

CHAPTER 15—Solutions

MANAGERIAL ACCOUNTING AND COST CONCEPTS

Discussion Questions

DQ1.	Management accountants partner with management in decision making, devising planning and performance management systems to assist management in the formulation and implementation of an organization's strategy. Managers trust the numbers management accountants provide are accurately measured and recognized by the appropriate cost classifications.
DQ2.	The statement is true. Several parts of a management accountant's work, such as product costing and pricing analyses, feed directly into the financial accounting system. Because the two fields are interrelated, management accountants and financial accountants must work closely together. Budget data must be compatible with the organization's records or data accumulation system so that projected and actual operating results can be compared and differences can be analyzed. Reports to outsiders, although usually audited or viewed by outside public accountants, are created by and are the responsibility of the organization's financial accountant. Tax aspects of the organization affect management accounting as well as financial accounting projects and analyses. Therefore, it is impossible to distinguish where financial accounting ends and managerial accounting begins. As financial and management accounting work is done, the underlying accounting concepts are the same that guide the accountants work.
DQ3.	Management accountants now act as business partners in management decision making, which is a broader role than the one indicated by the previous definition.
DQ4.	The product unit cost can be measured using the actual, normal, or standard costing method. Under actual costing, the actual costs are used to compute the product unit cost. Under normal costing, the actual costs of direct materials and direct labor are combined with the estimated cost of overhead to determine the product unit cost. Under standard costing, the estimated costs are used to calculate the product unit cost.
DQ5.	Managers in manufacturing, retail, and service organizations recognize, measure, and match cost and revenue data during the period to plan, perform, evaluate, and report on operating costs and product or service costs to prepare budgets, make pricing and other decisions, calculate variances between estimated and actual costs, and communicate results.

Short Exercises

SE1. Managerial Accounting versus Financial Accounting

a.	MA	e.	FA
b.	FA	f.	MA
c.	FA	g.	MA
d.	MA	h.	MA

SE2. Elements of Manufacturing Costs

a.	DM, PC	e.	O, CC
b.	O, CC	f.	N, N
c.	DL, PC and CC	g.	O, CC
d.	O, CC		

SE3. Cost Recognition

a.	ID, F, NVA, PD
b.	Neither, F, NVA, PER
c.	D, V, VA, PD

SE4. Cost Flow in a Manufacturing Organization

Materials Inventory, ending balance:	
Materials Inventory, beginning balance	\$ 25,000
Direct materials purchased	85,000
Direct materials placed into production	<u>(74,000)</u>
Materials Inventory, ending balance	<u>\$ 36,000</u>

Work in Process Inventory, ending balance:	
Work in Process Inventory, beginning balance	\$ 5,750
Direct materials placed into production	74,000
Direct labor costs	70,000
Overhead costs	35,000
Cost of goods manufactured	<u>(133,000)</u>
Work in Process Inventory, ending balance	<u>\$ 51,750</u>

Finished Goods Inventory, ending balance:	
Finished Goods Inventory, beginning balance	\$ 38,000
Cost of goods manufactured	133,000
Cost of goods sold	<u>(103,375)</u>
Finished Goods Inventory, ending balance	<u>\$ 67,625</u>

SE5. Document Flows in a Manufacturing Organization									
a.	Time card				e.	Materials request			
b.	Purchase order				f.	Purchase request			
c.	Receiving report				g.	Sales invoice			
d.	Job order cost card								
SE6. Income Statement for a Manufacturing Organization									
Nathan Company									
Income Statement									
For the Year									
Sales							\$900,000		
Cost of goods sold:									
	Finished goods inventory, beginning					\$ 45,000			
	Cost of goods manufactured					<u>575,000</u>			
	Cost of finished goods available for sale					\$620,000			
	Less finished goods inventory, ending					<u>80,000</u>			
	Cost of goods sold						<u>540,000</u>		
Gross margin							\$360,000		
Operating expenses							<u>300,000</u>		
Operating income							<u>\$ 60,000</u>		
SE7. Computation of Product Unit Cost									
Product unit cost:									
	Direct materials	(	\$4,800	/	600 units)			\$ 8.00	
	Direct labor	(	\$7,200	/	600 units)			12.00	
	Overhead	(	\$3,600	/	600 units)			<u>6.00</u>	
	Product unit cost	(	\$15,600	/	600 units)			<u>\$26.00</u>	
Prime costs and conversion costs per unit:									
						Prime		Conversion	
						Costs		Costs	
Direct materials						\$ 8		NA	
Direct labor						12		\$12	
Overhead						<u>NA</u>		<u>6</u>	
Totals						<u>\$20</u>		<u>\$18</u>	
SE8. The Management Process									
a.	C				d.	PE			
b.	PL				e.	PL			
c.	PE				f.	E			

SE9. Strategic Positioning

- | | |
|----|---|
| a. | Q |
| b. | Q |
| c. | C |
| d. | Q |
| e. | C |
| f. | C |
| g. | Q |
| h. | Q |
| i. | C |

SE10. Ethical Conduct

ABC's accountant may be disclosing confidential information to a person employed by a competitor; therefore, he is not adhering to the ethical standards of management accountants.

Exercises: Set A**E1A. Cost Recognition**

		Cost Recognition Classifications			
		Product	Variable	Value-Adding or	Direct
		or Period	or Fixed	Non-Value-Adding	or Indirect
Example: Motor		Product	Variable	Value-adding	Direct
a.	Office rent	Period	Fixed	Non-value-adding	—
b.	Labor to assemble moped	Product	Variable	Value-adding	Direct
c.	Labor to inspect moped	Product	Variable	Non-value-adding	Indirect
d.	Accountant's salary	Period	Fixed	Non-value-adding	—
e.	Lubricant for brakes	Product	Variable	Value-adding	Indirect

Note to Instructor: Office rent and accountant's salary are not product costs. Therefore, they would not be traceable to the mopeds in a traditional business operation. The two costs would be shown on the income statement as selling and administrative expenses.

E2A. Comparison of Income Statement Formats

a.	SER
b.	RET
c.	MANF

E3A. Characteristics of Organizations

a.	RET	f.	SER
b.	SER	g.	RET
c.	RET	h.	SER
d.	MANF	i.	MANF
e.	MANF		

E4A. Statement of Cost of Goods Manufactured

Agron, Inc.						
Statement of Cost of Goods Manufactured						
For the Month of June						
Direct materials used:						
Materials inventory, beginning					\$ 48,600	
Direct materials purchased					<u>119,000</u>	
Cost of direct materials available for use					\$167,600	
Less materials inventory, ending					<u>55,100</u>	
Cost of direct materials used						\$112,500
Direct labor (3,400 hours × \$10)						34,000
Overhead:						
Utilities					\$ 5,870	
Supervision					17,300	
Indirect materials					6,750	
Depreciation					6,200	
Insurance					1,830	
Miscellaneous					<u>1,100</u>	
Total overhead						<u>39,050</u>
Total manufacturing costs						\$185,550
Add work in process inventory, beginning						<u>55,250</u>
Total cost of work in process during the month						\$240,800
Less work in process inventory, ending						<u>48,400</u>
Cost of goods manufactured						<u>\$192,400</u>

E5A. Statement of Cost of Goods Manufactured and Cost of Goods Sold

	Lime Division		Lemon Division		Orange Division		Fig Division	
Direct materials used	\$ 4		\$ 7		\$ 5 (g)		\$ 8	
Direct labor	2 (a)		9		4		4	
Overhead	<u>5</u>		<u>3</u>		<u>3</u>		<u>5</u> (j)	
Total manufacturing costs	\$11		\$19 (d)		\$12 (h)		\$17	
Beginning work in process inventory	2		7 (e)		5		2 (k)	
Ending work in process inventory	<u>(1)</u> (b)		<u>(3)</u>		<u>(2)</u>		<u>(5)</u>	
Cost of goods manufactured	\$12		\$23		\$15		\$14 (l)	
Beginning finished goods inventory	3		4 (f)		5		7	
Ending finished goods inventory	<u>(2)</u>		<u>(6)</u>		<u>(4)</u> (i)		<u>(9)</u>	
Cost of goods sold	<u>\$13</u> (c)		<u>\$21</u>		<u>\$16</u>		<u>\$12</u>	

E6A. Missing Amounts—Manufacturing

a.	\$1,000	+	\$20,000	–	\$15,000	=	<u>\$ 6,000</u>
b.	\$140,000	+	\$60,000	–	\$55,000	=	<u>\$145,000</u>
c.	\$23,000	+	\$99,000	–	\$29,000	=	<u>\$ 93,000</u>

E7A. Inventories, Cost of Goods Sold, and Net Income

Note to Instructor: Items are listed in the suggested order of working solution.

1. First Quarter:

(a)	Gross Margin	=	Sales	-	Cost of Goods Sold	
		=	\$10	-	\$5	= <u>\$5</u>
(c)	Operating Expenses	=	Gross Margin	-	Operating Income	
		=	\$5	-	\$3	= <u>\$2</u>
(d)	Cost of Goods Available for Sale	=	Cost of Goods Sold	+	Ending Merchandise Inventory	
		=	\$5	+	\$5	= <u>\$10</u>
(b)	Net Cost of Purchases	=	Cost of Goods Available for Sale	-	Beginning Merchandise Inventory	
		=	\$10	-	\$4	= <u>\$6</u>

Second Quarter:

(e)	Sales	=	Gross Margin	+	Cost of Goods Sold	
		=	\$4	+	\$8	= <u>\$12</u>
(f)	Ending Merchandise Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Sold	
		=	\$12	-	\$8	= <u>\$4</u>
(g)	Beginning Merchandise Inventory	=	Cost of Goods Available for Sale	-	Net Cost of Purchases	
		=	\$12	-	\$7	= <u>\$5</u>

E7A. Inventories, Cost of Goods Sold, and Net Income (Continued)

Third Quarter:							
(h)	Beginning Merchandise Inventory	=	Cost of Goods Available for Sale	-	Net Cost of Purchases		
		=	\$15	-	\$11	=	<u>\$4</u>
(i)	Operating Income	=	Gross Margin	-	Operating Expenses		
		=	\$5	-	\$1	=	<u>\$4</u>
(j)	Cost of Goods Sold	=	Sales	-	Gross Margin		
		=	\$15	-	\$5	=	<u>\$10</u>
Fourth Quarter:							
(l)	Gross Margin	=	Operating Expenses	+	Operating Income		
		=	\$4	+	\$2	=	<u>\$6</u>
(k)	Sales	=	Gross Margin	+	Cost of Goods Sold		
		=	\$6	+	\$12	=	<u>\$18</u>
(m)	Ending Merchandise Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Sold		
		=	\$15	-	\$12	=	<u>\$3</u>
(n)	Net Cost of Purchases	=	Cost of Goods Available for Sale	-	Beginning Merchandise Inventory		
		=	\$15	-	\$5	=	<u>\$10</u>

E7A. Inventories, Cost of Goods Sold, and Net Income (Continued)

2.	First Quarter:						
	(c)	Sales	=	Gross Margin	+	Cost of Goods Sold	
			=	\$4	+	\$6	= <u>\$10</u>
	(a)	Ending Finished Goods Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Sold	
			=	\$8	-	\$6	= <u>\$2</u>
	(b)	Beginning Finished Goods Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Manufactured	
			=	\$8	-	\$5	= <u>\$3</u>
	Second Quarter:						
	(f)	Gross Margin	=	Sales	-	Cost of Goods Sold	
			=	\$10	-	\$3	= <u>\$7</u>
	(g)	Operating Expenses	=	Gross Margin	-	Operating Income	
			=	\$7	-	\$3	= <u>\$4</u>
	(d)	Cost of Goods Available for Sale	=	Cost of Goods Sold	+	Ending Finished Goods Inventory	
			=	\$3	+	\$3	= <u>\$6</u>
	(e)	Cost of Goods Manufactured	=	Cost of Goods Available for Sale	-	Beginning Finished Goods Inventory	
			=	\$6	-	\$2	= <u>\$4</u>

E7A. Inventories, Cost of Goods Sold, and Net Income (Concluded)

Third Quarter:							
(j)	Gross Margin	=	Operating Expenses	+	Operating Income		
		=	\$4	+	\$2	=	<u>\$6</u>
(k)	Sales	=	Gross Margin	+	Cost of Goods Sold		
		=	\$6	+	\$5	=	<u>\$11</u>
(h)	Ending Finished Goods Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Sold		
		=	\$10	-	\$5	=	<u>\$5</u>
(i)	Cost of Goods Manufactured	=	Cost of Goods Available for Sale	-	Beginning Finished Goods Inventory		
		=	\$10	-	\$3	=	<u>\$7</u>
Fourth Quarter:							
(n)	Beginning Finished Goods Inventory	=	Cost of Goods Available for Sale	-	Cost of Goods Manufactured		
		=	\$13	-	\$8	=	<u>\$5</u>
(m)	Operating Income	=	Gross Margin	-	Operating Expenses		
		=	\$7	-	\$5	=	<u>\$2</u>
(l)	Cost of Goods Sold	=	Sales	-	Gross Margin		
		=	\$14	-	\$7	=	<u>\$7</u>

E8A. Unit Cost Determination									
1.						Total	Unit Cost		
	Cost Items					Cost	(Total / 6,264)		
	Total direct materials costs					\$25,056	\$4.00		
	Total direct labor costs					12,528	2.00		
	Total overhead costs					21,924	3.50		
	Total production costs					\$59,508	\$9.50		
2.	The price for a bottle of wine should be increased to at least \$12.67* per bottle. The current price barely covers the production costs. Very little is left over for profit and other operating costs, such as selling and administrative expenses.								
	*[\$9.50 / (1 – 0.25)] = \$12.67 rounded								
3.						Prime	Conversion		
						Cost	Cost		
	Direct materials					\$4.00	NA		
	Direct labor					2.00	\$2.00		
	Overhead					NA	3.50		
	Totals					\$6.00	\$5.50		
E9A. Unit Costs in a Service Business									
Gas							\$ 900		
Tractor maintenance							360		
Tractor depreciation (\$3,000 / 12 months)							250		
Labor							1,200		
Total costs							\$2,710		
Cost per bale		=	\$2,710	/	6,000	bales	=	\$0.45 *	
Revenue per bale		=	\$3,600	/	6,000	bales	=	\$0.60	
*Rounded									
The business is currently covering costs and making an adequate gross profit (25%). No need to increase the amount charged to customers if business is satisfied with profits for the year or if they obtain profits from other farming services. However, to increase profits, it may either increase the service charge to customers or reduce some of operating expenses. This also assumes that business activities are steady throughout the year and not seasonal or cyclical. If, for instance, the tractor generates revenue only four months of the year, the depreciation expense allocation would increase to \$750 (\$3,000 × 1/4).									

E10A. The Management Process			
a.	PE	f.	C
b.	E	g.	PE
c.	PL	h.	PL
d.	C	i.	C
e.	PL	j.	PE
E11A. The Planning Framework			
1.	budget	5.	mission
2.	operating objectives	6.	tactical objectives
3.	goal	7.	strategic objectives
4.	business plan		
E12A. Ethical Conduct			
<p>Dula Gibbon is in a delicate situation. The ethical issue is one of professional competence. Her boss is violating the ethical standard that requires management accountants to maintain an appropriate level of professional competence through ongoing development of their knowledge and skills.</p>			
<p>Gibbon has three choices. She can choose to do nothing. However, since Paine's actions can affect the security of company activities, Gibbon is ethically obligated to do something about the situation. Thus, she can either (1) approach Paine and urge him to reconsider his thoughts and actions regarding professional development or (2) report his actions to someone higher in the organization. Paine's actions constitute employee theft of services because he is receiving a salary and travel, lodging, and meal expenses for personal pleasure instead of work-related activity. As is the case with so many ethical dilemmas, there is no easy solution for Gibbon. If Paine does not remain competent, management should be informed.</p>			
E13A. Corporate Ethics			
<p>Depending on the company selected, each student's description will vary. For example, some companies, such as Lockheed Martin, state their ethical principles on their website (www.lockheedmartin.com) and provide ethics awareness training, diversity dialogues, integrity minutes, ethics links, ethics tools, and other resources. Other companies, such as Nokia, not only have a code of corporate responsibilities but also provide information about the environmental attributes of its products and how it is being a good corporate neighbor wherever it does business. Students' conclusions about corporate ethical conduct should be supported by their findings.</p>			
<p>Note to Instructor: Solutions for Exercises: Set B are provided separately on the Instructor's Resource CD and website.</p>			

Problems						
P1. A Manufacturing Organization’s Balance Sheet						
1.	a.	The asset accounts on the balance sheet of Manufacturing Company that are specifically related to manufacturing organizations include Materials Inventory, Work in Process Inventory, Finished Goods Inventory, Factory Supplies, Small Tools, Factory Building, Accumulated Depreciation—Factory Building, Factory Equipment, Accumulated Depreciation—Factory Equipment, and Patents.				
	b.	The balance sheets of both manufacturing and retail organizations include amounts for Cash, Accounts Receivable, Accounts Payable, Insurance Premiums Payable, and Income Taxes Payable. More complex organizations of either type will usually have Land, Mortgage Payable, Common Stock, and Retained Earnings. The nature and amounts of these items will vary depending on the resource needs of each organization.				

2.	a.	Gross Margin	=	Operating Expenses	+	Operating Income
			=	\$ 53,670	+	\$138,130
			=	<u>\$191,800</u>		
	b.	Cost of Goods Sold	=	Sales	–	Gross Margin
			=	\$500,000	–	\$191,800
			=	<u>\$308,200</u>		
	c.	Cost of Goods Available for Sale	=	Cost of Goods Sold	+	Finished Goods Inventory, Ending
			=	\$308,200	+	\$54,800
			=	<u>\$363,000</u>		
	d.	Cost of Goods Manufactured	=	Cost of Goods Available for Sale	–	Finished Goods Inventory, Beginning
			=	\$363,000	–	\$50,900
			=	<u>\$312,100</u>		

P2. Statement of Cost of Goods Manufactured

Jackplum Vineyards		
Statement of Cost of Goods Manufactured		
For the Year Ended October 31		
Direct materials used:		
Materials inventory, beginning	\$ 56,200	
Direct materials purchased	<u>750,000</u>	
Cost of direct materials available for use	\$806,200	
Less materials inventory, ending	<u>83,800</u>	
Cost of direct materials used		\$ 722,400
Direct labor		1,540,000*
Overhead:		
Depreciation, plant and equipment	\$ 85,600	
Indirect labor	207,300	
Property tax, plant and equipment	96,000	
Plant maintenance	80,000	
Small tools	42,400	
Utilities	96,500	
Employee benefits	<u>176,100</u>	
Total overhead		<u>783,900</u>
Total manufacturing costs		\$3,046,300
Add work in process inventory, beginning		<u>3,300,000</u>
Total cost of work in process during the year		\$6,346,300
Less work in process inventory, ending		<u>2,700,500</u>
Cost of goods manufactured		<u>\$3,645,800</u>
* 140,000 hours × \$11/hour = \$1,540,000		

P3. Computation of Unit Cost					
1.	Department 70:				
	Direct materials used:				
	\$30,000	/	10,000 fans	\$3.00	
	Direct labor:				
	\$8,000	/	10,000 fans	0.80	
	Overhead:				
	\$5,000	/	10,000 fans	<u>0.50</u>	
	Total unit cost, Dept. 70				\$4.30
	Department 71:				
	Direct materials used:				
	\$4,000	/	10,000 fans	\$0.40	
	Direct labor:				
	\$2,000	/	10,000 fans	0.20	
	Overhead:				
	\$3,000	/	10,000 fans	<u>0.30</u>	
	Total unit cost, Dept. 71				<u>0.90</u>
2.	Total unit cost				<u>\$5.20</u>
3.	Selling price				\$10.00
	Unit cost				<u>5.20</u>
	Gross margin per unit				<u>\$ 4.80</u>
	Gross margin as a percentage of sales:		0.48	or	48.0%
	The selling price appears adequate. Almost 50% of the total selling price remains to cover all operating expenses and to yield a profit. Management should be sure to supply cost data to the Sales Department on a timely basis.				
4.			Department 70		Department 71
			Prime Costs	Conversion Costs	Prime Costs
					Conversion Costs
	Direct materials		\$3.00	NA	\$0.40
	Direct labor		0.80	\$0.80	0.20
	Overhead		<u>NA</u>	<u>0.50</u>	<u>NA</u>
	Totals		<u>\$3.80</u>	<u>\$1.30</u>	<u>\$0.60</u>
					<u>\$0.50</u>

P4. Unit Costs in a Service Business									
1. Cost per patient day:									
Memory aids								\$ 30	
Doctors' care		(	1	×	\$200	)	200		
Memory therapy care		(	3	×	\$ 90	)	270		
Regular nursing care		(	24	×	\$ 30	)	720		
Medications								250	
Daily living supplies								80	
Room rental								400	
Food services								<u>50</u>	
	Total cost per patient day							<u>\$2,000</u>	
2. and 3. Billing per patient day:									
				2.	Normal		3.	Industry Average	
		Cost			Billing			Billing Approach	
Memory aids		\$ 30		×	1.40	\$ 42	×	1.30	\$ 39
Doctors' care		200		×	1.40	280	×	1.50	300
Memory therapy care		270		×	1.40	378	×	1.50	405
Regular nursing care		720		×	1.40	1,008	×	1.50	1,080
Medications		250		×	1.40	350	×	1.50	375
Daily living supplies		80		×	1.40	112	×	1.50	120
Room rental		400		×	1.40	560	×	1.30	520
Food services		<u>50</u>		×	1.40	<u>70</u>	×	1.20	<u>60</u>
	Totals		<u>\$2,000</u>			<u>\$2,800</u>			<u>\$2,899</u>
4.	On the surface, the new approach seems to yield more revenue. However, the rates used to compute the new cost per patient day were industry averages. They may not be representative of Sunny Day's immediate competition. Before adopting the new rate, the controller should compare it to rates charged by other memory units in the area.								

P5. Professional Ethics		
1.	Ted Thalia is facing an issue of integrity, not one of confidentiality. Two ethical standards come into play:	
	•	Refuse any gift, favor, or hospitality that would influence or would appear to influence your actions.
	•	Communicate unfavorable as well as favorable information and professional judgments or opinions.
2.	Thalia is ethically bound to report the write-off of the obsolete inventory in the year that the inventory became worthless. He should make this decision and support it with both professional and ethical reasoning. Since his boss is also an accountant, the same ethical standards apply to his work and judgment. Under no circumstances should the obsolete inventory be reported in a subsequent accounting period.	
Note to Instructor: Other standards of integrity can also be brought into the discussion of this case.		

Alternate Problems

P6. A Manufacturing Organization's Balance Sheet

1.	a.	The asset accounts on Miles Production Company's balance sheet that are specifically related to manufacturing organizations include Materials Inventory, Work in Process Inventory, Finished Goods Inventory, Production Supplies, Small Tools, Factory Building, Accumulated Depreciation—Factory Building, Production Equipment, Accumulated Depreciation—Production Equipment, and Patents.				
	b.	The balance sheets of both manufacturing and retail organizations include amounts for Cash, Accounts Receivable, Accounts Payable, Insurance Premiums Payable, and Income Taxes Payable. More complex organizations of either type will usually have Land, Mortgage Payable, Common Stock, and Retained Earnings. The nature and amounts of these items will vary depending on the resource needs of each organization.				
2.	a.	Gross Margin	=	Operating Expenses	+	Operating Income
			=	\$40,000	+	\$68,000
			=	<u>\$108,000</u>		
	b.	Cost of Goods Sold	=	Sales	–	Gross Margin
			=	\$450,000	–	\$108,000
			=	<u>\$342,000</u>		
	c.	Cost of Goods Available for Sale	=	Cost of Goods Sold	+	Finished Goods Inventory, Ending
			=	\$342,000	+	\$70,000
			=	<u>\$412,000</u>		
	d.	Cost of Goods Manufactured	=	Cost of Goods Available for Sale	–	Finished Goods Inventory, Beginning
			=	\$412,000	–	\$60,000
			=	<u>\$352,000</u>		

P7. Statement of Cost of Goods Manufactured		
Reggi Vineyards		
Statement of Cost of Goods Manufactured		
For the Year Ended October 31		
Direct materials used:		
Materials inventory, beginning	\$2,156,200	
Direct materials purchased	<u>6,750,000</u>	
Cost of direct materials available for use	\$8,906,200	
Less materials inventory, ending	<u>1,803,800</u>	
Cost of direct materials used		\$ 7,102,400
Direct labor		1,168,500 *
Overhead:		
Depreciation, plant and equipment	\$ 685,600	
Indirect labor	207,300	
Property tax, plant and equipment	94,200	
Plant maintenance	83,700	
Small tools	42,400	
Utilities	96,500	
Employee benefits	<u>76,100</u>	
Total overhead		<u>1,285,800</u>
Total manufacturing costs		\$ 9,556,700
Add work in process inventory, beginning		<u>3,371,000</u>
Total cost of work in process during the year		\$12,927,700
Less work in process inventory, ending		<u>2,764,500</u>
Cost of goods manufactured		<u>\$10,163,200</u>
* 142,500 hours × \$8.20 = \$1,168,500		

P8. Computation of Unit Cost					
1.	Department 60:				
	Direct materials used				
	\$29,440	/	4,000	discs	\$7.36
	Direct labor				
	\$6,800	/	4,000	discs	1.70
	Overhead				
	\$7,360	/	4,000	discs	<u>1.84</u>
	Total unit cost, Dept. 60				\$10.90
	Department 61:				
	Direct materials used				
	\$3,920	/	4,000	discs	\$0.98
	Direct labor				
	\$2,560	/	4,000	discs	0.64
	Overhead				
	\$4,800	/	4,000	discs	<u>1.20</u>
	Total unit cost, Dept. 61				<u>2.82</u>
2.	Total unit cost for Vintage Records Company order				<u>\$13.72</u>
3.	Selling price				\$14.00
	Unit cost				<u>13.72</u>
	Gross margin per unit				<u>\$ 0.28</u>
	Gross margin as a percentage of sales:		0.02	or	2.0%
	The selling price is not adequate. Only 2.0% of the total selling price remains to cover all operating expenses and to yield a profit. Management should be sure to supply cost data to the Sales Department on a timely basis. More attention should be paid to the cost of producing the product.				
4.		Department 60		Department 61	
		Prime	Conversion	Prime	Conversion
		Costs	Costs	Costs	Costs
		Direct materials	\$7.36	NA	\$0.98
		Direct labor	1.70	\$1.70	0.64
		Overhead	<u>NA</u>	<u>1.84</u>	<u>NA</u>
	Totals	<u>\$9.06</u>	<u>\$3.54</u>	<u>\$1.62</u>	<u>\$1.84</u>

P9. Unit Costs in a Service Business										
1. Cost per patient day:										
Equipment usage								\$	180	
Doctors' care	(	2	×	\$360	)			720	
Special nursing care	(	4	×	\$85	)			340	
Regular nursing care	(	24	×	\$28	)			672	
Medications								240		
Medical supplies								150		
Room rental								350		
Food and services								<u>140</u>		
	Total cost per patient day							<u>\$2,792</u>		
2. and 3. Billing per patient day:										
				2. Normal		3. Industry Average				
		Cost		Billing*		Billing Approach				
Equipment usage		\$ 180		×	1.40	\$ 252		×	1.30	\$ 234
Doctors' care		720		×	1.40	1,008		×	1.50	1,080
Special nursing care		340		×	1.40	476		×	1.40	476
Regular nursing care		672		×	1.40	941		×	1.50	1,008
Medications		240		×	1.40	336		×	1.50	360
Medical supplies		150		×	1.40	210		×	1.50	225
Room rental		350		×	1.40	490		×	1.30	455
Food and services		<u>140</u>		×	1.40	<u>196</u>		×	1.25	<u>175</u>
	Totals	<u>\$2,792</u>				<u>\$3,909</u>				<u>\$4,013</u>
*Rounded to nearest dollar										
4.	On the surface, the new approach seems to yield more revenue. However, the rates used to compute the new cost per patient day were industry averages. They may not be representative of Everymans Hospital's immediate competition. Before adopting the new rate, the controller should compare it to rates charged by other hospitals in the area.									

P10. Professional Ethics	
1.	<p>It would be wrong for Han and Smith to keep quiet about the matter. They too might have an opportunity for promotion, and recognition of their successful suggestions would be to their advantage. Their boss has committed an unethical act and should not be considered for any future managerial position. He is dishonest and has put his own gain ahead of the interests of his subordinates and the company. If their boss refuses to disclose his fraudulent act, Han and Smith should take the matter to their boss's superior.</p>
2.	<p>The boss has committed an unethical act and should have agreed to explain the situation to the vice president of production. He should have identified Han and Smith as the authors of the suggestions and indicated that the bonus should be distributed to them.</p>

Cases				
C1. Conceptual Understanding: Cost Recognition				
<i>Note to Instructor:</i> This assignment should produce many different descriptions of processes and lists of costs. Students are very familiar with fast-food restaurants, but few will have observed such operations closely or thought about the costs incurred by restaurants.				
A few of the many examples students will identify are shown below. Expect debates over the proper recognition of many items.				
Sample Costs	Traceability to Product	Cost Behavior	Value Attribute	Financial Reporting
Bread	Direct	Variable	Value-adding	Product
Meat	Direct	Variable	Value-adding	Product
Condiments (mustard, catsup)	Indirect	Variable	Value-adding	Product
Depreciation of cooking equipment	Indirect	Fixed	Value-adding	Product
Cook's wages	Direct	Variable	Value-adding	Product
Counter clerks' pay	Indirect	Variable	Value-adding	Product
Janitorial wages	Indirect	Fixed	Value-adding	Product
Manager's salary	Neither	Fixed	Non-value-adding	Period
Insurance	Neither	Fixed	Non-value-adding	Period
Property taxes	Neither	Fixed	Non-value-adding	Period
Depreciation of playground equipment	Neither	Fixed	Value-adding	Period

C2. Business Communication: Management Decision about a Supporting Service Function

1.	a.	Information about the gardening activities of your department would include the cost of supplies, labor, and depreciation and the maintenance costs for equipment for those activities only.
	b.	This information is relevant because it can help in making a variety of decisions about the department. In this case, the information used in your report will help in making a decision about the future operations of your department. The information could also help you to identify areas of waste, to budget next year's activities, or to evaluate manager and employee performance.
	c.	Most of this information can be obtained from the Accounting Department. You may also keep daily schedules and records of activities performed by specific employees. This nonfinancial information could help you to calculate the total costs for these activities. Human Resources has information about your employees, too.
	d.	You would need to ask the president when she would like your report and obtain the information in time to meet her deadline.
2.	The president will probably be satisfied with a general cost report showing total costs for each expense item. The following report and cost items are suggested.	
	Grounds Maintenance Department	
	Cost Report for Gardening Activities	
	For the Year Ended December 31	
	Supplies used	\$xxx
	Gardening labor	xxx
	Gardening tools	xxx
	Depreciation expense, garden equipment	xxx
	Maintenance expense, garden equipment	xxx
	Scheduling and other administrative labor expense	<u>xxx</u>
	Total costs for gardening activities	<u>\$xxx</u>

C2. Business Communication: Management Decision about a Supporting Service Function (Concluded)	
	<p>If you were asked to analyze your department's costs in order to reduce waste, you could prepare more detailed reports. The department's total costs could be split into smaller groups of costs. For example, you could separate the costs by areas worked (buildings, grounds, entrances, and recreational facilities) to find the costs associated with maintaining each area. Or you could separate the costs by activity (gardening and upkeep of land improvements) to determine the costs associated with performing each activity. The format of these reports would be different from the one above. You would provide a column of costs for each area or activity and rows for different groupings of expenses. This additional detail would help you identify problem areas and waste more easily.</p>
3.	Maintenance Expense—Garden Equipment would be:
a.	A direct cost to the Grounds Maintenance Department
b.	A period cost to the company
c.	A variable cost based on the use of the equipment
d.	<p>A nonvalue-adding activity, because it does not directly add value to the company's business of providing insurance services</p> <p>(Note to Instructor: Students may argue that it adds value indirectly because it provides pleasing views that improve employee morale, which adds value to the service.)</p>
e.	An actual cost

C3. Conceptual Understanding: Management Information Needs

1.	H&Y Drug Corporation		
	Statement of Cost of Goods Manufactured		
	For the Month Ended April 30		
	Cost of direct materials used*		\$ 642,900
	Direct labor		160,000
	Overhead		<u>303,500</u>
	Total manufacturing costs		\$1,106,400
	Add work in process inventory, beginning		<u>138,800</u>
	Total cost of work in process during the month		\$1,245,200
	Less work in process inventory, ending		<u>127,200</u>
	Cost of goods manufactured		<u>\$1,118,000</u>
	*Cost of direct materials used: \$258,400 + \$612,600 – \$228,100 = \$642,900		
	H&Y Drug Corporation		
	Income Statement		
	For the Month Ended April 30		
	Sales		\$2,188,400
	Cost of goods sold:		
	Finished goods inventory, beginning	\$ 111,700	
	Cost of goods manufactured	<u>1,118,000</u>	
	Cost of finished goods available for sale	\$1,229,700	
	Less finished goods inventory, ending	<u>114,100</u>	
	Cost of goods sold		<u>1,115,600</u>
	Gross margin		\$1,072,800
	Operating expenses:		
	General and administrative expenses		<u>362,000</u>
	Operating income		<u>\$ 710,800</u>

C3. Conceptual Understanding: Management Information Needs (Concluded)		
2.	The total manufacturing costs are the costs associated with production activities for the month. Some of those costs will attach to units completed during the month. The remainder will attach to units still in the production process and will be summarized in the ending balance of the Work in Process Inventory account at April 30.	
	The cost of goods manufactured is the total of all manufacturing costs associated with completed units of product. It includes some of the total manufacturing costs for April, as well as costs associated with production started in an earlier period but finished in the current period. The costs associated with production in an earlier period are reflected in the Work in Process Inventory account on March 31 and are included in cost of goods manufactured for April because the units were completed in April.	
3.	If you want to know the profitability of a product line, then you must obtain the following information for <i>that</i> line:	
	a.	Direct materials: Quantity of materials used, materials price
	b.	Direct labor: Direct labor hours worked, direct labor wage rate
	c.	Overhead costs associated specifically with the production of each product line
	d.	Other costs that may be directly traceable to the product: special shipping, storing, and moving costs; import duties, tariffs, and taxes; and advertising and sales costs
4.	a.	product cost
	b.	product cost
	c.	period cost
	d.	period cost
	e.	period cost

C4. Interpreting Managerial Reports: Financial Performance Measures

1.	a.		This Year		Last Year	
			Amount	Ratio	Amount	Ratio
		Cost of direct materials used	\$ 983,860	48.3%	\$ 962,260	48.3%*
		Direct labor	571,410	28.0%	579,720	29.1%
		Total overhead	<u>482,880</u>	<u>23.7%</u>	<u>452,110</u>	<u>22.7%</u>
		Total manufacturing costs	<u>\$2,038,150</u>	<u>100.0%</u>	<u>\$1,994,090</u>	<u>100.0%</u>
		*Adjusted for total of percentages to equal 100.0%.				
	b.		This Year		Last Year	
			Amount	Ratio	Amount	Ratio
		Sales salaries and com-				
		missions expense	\$ 394,840	13.4%	\$ 329,480	10.6%
		Advertising expense	116,110	3.9%	194,290	6.3%
		Other selling expenses	82,680	2.8%	72,930	2.4%
		Administrative expenses	<u>242,600</u>	<u>8.2%</u>	<u>195,530</u>	<u>6.3%</u>
		Total selling and admin-				
		istrative expenses	\$ 836,230	<u>28.4%*</u>	\$ 792,230	<u>25.6%</u>
		Sales	<u>\$2,942,960</u>	<u>100.0%</u>	<u>\$3,096,220</u>	<u>100.0%</u>
		*Difference due to Excel rounding.				
	c.		This Year		Last Year	
			Amount	Ratio	Amount	Ratio
		Gross margin	\$ 946,675	32.2%	\$1,056,550	34.1%
		Net income	\$ 37,148	1.3%	\$ 119,919	3.9%
		Sales	<u>\$2,942,960</u>	<u>100.0%</u>	<u>\$3,096,220</u>	<u>100.0%</u>

C4. Interpreting Managerial Reports: Financial Performance Measures (Concluded)		
2.	a.	Total manufacturing costs increased from \$1,994,090 last year to \$2,038,150 this year. As a percentage of total manufacturing costs, total overhead costs increased while the cost of direct materials remained constant. Direct labor decreased. However, overall, total manufacturing costs changed little between years. Since sales declined from last year to this year, efforts should be made to increase sales and control overhead costs.
	b.	Total selling and administrative expenses increased from \$792,230 last year to \$836,230 this year while sales decreased. As a percentage of sales, sales salaries and commissions expense and administrative expenses increased and advertising expense decreased. Each account should be analyzed to determine the causes of the changes.
	c.	Gross margin decreased from 34.1 percent to 32.2 percent because of the increases in total manufacturing costs in the face of declining sales. Total selling and administrative expenses also increased as a percentage of sales, from 25.6 percent to 28.4 percent. Although the company spent more for both selling and administrative expenses, sales still declined. The cost-effectiveness of those expenditures should be evaluated.
		Because inflation is evident in the increase in costs, management should review the company's pricing structure.
		Another possibility is that the <i>volume</i> of unit sales changed little between years, but the selling price <i>per unit</i> dropped significantly. Therefore, the decline in gross margin from 34.1 percent last year to 32.2 percent this year probably resulted from a decline in unit selling price because unit cost appeared to change little.
3.	As mentioned in part 2, there may be changes in the volume and unit selling price of units sold per period. Also, given that income has been declining since last year, perhaps ratios should be computed for a five-year period. Long-run trends may reveal fundamental changes in the nature of the business that may require action more drastic than just controlling costs. For example, there may be fundamental changes in unit selling price and the costs of direct materials, the cost of direct labor, or the sales potential of the company's products.	
	Other ratios that might be examined are inventory turnover ratios, ratios of individual overhead costs to direct labor hours and to total overhead costs, ratios of selling expenses to sales, and computations of percentage increases in each overhead cost and operating expense.	

C5. Ethical Dilemma: Preventing Pollution and the Costs of Waste Disposal

At issue is Lake Waburg Power Plant's responsibility to a group of individuals and communities that could be negatively affected by the improper disposal of radioactive waste. Improper disposal could harm employees, members of the community, members of society, and investors in the plant.

Lake Waburg must be aware of any EPA regulations that could affect its operations. In this case, the EPA's position is that a company is responsible for any waste it creates. The responsibility extends to the disposal of the waste and covers the life of the waste, which can be unlimited. If damages or problems arise because of inappropriate disposal, Lake Waburg will be held liable. Therefore, Lake Waburg Power Plant must monitor Willis's disposal of the waste. Site inspection, evaluation of complaints noted in public records, and assessment of Willis's stability are important controls over improper disposal.

Sunny cannot take Guy's advice to ignore the waste disposal costs. Besides monitoring the condition of the waste at the disposal site, Sunny must record the full cost of the waste as a cost of the product. Normally, the cost of waste disposable would be a reimbursable cost included in the rate base calculation that would benefit shareholders by increasing profits. This includes the process costs associated with the creation of the waste and the disposal costs of the waste. The ongoing monitoring of the waste disposal plant should also be included as a cost of waste disposal.

C6. Continuing Case: Cookie Company		
2.	a.	The mission statement students select indicates whether a student's cookie business will focus on low cost, branded quality product, or a specific need. Performance objectives and measures of success will vary depending on which of the three statements is selected.
	b.	Student answers to 2a should agree with their answers to 2b. The mission statement "To provide cheap cookies..." matches a cost focus. The mission statement "Our mission is to make the best..." matches a quality focus. The mission statement "Handmaking the best in custom..." matches to satisfying a specific need focus.
	c.	Student mission statements should be unique and express in as few words as possible their company's fundamental goal or ideal state.
3.		Students should list their main products, primary customers, and where they will operate their business.
4.		Strategic objective: To not have a retail operation but to rely solely on the Internet to market products Tactical objective: To expand the ecommerce website to include 20 varieties of cookies over the next five years Operating objective: To keep expenses low and generate enough revenues during the first two months of operations to have a positive cash flow by the third month Business plan: To develop a complete list of goals, objectives, procedures, and policies relating to how to find, buy, store, sell, and ship goods and collect payment Budget: To list expected revenues and expenses for the first six months of operations
5.–7.		Company name should be unique for each team. The answers to this case will vary depending upon the management decisions each cookie company makes. Each team, at a minimum, should supply all the required information.
8.		Each team should answer these questions with supporting reasons. Types of overhead might include utilities, depreciation, supervisor's salary, or rent.

