

# Chapter 18

## Introduction to Managerial Accounting

### *Review Questions*

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1. What is the primary purpose of managerial accounting?

The primary purpose of managerial accounting is to provide information to help managers plan, direct, control, and make decisions.

2. List six differences between financial accounting and managerial accounting.

Financial accounting and managerial accounting differ on the following 6 dimensions: (1) primary users, (2) purpose of information, (3) focus and time dimension of the information, (4) rules and restrictions, (5) scope of information, and (6) behavioral.

3. Explain the difference between line positions and staff positions.

Line positions are directly involved in providing goods or services to customers. Staff positions support line positions.

4. Explain the differences between planning, directing, and controlling.

Planning means choosing goals and deciding how to achieve them. Directing involves running the day-to-day operations of a business. Controlling is the process of monitoring operations and keeping the company on track.

5. List the four IMA standards of ethical practice, and briefly describe each.

The four IMA standards of ethical practice and a description of each follow.

#### I. Competence.

- Maintain an appropriate level of professional expertise by continually developing knowledge and skills.
- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Provide decision support information and recommendations that are accurate, clear, concise, and timely.
- Recognize and communicate professional limitations or other constraints that preclude responsible judgment or successful performance of an activity.

#### II. Confidentiality.

- Keep information confidential except when disclosure is authorized or legally required.
- Inform all relevant parties regarding appropriate use of confidential information. Monitor subordinates' activities to ensure compliance.
- Refrain from using confidential information for unethical or illegal advantage.

### III. Integrity.

- Mitigate actual conflicts of interest, regularly communicate with business associates to avoid apparent conflicts of interest. Advise all parties of any potential conflicts.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Abstain from engaging in or supporting any activity that might discredit the profession.

### IV. Credibility.

- Communicate information fairly and objectively.
- Disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.
- Disclose delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/or applicable law.

#### 6. Describe a service company, and give an example.

Service companies sell time, skills, and knowledge. Examples of service companies include phone service companies, banks, cleaning service companies, accounting firms, law firms, medical physicians, and online auction services.

#### 7. Describe a merchandising company, and give an example.

Merchandising companies resell products they buy from suppliers. Merchandisers keep an inventory of products, and managers are accountable for the purchasing, storage, and sale of the products. Examples of merchandising companies include toy stores, grocery stores, and clothing stores.

#### 8. How do manufacturing companies differ from merchandising companies?

Merchandising companies resell products they previously bought from suppliers, whereas manufacturing companies use labor, equipment, supplies, and facilities to convert raw materials into new finished products. In contrast to merchandising companies, manufacturing companies have a broad range of production activities that require tracking costs on three kinds of inventory.

#### 9. List the three inventory accounts used by manufacturing companies, and describe each.

The three inventory accounts used by manufacturing companies are Raw Materials Inventory, Work-in-Process Inventory, and Finished Goods Inventory.

Raw Materials Inventory includes materials used to manufacture a product. Work-in-Process Inventory includes goods that have been started in the manufacturing process but are not yet complete. Finished Goods Inventory includes completed goods that have not yet been sold.

**10.** Explain the difference between a direct cost and an indirect cost.

A direct cost is a cost that can be easily and cost-effectively traced to a cost object (which is anything for which managers want a separate measurement of cost). An indirect cost is a cost that cannot be easily or cost-effectively traced to a cost object.

**11.** What are the three manufacturing costs for a manufacturing company? Describe each.

The three manufacturing costs for a manufacturing company are direct materials, direct labor, and manufacturing overhead. Direct materials are materials that become a physical part of a finished product and whose costs are easily traceable to the finished product. Direct labor is the labor cost of the employees who convert materials into finished products. Manufacturing overhead includes all manufacturing costs except direct materials and direct labor, such as indirect materials, indirect labor, factory depreciation, factory rent, and factory property taxes.

**12.** Give five examples of manufacturing overhead.

Examples of manufacturing overhead include costs of indirect materials, indirect labor, repair and maintenance in factory, factory utilities, factory rent, factory insurance, factory property taxes, manufacturing plant managers' salaries, and depreciation on manufacturing buildings and equipment.

**13.** What are prime costs? Conversion costs?

Prime costs are direct materials plus direct labor. Conversion costs are direct labor plus manufacturing overhead. Note that direct labor is classified as both a prime cost and a conversion cost.

**14.** What are product costs?

Product costs are the cost of purchasing or making a product. These costs are recorded as an asset and not expensed until the product is sold. Product costs include direct materials, direct labor, and manufacturing overhead.

**15.** How do period costs differ from product costs?

Period costs are non-manufacturing costs that are expensed in the same accounting period in which they are incurred, whereas product costs are recorded as an asset and not expensed until the accounting period in which the product is sold.

**16.** How is cost of goods manufactured calculated?

Cost of Goods Manufactured is calculated as Beginning Work-in-Process Inventory + Total Manufacturing Costs Incurred during the Year – Ending Work-in-Process Inventory. Total Manufacturing Costs Incurred during the Year = Direct Materials Used + Direct Labor + Manufacturing Overhead.

**17.** How does a manufacturing company calculate cost of goods sold? How is this different from a merchandising company?

For a manufacturing company, the activity in the Finished Goods Inventory account provides the information for determining Cost of Goods Sold. A manufacturing company calculates Cost of Goods Sold as Beginning Finished Goods Inventory + Cost of Goods Manufactured – Ending Finished Good Inventory. In addition, a manufacturing company must track costs from Raw Materials Inventory and Work-in-Process Inventory in order to compute Cost of Goods Manufactured used in the previous equation.

For a merchandising company, the activity in the Merchandise Inventory account provides the information for determining Cost of Goods Sold. A merchandising company calculates Cost of Goods Sold as Beginning Merchandise Inventory + Purchases and Freight In – Ending Merchandise Inventory.

**18.** How does a manufacturing company calculate unit product cost?

A manufacturing company calculates unit product cost as Cost of Goods Manufactured / Total number of units produced.

**19.** How does a service company calculate unit cost per service?

A service company calculates unit cost per service as Total Costs / Total number of services provided.

**20.** How does a merchandising company calculate unit cost per item?

A merchandising company calculates unit cost per item as Total Cost of Goods Sold / Total number of items sold.

## ***Short Exercises***

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### **S18-1 Comparing managerial accounting and financial accounting**

#### **Learning Objective 1**

For each of the following, indicate whether the statement relates to managerial accounting (MA) or financial accounting (FA):

- a. Helps investors make investment decisions.
- b. Provides detailed reports on parts of the company.
- c. Helps in planning and controlling operations.
- d. Reports must follow Generally Accepted Accounting Principles (GAAP).
- e. Reports audited annually by independent certified public accountants.

#### **SOLUTION**

- a. FA
- b. MA
- c. MA
- d. FA
- e. FA

### **S18-2 Identifying ethical standards**

#### **Learning Objective 1**

The Institute of Management Accountants' Statement of Ethical Professional Practice requires managerial accountants to meet standards regarding competence, confidentiality, integrity, and credibility. Consider the following situations. Which standard(s) is(are) violated in each situation?

- a. You tell your brother that your company will report earnings significantly above financial analysts' estimates.
- b. You see others take home office supplies for personal use. As an intern, you do the same thing, assuming that this is a "perk."
- c. At a company-paid conference on e-commerce, you skip the afternoon session and go sightseeing.
- d. You failed to read the detailed specifications of a new accounting software package that you asked your company to purchase. After it is installed, you are surprised that it is incompatible with some of your company's older accounting software.
- e. You do not provide top management with the detailed job descriptions they requested because you fear they may use this information to cut a position in your department.

**S18-2, cont.**  
**SOLUTION**

- a. Confidentiality
- b. Integrity
- c. Competence (skipping the session); Integrity (company-paid conference)
- d. Competence
- e. Credibility; Integrity

**S18-3 Distinguishing between direct and indirect costs**

**Learning Objective 2**

Granger Cards is a manufacturer of greeting cards. Classify its costs by matching the costs to the terms.

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1. Direct materials	a. Artists' wages
2. Direct labor	b. Wages of materials warehouse workers
3. Indirect materials	c. Paper
4. Indirect labor	d. Depreciation on manufacturing equipment
5. Other manufacturing overhead	e. Manufacturing plant manager's salary
	f. Property taxes on manufacturing plant
	g. Glue for envelopes

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**SOLUTION**

- a. 2
- b. 4
- c. 1
- d. 5
- e. 4
- f. 5
- g. 3

## S18-4 Computing manufacturing overhead

### Learning Objective 2

Sunglasses Unlimited Company manufactures sunglasses. Following is a list of costs the company incurred during May. Use the list to calculate the total manufacturing overhead costs for the month.

Glue for frames	\$ 250
Depreciation on company cars used by sales force	4,000
Plant depreciation	7,500
Interest Expense	1,500
Lenses	52,000
Company president's salary	24,500
Plant foreman's salary	3,500
Plant janitor's wages	1,300
Oil for manufacturing equipment	150

### SOLUTION

Glue for frames	\$ 250
Plant depreciation	7,500
Plant foreman's salary	3,500
Plant janitor's wages	1,300
Oil for manufacturing equipment	150
Total manufacturing overhead	<u>\$ 12,700</u>

## S18-5 Identifying product costs and period costs

### Learning Objective 2

Classify each cost of a paper manufacturer as either a product cost or a period cost:

- Salaries of scientists studying ways to speed forest growth.
- Cost of computer software to track WIP Inventory.
- Cost of electricity at the paper mill.
- Salaries of the company's top executives.
- Cost of chemicals to treat the paper.
- Cost of TV ads.
- Depreciation on the manufacturing plant.
- Cost to purchase wood pulp.
- Life insurance on the CEO.

**S18-5, cont.**  
**SOLUTION**

- a. Period cost
- b. Product cost
- c. Product cost
- d. Period cost
- e. Product cost
- f. Period cost
- g. Product cost
- h. Product cost
- i. Period cost



## S18-6 Computing cost of goods sold, merchandising company

### Learning Objective 3

Use the following information for The Windshield Helper, a retail merchandiser of auto windshields, to compute the cost of goods sold:

Web Site Maintenance	\$ 7,900
Delivery Expense	400
Freight In	2,400
Purchases	47,000
Ending Merchandise Inventory	5,500
Revenues	63,000
Marketing Expenses	10,700
Beginning Merchandise Inventory	8,600

### SOLUTION

Beginning merchandise inventory		\$ 8,600
Purchases	\$ 47,000	
Freight in	<u>2,400</u>	<u>49,400</u>
Cost of goods available for sale		58,000
Ending merchandise inventory		<u>(5,500)</u>
Cost of goods sold		<u>\$ 52,500</u>

## S18-7 Computing cost of goods sold and operating income, merchandising company

### Learning Objective 3

Consider the following partially completed income statements for merchandising companies and compute the missing amounts:

	Smith, Inc.	Allen, Inc.
Net Sales Revenue	\$ 101,000	\$ (d)
Cost of Goods Sold:		
Beginning Merchandise Inventory	(a)	29,000
Purchases and Freight In	<u>50,000</u>	<u>(e)</u>
Cost of Goods Available for Sale	(b)	89,000
Ending Merchandise Inventory	<u>(2,200)</u>	<u>(2,200)</u>
Cost of Goods Sold	<u>61,000</u>	<u>(f)</u>
Gross Profit	40,000	114,000
Selling and Administrative Expenses	<u>(c)</u>	<u>84,000</u>
Operating Income	<u>\$ 12,000</u>	<u>\$ (g)</u>

**S18-7, cont.**  
**SOLUTION**

	<u>Solutions:</u>	<u>Calculations:</u>
(a)	\$13,200	\$63,200 [b, below] – \$50,000
(b)	\$63,200	\$61,000 + \$2,200
(c)	\$28,000	\$40,000 – \$12,000
(d)	\$200,800	\$86,800 + 114,000
(e)	\$60,000	\$89,000 – \$29,000
(f)	\$86,800	\$89,000 – \$2,200
(g)	\$30,000	\$114,000 – \$84,000

Order of calculations:

Smith, Inc.: (b), (a), (c)

Allen, Inc.: (e), (f), (d), and (g)

**S18-8 Computing direct materials used**

**Learning Objective 3**

Tuscany, Inc. has compiled the following data:

Purchases of Direct Materials	\$ 6,300
Freight In	400
Property Taxes	800
Ending Direct Materials	1,300
Beginning Direct Materials	4,100

Compute the amount of direct materials used.

**SOLUTION**

Beginning Direct Materials		\$ 4,100
Purchases of Direct Materials	\$ 6,300	
Freight In	400	6,700
Direct Materials Available for Use		10,800
Ending Direct Materials		(1,300)
Direct Materials Used		<u>\$ 9,500</u>

## S18-9 Computing cost of goods manufactured

### Learning Objective 3

Use the following inventory data for Caddy Golf Company to compute the cost of goods manufactured for the year:

Direct Materials Used	\$ 12,000
Manufacturing Overhead	21,000
Work-in-Process Inventory:	
Beginning Balance	1,000
Ending Balance	5,000
Direct Labor	9,000
Finished Goods Inventory:	
Beginning Balance	18,000
Ending Balance	4,000

### SOLUTION

Beginning Work-in-Process Inventory		\$ 1,000
Direct Materials Used	\$ 12,000	
Direct Labor	9,000	
Manufacturing Overhead	21,000	
Total Manufacturing Costs Incurred during the Year		<u>42,000</u>
Total Manufacturing Costs to Account For		43,000
Ending Work-in-Process Inventory		<u>(5,000)</u>
Cost of Goods Manufactured		<u><u>\$ 38,000</u></u>

## S18-10 Computing cost of goods sold, manufacturing company

### Learning Objective 3

Use the following information to calculate the cost of goods sold for The Ellis Company for the month of June:

Finished Goods Inventory:	
Beginning Balance	\$ 30,000
Ending Balance	10,000
Cost of Goods Manufactured	165,000

### SOLUTION

Beginning Finished Goods Inventory	\$ 30,000
Cost of Goods Manufactured	165,000
Cost of Goods Available for Sale	<u>195,000</u>
Ending Finished Goods Inventory	<u>(10,000)</u>
Cost of Goods Sold	<u><u>\$ 185,000</u></u>

## S18-11 Matching business trends terminology

### Learning Objective 4

Match the term with the correct definition.

1. A philosophy designed to integrate all organizational areas in order to provide customers with superior products and services while meeting organizational objectives. Requires improving quality and eliminating defects and waste.  
**a. ERP**  
**b. JIT**  
**c. E-commerce**  
**d. TQM**
2. Use of the Internet for business functions such as sales and customer service. Enables companies to reach customers around the world.  
**e. Triple bottom line**
3. Evaluating a company's performance by its economic, social, and environmental impact.
4. Software system that integrates all of a company's functions, departments, and data into a single system.
5. A system in which a company produces products just when they are needed to satisfy needs. Suppliers deliver materials when they are needed to begin production, and finished units are completed at the right time for delivery to customers.

**S18-11, cont.**  
**SOLUTION**

1. d.
2. c.
3. e.
4. a.
5. b.

**S18-12 Calculating unit cost per service**

**Learning Objective 5**

Marx and Tyler provides hair-cutting services in the local community. In February, the business cut the hair of 190 clients, earned \$4,800 in revenues, and incurred the following operating costs:

Hair Supplies Expense	\$ 950
Wages Expense	548
Utilities Expense	190
Depreciation Expense—Equipment	60

What was the cost of service to provide one haircut?

**SOLUTION**

$$\begin{aligned}\text{Cost of one haircut} &= \text{Total operating costs} / \text{Total number of haircuts} \\ &= [\$950 + \$548 + \$190 + \$60] / 190 \text{ haircuts} \\ &= \$1,748 / 190 \text{ haircuts} \\ &= \$9.20 \text{ per haircut}\end{aligned}$$

## *Exercises*

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### **E18-13 Comparing managerial accounting and financial accounting**

#### **Learning Objective 1**

Match the following terms to the appropriate statement. Some terms may be used more than once, and some terms may not be used at all.

Directing	Managerial
Creditors	Managers
Controlling	Planning
Financial	Stockholders

- a. Accounting systems that must follow GAAP.
- b. External parties for whom financial accounting reports are prepared.
- c. The role managers play when they are monitoring day-to-day operations and keeping the company on track.
- d. Internal decision makers.
- e. Accounting system that provides information on a company's past performance.
- f. Accounting system not restricted by GAAP.
- g. The management function that involves choosing goals and deciding how to achieve them.

#### **SOLUTION**

- a. Financial
- b. Creditors and Stockholders
- c. Controlling
- d. Managers
- e. Financial
- f. Managerial
- g. Planning

## **E18-14 Making ethical decisions**

### **Learning Objective 1**

Sue Peters is the controller at Vroom, a car dealership. Dale Miller recently has been hired as the bookkeeper. Dale wanted to attend a class in Excel spreadsheets, so Sue temporarily took over Dale's duties, including overseeing a fund used for gas purchases before test drives. Sue found a shortage in the fund and confronted Dale when he returned to work. Dale admitted that he occasionally uses the fund to pay for his own gas. Sue estimated the shortage at \$450.

#### **Requirements**

1. What should Sue Peters do?
2. Would you change your answer if Sue Peters was the one recently hired as controller and Dale Miller was a well-liked, longtime employee who indicated he always eventually repaid the fund?

### **SOLUTION**

Students' responses will vary. Illustrative answers follow.

#### **Requirement 1**

A new employee who has engaged in this behavior is unlikely to become a valued and trusted employee. This type of behavior is unethical, and Sue Peters should consider beginning the process to terminate the employee. Any company policies with respect to discipline and termination should be followed.

As controller, Sue Peters probably hired Dale, and she is also responsible for the lack of controls that permitted a new employee to commit this theft. She will need to supervise Dale and subsequent bookkeepers more carefully.

#### **Requirement 2**

Being a new employee, Sue Peters may want to discuss the situation with her immediate supervisor or the company's president if appropriate. Unless Sue can obtain additional information, she may want to indicate to Dale that this behavior will not be tolerated in the future. Sue should establish better controls and closer supervision.

## E18-15 Classifying costs

### Learning Objective 2

Wheels, Inc. manufactures wheels for bicycles, tricycles, and scooters. For each cost given below, determine if the cost is a product cost or a period cost. If the cost is a product cost, further determine if the cost is direct materials (DM), direct labor (DL), or manufacturing overhead (MOH) and then determine if the product cost is a prime cost, conversion cost, or both. If the cost is a period cost, further determine if the cost is a selling expense or administrative expense (Admin). *Cost (a) is answered as a guide.*

Cost	Product					Period	
	DM	DL	MOH	Prime	Conversion	Selling	Admin.
a. Metal used for rims	X			X			
b. Sales salaries							
c. Rent on factory							
d. Wages of assembly workers							
e. Salary of production supervisor							
f. Depreciation on office equipment							
g. Salary of CEO							
h. Delivery expense							

*Use the following data for Exercises E18-16, E18-17, and E18-18.*

Selected data for three companies are given below. All inventory amounts are ending balances and all amounts are in millions.

Company A		Company B		Company C	
Cash	\$ 6	Wages Expense	\$ 12	Administrative Expenses	\$ 4
Net Sales Revenue	48	Equipment	32	Cash	25
Finished Goods Inventory	10	Accounts Receivable	8	Net Sales Revenue	75
Cost of Goods Sold	23	Service Revenue	65	Selling Expenses	8
Selling Expenses	4	Cash	34	Merchandise Inventory	12
Equipment	67	Rent Expense	12	Equipment	55
Work-in-Process Inventory	9			Accounts Receivable	19
Accounts Receivable	14			Cost of Goods Sold	25
Cost of Goods Manufactured	23				
Administrative Expenses	7				
Raw Materials Inventory	6				



**E18-15, cont.**  
**SOLUTION**

Cost	Product			Product		Period	
	DM	DL	MOH	Prime	Conversion	Selling	Admin
a. Metal used for rims	X			X			
b. Sales salaries						X	
c. Rent on factory			X		X		
d. Wages of assembly workers		X		X	X		
e. Salary of production supervisor			X		X		
f. Depreciation on office equipment							X
g. Salary of CEO							X
h. Delivery expense						X	

**E18-16 Identifying differences between service, merchandising, and manufacturing companies**

**Learning Objective 3**

Using the above data, determine the company type. Identify each company as a service company, merchandising company, or manufacturing company.

**SOLUTION**

Company A is a manufacturing company. Company B is a service company. Company C is a merchandising company.

## E18-17 Identifying differences between service, merchandising, and manufacturing companies

### Learning Objective 3

#### Company B: \$41

Using the data on the previous page, calculate operating income for each company.

### SOLUTION

Company A (all amounts in millions):

Net Sales Revenue		\$ 48
Cost of Goods Sold		<u>23</u>
Gross Profit		25
Selling and Administrative Expenses:		
Selling Expenses	\$ 4	
Administrative Expenses	<u>7</u>	
Total Selling and Administrative Expenses		<u>11</u>
Operating Income		<u>\$ 14</u>

Company B (all amounts in millions):

Service Revenue		\$ 65
Expenses:		
Wages Expense	\$ 12	
Rent Expense	<u>12</u>	
Total Expenses		<u>24</u>
Operating Income		<u>\$ 41</u>

Company C (all amounts in millions):

Net Sales Revenue		\$ 75
Cost of Goods Sold		<u>25</u>
Gross Profit		50
Selling and Administrative Expenses:		
Selling Expenses	\$ 8	
Administrative Expenses	<u>4</u>	
Total Selling and Administrative Expenses		<u>12</u>
Operating Income		<u>\$ 38</u>

## E18-18 Identifying differences between service, merchandising, and manufacturing companies

### Learning Objective 3

#### Company C: \$56

Using the data on the previous page, calculate total current assets for each company.

### SOLUTION

Company A (all amounts in millions):

Cash	\$ 6
Accounts Receivable	14
Raw Materials Inventory	6
Work-in-Process Inventory	9
Finished Goods Inventory	10
Total current assets	<u>\$ 45</u>

Company B (all amounts in millions):

Cash	\$ 34
Accounts Receivable	8
Total current assets	<u>\$ 42</u>

Company C (all amounts in millions):

Cash	\$ 25
Accounts Receivable	19
Merchandise Inventory	12
Total current assets	<u>\$ 56</u>

## E18-19 Computing cost of goods manufactured

### Learning Objective 3

Consider the following partially completed schedules of cost of goods manufactured. Compute the missing amounts.

	Banner, Inc.	Larry's Bakery	Sports Gear
Beginning Work-in-Process Inventory	\$ (a)	\$ 40,800	\$ 2,200
Direct Materials Used	14,400	35,900	(g)
Direct Labor	10,300	20,100	1,900
Manufacturing Overhead	(b)	10,000	900
Total Manufacturing Costs Incurred during the Year	45,200	(d)	(h)
Total Manufacturing Costs to Account for	55,400	(e)	8,300
Ending Work-in-Process Inventory	(c)	(25,500)	(2,600)
Cost of Goods Manufactured	<u>\$ 50,500</u>	<u>\$ (f)</u>	<u>\$ (i)</u>

### SOLUTION

(a)

Total Manufacturing Costs to Account For	\$ 55,400
Total Manufacturing Costs Incurred during the Year	(45,200)
Beginning Work-in-Process Inventory	<u>\$ 10,200</u>

(b)

Total Manufacturing Costs Incurred during the Year	\$ 45,200
Direct Materials Used	(14,400)
Direct Labor	(10,300)
Manufacturing Overhead	<u>\$ 20,500</u>

(c)

Total Manufacturing Costs to Account For	\$ 55,400
Cost of Goods Manufactured	(50,500)
Ending Work-in-Process Inventory	<u>\$ 4,900</u>

(d)

Direct Materials Used	\$ 35,900
Direct Labor	20,100
Manufacturing Overhead	10,000
Total Manufacturing Costs Incurred during the Year	<u>\$ 66,000</u>

**E18-19, cont.**

(e)

Beginning Work-in-Process Inventory	\$ 40,800
Total Manufacturing Costs Incurred during the Year [d, above]	<u>66,000</u>
Total Manufacturing Costs to Account For	<u>\$ 106,800</u>

(f)

Total Manufacturing Costs to Account For [e, above]	\$ 106,800
Ending Work-in-Process Inventory	<u>(25,500)</u>
Cost of Goods Manufactured	<u>\$ 81,300</u>

(g)

Total Manufacturing Costs Incurred during the Year [h, below]	\$ 6,100
Direct Labor	(1,900)
Manufacturing Overhead	<u>(900)</u>
Direct Materials Used	<u>\$ 3,300</u>

(h)

Total Manufacturing Costs to Account For	\$ 8,300
Beginning Work-in-Process Inventory	<u>(2,200)</u>
Total Manufacturing Costs Incurred During the Year	<u>\$ 6,100</u>

(i)

Total Manufacturing Costs to Account For	\$ 8,300
Ending Work-in-Process Inventory	<u>(2,600)</u>
Cost of Goods Manufactured	<u>\$ 5,700</u>

## E18-20 Preparing a schedule of cost of goods manufactured

### Learning Objective 3

#### 1. COGM: \$444,000

Wilson Corp., a lamp manufacturer, provided the following information for the year ended December 31, 2018:

<b>Balances:</b>	<b>Beginning</b>	<b>Ending</b>
Direct Materials	\$ 59,000	\$ 23,000
Work-in-Process Inventory	109,000	62,000
Finished Goods Inventory	41,000	44,000
<b>Other information:</b>		
Depreciation, plant building and equipment		\$ 16,000
Direct materials purchases		151,000
Insurance on plant		24,000
Sales salaries		47,000
Repairs and maintenance—plant		10,000
Indirect labor		39,000
Direct labor		121,000
Administrative expenses		60,000

#### Requirements

1. Use the information to prepare a schedule of cost of goods manufactured.
2. What is the unit product cost if Wilson manufactured 3,700 lamps for the year?

**E18-20, cont.**  
**SOLUTION**

**Requirement 1**

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<b>WILSON CORP.</b>		
<b>Schedule of Cost of Goods Manufactured</b>		
<b>Year Ended December 31, 2018</b>		
Beginning Work-in-Process Inventory		\$ 109,000
Direct Materials Used:		
Beginning Direct Materials	\$ 59,000	
Purchases of Direct Materials	151,000	
Direct Materials Available for Use	<u>210,000</u>	
Ending Direct Materials	<u>(23,000)</u>	
Direct Materials Used		\$ 187,000
Direct Labor		121,000
Manufacturing Overhead:		
Depreciation, plant building and equipment	16,000	
Insurance on plant	24,000	
Repairs and maintenance—plant	10,000	
Indirect labor	<u>39,000</u>	
Total Manufacturing Overhead		<u>89,000</u>
Total Manufacturing Costs Incurred During the Year		397,000
Total Manufacturing Costs to Account For		<u>506,000</u>
Ending Work-in-Process Inventory		<u>(62,000)</u>
Cost of Goods Manufactured		<u>\$ 444,000</u>

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**Requirement 2**

$$\begin{aligned} \text{Unit product cost} &= \text{Cost of goods manufactured} / \text{Total units produced} \\ &= \$444,000 / 3,700 \text{ lamps} \\ &= \$120 \text{ per lamp} \end{aligned}$$

## E18-21 Computing cost of goods manufactured and cost of goods sold

### Learning Objective 3

**COGM: \$211,000**

Use the following information for a manufacturer to compute cost of goods manufactured and cost of goods sold:

<b>Balances:</b>	<b>Beginning</b>	<b>Ending</b>
Direct Materials	\$ 27,000	\$ 28,000
Work-in-Process Inventory	40,000	32,000
Finished Goods Inventory	18,000	25,000
<b>Other information:</b>		
Purchases of direct materials		\$ 73,000
Direct labor		88,000
Manufacturing overhead		43,000

### SOLUTION

Beginning Work-in-Process Inventory		\$ 40,000
Direct Materials Used:		
Beginning Direct Materials	\$ 27,000	
Purchases of Direct Materials	73,000	
Direct Materials Available for Use	<u>100,000</u>	
Ending Direct Materials	<u>(28,000)</u>	
Direct Materials Used		\$ 72,000
Direct Labor		88,000
Manufacturing Overhead		<u>43,000</u>
Total Manufacturing Costs Incurred During the Year		<u>203,000</u>
Total Manufacturing Costs to Account For		<u>243,000</u>
Ending Work-in-Process Inventory		<u>(32,000)</u>
Cost of Goods Manufactured		<u><u>\$ 211,000</u></u>

Beginning Finished Goods Inventory	\$ 18,000	
Cost of Goods Manufactured	<u>211,000</u>	[above]
Cost of Goods Available for Sale	229,000	
Ending Finished Goods Inventory	<u>(25,000)</u>	
Cost of Goods Sold	<u><u>\$ 204,000</u></u>	



## E18-22 Understanding today's business environment

### Learning Objective 4

Match the following terms to the appropriate statement. Some terms may be used more than once, and some terms may not be used at all.

E-commerce	Just-in-time management (JIT)
Enterprise resource planning (ERP)	Total quality management (TQM)

- A management system that focuses on maintaining lean inventories while producing products as needed by the customer.
- A philosophy designed to integrate all organizational areas in order to provide customers with superior products and services while meeting organizational objectives.
- Integrates all of a company's functions, departments, and data into a single system.
- Adopted by firms to conduct business on the Internet.

### SOLUTION

- JIT
- TQM
- ERP
- E-Commerce

## E18-23 Calculating income and cost per service for a service company

### Learning Objectives 3, 5

#### 1. \$9,304

Buddy Grooming provides grooming services for pets. In April, the company earned \$16,300 in revenues and incurred the following operating costs to groom 660 dogs:

Wages Expense	\$ 4,061
Grooming Supplies Expense	1,675
Building Rent Expense	900
Utilities Expense	305
Depreciation Expense—Equipment	55

### Requirements

- What is Buddy's operating income for April?
- What is the cost of service to groom one dog?

**E18-22, cont.**  
**SOLUTION**

**Requirement 1**

Grooming Revenue		\$ 16,300
Expenses:		
Wages Expense	\$ 4,061	
Grooming Supplies Expense	1,675	
Building Rent Expense	900	
Utilities Expense	305	
Depreciation Expense—Equipment	55	
Total Expenses		<u>6,996</u>
Operating Income		<u>\$ 9,304</u>

**Requirement 2**

$$\begin{aligned}\text{Cost of Service to Groom One Dog} &= \text{Total expenses} / \text{Total number of dogs groomed} \\ &= \$6,996 / 660 \text{ dogs} \\ &= \$10.60 \text{ per dog}\end{aligned}$$

**E18-24 Calculating income and cost per unit for a merchandising company**

**Learning Objectives 3, 5**

**2. \$12.42**

Conway Brush Company sells standard hair brushes. The following information summarizes Conway's operating activities for 2018:

Selling and Administrative Expenses	\$ 47,058
Purchases	85,800
Net Sales Revenue	151,800
Merchandise Inventory, January 1, 2018	7,920
Merchandise Inventory, December 31, 2018	11,748

**Requirements**

1. Calculate the operating income for 2018.
2. Conway sold 6,600 brushes in 2018. Compute the unit cost for one brush.

## SOLUTION

### Requirement 1

Net Sales Revenue		\$ 151,800
Cost of Goods Sold:		
Beginning Merchandise Inventory	\$ 7,920	
Purchases	85,800	
Cost of Goods Available for Sale	<u>93,720</u>	
Ending Merchandise Inventory	<u>(11,748)</u>	
Cost of Goods Sold		<u>81,972</u>
Gross Profit		69,828
Selling and Administrative Expenses		<u>47,058</u>
Operating Income		<u><u>\$ 22,770</u></u>

### Requirement 2

$$\begin{aligned}\text{Unit cost for one brush} &= \text{Cost of goods sold} / \text{Total units sold} \\ &= \$81,972 / 6,600 \text{ brushes} \\ &= \$12.42 \text{ per brush}\end{aligned}$$

## ***Problems (Group A)***

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### **P18-25A Applying ethical standards**

#### **Learning Objective 1**

Natalia Wallace is the new controller for Smart Software, Inc. which develops and sells education software. Shortly before the December 31 fiscal year-end, James Cauvet, the company president, asks Wallace how things look for the year-end numbers. He is not happy to learn that earnings growth may be below 13% for the first time in the company's five-year history. Cauvet explains that financial analysts have again predicted a 13% earnings growth for the company and that he does not intend to disappoint them. He suggests that Wallace talk to the assistant controller, who can explain how the previous controller dealt with such situations. The assistant controller suggests the following strategies:

- a. Persuade suppliers to postpone billing \$13,000 in invoices until January 1.
- b. Record as sales \$115,000 in certain software awaiting sale that is held in a public warehouse.
- c. Delay the year-end closing a few days into January of the next year so that some of the next year's sales are included in this year's sales.
- d. Reduce the estimated Bad Debts Expense from 5% of Sales Revenue to 3%, given the company's continued strong performance.
- e. Postpone routine monthly maintenance expenditures from December to January.

#### **Requirements**

1. Which of these suggested strategies are inconsistent with IMA standards?
2. How might these inconsistencies affect the company's creditors and stockholders?
3. What should Wallace do if Cauvet insists that she follow all of these suggestions?

#### **SOLUTION**

Students' responses will vary. Illustrative answers follow.

#### **Requirement 1**

- a. If the goods have been received, postponing recording of the purchases understates liabilities. This is unethical and inconsistent with the IMA standards even if the suppliers agree to delay billing.
- b. The software has not been sold. Therefore, it would be inconsistent with the IMA standards to record it as sales.
- c. Delaying year-end closing incorrectly records next year's sales in this year's sales. This is unethical and inconsistent with the IMA standards.

**P18-25A, cont.**

- d. The appropriate allowance for bad debts is a difficult judgment. The decision should not be driven by the desire to meet a profit goal. It should be based on the likelihood that the company will not collect the debts. We cannot determine this without more information. However, since the company emphasizes earnings growth, which can lead to sales to customers with weaker credit records, reducing the allowance seems questionable. It is not clear whether this strategy is inconsistent with the IMA standards.
- e. If the maintenance is postponed, there is no transaction to record. This strategy is beyond the responsibility of the controller, so it does not violate IMA standards.

**Requirement 2**

The inconsistencies noted for Smart Software, Inc. particularly impact the financial statement information provided by financial accounting to external users, such as creditors and stockholders. They will be led to believe the operating performance (profitability) of the company is better than it really is. This misrepresentation may result in the investors holding the stock when they may have sold it with the correct information. Similarly, creditors may grant credit to the company with the false income information when they may not grant credit with the correct income information.

**Requirement 3**

The controller should resist attempts to implement a, b, and c and should gather more information about d. If the President ignores Wallace, then Wallace needs to consider if she wants to work for a company that engages in unethical behavior. Accountants should not be associated with any unethical behavior, and Wallace should resign.

## P18-26A Classifying period costs and product costs

### Learning Objective 2

Lawlor, Inc. is the manufacturer of lawn care equipment. The company incurs the following costs while manufacturing weed trimmers:

- Shaft and handle of weed trimmer
- Motor of weed trimmer
- Factory labor for workers assembling weed trimmers
- Nylon thread used by the weed trimmer (not traced to the product)
- Glue to hold the housing together
- Plant janitorial wages
- Depreciation on factory equipment
- Rent on plant
- Sales commissions
- Administrative salaries
- Plant utilities
- Shipping costs to deliver finished weed trimmers to customers

### Requirements

1. Describe the difference between period costs and product costs.
2. Classify Lawlor's costs as period costs or product costs. If the costs are product costs, further classify them as direct materials, direct labor, or manufacturing overhead.

## SOLUTION

### Requirement 1

Period costs are non-manufacturing costs that are expensed in the accounting period in which they are incurred.

Product costs are all costs of purchasing or making a product. These costs are recorded as an asset (inventory) on the balance sheet until the asset is sold. The cost is then transferred to an expense account (Cost of Goods Sold) on the income statement. Product costs include direct materials, direct labor, and manufacturing overhead.

On the income statement, Cost of Goods Sold (product cost) is subtracted from Sales Revenue to determine gross profit. The period costs are then subtracted to determine operating income.

**P18-26A, cont.**  
**Requirement 2**

<b>Cost:</b>	<b>Period Cost</b>	<b>Product Cost</b>		
		<b>Direct Materials</b>	<b>Direct Labor</b>	<b>Manufacturing Overhead</b>
<b>Shaft and handle of weed trimmer</b>		<b>X</b>		
<b>Motor of weed trimmer</b>		<b>X</b>		
<b>Factory labor for workers assembling weed trimmers</b>			<b>X</b>	
<b>Nylon thread used by the weed trimmer (not traced to the product)</b>				<b>X</b>
<b>Glue to hold housing together</b>				<b>X</b>
<b>Plant janitorial wages</b>				<b>X</b>
<b>Depreciation on factory equipment</b>				<b>X</b>
<b>Rent on plant</b>				<b>X</b>
<b>Sales commissions</b>	<b>X</b>			
<b>Administrative salaries</b>	<b>X</b>			
<b>Plant utilities</b>				<b>X</b>
<b>Shipping costs to deliver finished weed trimmers to customers</b>	<b>X</b>			

## P18-27A Calculating cost of goods sold for merchandising and manufacturing companies

### Learning Objective 3

#### 3. Company B: \$217,800

Below are data for two companies:

	Company A	Company B
Beginning balances:		
Merchandise Inventory	\$ 10,600	
Finished Goods Inventory		\$ 15,000
Ending balances:		
Merchandise Inventory	13,100	
Finished Goods Inventory		11,700
Net Purchases	154,500	
Cost of Goods Manufactured		214,500

#### Requirements

1. Define the three business types: service, merchandising, and manufacturing.
2. Based on the data given for the two companies, determine the business type of each one.
3. Calculate the cost of goods sold for each company.

#### SOLUTION

##### Requirement 1

Service companies sell services rather than products. They sell time, skills, and knowledge. Merchandising companies resell products previously bought from suppliers. Manufacturing companies use labor, equipment, supplies, and facilities to convert raw materials into new finished products.

##### Requirement 2

Company A is a merchandising company. Company B is a manufacturing company. The company types can be determined by the account names in the ledger.



**P18-27A, cont.**  
**Requirement 3**

Company A:

Beginning Merchandise Inventory	\$ 10,600
Purchases (net)	154,500
Cost of Goods Available for Sale	<u>165,100</u>
Ending Merchandise Inventory	<u>(13,100)</u>
Cost of Goods Sold	<u>\$ 152,000</u>

Company B:

Beginning Finished Goods Inventory	\$ 15,000
Cost of Goods Manufactured	214,500
Cost of Goods Available for Sale	<u>229,500</u>
Ending Finished Goods Inventory	<u>(11,700)</u>
Cost of Goods Sold	<u>\$ 217,800</u>

**P18-28A Preparing a schedule of cost of goods manufactured and an income statement for a manufacturing company**

**Learning Objective 3**

**2. Operating income: \$23,200**

Gourmet Bones manufactures its own brand of pet chew bones. At the end of December 2018, the accounting records showed the following:

<b>Balances:</b>	<b>Beginning</b>	<b>Ending</b>
Direct Materials	\$ 13,500	\$ 7,500
Work-in-Process Inventory	0	3,500
Finished Goods Inventory	0	5,200
<b>Other information:</b>		
Direct materials purchases		\$ 36,000
Plant janitorial services		700
Sales salaries		6,000
Delivery costs		1,300
Net sales revenue		107,000
Utilities for plant		1,300
Rent on plant		17,000
Customer service hotline costs		1,200
Direct labor		23,000

**P18-28A, cont.**

**Requirements**

1. Prepare a schedule of cost of goods manufactured for Gourmet Bones for the year ended December 31, 2018.
2. Prepare an income statement for Gourmet Bones for the year ended December 31, 2018.
3. How does the format of the income statement for Gourmet Bones differ from the income statement of a merchandiser?
4. Gourmet Bones manufactured 17,900 units of its product in 2018. Compute the company's unit product cost for the year, rounded to the nearest cent.

**SOLUTION**

**Requirement 1**

---

**GOURMET BONES**  
**Schedule of Cost of Goods Manufactured**  
**Year Ended December 31, 2018**

---

Beginning Work-in-Process Inventory		\$	0
Direct Materials Used:			
Beginning Direct Materials	\$ 13,500		
Purchases of Direct Materials	36,000		
Direct Materials Available for Use	<u>49,500</u>		
Ending Direct Materials	<u>(7,500)</u>		
Direct Materials Used		\$ 42,000	
Direct Labor		23,000	
Manufacturing Overhead:			
Plant janitorial services	700		
Utilities for plant	1,300		
Rent on plant	<u>17,000</u>		
Total Manufacturing Overhead		<u>19,000</u>	
Total Manufacturing Costs Incurred during the Year			<u>84,000</u>
Total Manufacturing Costs to Account For			84,000
Ending Work-in-Process Inventory			<u>(3,500)</u>
Cost of Goods Manufactured			<u>\$ 80,500</u>

---

**P18-28A, cont.**  
**Requirement 2**

---

**GOURMET BONES**  
**Income Statement**  
**Year Ended December 31, 2018**

---

Revenues:		
Net Sales Revenue		\$ 107,000
Cost of Goods Sold:		
Beginning Finished Goods Inventory	\$ 0	
Cost of Goods Manufactured*	80,500	
Cost of Goods Available for Sale	<u>80,500</u>	
Ending Finished Goods Inventory	<u>(5,200)</u>	
Cost of Goods Sold		<u>75,300</u>
Gross Profit		31,700
Selling and Administrative Expenses:		
Sales Salaries Expense	6,000	
Delivery Expense	1,300	
Customer Service Hotline Expense	<u>1,200</u>	
Total Selling and Administrative Expenses		<u>8,500</u>
Operating Income (Loss)		<u>\$ 23,200</u>

---

\* From the Schedule of Cost of Goods Manufactured in Requirement 1.

**Requirement 3**

For a manufacturing company, cost of goods sold on the income statement is based on cost of goods manufactured and the change in Finished Goods Inventory. For a merchandising company, cost of goods sold on the income statement is based on cost of merchandise purchased (including freight in) and the change in Merchandise Inventory.

**Requirement 4**

$$\begin{aligned}\text{Unit product cost} &= \text{Cost of goods manufactured} / \text{Total units produced} \\ &= \$80,500 / 17,900 \text{ units} \\ &= \$4.50 \text{ per unit (rounded to nearest cent)}\end{aligned}$$

**P18-29A Preparing a schedule of cost of goods manufactured and an income statement for a manufacturing company**

**Learning Objective 3**

**COGM: \$182,000**

Certain item descriptions and amounts are missing from the monthly schedule of cost of goods manufactured and income statement of Elly Manufacturing Company. Fill in the blanks with the missing words, and replace the Xs with the correct amounts.

ELLY MANUFACTURING COMPANY			
_____ June 30, 2018			
Beginning _____			\$ 27,000
Direct _____:			
Beginning Direct Materials	\$	X	
Purchases of Direct Materials		56,000	
_____		<u>84,000</u>	
Ending Direct Materials		<u>(20,000)</u>	
Direct _____		\$	X
Direct _____			X
Manufacturing Overhead		<u>44,000</u>	
Total _____ Costs _____			<u>180,000</u>
Total _____ Costs _____			X
Ending _____			<u>(25,000)</u>
_____			<u>\$</u> X

**P18-29A, cont.**

ELLY MANUFACTURING COMPANY		
June 30, 2018		
Net Sales Revenue		\$ X
Cost of Goods Sold:		
Beginning _____	\$ 110,000	
_____	X	
Cost of Goods _____	X	
Ending _____	X	
Cost of Goods Sold		<u>232,000</u>
Gross Profit		258,000
_____ Expenses:		
Selling Expenses	98,000	
Administrative Expenses	X	
Total _____		<u>160,000</u>
_____ Income		<u>\$ X</u>

**P18-29A, cont.**  
**SOLUTION**

---

**ELLY MANUFACTURING COMPANY**  
**Schedule of Cost of Goods Manufactured**  
**Month Ended June 30, 2018**

---

Beginning <u>Work-in-Process Inventory</u>		\$ 27,000
Direct <u>Materials Used</u> :		
Beginning Direct Materials	\$ <b>28,000</b>	
Purchases of Direct Materials	56,000	
<u>Direct Materials Available for Use</u>	84,000	
Ending Direct Materials	(20,000)	
Direct <u>Materials Used</u>		<b>64,000</b>
Direct <u>Labor</u>		<b>72,000</b>
Manufacturing Overhead		44,000
Total <u>Manufacturing Costs Incurred During the Month</u>		180,000
Total <u>Manufacturing Costs to Account For</u>		<b>207,000</b>
Ending <u>Work-in-Process Inventory</u>		(25,000)
<u>Cost of Goods Manufactured</u>		<b>\$ 182,000</b>

---

Missing Amounts:

Beginning Direct Materials

Direct Materials Available for Use		\$ 84,000
Purchases of Direct Materials		(56,000)
Beginning Direct Materials		\$ 28,000

Direct Materials Used:

Direct Materials Available for Use		\$ 84,000
Ending Direct Materials		(20,000)
Direct Materials Used		\$ 64,000

Direct Labor:

Total Manufacturing Costs Incurred During the Month		\$ 180,000
Manufacturing Overhead		(44,000)
Direct Materials Used [calculated above]		(64,000)
Direct Labor		\$ 72,000

**P18-29A, cont.**

Total Manufacturing Costs to Account For:

Beginning Work-in-Process Inventory	\$ 27,000
Total Manufacturing Costs Incurred During the Month	180,000
Total Manufacturing Costs to Account For	<u>\$ 207,000</u>

Cost of Goods Manufactured:

Total Manufacturing Costs to Account For [calculated above]	\$ 207,000
Ending Work-in-Process Inventory	(25,000)
Cost of Goods Manufactured	<u>\$ 182,000</u>

---

**ELLY MANUFACTURING COMPANY**

**Income Statement**

**Month Ended June 30, 2018**

---

Net Sales Revenue	\$ 490,000
Cost of Goods Sold:	
Beginning <u>Finished Goods Inventory</u>	\$ 110,000
<u>Cost of Goods Manufactured</u>	<u>182,000</u>
Cost of Goods <u>Available for Sale</u>	<u>292,000</u>
Ending <u>Finished Goods Inventory</u>	<u>(60,000)</u>
Cost of Goods Sold	232,000
Gross Profit	<u>258,000</u>
<u>Selling and Administrative Expenses:</u>	
Selling Expenses	98,000
Administrative Expenses	<u>62,000</u>
Total <u>Selling and Administrative Expenses</u>	<u>160,000</u>
<u>Operating Income</u>	<u>\$ 98,000</u>

---

Missing Amounts:

Net Sales Revenue:

Cost of Goods Sold	\$ 232,000
Gross Profit	<u>258,000</u>
Net Sales Revenue	<u>\$ 490,000</u>

**P18-29A, cont.**

Cost of Goods Manufactured:

[From the Schedule of Cost of Goods Manufactured]

Cost of Goods Available for Sale:

Beginning Finished Goods Inventory	\$ 110,000
Cost of Goods Manufactured	<u>182,000</u>
Cost of Goods Available for Sale	<u>\$ 292,000</u>

Ending Finished Goods Inventory:

Cost of Goods Available for Sale [calculated above]	\$ 292,000
Cost of Goods Sold	<u>(232,000)</u>
Ending Finished Goods Inventory	<u>\$ 60,000</u>

Administrative Expenses:

Total Selling and Administrative Expenses	\$ 160,000
Selling Expenses	<u>(98,000)</u>
Administrative Expenses	<u>\$ 62,000</u>

Operating Income:

Gross Profit	\$ 258,000
Total Selling and Administrative Expenses	<u>(160,000)</u>
Operating Income	<u>\$ 98,000</u>



## P18-30A Determining flow of costs through a manufacturer's inventory accounts

### Learning Objective 3

#### 3. \$26,400,000

Root Shoe Company makes loafers. During the most recent year, Root incurred total manufacturing costs of \$26,300,000. Of this amount, \$2,000,000 was direct materials used and \$19,800,000 was direct labor. Beginning balances for the year were Direct Materials, \$700,000; Work-in-Process Inventory, \$1,500,000; and Finished Goods Inventory, \$400,000. At the end of the year, balances were Direct Materials, \$800,000; Work-in-Process Inventory, \$1,200,000; and Finished Goods Inventory, \$600,000.

#### Requirements

Analyze the inventory accounts to determine:

1. Cost of direct materials purchased during the year.
2. Cost of goods manufactured for the year.
3. Cost of goods sold for the year.

### SOLUTION

#### Requirement 1

Cost of direct materials purchased:

$$\begin{array}{rcccl} \text{Direct} & & \text{Beginning} & & \text{Purchases of} & & \text{Ending} \\ \text{Materials Used} & = & \text{Direct Materials} & + & \text{Direct Materials} & - & \text{Direct Materials} \end{array}$$

Solving for cost of direct materials purchased:

$$\begin{array}{rcccl} \text{Purchases of} & & \text{Direct} & & \text{Ending} & & \text{Beginning} \\ \text{Direct} & = & \text{Materials} & + & \text{Direct Materials} & - & \text{Direct Materials} \\ \text{Materials} & & \text{Used} & & & & \\ & = & \$2,000,000 & + & \$800,000 & - & \$700,000 \\ & = & \$2,100,000 & & & & \end{array}$$

#### Requirement 2

Cost of goods manufactured for the year:

$$\begin{array}{rcccl} \text{Cost of} & & \text{Beginning} & & \text{Total} & & \text{Ending} \\ \text{Goods} & = & \text{Work-in-Process} & + & \text{Manufacturing} & - & \text{Work-in-Process} \\ \text{Manufactured} & & \text{Inventory} & & \text{Costs Incurred} & & \text{Inventory} \\ & = & \$1,500,000 & + & \$26,300,000 & - & \$1,200,000 \\ & = & \$26,600,000 & & & & \end{array}$$

### Requirement 3

Cost of goods sold for the year:

Cost of Goods Sold	=	Beginning Finished Goods Inventory	+	Cost of Goods Manufactured	-	Ending Finished Goods Inventory
	=	\$400,000	+	\$26,600,000 [calculated in 2]	-	\$600,000
	=	\$26,400,000				

## P18-31A Preparing an income statement and calculating unit cost for a service company

### Learning Objectives 3, 5

#### 2. \$37.72

The Windshield Doctors repair chips in car windshields. The company incurred the following operating costs for the month of March 2018:

Salaries and wages	\$ 12,000
Windshield repair materials	4,600
Depreciation on truck	300
Depreciation on building and equipment	1,200
Supplies used	300
Utilities	460

The Windshield Doctors earned \$23,000 in service revenues for the month of March by repairing 500 windshields. All costs shown are considered to be directly related to the repair service.

#### Requirements

1. Prepare an income statement for the month of March.
2. Compute the cost per unit of repairing one windshield.
3. The manager of Windshield Doctors must keep unit operating cost below \$50 per windshield in order to get his bonus. Did he meet the goal?

#### SOLUTION

##### Requirement 1

---

**THE WINDSHIELD DOCTORS**  
**Income Statement**  
**Month Ended March 31, 2018**

---

Revenues:		
Net Service Revenue		\$ 23,000
Expenses:		
Salaries and Wages Expense	\$ 12,000	
Materials Expense	4,600	
Depreciation Expense—Truck	300	
Depreciation Expense—Building and Equipment	1,200	
Supplies Expense	300	
Utilities Expense	460	
Total Expenses	<u>18,860</u>	
Operating Income		<u>\$ 4,140</u>

---

**P18-31A, cont.**  
**Requirement 2**

$$\begin{aligned}\text{Unit cost} &= \text{Total expenses} / \text{Total windshields repaired} \\ &= \$18,860 / 500 \text{ windshields} \\ &= \$37.72 \text{ per windshield}\end{aligned}$$

**Requirement 3**

Yes. The actual unit cost per windshield of \$37.72 is less than \$50.

**P18-32A Preparing an income statement and calculating unit cost for a merchandising company**

**Learning Objectives 3, 5**

**1. Operating income: \$15,150**

Clyde Conway owns Clyde's Pets, a small retail shop selling pet supplies. On December 31, 2018, the accounting records of Clyde's Pets showed the following:

Merchandise Inventory on December 31, 2018	\$ 10,100
Merchandise Inventory on January 1, 2018	15,900
Net Sales Revenue	56,000
Utilities Expense for the shop	3,300
Rent for the shop	4,100
Sales Commissions	2,650
Purchases of Merchandise Inventory	25,000

**Requirements**

1. Prepare an income statement for Clyde's Pets for the year ended December 31, 2018.
2. Clyde's Pets sold 3,850 units. Determine the unit cost of the merchandise sold, rounded to the nearest cent.

**P18-32A, cont.**  
**SOLUTION**

**Requirement 1**

---

**CLYDE'S PETS**  
**Income Statement**  
**Year Ended December 31, 2018**

---

Revenues:		
Net Sales Revenue		\$ 56,000
Cost of Goods Sold:		
Beginning Merchandise Inventory	\$ 15,900	
Purchases of Merchandise	25,000	
Cost of Goods Available for Sale	<u>40,900</u>	
Ending Merchandise Inventory	<u>(10,100)</u>	
Cost of Goods Sold		<u>30,800</u>
Gross Profit		25,200
Selling and Administrative Expenses:		
Utilities Expense	3,300	
Rent Expense	4,100	
Sales Commission Expense	<u>2,650</u>	
Total Selling and Administrative Expenses		<u>10,050</u>
Operating Income		<u><u>\$ 15,150</u></u>

---

**Requirement 2**

$$\begin{aligned}\text{Unit cost} &= \text{Cost of goods sold} / \text{Total units sold} \\ &= \$30,800 / 3,850 \text{ units} \\ &= \$8.00 \text{ per unit}\end{aligned}$$

## ***Problems (Group B)***

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### **P18-33B Applying ethical standards**

#### **Learning Objective 1**

Ava Borzi is the new controller for Halo Software, Inc. which develops and sells education software. Shortly before the December 31 fiscal year-end, Jeremy Busch, the company president, asks Borzi how things look for the year-end numbers. He is not happy to learn that earnings growth may be below 9% for the first time in the company's five-year history. Busch explains that financial analysts have again predicted a 9% earnings growth for the company and that he does not intend to disappoint them. He suggests that Borzi talk to the assistant controller, who can explain how the previous controller dealt with such situations. The assistant controller suggests the following strategies:

- a. Persuade suppliers to postpone billing \$18,000 in invoices until January 1.
- b. Record as sales \$120,000 in certain software awaiting sale that is held in a public warehouse.
- c. Delay the year-end closing a few days into January of the next year so that some of the next year's sales are included in this year's sales.
- d. Reduce the estimated Bad Debts Expense from 3% of Sales Revenue to 2%, given the company's continued strong performance.
- e. Postpone routine monthly maintenance expenditures from December to January.

#### **Requirements**

1. Which of these suggested strategies are inconsistent with IMA standards?
2. How might these inconsistencies affect the company's creditors and stockholders?
3. What should Borzi do if Busch insists that she follow all of these suggestions?

#### **SOLUTION**

Students' responses will vary. Illustrative answers follow.

#### **Requirement 1**

- a. If the goods have been received, postponing recording of the purchases understates liabilities. This is unethical and inconsistent with the IMA standards even if the suppliers agree to delay billing.
- b. The software has not been sold. Therefore, it would be inconsistent with the IMA standards to record it as sales.
- c. Delaying year-end closing incorrectly records next year's sales in this year's sales. This is unethical and inconsistent with the IMA standards.

**P18-33B, cont.**

- d. The appropriate allowance for bad debts is a difficult judgment. The decision should not be driven by the desire to meet a profit goal. It should be based on the likelihood that the company will not collect the debts. We cannot determine this without more information. However, since the company emphasizes earnings growth, which can lead to sales to customers with weaker credit records, reducing the allowance seems questionable. It is not clear whether this strategy is inconsistent with the IMA standards.
- e. If the maintenance is postponed, there is no transaction to record. This strategy is beyond the responsibility of the controller, so it does not violate IMA standards.

**Requirement 2**

The inconsistencies noted for Halo Software, Inc. particularly impact the financial statement information provided by financial accounting to external users, such as creditors and stockholders. They will be led to believe the operating performance (profitability) of the company is better than it really is. This misrepresentation may result in the investors holding the stock when they may have sold it with the correct information. Similarly, creditors may grant credit to the company with the false income information when they may not grant credit with the correct income information.

**Requirement 3**

The controller should resist attempts to implement a, b, and c and should gather more information about d. If the President ignores Borzi, then Borzi needs to consider if she wants to work for a company that engages in unethical behavior. Borzi should not be associated with unethical behavior and should resign.

## **P18-34B Classifying period costs and product costs**

### **Learning Objective 2**

Langley, Inc. is the manufacturer of lawn care equipment. The company incurs the following costs while manufacturing edgers:

- Handle and shaft of edger
- Motor of edger
- Factory labor for workers assembling edgers
- Lubricant used on bearings in the edger (not traced to the product)
- Glue to hold the housing together
- Plant janitorial wages
- Depreciation on factory equipment
- Rent on plant
- Sales commissions
- Administrative salaries
- Plant utilities
- Shipping costs to deliver finished edgers to customers

### **Requirements**

1. Describe the difference between period costs and product costs.
2. Classify Langley's costs as period costs or product costs. If the costs are product costs, further classify them as direct materials, direct labor, or manufacturing overhead.

### **SOLUTION**

#### **Requirement 1**

Period costs are non-manufacturing costs that are expensed in the accounting period in which they are incurred.

Product costs are the costs of purchasing or making a product. These costs are recorded as an asset (inventory) on the balance sheet until the asset is sold. The cost is then transferred to an expense account (Cost of Goods Sold) on the income statement. Product costs include direct materials, direct labor, and manufacturing overhead.

On the income statement, Cost of Goods Sold (product cost) is subtracted from Sales Revenue to determine gross profit. The period costs are then subtracted from gross profit to determine operating income.



**P18-34B, cont.**  
**Requirement 2**

<b>Cost:</b>	<b>Period Cost</b>	<b>Product Cost</b>		
		<b>Direct Materials</b>	<b>Direct Labor</b>	<b>Manufacturing Overhead</b>
<b>Handle and shaft of edger</b>		X		
<b>Motor of edger</b>		X		
<b>Factory labor for workers assembling edgers</b>			X	
<b>Lubricant used on bearings in the edger (not traced to the product)</b>				X
<b>Glue to hold housing together</b>				X
<b>Plant janitorial wages</b>				X
<b>Depreciation on factory equipment</b>				X
<b>Rent on plant</b>				X
<b>Sales commissions</b>	X			
<b>Administrative salaries</b>	X			
<b>Plant utilities</b>				X
<b>Shipping costs to deliver finished edgers to customers</b>	X			

## P18-35B Calculating cost of goods sold for merchandising and manufacturing companies

### Learning Objective 3

#### 3. Company 2: \$218,600

Below are data for two companies:

	Company 1	Company 2
Beginning balances:		
Merchandise Inventory	\$ 11,600	
Finished Goods Inventory		\$ 15,400
Ending balances:		
Merchandise Inventory	12,400	
Finished Goods Inventory		11,300
Net Purchases	152,500	
Cost of Goods Manufactured		214,500

#### Requirements

1. Define the three business types: service, merchandising, and manufacturing.
2. Based on the data given for the two companies, determine the business type of each one.
3. Calculate the cost of goods sold for each company.

#### SOLUTION

##### Requirement 1

Service companies sell services rather than products. They sell time, skills, and knowledge. Merchandising companies resell products previously bought from suppliers. Manufacturing companies use labor, equipment, supplies, and facilities to convert raw materials into new finished products.

##### Requirement 2

Company 1 is a merchandising company. Company 2 is a manufacturing company. The company type can be determined by the account names in the ledger.

### Requirement 3

Company 1:

Beginning Merchandise Inventory	\$ 11,600
Purchases (net)	152,500
Cost of Goods Available for Sale	<u>164,100</u>
Ending Merchandise Inventory	(12,400)
Cost of Goods Sold	<u>\$ 151,700</u>

Company 2:

Beginning Finished Goods Inventory	\$ 15,400
Cost of Goods Manufactured	214,500
Cost of Goods Available for Sale	<u>229,900</u>
Ending Finished Goods Inventory	(11,300)
Cost of Goods Sold	<u>\$ 218,600</u>

### P18-36B Preparing a schedule of cost of goods manufactured and an income statement for a manufacturing company

#### Learning Objective 3

#### 2. Operating income: \$44,500

Chewy Bones manufactures its own brand of pet chew bones. At the end of December 2018, the accounting records showed the following:

<b>Balances:</b>	<b>Beginning</b>	<b>Ending</b>
Direct Materials	\$ 13,400	\$ 10,500
Work-in-Process Inventory	0	1,500
Finished Goods Inventory	0	5,400
<b>Other information:</b>		
Direct materials purchases		\$ 39,000
Plant janitorial services		900
Sales salaries		5,100
Delivery costs		1,700
Net sales revenue		115,000
Utilities for plant		1,200
Rent on plant		9,000
Customer service hotline costs		1,600
Direct labor		16,000

**P18-36B, cont.**

**Requirements**

1. Prepare a schedule of cost of goods manufactured for Chewy Bones for the year ended December 31, 2018.
2. Prepare an income statement for Chewy Bones for the year ended December 31, 2018.
3. How does the format of the income statement for Chewy Bones differ from the income statement of a merchandiser?
4. Chewy Bones manufactured 17,500 units of its product in 2018. Compute the company's unit product cost for the year, rounded to the nearest cent.

**SOLUTION**

**Requirement 1**

<b>CHEWY BONES</b>			
<b>Schedule of Cost of Goods Manufactured</b>			
<b>Year Ended December 31, 2018</b>			
Beginning Work-in-Process Inventory			\$ 0
Direct Materials Used:			
Beginning Direct Materials	\$ 13,400		
Purchases of Direct Materials	39,000		
Direct Materials Available for Use	<u>52,400</u>		
Ending Direct Materials	<u>(10,500)</u>		
Direct Materials Used		\$ 41,900	
Direct Labor		16,000	
Manufacturing Overhead:			
Plant janitorial services	900		
Utilities for plant	1,200		
Rent on plant	<u>9,000</u>		
Total Manufacturing Overhead		<u>11,100</u>	
Total Manufacturing Costs Incurred during the Year			<u>69,000</u>
Total Manufacturing Costs to Account For			69,000
Ending Work-in-Process Inventory			<u>(1,500)</u>
Cost of Goods Manufactured			<u><u>\$ 67,500</u></u>

**P18-36B, cont.**  
**Requirement 2**

---

**CHEWY BONES**  
**Income Statement**  
**Year Ended December 31, 2018**

---

Revenues:	
Net Sales Revenue	\$ 115,000
Cost of Goods Sold:	
Beginning Finished Goods Inventory	\$ 0
Cost of Goods Manufactured*	<u>67,500</u>
Cost of Goods Available for Sale	67,500
Ending Finished Goods Inventory	<u>(5,400)</u>
Cost of Goods Sold	<u>62,100</u>
Gross Profit	52,900
Selling and Administrative Expenses:	
Sales Salaries Expense	5,100
Delivery Expense	1,700
Customer Service Hotline Expense	<u>1,600</u>
Total Selling and Administrative Expenses	<u>8,400</u>
Operating Income (Loss)	<u>\$ 44,500</u>

---

\* From the Schedule of Cost of Goods Manufactured in Requirement 1.

**Requirement 3**

For a manufacturing company, cost of goods sold on the income statement is based on cost of goods manufactured and the change in Finished Goods Inventory. For a merchandising company, cost of goods sold on the income statement is based on cost of merchandise purchased (including freight in) and the change in Merchandise Inventory.

**Requirement 4**

$$\begin{aligned}\text{Unit cost} &= \text{Cost of goods manufactured} / \text{Total units produced} \\ &= \$67,500 / 17,500 \text{ units} \\ &= \$3.86 \text{ per unit (rounded to the nearest cent)}\end{aligned}$$

**P18-37B Preparing a schedule of cost of goods manufactured and an income statement for a manufacturing company**

**Learning Objective 3**

**COGM: \$174,000**

Certain item descriptions and amounts are missing from the monthly schedule of cost of goods manufactured and income statement of Charlie Manufacturing Company. Fill in the blanks with the missing words, and replace the Xs with the correct amounts.

CHARLIE MANUFACTURING COMPANY		
June 30, 2018		
Beginning _____		\$ 26,000
Direct _____:		
Beginning Direct Materials	\$ X	
Purchases of Direct Materials	51,000	
	<u>81,000</u>	
Ending Direct Materials	(26,000)	
Direct _____	\$ X	
Direct _____		X
Manufacturing Overhead	50,000	
Total _____ Costs _____		<u>177,000</u>
Total _____ Costs _____		X
Ending _____		<u>(29,000)</u>
		<u>\$ X</u>

**P18-37B. cont.**

CHARLIE MANUFACTURING COMPANY		
June 30, 2018		
Net Sales Revenue		\$ X
Cost of Goods Sold:		
Beginning	\$ 118,000	
	X	
Cost of Goods	X	
Ending	X	
Cost of Goods Sold		232,000
Gross Profit		268,000
Expenses:		
Selling Expenses	90,000	
Administrative Expenses	X	
Total		150,000
Income		\$ X

**SOLUTION**

---

**CHARLIE MANUFACTURING COMPANY**  
**Schedule of Cost of Goods Manufactured**  
**Month Ended June 30, 2018**

---

Beginning <u>Work-in-Process Inventory</u>		\$ 26,000
Direct <u>Materials Used</u> :		
Beginning Direct Materials	\$ 30,000	
Purchases of Direct Materials	51,000	
<u>Direct Materials Available for Use</u>	81,000	
Ending Direct Materials	(26,000)	
Direct <u>Materials Used</u>	\$ 55,000	
Direct <u>Labor</u>	72,000	
Manufacturing Overhead	50,000	
Total <u>Manufacturing Costs Incurred During the Month</u>		177,000
Total <u>Manufacturing Costs to Account For</u>		203,000
Ending <u>Work-in-Process Inventory</u>		(29,000)
<u>Cost of Goods Manufactured</u>		<u>\$ 174,000</u>

---

**P18-37B, cont.**

Missing Amounts:

Beginning Direct Materials:

Direct Materials Available for Use	\$ 81,000
Purchases of Direct Materials	<u>(51,000)</u>
Beginning Direct Materials	<u>\$ 30,000</u>

Direct Materials Used:

Direct Materials Available for Use	\$ 81,000
Ending Direct Materials	<u>(26,000)</u>
Direct Materials Used	<u>\$ 55,000</u>

Direct Labor:

Total Manufacturing Costs Incurred During the Month	\$ 177,000
Manufacturing Overhead	(50,000)
Direct Materials Used [calculated above]	<u>(55,000)</u>
Direct Labor	<u>\$ 72,000</u>



**P18-37B, cont.**

Total Manufacturing Costs to Account For:

Beginning Work-in-Process Inventory	\$ 26,000
Total Manufacturing Costs Incurred During the Month	<u>177,000</u>
Total Manufacturing Costs to Account For	<u><u>\$ 203,000</u></u>

Cost of Goods Manufactured:

Total Manufacturing Costs to Account For [calculated above]	\$ 203,000
Ending Work-in-Process Inventory	<u>(29,000)</u>
Cost of Goods Manufactured	<u><u>\$ 174,000</u></u>

---

**CHARLIE MANUFACTURING COMPANY**  
**Income Statement**  
**Month Ended June 30, 2018**

---

Net Sales Revenue		<b>\$ 500,000</b>
Cost of Goods Sold:		
Beginning <u>Finished Goods Inventory</u>	\$ 118,000	
<u>Cost of Goods Manufactured</u>	<b>174,000</b>	
Cost of Goods <u>Available for Sale</u>	<b>292,000</b>	
Ending <u>Finished Goods Inventory</u>	<b>(60,000)</b>	
Cost of Goods Sold		<u>232,000</u>
Gross Profit		268,000
<u>Selling and Administrative Expenses:</u>		
Selling Expenses	90,000	
Administrative Expenses	<b>60,000</b>	
Total <u>Selling and Administrative Expenses</u>		<u>150,000</u>
<u>Operating Income</u>		<u><u>\$ 118,000</u></u>

---

Missing Amounts:

Net Sales Revenue:

Cost of Goods Sold	\$ 232,000
Gross Profit	<u>268,000</u>
Net Sales Revenue	<u><u>\$ 500,000</u></u>

**P18-37B, cont.**

Cost of Goods Manufactured:

[From the Schedule of Cost of Goods Manufactured]

Cost of Goods Available for Sale:

Beginning Finished Goods Inventory	\$ 118,000
Cost of Goods Manufactured	<u>174,000</u>
Cost of Goods Available for Sale	<u>\$ 292,000</u>

Ending Finished Goods Inventory:

Cost of Goods Available for Sale [calculated above]	\$ 292,000
Cost of Goods Sold	<u>(232,000)</u>
Ending Finished Goods Inventory	<u>\$ 60,000</u>

Administrative Expenses:

Total Selling and Administrative Expenses	\$ 150,000
Selling Expenses	<u>(90,000)</u>
Administrative Expenses	<u>\$ 60,000</u>

Operating Income:

Gross Profit	\$ 268,000
Total Selling and Administrative Expenses	<u>(150,000)</u>
Operating Income	<u>\$ 118,000</u>

## P18-38B Determining the flow of costs through a manufacturer's inventory accounts

### Learning Objective 3

#### 3. \$21,420,000

True Fit Shoe Company makes loafers. During the most recent year, True Fit incurred total manufacturing costs of \$21,900,000. Of this amount, \$2,600,000 was direct materials used and \$14,800,000 was direct labor. Beginning balances for the year were Direct Materials, \$700,000; Work-in-Process Inventory, \$1,500,000; and Finished Goods Inventory, \$1,100,000. At the end of the year, balances were Direct Materials, \$800,000; Work-in-Process Inventory, \$2,000,000; and Finished Goods Inventory, \$1,080,000.

#### Requirements

Analyze the inventory accounts to determine:

1. Cost of direct materials purchased during the year.
2. Cost of goods manufactured for the year.
3. Cost of goods sold for the year.

### SOLUTION

#### Requirement 1

Cost of direct materials purchased during the year:

$$\begin{array}{rcccl} \text{Direct} & & \text{Beginning} & & \text{Purchases of} & & \text{Ending} \\ \text{Materials Used} & = & \text{Direct Materials} & + & \text{Direct Materials} & - & \text{Direct Materials} \end{array}$$

Solving for cost of direct materials purchased:

$$\begin{array}{rcccl} \text{Purchases of} & & \text{Direct} & & \text{Ending} & & \text{Beginning} \\ \text{Direct} & = & \text{Materials} & + & \text{Direct Materials} & - & \text{Direct Materials} \\ \text{Materials} & & \text{Used} & & & & \\ & = & \$2,600,000 & + & \$800,000 & - & \$700,000 \\ & = & \$2,700,000 & & & & \end{array}$$

#### Requirement 2

Cost of goods manufactured for the year:

$$\begin{array}{rcccl} \text{Cost of} & & \text{Beginning} & & \text{Total} & & \text{Ending} \\ \text{Goods} & = & \text{Work-in-Process} & + & \text{Manufacturing} & - & \text{Work-in-Process} \\ \text{Manufactured} & & \text{Inventory} & & \text{Costs Incurred} & & \text{Inventory} \\ & = & \$1,500,000 & + & \$21,900,000 & - & \$2,000,000 \\ & = & \$21,400,000 & & & & \end{array}$$

**P18-38B, cont.**  
**Requirement 3**

Cost of goods sold for the year:

Cost of Goods Sold	=	Beginning Finished Goods Inventory	+	Cost of Goods Manufactured	-	Ending Finished Goods Inventory
	=	\$1,100,000	+	\$21,400,000 [calculated in 2]	-	\$1,080,000
	=	\$21,420,000				

**P18-39B Preparing an income statement and calculating unit cost for a service company**

**Learning Objectives 3, 5**

**2. \$82.00**

The Glass Doctors repair chips in car windshields. The company incurred the following operating costs for the month of July 2018:

Salaries and wages	\$ 10,000
Windshield repair materials	4,100
Depreciation on truck	500
Depreciation on building and equipment	900
Supplies used	450
Utilities	4,550

The Glass Doctors earned \$25,000 in service revenues for the month of July by repairing 250 windshields. All costs shown are considered to be directly related to the repair service.

**Requirements**

1. Prepare an income statement for the month of July.
2. Compute the cost per unit of repairing one windshield, rounded to the nearest cent.
3. The manager of The Glass Doctors must keep unit operating cost below \$80 per windshield in order to get his bonus. Did he meet the goal?

**P18-39B, cont.**  
**SOLUTION**

**Requirement 1**

---

**THE GLASS DOCTORS**  
**Income Statement**  
**Month Ended July 31, 2018**

---

Revenues:		
Net Service Revenue		\$ 25,000
Expenses:		
Salaries and Wages Expense	\$ 10,000	
Materials Expense	4,100	
Depreciation Expense—Truck	500	
Depreciation Expense—Building and Equipment	900	
Supplies Expense	450	
Utilities Expense	4,550	
Total Expenses	<u>20,500</u>	
Operating Income		<u>\$ 4,500</u>

---

**Requirement 2**

$$\begin{aligned}\text{Unit cost} &= \text{Total expenses} / \text{Total windshields repaired} \\ &= \$20,500 / 250 \text{ windshields} \\ &= \$82.00 \text{ per windshield}\end{aligned}$$

**Requirement 3**

No. The actual unit cost per windshield of \$82.00 is greater than \$80.

## P18-40B Preparing an income statement and calculating unit cost for a merchandising company

### Learning Objectives 3, 5

#### 1. Operating income: \$15,450

Dillon Young owns Dillon's Pets, a small retail shop selling pet supplies. On December 31, 2018, the accounting records for Dillon's Pets showed the following:

Merchandise Inventory on December 31, 2018	\$ 10,500
Merchandise Inventory on January 1, 2018	16,000
Net Sales Revenue	56,000
Utilities Expense for the shop	3,200
Rent for the shop	4,100
Sales Commissions	2,750
Purchases of Merchandise Inventory	25,000

#### Requirements

1. Prepare an income statement for Dillon's Pets for the year ended December 31, 2018.
2. Dillon's Pets sold 5,550 units. Determine the unit cost of the merchandise sold, rounded to the nearest cent.

### SOLUTION

#### Requirement 1

---

**DILLON'S PETS**  
**Income Statement**  
**Year Ended December 31, 2018**

---

Revenues:		
Net Sales Revenue		\$ 56,000
Cost of Goods Sold:		
Beginning Merchandise Inventory	\$ 16,000	
Purchases of Merchandise	25,000	
Cost of Goods Available for Sale	<u>41,000</u>	
Ending Merchandise Inventory	<u>(10,500)</u>	
Cost of Goods Sold		<u>30,500</u>
Gross Profit		25,500
Selling and Administrative Expenses:		
Utilities Expense	3,200	
Rent Expense	4,100	
Sales Commission Expense	<u>2,750</u>	
Total Selling and Administrative Expenses		<u>10,050</u>
Operating Income		<u><u>\$ 15,450</u></u>

---

**P18-40B, cont.**  
**Requirement 2**

$$\begin{aligned}\text{Unit cost} &= \text{Cost of goods sold} / \text{Total units sold} \\ &= \$30,500 / 5,550 \text{ units} \\ &= \$5.50 \text{ per unit (rounded to the nearest cent)}\end{aligned}$$

## Using Excel

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### **P18-41 Using Excel to classify manufacturing costs and to determine the cost of manufactured products.**

Download an Excel template for this problem online in MyAccountingLab or at <http://www.pearsonhighered.com/Horngren>.

Fremont Troll House Cookies has been baking coconut cookies for 27 years. Classify manufacturing costs, and prepare schedules for the Cost of Goods Manufactured and the Cost of Goods Sold for the month ended March 31, 2018.

#### **Requirements**

- 1.** Use Excel to classify the costs
  - a.** Classify the costs as either period costs or product costs.
    - i.** To classify the cost, click in the cell. A drop down arrow will appear to the right. Click the arrow and select either Product or Period.
  - b.** Classify the product costs as direct materials, direct labor, or manufacturing overhead.
    - i.** To identify the classification, click in the cell. A drop down arrow will appear to the right. Click the arrow. If it's a product cost, select direct materials, direct labor, or manufacturing overhead. If it's a period cost, select expense.
- 2.** Complete the Schedule of Cost of Goods Manufactured. Use the blue shaded areas for inputs. Use the following amounts: direct materials used, \$2,500; direct labor, \$3,000; manufacturing overhead, \$11,000; beginning Work-in-Process Inventory, \$1,500; and ending Work-in-Process Inventory, \$1,200.
  - a.** Complete the heading
  - b.** To select the correct report caption, click in the cell. A drop down arrow will appear to the right. Click the arrow and select the appropriate caption from the alphabetical list.
  - c.** Indent the captions for Direct Materials Used, Direct Labor, and Manufacturing Overhead. Use the Increase Indent button on the Home tab in the Alignment section.



- d.** Complete the amounts to the right. Use the Excel function SUM to sum amounts on the schedule.
  - e.** Format the cells requiring dollar signs.
  - f.** Format underlines or double underlines as needed.
  - g.** Boldface the total.
- 3.** Using the results from Requirement 2, calculate the cost per unit for goods manufactured assuming 16,000 units were manufactured. Use the blue shaded areas for inputs. Use a formula to calculate the cost per unit.



4. Complete the Cost of Goods Sold schedule. Beginning Finished Goods had 500 units that had a cost of \$0.98 each. Ending Finished Goods Inventory had 700 units.
  - a. Complete the heading.
  - b. Using the results from Requirement 3, calculate cost of goods sold assuming FIFO inventory costing is used.
  - c. To select the correct report caption, click in the cell. A drop down arrow will appear to the right. Click the arrow and select the appropriate caption from the alphabetical list.
  - d. Complete the amounts to the right. Use the Excel function SUM to derive the Cost of Goods Sold.
  - e. Format the cells requiring dollar signs.
  - f. Format underlines or double underlines as needed.
  - g. Boldface the total.

## **SOLUTION**

The student templates for *Using Excel* are available online in MyAccountingLab in the Multimedia Library or at <http://www.pearsonhighered.com/Horngren>. The solution to *Using Excel* is located in MyAccountingLab in the Instructor Resource Center or at <http://www.pearsonhighered.com/Horngren>.

## Continuing Problem

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### P18-42

This is the first problem in a sequence of problems for Piedmont Computer Company, a manufacturer of personal computers and tablets. During its first month of manufacturing, Piedmont Computer Company incurred the following manufacturing costs:

<b>Balances:</b>	<b>Beginning</b>	<b>Ending</b>
Direct Materials	\$ 10,500	\$ 9,700
Work-in-Process Inventory	0	17,000
Finished Goods Inventory	0	31,000

---

<b>Other information:</b>		
Direct materials purchases		\$ 16,000
Plant janitorial services		500
Sales salaries expense		10,000
Delivery expense		1,600
Sales revenue	1,100,000	
Utilities for plant		16,000
Rent on plant		9,000
Customer service hotline costs		19,000
Direct labor		210,000

---

Prepare a schedule of cost of goods manufactured for Piedmont Computer Company for the month ended January 31, 2020.

## SOLUTION

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**PIEDMONT COMPUTER COMPANY**  
**Schedule of Cost of Goods Manufactured**  
**Month Ended January 31, 2020**

---

Beginning Work-in-Process Inventory		\$ 0
Direct Materials Used:		
Beginning Direct Materials	\$ 10,500	
Purchases of Direct Materials	16,000	
Direct Materials Available for Use	<u>26,500</u>	
Ending Direct Materials	<u>(9,700)</u>	
Direct Materials Used		\$ 16,800
Direct Labor		210,000
Manufacturing Overhead:		
Plant janitorial services	500	
Utilities for plant	16,000	
Rent on plant	<u>9,000</u>	
Total Manufacturing Overhead		<u>25,500</u>
Total Manufacturing Costs Incurred during the Month		<u>252,300</u>
Total Manufacturing Costs to Account For		252,300
Ending Work-in-Process Inventory		<u>(17,000)</u>
Cost of Goods Manufactured		<u><u>\$ 235,300</u></u>

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## Critical Thinking

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### Tying It All Together Case 18–1

*Before you begin this assignment, review the Tying It All Together feature in the chapter.*

**Winnebago Industries, Inc.** is a leading manufacturer of recreational vehicles (RVs), including motorized and towable products. The company designs, develops, manufactures, and markets RVs as well as supporting products and services. The RVs are sold to consumers through a dealer network. On the August 29, 2015, balance sheet, Winnebago reported inventory of approximately \$112 million. Of this amount, approximately \$12 million, about 11%, was Finished Goods Inventory (Notes to Consolidated Financial Statements, Note 3). Suppose Winnebago motor homes have an average sales price of \$96,000 and cost of goods sold is 89% of sales. Thor Industries, Inc., a major competitor, has an average cost of goods sold of 86% of sales. For year ending August 29, 2015, Winnebago sold 9,097 motor homes (Form 10-K, Item 1 Business).

#### Requirements

1. Why would the Finished Goods Inventory be such a relatively small portion of total inventory?
2. What is the average cost of goods sold (in dollars) for a Winnebago motor home? What is the average gross profit?
3. If Winnebago could reduce production costs so that the average cost of goods sold is equal to their competitor's average cost of goods sold, how much more profit would Winnebago earn on each motor home sold?
4. Based on 2015 sales, how much would operating income increase if the company reduced the average cost of goods sold to equal their competitor's average cost of goods sold?
5. How could managers at Winnebago use managerial accounting to reduce costs and increase profits?

#### SOLUTION

##### Requirement 1

Winnebago's finished goods inventory is such a relatively small portion of total inventory because Winnebago manufactures the RVs and then sells them to dealerships for resale to consumers. The company does not own or operate dealerships. Therefore, Winnebago has a relatively small portion of Finished Goods Inventory. As soon as RVs are complete, Winnebago will want to sell them to the dealerships. The majority of Winnebago's inventory is in Raw Materials Inventory that will be used in the manufacturing process and Work-in-Process Inventory of the RVs started but not yet completed.

##### Requirement 2

Average cost of goods sold = Average sales price  $\times$  Cost of goods sold % =  $\$96,000 \times 89\% = \$85,440$ .  
Average gross profit = Average sales price – Average cost of goods sold =  $\$96,000 - \$85,440 = \$10,560$ .

**Requirement 3**

Average cost of goods sold = Average sales price  $\times$  Cost of goods sold % =  $\$96,000 \times 86\% = \$82,560$ .  
Average gross profit = Average sales price – Average cost of goods sold =  $\$96,000 - \$82,560 =$   
 $\$13,440$ . Profits would increase by  $\$2,880$  ( $\$13,440 - \$10,560$ ) per motor home sold.

**Requirement 4**

Total increase in operating income = Average increase in profits per motor home  $\times$  Number of motor homes =  $\$2,880$  per motor home  $\times$  9,097 motor homes =  $\$26,199,360$ .

**Requirement 5**

Managerial accounting provides detailed information on all costs incurred by the company. Managers can use the information provided to analyze different types of costs, such as product costs and period costs, to determine where actual costs exceeded expected costs and then consider options to reduce those costs.

## Decision Case 18-1

Power Switch, Inc. designs and manufactures switches used in telecommunications. Serious flooding throughout North Carolina affected Power Switch's facilities. Inventory was completely ruined, and the company's computer system, including all accounting records, was destroyed.

Before the disaster recovery specialists clean the buildings, Stephen Plum, the company controller, is anxious to salvage whatever records he can to support an insurance claim for the destroyed inventory. He is standing in what is left of the accounting department with Paul Lopez, the cost accountant.

"I didn't know mud could smell so bad," Paul says. "What should I be looking for?"

"Don't worry about beginning inventory numbers," responds Stephen, "we'll get them from last year's annual report. We need first-quarter cost data."

"I was working on the first-quarter results just before the storm hit," Paul says. "Look, my report is still in my desk drawer. All I can make out is that for the first quarter, direct material purchases were \$476,000 and direct labor, manufacturing overhead, and total manufacturing costs to account for were \$505,000, \$245,000, and \$1,425,000, respectively. Wait! Cost of goods available for sale was \$1,340,000."

"Great," says Stephen. "I remember that sales for the period were approximately \$1,700,000. Given our gross profit of 30%, that's all you should need."

Paul is not sure about that but decides to see what he can do with this information. The beginning inventory numbers were:

- Direct Materials, \$113,000
- Work-in-Process, \$229,000
- Finished Goods, \$154,000

### Requirements

1. Prepare a schedule showing each inventory account and the increases and decreases to each account. Use it to determine the ending inventories of Direct Materials, Work-in-Process, and Finished Goods.
2. Itemize a list of the cost of inventory lost.

## SOLUTION

### Requirement 1

Shown in the schedule, below, the ending inventories are: Direct Materials, \$143,000; Work-in-Process Inventory, \$239,000; and Finished Goods Inventory, \$150,000.

<b>POWERSWITCH, INC.</b>					
<b>Flow of Costs Schedule</b>					
<b>For the 1<sup>st</sup> Quarter</b>					
<b>Raw Materials Inventory**</b>		<b>Work-in-Process Inventory</b>		<b>Finished Goods Inventory</b>	
Beginning DM	\$ 113,000 *	Beginning WIP Inventory	\$ 229,000 *	Beginning FG Inventory	\$ 154,000 *
+ Purchases of DM	476,000 *	+ Direct Materials Used	446,000 <sup>e</sup>	+ Cost of Goods Manufactured	1,186,000 <sup>c</sup>
		+ Direct Labor	505,000 *		
		+ Manufacturing Overhead	245,000 *		
= Direct Materials Available for Use	589,000	= Total Manufacturing Costs to Account For	1,425,000 *	= Cost of Goods Available for Sale	1,340,000 *
– Ending DM	143,000 <sup>f</sup>	– Ending WIP Inventory	239,000 <sup>d</sup>	– Ending FG Inventory	150,000 <sup>b</sup>
= Direct Materials Used	<u>\$ 446,000 <sup>e</sup></u>	= Cost of Goods Manufactured	<u>\$ 1,186,000 <sup>c</sup></u>	= Cost of Goods Sold	<u>\$ 1,190,000 <sup>a</sup></u>

\* Denotes amounts given in the case.

\*\*Direct materials portion only

Calculations for amounts denoted with a superscript letters are provided on the next two pages.

## Decision Case 18-1, cont.

### Calculations:

<sup>a</sup> Cost of Goods Sold:

Sales	×	(1 – Gross Profit %)	=	Cost of Goods Sold
\$1,700,000	×	(1 – 30%)	=	\$1,190,000
\$1,700,000	×	70%	=	\$1,190,000

<sup>b</sup> Ending Finished Goods Inventory:

Cost of Goods Available for Sale	–	Ending Finished Goods Inventory	=	Cost of Goods Sold
\$1,340,000	–	Ending Finished Goods Inventory	=	\$1,190,000
<i>Therefore:</i>		Ending Finished Goods Inventory	=	\$150,000

<sup>c</sup> Cost of Goods Manufactured:

Beginning Finished Goods Inventory	+	Cost of Goods Manufactured	=	Cost of Goods Available for Sale
\$154,000	+	Cost of Goods Manufactured	=	\$1,340,000
<i>Therefore:</i>		Cost of Goods Manufactured	=	\$1,186,000

<sup>d</sup> Ending Work-in-Process Inventory:

Total Manufacturing Costs to Account For	–	Ending Work-in-Process Inventory	=	Cost of Goods Manufactured
\$1,425,000	–	Ending Work-in-Process Inventory	=	\$1,186,000
<i>Therefore:</i>		Ending Work-in-Process Inventory	=	\$ 239,000



## Decision Case 18-1, cont.

<sup>e</sup> Direct Materials Used:

Beginning Work-in-Process Inventory	+	Direct Materials Used	+	Direct Labor	+	Manufacturing Overhead	=	Total Manufacturing Costs to Account For
\$229,000	+	Direct Materials Used	+	\$505,000	+	\$245,000	=	\$1,425,000
<i>Therefore:</i>		Direct Materials Used					=	\$ 446,000

<sup>f</sup> Ending Direct Materials:

Direct Materials Available for Use	–	Ending Direct Materials	=	Direct Materials Used
\$589,000	–	Ending Direct Materials	=	\$446,000
<i>Therefore:</i>		Ending Direct Materials	=	\$143,000

## Requirement 2

Inventory lost in the flood:

Direct Materials	\$143,000
Work-in-Process Inventory	239,000
Finished Goods Inventory	<u>150,000</u>
Total Inventory	<u>\$532,000</u>

## Ethical Issue 18-1

Becky Knauer recently resigned from her position as controller for Shamalay Automotive, a small, struggling foreign car dealer in Upper Saddle River, New Jersey. Becky has just started a new job as controller for Mueller Imports, a much larger dealer for the same car manufacturer. Demand for this particular make of car is exploding, and the manufacturer cannot produce enough to satisfy demand. The manufacturer's regional sales managers are each given a certain number of cars. Each sales manager then decides how to divide the cars among the independently owned dealerships in the region. Because of high demand for these cars, dealerships all want to receive as many cars as they can from the regional sales manager.

Becky's former employer, Shamalay Automotive, receives only about 25 cars each month. Consequently, Shamalay is not very profitable.

Becky is surprised to learn that her new employer, Mueller Imports, receives more than 200 cars each month. Becky soon gets another surprise. Every couple of months, a local jeweler bills the dealer \$5,000 for "miscellaneous services." Franz Mueller, the owner of the dealership, personally approves payment of these invoices, noting that each invoice is a "selling expense." From casual conversations with a salesperson, Becky learns that Mueller frequently gives Rolex watches to the manufacturer's regional sales manager and other sales executives. Before talking to anyone about this, Becky decides to work through her ethical dilemma. Put yourself in Becky's place.

### Requirements

1. What is the ethical issue?
2. What are your options?
3. What are the possible consequences?
4. What should you do?

### SOLUTION

Students' responses will vary. Illustrative answers follow.

- a. The ethical issue facing Becky is deciding what to do about the owner's gifts to the regional sales managers. Although small "courtesy" gifts are accepted practice in the world of sales, the regular basis and the high value of these items (especially jewelry) suggest that the owner is bribing the sales managers and other sales executives to receive a large allocation of cars.
- b. The options include:
  - (1) Do nothing,
  - (2) Discuss the matter with the owner,
  - (3) Resign if the owner will not stop the practice, or
  - (4) Inform the manufacturer.

**c. The possible consequences include:**

1. If Becky does nothing, her job and those of the other employees may remain secure for the time being. However, as controller she could be held accountable for laundering a bribe if the scheme became public. A lawsuit brought by other dealers who did not receive a fair share of available cars could name her as an involved party. If Becky is a CPA, she could also lose her CPA license.

There are also potential tax consequences to consider. Since the jewelry expenditures are being recorded as selling expenses, it is likely that this amount is being deducted on the company's tax return. The IRS limits deductions of gifts to \$25 per person per year. Since a Rolex watch far exceeds the cost of \$25, Becky's failure to disclose the true nature of the expense may make her liable for underreporting the company's tax liability.

2. If Becky discusses the matter with the owner, she might find out that there is another side to the story and in fact there is no wrongdoing or ethical dilemma. However, this seems unlikely given the facts. It also seems unlikely that the owner will end this practice since it enhances the dealership's profits. However, Becky may have some influence on Mueller if she explains the dangers of continuing the bribes. Mueller could be sued by other dealers, or the manufacturer could cancel his dealership. Such outcomes would affect all the dealership's employees, not just Mueller. If Mueller refuses to change his ways, then Becky is in an even more difficult position because she now has direct knowledge of the bribery.
  3. By resigning, Becky loses her job but protects her integrity and avoids being involved in a subsequent action against the dealership if the bribery becomes known.
  4. Perhaps an even more difficult question is whether Becky should inform the manufacturer about the bribery. If Becky has not already resigned, Mueller probably would fire her for taking this action.
- d. Accountants should never become party to, or appear to be involved in, an unethical (and possibly illegal) situation such as this. This is especially true for persons with fiduciary responsibilities like a controller. Becky should discuss her concerns with the owner. If Mueller is indeed bribing the sales representatives and refuses to stop this practice, Becky should inform the manufacturer, or she should resign.

### **Communication Activity 18-1**

In 100 words or fewer, explain the difference between product costs and period costs. In your explanation, explain the inventory accounts of a manufacturer.

### **SOLUTION**

Period costs are operating costs that are expensed in the same accounting period in which they are incurred, whereas product costs are recorded as an asset and not expensed until the accounting period in which the product is sold. Period costs are all costs not considered product costs.

Manufacturing companies track costs on three kinds of inventory. Raw Materials Inventory includes materials used to manufacture a product. Work-in-Process Inventory includes goods that have been started in the manufacturing process but are not yet complete. Finished Goods Inventory includes completed goods that have not yet been sold.