Overview

This chapter introduces the basic terminology of cost accounting. Communication among managers and management accountants is greatly facilitated by having a common understanding of the meaning of cost terms and concepts. The chapter illustrates a major theme of the textbook: using different costs for different purposes. The chapter also provides a framework to help you understand cost accounting and cost management.

Highlights

1. Accountants define cost as a resource sacrificed (used) or forgone to achieve a specific objective. For example, it might cost $5,000 per month to rent retail space in a shopping center. To guide their decisions, managers often want to know how much a particular thing costs. This “thing” is called a cost object, anything for which a measurement of costs is desired. In the following questions, the cost object is in italics: How much does it cost to manufacture a 12-pack of diet Pepsi? Which delivery truck at the local Pepsi bottling company is the least expensive to operate?

2. Costing systems account for costs in two basic stages. The first stage is cost accumulation, the collection of cost data in some organized way by means of an accounting system. The second stage is cost assignment, a general term that encompasses both (a) tracing direct costs to a cost object and (b) allocating indirect costs to a cost object.

3. The key question in cost assignment is whether costs have a direct or an indirect relationship to the particular cost object.

   - The direct costs of a cost object are related to the particular cost object and can be traced to it in an economically feasible (cost-effective) way. The term cost tracing describes the assignment of direct costs to the particular cost object.
   - The indirect costs of a cost object are related to the particular cost object but cannot be traced to it in an economically feasible way. The term cost allocation describes the assignment of indirect costs to the particular cost object.

Several factors affect the classification of a cost as direct or indirect: the materiality (relative importance) of the cost in question, available information-gathering technology, and design of operations.

4. Consider this question: Is the production department manager’s salary a direct cost or an indirect cost? The answer: It depends on the choice of the cost object. For example, if the cost object is the production department, the salary is a direct cost because it can be traced to the cost object. But if the cost object is one of the many products manufactured in the production department, the salary is an indirect cost because it can be allocated (but not traced) to the cost object.

5. Two basic types of cost-behavior patterns are found in accounting systems.

   - A variable cost changes in total in proportion to changes in the related level of total activity or volume. A variable cost does not change on a per unit basis when the related level of total activity or volume changes.
   - A fixed cost remains unchanged in total for a given time period despite wide changes in the related level of total activity or volume. A fixed cost increases (decreases) on a per unit basis when the related level of total activity or volume decreases (increases).

Costs are variable or fixed with respect to a specific activity and for a given time period. Relevant range is the band of normal activity level or volume in which there is a specific
relationship between the level of activity or volume and the cost in question.

6. A **cost driver** is a variable, such as the level of activity or volume, that causally affects costs over a given time span. In other words, a cause-and-effect relationship exists between a change in the level of activity or volume and a change in the level of total costs.

- The cost driver of a variable cost is the level of activity or volume whose change causes proportionate changes in that cost. For example, the number of trucks assembled is a cost driver of the cost of steering wheels for the trucks.
- Costs that are fixed in the short run have no cost driver in the short run but may have a cost driver in the long run. For example, the equipment and staff costs of product testing typically are fixed in the short run with respect to changes in the volume of production. In the long run, however, the company increases or decreases these costs to the levels needed to support future production levels.

7. Accounting systems typically report both **total costs** and **unit costs** (also called **average costs**). A unit cost is computed by dividing some amount of total costs by the related number of units. Unit costs are regularly used in financial reports. Generally, however, managers should think in terms of total costs rather than unit costs. That’s because fixed cost per unit changes when the related level of volume changes. Unit costs, therefore, should be interpreted with caution if they include a fixed-cost component. The Tennessee Products example, text p. 35-36, illustrates this important point.

8. Companies in the manufacturing, merchandising, and service sectors of the economy are frequently referred to in the study of cost accounting.

- **Manufacturing-sector companies** purchase materials and components and convert them into various finished goods. These companies typically have one or more of three types of inventory: **direct materials inventory**, **work-in-process inventory**, and **finished goods inventory**.
- **Merchandise-sector companies** purchase and then sell tangible products without changing their basic form. These companies have one type of inventory: **merchandise inventory**.
- **Service-sector companies** provide services (intangible products)—for example, legal advice, checking accounts, or audits—to their customers. These companies do not have an inventory of items for sale.

9. For companies with inventories, generally accepted accounting principles distinguish **inventoriable costs** from **period costs**.

- Inventoriable costs are all costs of a product that are considered as assets in the balance sheet when they are incurred and that become cost of goods sold only when the product is sold. For **manufacturing companies**, all **manufacturing costs** are **inventoriable costs**. For merchandising companies, inventoriable costs are the costs of purchasing the merchandise. Because service companies have no inventories, they have no inventoriable costs.
- Period costs are all costs in the income statement other than cost of goods sold. Period costs are treated as expenses of the accounting period in which they are incurred.

10. Three terms are widely used in describing manufacturing costs. In the following definitions, “the cost object” refers to “work in process and then finished goods.”

- **Direct material costs** are the acquisition costs of all materials that eventually become part of the cost object and that can be traced to that cost object in an economically feasible way.
- **Direct manufacturing labor costs** include the compensation of all manufacturing labor that can be traced to the cost object in an economically feasible way.
- **Indirect manufacturing costs** (also called **manufacturing overhead costs** or **factory overhead costs**) are all manufacturing costs that are related to the cost object but that
cannot be traced to it in an economically feasible way. Examples include power, indirect materials, indirect manufacturing labor, plant insurance, plant depreciation, and compensation of plant managers.

11. In the income statement of a manufacturing company, cost of goods sold is computed as follows (figures assumed):

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning finished goods</td>
<td>$ 50,000</td>
</tr>
<tr>
<td>Add cost of goods manufactured</td>
<td>800,000</td>
</tr>
<tr>
<td>Cost of goods available for sale</td>
<td>850,000</td>
</tr>
<tr>
<td>Deduct ending finished goods</td>
<td>60,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>$790,000</td>
</tr>
</tbody>
</table>

The line item, cost of goods manufactured, refers to the cost of goods brought to completion, whether they were started before or during the current accounting period. Cost of goods manufactured is often computed in a supporting schedule to the income statement as follows (figures assumed):

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning direct materials</td>
<td>$ 60,000</td>
</tr>
<tr>
<td>Add purchases of direct materials</td>
<td>510,000</td>
</tr>
<tr>
<td>Direct materials available for use</td>
<td>570,000</td>
</tr>
<tr>
<td>Deduct ending direct materials</td>
<td>50,000</td>
</tr>
<tr>
<td>Direct materials used</td>
<td>520,000</td>
</tr>
<tr>
<td>Add direct manufacturing labor</td>
<td>100,000</td>
</tr>
<tr>
<td>Add manufacturing overhead costs</td>
<td>230,000</td>
</tr>
<tr>
<td>Manufacturing costs incurred during the period</td>
<td>850,000</td>
</tr>
<tr>
<td>Add beginning work in process</td>
<td>120,000</td>
</tr>
<tr>
<td>Total manufacturing cost to account for</td>
<td>970,000</td>
</tr>
<tr>
<td>Deduct ending work in process</td>
<td>170,000</td>
</tr>
<tr>
<td>Cost of goods manufactured</td>
<td>$800,000</td>
</tr>
</tbody>
</table>

EXHIBIT 2-9, text p. 42, shows the flow of manufacturing costs, from Work-in-Process Inventory to Finished Goods Inventory to Cost of Goods Sold.

12. Manufacturing costing systems use the terms **prime costs** and **conversion costs**.

- Prime costs are all direct manufacturing costs. Under the three-part classification of manufacturing costs in paragraph 10, prime costs are equal to direct material costs plus direct manufacturing labor costs. In cases where other direct manufacturing cost categories are used, they too are prime costs. For example, power costs could be classified as a direct cost if the power is metered to specific areas of a plant that are dedicated to manufacturing separate products.
- Conversion costs are all manufacturing costs other than direct material costs; they are incurred to convert direct materials into finished goods. Under the three-part classification of manufacturing costs, conversion costs are equal to direct manufacturing labor costs plus indirect manufacturing costs.

13. All manufacturing labor compensation other than for direct labor, managers’ salaries, department heads’ salaries, and supervisors’ salaries is usually classified as indirect labor costs—a major component of manufacturing overhead. Two main categories of indirect labor in manufacturing and service companies are **overtime premium** and **idle time**. Overtime premium is the wage rate paid to workers (for both direct labor and indirect labor) in excess of their straight-time wage rates. Overtime premium is classified as overhead when the overtime is attributable to the heavy overall volume of work. When a particular job, such as a rush order, is the sole reason for the overtime, the overtime premium is classified as a direct cost of that job. Idle time is wages paid for unproductive time caused by lack of orders, machine breakdowns, material shortages, poor scheduling, and the like.

14. Some manufacturing companies classify payroll fringe benefit costs of direct labor as overhead cost, whereas others classify them as direct labor cost. The latter approach is preferable because these payroll fringe benefit costs are a fundamental part of acquiring direct manufacturing labor services. To prevent disputes about cost items such as payroll fringe benefits, training time, overtime premium, idle time, vacations, and sick leave, contracts and laws should be as specific as feasible regarding definitions and measurements.

15. An important theme of the textbook is **using different costs for different purposes**. For
example, managers can assign different costs to a product depending on their purpose. A product cost is the sum of costs assigned to a product for a specific purpose, such as (a) preparing financial statements for external reporting under generally accepted accounting principles (GAAP), (b) contracting with government agencies, or (c) pricing and product-mix decisions. For financial statements based on GAAP, a product cost includes only inventoriable costs. A product cost includes a broader set of costs for reimbursement under government contracts, or a still broader set of costs for pricing and product-mix decisions.

16. Three features of cost accounting and cost management across a wide range of applications are:

<table>
<thead>
<tr>
<th>Featured Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Whitaker Company’s relevant range is between 8,000 units and 16,000 units. If 10,000 units are produced, variable costs are $200,000 and fixed costs are $450,000. Assuming production increases to 15,000 units, compute (a) total variable costs, (b) variable cost per unit, and (c) fixed cost per unit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solution</th>
</tr>
</thead>
</table>
| a. Variable cost per unit = $200,000 / 10,000 = $20  
Total variable costs = $20 * 15,000 = $300,000 |
| b. Variable cost per unit = $300,000 / 15,000 = $20 |
| c. Fixed cost per unit = $450,000 / 15,000 = $30 |
2. The following information pertains to Thorpe Company’s operations for January of the current year:

<table>
<thead>
<tr>
<th>Inventories</th>
<th>Beginning</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials</td>
<td>$18,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Work in process</td>
<td>9,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Finished goods</td>
<td>27,000</td>
<td>36,000</td>
</tr>
</tbody>
</table>

Additional cost information for January: direct materials purchased $42,000, direct manufacturing labor $30,000, manufacturing overhead $40,000.

Compute cost of goods manufactured for January.

Solution

Direct material used, $18,000 + $42,000 − $15,000 $45,000
Direct manufacturing labor 30,000
Manufacturing overhead 40,000
Manufacturing costs incurred during the period 115,000
Add beginning work-in-process inventory 9,000
Total manufacturing costs to account for 124,000
Deduct ending work-in-process inventory 6,000
Cost of goods manufactured $118,000
**Completion Statements**

Fill in the blank(s) to complete each statement.

1. For a given cost object, ________ costs are traced to it and ________ costs are allocated to it.
2. A _________________ is the band of normal activity level or volume in which there is a specific relationship between the level of activity or volume and the cost in question.
3. A ________________ is a variable, such as the level of activity or volume, that causally affects costs over a given time span.
4. All costs of a product that are considered as assets when they are incurred and that become cost of goods sold only when the product is sold are called ________________ costs.
5. ________________ costs are all costs in the income statement other than cost of goods sold.
6. Indirect manufacturing costs are also known as ____________________________ costs.
7. ________________ costs are incurred to convert direct materials into finished goods.
8. Different costs are assigned to products for different purposes. Three of these purposes are:

   ________________________________
   ________________________________
   ________________________________

**True-False**

Indicate whether each statement is true (T) or false (F).

1.  __ A cost object is a target level of costs to be achieved.
2.  __ Cost accumulation is a general term that encompasses both tracing costs to a cost object and allocating costs to that cost object.
3.  __ A given cost item can be a direct cost of one cost object and an indirect cost of another cost object.
4.  __ When graphed on a per unit basis, both variable costs and fixed costs are linear within the relevant range.
5.  __ For a manufacturer of soft drinks, television advertising and depreciation on bottle-capping machines are period costs.
6.  __ In the income statement of a manufacturing company, cost of goods manufactured refers to the cost of goods brought to completion, whether they were started before or during the current accounting period.
7.  __ The concept of inventoriable costs is applicable to manufacturing companies and merchandising companies, but not to service companies.
8.  __ Manufacturing costs incurred during the accounting period minus the decrease in work-in-process inventory during the period is equal to cost of goods manufactured.
9.  __ When a manufacturing plant becomes highly automated, the traditional three-part classification of manufacturing costs is not necessarily used.
10. __ It is preferable to classify payroll fringe benefit costs of direct manufacturing labor as a manufacturing overhead cost.

**Multiple Choice**

Select the best answer to each question. Space is provided for computations after the quantitative questions.

1.  __ (CMA adapted) A fixed cost that would be considered a direct cost is:
   a. a controller’s salary if the cost object is a unit of product.
   b. the cost of renting a warehouse to store inventory if the cost object is the Purchasing Department.
   c. an order clerk’s salary if the cost object is the Purchasing Department.
   d. the cost of electricity if the cost object is the Internal Audit Department.
2. Booth Company has total fixed costs of $64,000 if 8,000 units are produced. The relevant range is 8,000 units to 16,000 units. If 10,000 units are produced, fixed costs are:
   a. $80,000 in total.
   b. $8 per unit.
   c. $48,000 in total.
   d. $6.40 per unit.

3. In general, costs that can be most reliably predicted are:
   a. fixed cost per unit.
   b. total cost per unit.
   c. total variable costs.
   d. variable cost per unit.

4. Oxley Company has total variable costs of $120,000 if 15,000 units are produced. The relevant range is 10,000 units to 20,000 units. If 12,000 units are produced, variable costs are:
   a. $10 per unit.
   b. $120,000 in total.
   c. $8 per unit.
   d. $90,000 in total.

5. (CPA adapted) The monthly cost of renting a manufacturing plant is:
   a. a prime cost and an inventoriable cost.
   b. a prime cost and a period cost.
   c. a conversion cost and an inventoriable cost.
   d. a conversion cost and a period cost.

6. (CPA adapted) Anthony Company has budgeted its cost of goods sold at $4,000,000, including fixed costs of $800,000. The variable cost of goods sold is expected to be 75% of revenues. Budgeted revenues are:
   a. $4,266,667.
   b. $4,800,000.
   c. $5,333,333.
   d. $6,400,000.

7. (CPA) For 2008, the gross margin of Dumas Company is $96,000; the cost of goods manufactured is $340,000; the beginning inventories of work in process and finished goods are $28,000 and $45,000, respectively; and the ending inventories of work in process and finished goods are $38,000 and $52,000, respectively. The revenues of Dumas Company for 2008 are:
   a. $419,000.
   b. $429,000.
   c. $434,000.
   d. $436,000.

8. Using the traditional three-part classification of manufacturing costs, prime costs and conversion costs have the common component of:
   a. direct material costs.
   b. direct manufacturing labor costs.
   c. variable manufacturing overhead costs.
   d. fixed manufacturing overhead costs.

9. An assembly worker at a manufacturing company earns $12 per hour for straight time and $18 per hour for time over 40 hours per week. In a given week, the assembler worked 47 hours. The overtime premium for the week is:
   a. $6.
   b. $42.
   c. $84.
   d. $126.
1. (CMA adapted) Backus Company estimated its unit cost of producing and selling 12,000 units per month as follows:

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials used</td>
<td>$32</td>
</tr>
<tr>
<td>Direct manufacturing labor</td>
<td>20</td>
</tr>
<tr>
<td>Variable manufacturing overhead</td>
<td>15</td>
</tr>
<tr>
<td>Fixed manufacturing overhead</td>
<td>6</td>
</tr>
<tr>
<td>Variable nonmanufacturing costs</td>
<td>3</td>
</tr>
<tr>
<td>Fixed nonmanufacturing costs</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>$80</strong></td>
</tr>
</tbody>
</table>

The cost driver for manufacturing costs is units produced. The cost driver for nonmanufacturing costs is units sold. The relevant range is 7,000 units to 14,000 units.

a. Compute fixed manufacturing overhead per unit for monthly production of 10,000 units.
b. Compute total costs (manufacturing and nonmanufacturing) for a month when 9,000 units are produced and 8,000 units are sold.

2. Yardley Corp. incurred the following manufacturing costs in 2008:

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable manufacturing costs:</td>
<td></td>
</tr>
<tr>
<td>Direct materials</td>
<td>$600,000</td>
</tr>
<tr>
<td>Direct manufacturing labor</td>
<td>560,000</td>
</tr>
<tr>
<td>Manufacturing overhead</td>
<td>40,000</td>
</tr>
<tr>
<td>Fixed manufacturing overhead</td>
<td>540,000</td>
</tr>
<tr>
<td><strong>Total manufacturing overhead</strong></td>
<td><strong>$1,740,000</strong></td>
</tr>
</tbody>
</table>

In 2008, the total unit cost at production levels of 40,000 units and 60,000 units is $37.50 and $33.00, respectively. The relevant range is 35,000 units to 70,000 units.

Compute the number of units produced in 2008.
3. (CPA) The following information is from the records of Wiggins & Sons for 2008:

<table>
<thead>
<tr>
<th>Inventories</th>
<th>Ending</th>
<th>Beginning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finished goods</td>
<td>$95,000</td>
<td>$110,000</td>
</tr>
<tr>
<td>Work in process</td>
<td>80,000</td>
<td>70,000</td>
</tr>
<tr>
<td>Direct materials</td>
<td>95,000</td>
<td>90,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Costs Incurred During the Period</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total manufacturing costs</td>
<td>$580,000</td>
<td></td>
</tr>
<tr>
<td>Manufacturing overhead</td>
<td>160,000</td>
<td></td>
</tr>
<tr>
<td>Direct materials used</td>
<td>190,000</td>
<td></td>
</tr>
</tbody>
</table>

a. Compute direct materials purchased.
b. Compute direct manufacturing labor costs.
c. Compute cost of goods sold.
Crossword Puzzle for Chapters 1 and 2

ACROSS
1. A resource sacrificed or forgone
3. Different costs for different __________
5. The management accountant’s attention-directing __________
7. A __________ cost increases in total as more units are produced.
11. Cost-__________ approach
12. Chief accounting officer
13. Code of professional __________
14. A planning tool
15. All costs in the income statement except cost of goods sold
18. __________ focus
20. A cost __________ is a variable that causes costs to increase or decrease over a given time period.
21. Relevant __________

DOWN
1. Supply __________
2. Matches organization’s capabilities to opportunities in marketplace
3. All direct manufacturing costs are __________ costs.
4. Includes selecting organization goals
6. __________ management versus staff management
8. __________ chain of business functions
9. A __________ cost decreases per unit as more units are produced.
10. Planning and __________ functions
15. __________ cost has three different meanings
16. Direct costs of a cost __________
17. Part of the value chain: __________ of products, services, or processes
19. $100,000/20,000 units = $5; $5 is the __________ cost
Answers and Solutions to Chapter 2 Review Questions and Exercises

Completion Statements

1. direct, indirect
2. relevant range
3. cost driver
4. inventoriable
5. Period
6. manufacturing overhead (factory overhead)
7. Conversion
8. preparing financial statements, contracting with government agencies, pricing and product-mix decisions

True-False

1. F A cost object is anything for which a measurement of costs is desired. Examples of cost objects include products, customers, projects, and departments.
2. F The statement defines cost assignment, not cost accumulation. Cost accumulation is the collection of cost data in some organized way by means of an accounting system.
3. T
4. F Variable cost per unit remains the same within the relevant range. Fixed cost per unit increases (decreases)—though not in a straight line—if the related level of activity or volume decreases (increases). When graphed on a total basis, both variable costs and fixed costs are straight lines (linear) within the relevant range.
5. F Nonmanufacturing costs are period costs, and manufacturing costs are inventoriable costs. Television advertising is a period cost, and depreciation on the bottle-capping machines is an inventoriable cost.
6. T
7. T
8. F When work-in-process inventory decreases during the accounting period (that is, the ending work-in-process inventory is less than the beginning work-in-process inventory), cost of goods manufactured exceeds manufacturing costs incurred for the period. Cost of goods manufactured, therefore, is equal to manufacturing costs incurred during the period plus the decrease in work-in-process inventory. Exhibit 2-8, text p. 41, shows the opposite case in which work-in-process inventory increased during the period.
9. T
10. F It is preferable to classify payroll fringe benefit costs of direct manufacturing labor as a direct manufacturing labor cost. That’s because payroll fringe benefit costs are a fundamental aspect of acquiring the direct manufacturing labor services.

Multiple Choice

1. c Answers (a), (b), and (d) refer to indirect costs of their respective cost objects.
2. d $64,000 ÷ 10,000 = $6.40 per unit
3. d In general, variable cost per unit and fixed costs in total can be most reliably predicted because a forecast of the level of activity or volume is not required.
4. c $120,000 ÷ 15,000 = $8 per unit, which is also the variable cost per unit when 12,000 units are produced.
5. c Plant rent is part of manufacturing overhead costs. As a result, it is a conversion cost and an inventoriable cost.

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6. a The variable portion of budgeted cost of goods sold is $4,000,000 − $800,000 = $3,200,000. Because this amount is 75% of revenues, budgeted revenues are $3,200,000 ÷ 0.75 = $4,266,667.

7. b Beginning finished goods $ 45,000
Cost of goods manufactured 340,000
Cost of goods available for sale 385,000
Ending finished goods 52,000
Cost of goods sold $333,000

Revenues $ R
Cost of goods sold 333,000
Gross margin $ 96,000

R − $333,000 = $96,000
R = $96,000 + $333,000 = $429,000

Note, the beginning and ending work-in-process inventories are not explicitly included in these computations. That’s because the cost of goods manufactured, $340,000, includes the change in work-in-process inventory.

8. b Under the traditional three-part classification of manufacturing costs:
Prime costs = Direct material costs + Direct manufacturing labor costs
Conversion costs = Direct manufacturing labor costs + Manufacturing overhead costs

9. b Overtime premium = (47 − 40) × ($18 − $12) = 7 × $6 = $42

Review Exercise 1

a. Fixed manufacturing overhead = 12,000 × $6 = $72,000
Fixed manufacturing overhead per unit = $72,000 ÷ 10,000 = $7.20
b. Variable manufacturing costs
9,000 × ($32 + $20 + $15) $603,000
Fixed manufacturing costs, 12,000 × $6 72,000
Variable nonmanufacturing costs, 8,000 × $3 24,000
Fixed nonmanufacturing costs, 12,000 × $4 48,000
Total costs $747,000

Review Exercise 2

Variable cost per unit:
$37.50 − ($540,000 ÷ 40,000) = $37.50 − $13.50 = $24.00
or
$33.00 − ($540,000 ÷ 60,000) = $33.00 − $9.00 = $24.00
Units produced = ($600,000 + $560,000 + $40,000) ÷ $24.00
= $1,200,000 ÷ $24.00 = 50,000 units
Review Exercise 3

a. Direct material costs:
   - Beginning inventory $90,000
   - Add purchases $P$
   - Available for use ?
   - Deduct ending inventory $95,000
   - Direct materials used $190,000

   \[90,000 + P - 95,000 = 190,000\]
   \[P = 190,000 - 90,000 + 95,000 = 195,000\]

b. Direct materials used $190,000
   - Direct manufacturing labor costs $L$
   - Manufacturing overhead costs $160,000$
   - Manufacturing costs incurred during the period $580,000$

   \[190,000 + L + 160,000 = 580,000\]
   \[L = 580,000 - 190,000 - 160,000 = 230,000\]

c. Two steps are used to obtain the answer. First, compute cost of goods manufactured:
   - Manufacturing costs incurred during the period $580,000$
   - Add beginning work in process $70,000$
   - Manufacturing costs to account for $650,000$
   - Deduct ending work in process $80,000$
   - Cost of goods manufactured $570,000$

   Second, compute cost of goods sold:
   - Beginning finished goods $110,000$
   - Add cost of goods manufactured $570,000$
   - Cost of goods available for sale $680,000$
   - Deduct ending finished goods $95,000$
   - Cost of goods sold $585,000
Solution to Crossword Puzzle for Chapters 1 and 2

COST

PURPOSES

H

T

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L

A

ROLE

I

VARIABLE

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A

IM

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N

T

E

N

V

BENEFIT

I

A

G

CONTROLLER

Y

X

G

U

ETHICS

BUDGET

PERIOD

O

R

B

N

D

O

J

CUSTOMER

DRIVER

R

S

U

C

I

O

I

C

T

LL

G

T

RANGE

22     CHAPTER 2