Variable Costs

  - Cost behavior deals with the way costs respond to changes in activity levels; a cost driver is a factor that causes, or "drives," costs.

    - Managers need to know how costs behave to make informed decisions about products, to plan, and to evaluate performance.

    - Exhibit 2.9 illustrates the four cost behavior patterns to be discussed: fixed costs, variable costs, semivariable costs, and step costs.

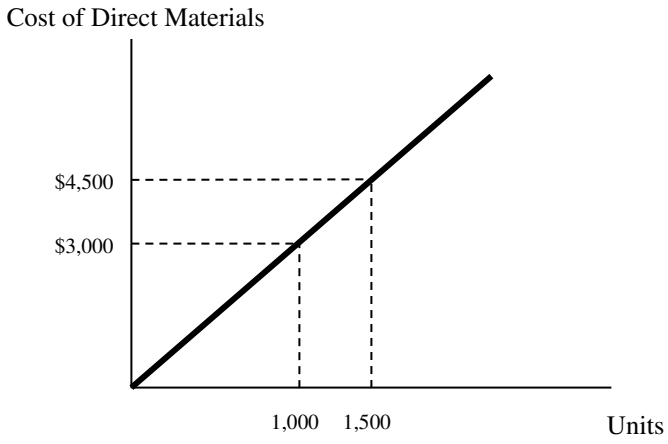
  - **Fixed costs** are costs that are unchanged as volume changes within the relevant range of activity. Examples: much of manufacturing overhead, many nonmanufacturing costs.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- **Variable costs** are costs that change in direct proportion with a change in volume within the relevant range of activity. Examples: for manufacturing companies, direct materials, and certain manufacturing overhead, direct labor in some cases; for merchandising businesses, cost of the product, some marketing and administrative costs; for service organizations, certain types of labor, supplies, copying, and printing costs.

The following graph shows a variable cost relationship between activity (units of production) and the resulting cost of direct materials used.



When the production volume is increased from 1,000 units to 1,500 units, it represents a 50 percent increase in activity (i.e., $\frac{1,500-1,000}{1,000} \times 100\% = 50\%$). There is a corresponding 50 percent increase in direct materials costs as well (i.e., $\frac{\$4,500 - \$3,000}{\$3,000} \times 100\% = 50\%$). This example demonstrates the direct and proportionate relationship between activity and variable costs.

- **Relevant range** refers to the activity levels within which a given total fixed cost or unit variable cost will be unchanged.

- A **semivariable cost** is a cost that has both fixed and variable components; also called mixed cost. Examples: electric utility costs, phone charges.

- A **step cost** is a cost that increases with volume in steps; also called semifixed cost. Examples: supervisors' salaries as each supervisor has a limited span of control.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Four aspects of cost behavior complicate the task of classifying costs into fixed or variable categories.
  - Not all costs are strictly fixed or variable.
  - Some costs increase with volume in "steps."
  - The cost relations are valid only within a relevant range of activity.
  - The classification of costs as fixed or variable depends on the measure of activity used.

LO 2-6 Identify the components of a product's costs.

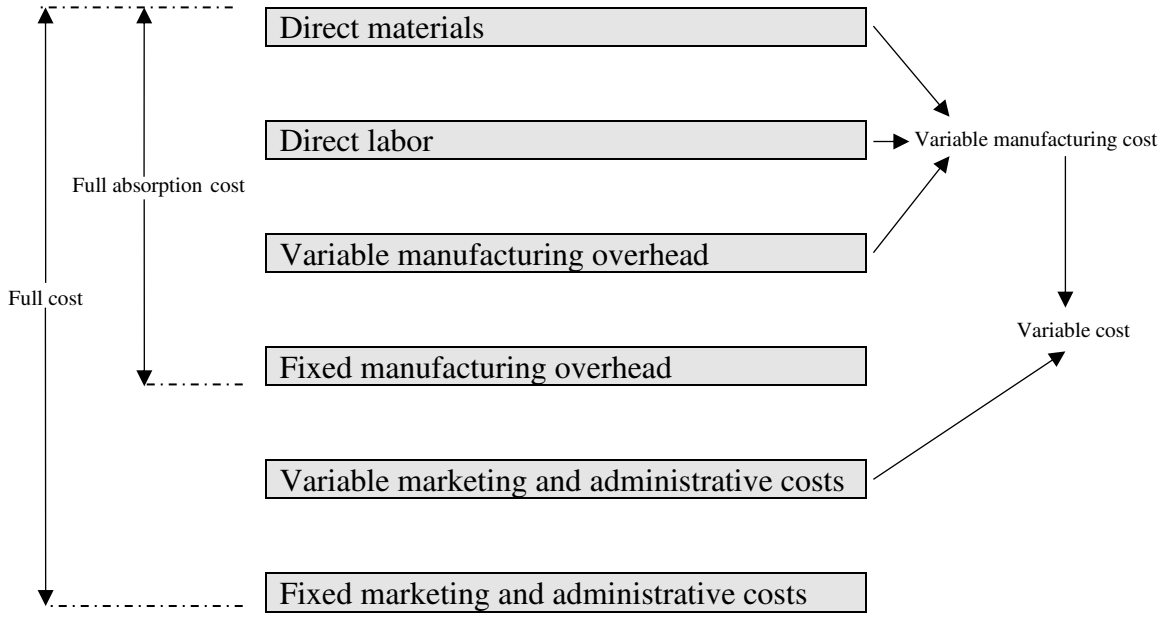
COMPONENTS OF PRODUCT COSTS

- Some cost concepts are determined by the rules of financial accounting. Some are more useful for managerial decision making.
  - **Full cost** is the sum of all fixed and variable costs of manufacturing and selling a unit of product.
  - **Full absorption cost** is the sum of all variable and fixed manufacturing costs. Full absorption cost is used to compute a product's inventory value under GAAP; as such, it excludes nonmanufacturing costs.
  - Exhibit 2.11 illustrates the product cost components for a company.
  - On a per-unit basis:
    - Full absorption cost = Direct materials + Direct labor + Variable manufacturing overhead + Fixed manufacturing overhead.
    - Full cost = Full absorption cost + Variable marketing and administrative costs + Fixed marketing and administrative costs.
    - Variable manufacturing cost = Direct materials + Direct labor + Variable manufacturing overhead.
    - Variable cost = Variable manufacturing cost + Variable marketing and administrative cost.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- The diagram below demonstrates the relationship among various product cost components.



- Unit Fixed Costs Can Be Misleading for Decision Making
  - Unit fixed costs are valid only at one volume.
  - When fixed costs are allocated to each unit, accounting records often make the costs appear as though they are variable.
  - It is easy to interpret unit costs incorrectly and make incorrect decisions.

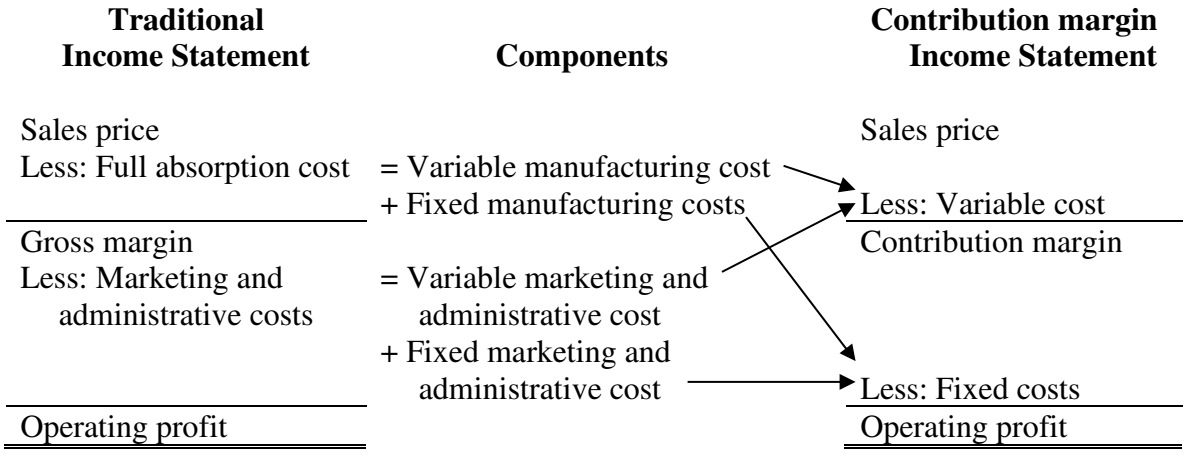
See Demonstration Problem 4

- **Gross margin** as reported in the external financial statements is the difference between revenue and cost of goods sold, or
  - Gross margin = Revenue – Cost of goods sold.
  - Gross margin per unit = Sales price – Full absorption cost per unit.
  - Cost of goods sold = Full absorption cost per unit × Number of units sold.
  - The income statement format that emphasizes gross margin is referred to as the traditional income statement.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- **Contribution margin per unit** = Sales price – Variable costs per unit. Contribution margin is the amount available to cover fixed costs and earn a profit.
    - The income statement format that emphasizes contribution margin is referred to as the contribution margin income statement.
        - Exhibit 2.12 highlights gross margin information while Exhibit 2.13 showcases contribution margin information. In both cases, the operating profit per unit remains the same.
        - The interaction behind the calculations of gross margin per unit and contribution margin per unit is presented below.



LO 2-7 Understand the distinction between financial and contribution margin income statements.

HOW TO MAKE COST INFORMATION MORE USEFUL FOR MANAGERS

- Period costs can be determined once product costs are properly defined. Three approaches to determining product costs are available.
    - Full absorption costing (traditional income statement): As required by GAAP, all fixed and variable manufacturing costs are product costs. All other costs are period costs.
    - Variable costing (contribution margin income statement): Only variable manufacturing costs are product costs. All other costs are period costs.
    - Managerial costing: Management determines which costs are associated with the product. Any new costs resulting from adding a product are considered product costs.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

See Demonstration Problem 5

- Gross Margin versus Contribution Margin Income Statements
    - A comparison of the first two income statement formats is shown below.

Gross Margin Income Statement	**Contribution Margin Income Statement**
Sales revenue	Sales revenue
Less: Cost of goods sold (including variable manufacturing costs and fixed manufacturing costs)	Less: Variable costs (including variable manufacturing and variable marketing and administrative costs)
Gross margin	Contribution margin
Less: Marketing and administrative costs (including variable marketing and administrative costs and fixed marketing and administrative costs)	Less: Fixed costs (including fixed manufacturing and fixed marketing and administrative costs)
Operating profit	Operating profit

    - Exhibit 2.14 illustrates the differences between gross margin and contribution margin income statements.
    - The product costs assigned to inventory are carried in the accounts as assets. When the goods are sold, the costs flow from inventory to the cost of goods sold account of the income statement.

See Demonstration Problem 6

- Developing Financial Statements for Decision Making
    - The cost accounting system is designed to provide managers with relevant information for decision making. Financial statements may be developed to serve special purposes.
    - Case in point is the development of a value income statement that classifies costs into value-added and nonvalue-added categories. By classifying activities as value added or nonvalue added, managers are better able to reduce or eliminate nonvalue-added activities and therefore reduce costs.
    - Exhibit 2.15 illustrates a value income statement.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

- Depending on the business and strategic environment of the firm, it is possible to construct financial statements around activities related to quality, environmental compliance, or new product development.

SUMMARY

- Exhibit 2.16 provides a summary of cost terms and definitions.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Matching

A. Administrative costs
B. Conversion costs
C. Cost allocation
D. Cost object
E. Cost pool
F. Direct cost
G. Full absorption cost
H. Indirect cost
I. Opportunity cost
J. Prime costs
K. Semivariable cost
L. Work in process

_____ 1. The foregone benefit from the best (forgone) alternative course of action.

_____ 2. Sum of direct labor and manufacturing overhead.

_____ 3. All variable and fixed manufacturing costs; used to compute a product's inventory value under GAAP.

_____ 4. The process of assigning indirect costs to products, services, people, business units, etc.

_____ 5. Any cost that cannot be directly related to a cost object.

_____ 6. Any end to which a cost is assigned.

_____ 7. Costs required to manage the organization and provide staff support.

_____ 8. Sum of direct materials and direct labor.

_____ 9. Collection of costs to be assigned to the cost objects.

_____ 10. A cost that has both fixed and variable components.

_____ 11. A product in the production process but not yet complete.

_____ 12. Any cost that can be directly (unambiguously) related to a cost object at reasonable cost.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Matching Answers

1. I
2. B
3. G
4. C
5. H
6. D
7. A
8. J
9. E
10. K
11. L
12. F

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Multiple Choice Questions

1. Which of the following statements about costs and expenses is correct?
   a. A cost is a sacrifice of resources.
   b. Cost and expense are the same.
   c. All assets will become expenses.
   d. There is no guidance as to when costs are to be treated as expenses.

2. A cost of goods sold statement for a retail business:
   a. includes transportation-in costs.
   b. has a cost of goods manufactured section.
   c. covers a period of time.
   d. Both a and c.

3. A period cost:
   a. is also known as manufacturing cost.
   b. includes both marketing and administrative costs.
   c. will be expensed when products are sold.
   d. is part of cost of goods sold.

Use the following information to answer questions 4 through 7:
A product is sold for $75 each with unit cost of direct materials $20, direct labor $15, variable manufacturing overhead $12, and fixed manufacturing overhead $10. The volume produced and sold is 6,000 units. Variable and fixed marketing and administrative costs are $4 and $3, respectively.

4. Which of the following statements is correct?
   a. Prime cost is $35.
   b. Conversion cost is $37.
   c. Inventoriable cost is $57.
   d. All of the above.

5. What is the amount of cost of goods sold?
   a. $342,000
   b. $201,500
   c. $364,000
   d. None of the above.

6. Which of the following statements is correct?
   a. Operating profit is $66,000.
   b. Gross margin is $108,000.
   c. Contribution margin is $144,000.
   d. All of the above.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

7. What is the full absorption cost per unit?
   a. The same as full cost.
   b. The same as inventoriable cost.
   c. The full absorption cost per unit is $55.
   d. The sum of variable manufacturing cost and variable marketing and administrative cost.

8. Which of the following statements regarding cost behavior within the relevant range is incorrect?
   a. Total fixed cost remains the same.
   b. Fixed cost per unit remains constant.
   c. Variable cost per unit remains constant.
   d. Semivariable cost is also called mixed cost.

9. Unit fixed cost:
   a. is treated as variable cost when allocated to each unit.
   b. can be used for decision making under any circumstances.
   c. is misleading as the total fixed cost does not change.
   d. Both a and c.

10. A value income statement:
   a. is developed for managerial decision making.
   b. distinguishes between value-added and nonvalue-added activities.
   c. is governed by GAAP.
   d. Both a and b.

11. Which of the following statements is correct?
   a. A cost object is any end to which a cost is assigned.
   b. A cost pool is the collection of costs to be assigned to the cost objects.
   c. A cost flow diagram is a diagram illustrating the cost allocation process.
   d. All of the above.

12. The annual operating expense of running a copy center is shared by the three departments that use its service: Human resource, Accounting, and Legal. Last year, the copy center incurred $30,000 while HR copied 20,000 pages, Accounting 30,000 pages, and Legal 50,000 pages. What was Accounting department's share of the copy center cost?
   a. $15,000
   b. $6,000
   c. $9,000
   d. $7,500

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Multiple Choice Answers

1. a (LO1)

2. d (LO2)

3. b (LO2)

4. d (LO4)

   Prime cost = $20 + $15 = $35
   Conversion cost = $15 + $12 + $10 = $37
   Inventoriable cost = $20 + $15 + $12 + $10 = $57

5. a (LO4)

   $57 × 6,000 = $342,000

6. d (LO4, LO7)

   Gross margin = ($75 × 6,000) – $342,000 = $108,000
   Operating profit = $108,000 – [($4 + $3) × 6,000] = $66,000
   Contribution margin = ($75 – $20 – $15 – $12 – $4) × 6,000 = $144,000

7. b (LO6)

8. b (LO5)

9. d (LO6)

10. d (LO7)

11. d (LO3)

12. c (LO3)

   Accounting department's share of usage = $\frac{30,000}{20,000+30,000+50,000} \times 100\% = 30\%$

   Accounting department's share of cost = $30,000 × 30% = $9,000

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 1

A developer plans to buy a parcel of land and construct an office building on top of it. He narrows his search to two possible lots in adjacent states with convenient access to highways. The expected returns from Lots C and D are $190,000 and $210,000, respectively.

Required:

What is the opportunity cost of funds the developer uses to purchase Lot D?

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 1 – Solution

The opportunity cost of funds the developer uses to purchase Lot D is the forgone return the developer could have earned from purchasing Lot C, assuming that both investments are equal in risk and liquidity.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 2

Kahn Industry, Inc. has three divisions. The following information was available for last quarter.

	Division A	Division B	Division C	Company
Revenues	$200,000	$320,000	$140,000	$660,000
Cost of goods (or services) sold	160,000	240,000	100,000	500,000
Gross margin	$240,000	$ 80,000	$ 40,000	$160,000
Marketing and administrative costs	18,000	20,000	12,000	50,000
Operating profit	$ 22,000	$ 60,000	$ 28,000	$110,000
Interest				10,000
Income taxes (30%)				30,000
Net income				$ 70,000

The CEO of Kahn Industry wanted to allocate the interest cost of $10,000 to the three divisions.

Required:

1. Identify the cost object(s) and the cost pool.
2. Allocate the interest cost based on each division's (1) revenues, (2) gross margin, and (3) operating profit.
3. Draw a cost flow diagram assuming the allocation of interest cost is based on revenues.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 2 – Solution

Part 1

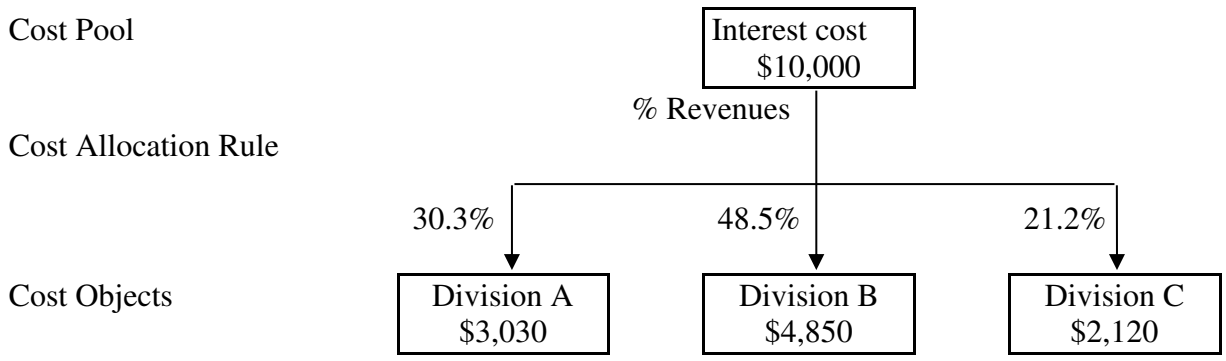
The cost objects are the three divisions; the cost pool is the interest cost incurred for the company as a whole.

Part 2

	Division A	Division B	Division C	Total
(1) Revenues	$200,000	$320,000	$140,000	$660,000
Allocation rule	30.3%[a]	48.5%[b]	21.2%[c]	100%
Allocation	$3,030	$4,850	$2,120	$10,000
(2) Gross margin	$40,000	$80,000	$40,000	$160,000
Allocation rule	25%	50%	25%	100%
Allocation	$2,500	$5,000	$2,500	$10,000
(3) Operating profit	$22,000	$60,000	$28,000	$110,000
Allocation rule	20.0%	54.5%	25.5%	100%
Allocation	$2,000	$5,450	$2,550	$10,000

[a] $200,000 ÷ $660,000 = 0.303, or 30.3%.
[b] $320,000 ÷ $660,000 = 0.485, or 48.5%.
[c] $140,000 ÷ $660,000 = 0.212, or 21.2%.

Part 3



Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 3

The account balances are listed below for Eagle Manufacturing Company for the month of March.

Finished goods inventory, March 31	$29,000
Direct materials purchases	70,000
Indirect labor	21,000
Direct labor	48,000
Work-in-process inventory, March 31	73,000
Factory supervisory salaries	12,000
Direct materials inventory, March 1	12,000
Factory utilities expense	4,000
Direct materials inventory, March 31	21,000
Work-in-process inventory, March 1	54,000
Factory depreciation expense	5,000
Finished goods inventory, March 1	33,000

Required:

Prepare a cost of goods manufactured and sold statement for Eagle Manufacturing Company for the month ended March 31.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 3 – Solution

Eagle Manufacturing Company
Cost of Goods Manufactured and Sold Statement
For the month of March

Beginning work-in-process inventory			$ 54,000
Manufacturing costs during the year:			
Direct materials			
Beginning inventory	$12,000		
Add: Purchase of direct materials	70,000		
Direct materials available	$82,000		
Less ending inventory	(21,000)		
Direct material put into production		$61,000	
Direct labor		48,000	
Manufacturing overhead:			
Indirect labor	$21,000		
Factory supervisory salaries	12,000		
Factory utilities expense	4,000		
Factory depreciation expense	5,000		
Total manufacturing overhead		42,000	
Total manufacturing costs incurred			151,000
Total work in process during the year			$205,000
Less ending work-in-process inventory			(73,000)
Cost of goods manufactured			$132,000
Beginning finished goods inventory			33,000
Finished goods available for sale			$165,000
Less ending finished goods inventory			(29,000)
Cost of goods sold			$136,000

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 4

Gourmet Industry manufactures pasta machines. The accountant of the company provides the cost structure for each pasta machine produced as follows:

Variable manufacturing cost	$ 85
Fixed manufacturing cost $\left(= \frac{\text{Fixed manufacturing cost per year}}{\text{Units produced per year}} = \frac{\$120,000}{2,000}\right)$	60
	$145

The regular price for each pasta machine is $200. A regional restaurant chain wants to buy 150 pasta machines for $120 each. Gourmet Industry is also responsible for a one-time shipping cost of $850. Marketing, administrative, total fixed costs, and regular sales are not affected by the decision. Gourmet Industry has enough idle capacity to handle the order.

Required:

Determine if Gourmet Industry should accept the special order.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 4 – Solution

By accepting the special order, Gourmet Industry will increase its operating profit by $4,400.

Revenues from special order ($120 × 150)	$18,000
Variable manufacturing cost ($85 × 150)	(12,750)
One-time shipping cost	(850)
Contribution of special order to operating profit	$ 4,400

The fixed manufacturing cost of $60 per unit will not affect the decision as the total fixed cost remains unchanged. Based on the analysis, Gourmet Industry should accept the special order.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 5

The following information is available for each unit of the finished product produced and sold:

Sales price	$60
Variable manufacturing cost	20
Fixed manufacturing cost*	12
Variable marketing and administrative cost	6
Fixed marketing and administrative cost*	4

* The unit fixed manufacturing cost and fixed marketing and administrative costs are based on an estimated volume of 6,000 units produced and sold.

Required:

Determine full absorption cost, variable cost, full cost, gross margin, contribution margin, and operating profit per unit.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 5 – Solution

Full absorption cost = $20 + $12 = $32

Variable cost = $20 + $6 = $26

Full cost = ($20 + $12 + $6 + $4) = $42

Gross margin = $60 – $32 = $28

Contribution margin = $60 – $26 = $34

Operating profit (from traditional income statement format) = $28 – ($6 + $4) = $18

Operating profit (from contribution margin income statement format) = $34 – ($12 + $4) = $18

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 6

(Continued from Demonstration Problem 5)

The following information is available for each unit of the finished product produced and sold:

Sales price	$60
Variable manufacturing cost	20
Fixed manufacturing cost*	12
Variable marketing and administrative cost	6
Fixed marketing and administrative cost*	4

* The unit fixed manufacturing cost and fixed marketing and administrative costs are based on an estimated volume of 6,000 units produced and sold.

Required:

Prepare a traditional income statement and contribution margin income statement when 6,000 units are produced and sold.

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual

Demonstration Problem 6 – Solution

Traditional Income Statement		Contribution Margin Income Statement	
Revenues	$360,000	Revenues	$360,000
Less: Cost of goods sold	(192,000)	Less: Variable cost	(156,000)
Gross margin	168,000	Contribution margin	204,000
Less: Marketing and administrative costs	(60,000)	Less: Fixed costs	(96,000)
Operating profit	$108,000	Operating profit	$108,000

Copyright ©2020 McGraw-Hill Education. All rights reserved. No reproduction or distribution without the prior written consent of McGraw-Hill Education.

Fundamentals of Cost Accounting 6th edition Lanen Solutions Manual