Chapter 2

COST CONCEPTS AND COST ALLOCATION

Chapter 2, SE 1.

1.	ID, F, NVA, PD
2.	Neither, V, NVA, PER
3.	D, V, VA, PD

Chapter 16, SE 2.

Char Company Income Statement For the Year		
Sales		$900,000
Cost of goods sold		
Finished goods inventory, beginning	$ 45,000	
Cost of goods manufactured	585,000	
Cost of finished goods available for sale	$630,000	
Less finished goods inventory, ending	60,000	
Cost of goods sold		570,000
Gross margin		$330,000
Operating expenses		275,000
Operating income		$ 55,000

Chapter 2, SE 3.

Materials Inventory, ending balance:		
	Materials Inventory, beginning balance	$ 23,000
	Direct materials purchased	85,000
	Direct materials placed into production	(74,000)
	Materials Inventory, ending balance	$ 34,000
Work in Process Inventory, ending balance:		
	Work in Process Inventory, beginning balance	$ 25,750
	Direct materials placed into production	74,000
	Direct labor costs	97,000
	Overhead costs	35,000
	Cost of goods manufactured	(123,000)
	Work in Process Inventory, ending balance	$108,750
Finished Goods Inventory, ending balance:		
	Finished Goods Inventory, beginning balance	$ 38,000
	Cost of goods manufactured	123,000
	Cost of goods sold	(93,375)
	Finished Goods Inventory, ending balance	$ 67,625

Chapter 16, SE 4.

1.	Purchase order
2.	Time card
3.	Receiving report
4.	Job order cost card
5.	Materials request
6.	Sales invoice
7.	Purchase request

Chapter 2, SE 5.

1.	O, CC
2.	DM, PC
3.	O, CC
4.	DL, PC and CC
5.	O, CC
6.	O, CC
7.	N, N

Chapter 16, SE 6.

Product unit cost computed:

	Direct materials	(	$ 4,500	÷ 300	units)	$15
	Direct labor	(	$ 7,500	÷ 300	units)	25
	Overhead	(	$ 3,600	÷ 300	units)	12
	Product unit cost	(	$15,600	÷ 300	units)	$52

Prime costs and conversion costs per unit computed:

	Prime Costs	Conversion Costs
Direct materials	$15	NA
Direct labor	25	$25
Overhead	NA	12
Totals	$40	$37

Chapter 16, SE 7.

Applied overhead	$27,000
Less actual overhead	25,870
Overapplied	$ 1,130

Since the overapplied amount is immaterial (less than 5% of actual overhead), the Cost of Goods Sold account should be decreased by $1,130 to adjust the balance to reflect actual overhead costs.

Chapter 2, SE 8.

Predetermined Overhead Rate per Service Request	**=**	**Total Estimated Overhead Costs** / **Total Estimated Service Requests**		
	=	**$18,290** / **3,100**	**service requests**	
	=	**$5.90**	**per service request**	

Chapter 16, SE 9.

Overhead Costs Applied	**=**		**$4**	**per direct labor hour**
		x	**1,200**	**direct labor hours**
			$4,800	

Chapter 2, E 1.

1.	PE
2.	C
3.	PL
4.	E

Chapter 16, E 2.

		Cost Classification			
		Product or Period	Variable or Fixed	Value-adding or Nonvalue-adding	Direct or Indirect
Example: Bicycle tire		Product	Variable	Value-adding	Direct
1.	Depreciation on office computer	Period	Fixed	Nonvalue-adding	—
2.	Labor to assemble bicycle	Product	Variable	Value-adding	Direct
3.	Labor to inspect bicycle	Product	Variable	Nonvalue-adding	Indirect
4.	Internal auditor's salary	Period	Fixed	Nonvalue-adding	—
5.	Lubricant for wheels	Product	Variable	Value-adding	Indirect

Note: Depreciation on office computer and auditor's salary are not product costs. Therefore, they would not be traceable to the bicycles in a traditional business operation. The two costs would be shown on the income statement as selling and administrative expenses.

Chapter 16, E 3.

1.	RET
2.	SER
3.	MANF

Chapter 2, E 4.

Radio Company		
Statement of Cost of Goods Manufactured		
For the Month of August		
Direct materials used		
Materials inventory, beginning	$ 48,600	
Direct materials purchased	139,000	
Cost of direct materials available for use	$187,600	
Less materials inventory, ending	50,100	
Cost of direct materials used		$137,500
Direct labor (3,400 hours × $8.75)		29,750
Overhead		
Utilities	$ 5,870	
Supervision	16,600	
Indirect materials	6,750	
Depreciation	6,200	
Insurance	1,830	
Miscellaneous	1,100	
Total overhead		38,350
Total manufacturing costs		$205,600
Add work in process inventory, beginning		54,250
Total cost of work in process during the month		$259,850
Less work in process inventory, ending		48,400
Cost of goods manufactured		$211,450

Chapter 2, E 5.

	Oak Division		Loblolly Division		Maple Division		Spruce Division	
Direct materials used	$ 3		$ 7		$ 5	(g)	$ 8	
Direct labor	2	(a)	6		4		4	
Overhead	1		3		2		2	(j)
Total manufacturing costs	$ 6		$16	(d)	$11	(h)	$14	
Beginning work in process inventory	2		7	(e)	3		2	(k)
Ending work in process inventory	(1)	(b)	(3)		(2)		(5)	
Cost of goods manufactured	$ 7		$20		$12		$11	(l)
Beginning finished goods inventory	3		4	(f)	5		7	
Ending finished goods inventory	(2)		(6)		(4)	(i)	(9)	
Cost of goods sold	$ 8	(c)	$18		$13		$ 9	

Chapter 16, E 6.

1.	RET
2.	SER
3.	MANF
4.	RET
5.	MANF
6.	SER
7.	SER
8.	MANF
9.	RET

Chapter 16, E 7.

1.	$3,000	=	$1,000	+	$12,000	–	$10,000
2.	$155,000	=	$140,000	+	$60,000	–	$45,000
3.	$92,000	=	$23,000	+	$89,000	–	$20,000

Chapter 2, E 8.

1. Missing data for the retail organization calculated.

Note: **Items are listed in the suggested order of solution.**

First Quarter:

a.	**Gross Margin**	**=**	**Sales**	**−**	**Cost of Goods Sold**		
		=	**$9**	**−**	**$5**	**=**	**$4**
c.	**Operating Expenses**	**=**	**Gross Margin**	**−**	**Operating Income**		
		=	**$4**	**−**	**$3**	**=**	**$1**
d.	**Cost of Goods Available for Sale**	**=**	**Cost of Goods Sold**	**+**	**Ending Merchandise Inventory**		
		=	**$5**	**+**	**$5**	**=**	**$10**
b.	**Net Cost of Purchases**	**=**	**Cost of Goods Available for Sale**	**−**	**Beginning Merchandise Inventory**		
		=	**$10**	**−**	**$4**	**=**	**$6**

Second Quarter:

e.	**Sales**	**=**	**Gross Margin**	**+**	**Cost of Goods Sold**		
		=	**$4**	**+**	**$6**	**=**	**$10**
f.	**Ending Merchandise Inventory**	**=**	**Cost of Goods Available for Sale**	**−**	**Cost of Goods Sold**		
		=	**$12**	**−**	**$6**	**=**	**$6**
g.	**Beginning Merchandise Inventory**	**=**	**Cost of Goods Available for Sale**	**−**	**Net Cost of Purchases**		
		=	**$12**	**−**	**$7**	**=**	**$5**

Chapter 2, E 8.

Third Quarter:

h.	Beginning Merchandise Inventory	=	Cost of Goods Available for Sale	–	Net Cost of Purchases		
		=	$15	–	$9	=	$6
i.	Operating Income	=	Gross Margin	–	Operating Expenses		
		=	$5	–	$2	=	$3
j.	Cost of Goods Sold	=	Sales	–	Gross Margin		
		=	$15	–	$5	=	$10

Fourth Quarter:

l.	Gross Margin	=	Operating Expenses	+	Operating Income		
		=	$4	+	$2	=	$6
k.	Sales	=	Gross Margin	+	Cost of Goods Sold		
		=	$6	+	$11	=	$17
m.	Ending Merchandise Inventory	=	Cost of Goods Available for Sale	–	Cost of Goods Sold		
		=	$15	–	$11	=	$4
n.	Net Cost of Purchases	=	Cost of Goods Available for Sale	–	Beginning Merchandise Inventory		
		=	$15	–	$5	=	$10

Chapter 2, E 8.

2. Missing data for the manufacturing organization calculated.

First Quarter:

c.	Sales	=	Gross Margin	+	Cost of Goods Sold		
		=	$4	+	$6	=	$10
a.	Ending Finished Goods Inventory	=	Cost of Goods Available for Sale	–	Cost of Goods Sold		
		=	$8	–	$6	=	$2
b.	Beginning Finished Goods Inventory	=	Cost of Goods Available for Sale	–	Cost of Goods Manufactured		
		=	$8	–	$5	=	$3

Second Quarter:

f.	Gross Margin	=	Sales	–	Cost of Goods Sold		
		=	$10	–	$3	=	$7
g.	Operating Expenses	=	Gross Margin	–	Operating Income		
		=	$7	–	$3	=	$4
d.	Cost of Goods Available for Sale	=	Cost of Goods Sold	+	Ending Finished Goods Inventory		
		=	$3	+	$3	=	$6
e.	Cost of Goods Manufactured	=	Cost of Goods Available for Sale	–	Beginning Finished Goods Inventory		
		=	$6	–	$2	=	$4

Chapter 2, E 8.

Third Quarter:

j.	**Gross Margin**	**=**	**Operating Expenses**	**+**	**Operating Income**		
		=	**$5**	**+**	**$1**	**=**	**$6**
k.	**Sales**	**=**	**Gross Margin**	**+**	**Cost of Goods Sold**		
		=	**$6**	**+**	**$5**	**=**	**$11**
h.	**Ending Finished Goods Inventory**	**=**	**Cost of Goods Available for Sale**	**–**	**Cost of Goods Sold**		
		=	**$10**	**–**	**$5**	**=**	**$5**
i.	**Cost of Goods Manufactured**	**=**	**Cost of Goods Available for Sale**	**–**	**Beginning Finished Goods Inventory**		
		=	**$10**	**–**	**$3**	**=**	**$7**

Fourth Quarter:

n.	**Beginning Finished Goods Inventory**	**=**	**Cost of Goods Available for Sale**	**–**	**Cost of Goods Manufactured**		
		=	**$13**	**–**	**$8**	**=**	**$5**
m.	**Operating Income**	**=**	**Gross Margin**	**–**	**Operating Expenses**		
		=	**$7**	**–**	**$6**	**=**	**$1**
l.	**Cost of Goods Sold**	**=**	**Sales**	**–**	**Gross Margin**		
		=	**$14**	**–**	**$7**	**=**	**$7**

Chapter 2, E 9.

Memo	
Date:	**Today's Date**
To:	**Iggy Paulo**
From:	**Reza Seca**
Topic:	**Purpose of Source Documents**

I would like to explain the reasons for adding the new system of source documents to our accounting system. Many of our music boxes are special orders, and these require more expensive materials. Control over materials is thus extremely important. The use of the new documents is intended to cut inventory losses and ensure an orderly flow of materials.

The purpose of each document is:

Purchase Request	
	Provides all information needed to order the correct materials and includes necessary authorization signatures.
Purchase Order	
	Communicates the information on the purchase request to the vendor.
	Helps to guarantee ordering of the proper direct materials.
Receiving Report	
	Records actual items and quantities received at the receiving dock. Helps to ensure delivery of proper kind and amount of goods.
Materials Request	
	Records the amount of materials used and includes necessary authorization signatures. Enhances control of materials in inventory.

If you have any additional questions or concerns, I would be happy to discuss them with you.

Chapter 16, E 10.

1.	**Increase Work in Process Inventory, decrease Materials Inventory**
2.	**Decrease Finished Goods Inventory**
3.	**Increase Materials Inventory**
4.	**Increase Work in Process Inventory**
5.	**None of these (Cash and Accounts Receivable are affected)**
6.	**None of these (Office Supplies and Cash are affected)**
7.	**None of these (Rent Expense and Cash are affected)**

Chapter 2, E 11.

1. Unit cost computed.

Cost Items	Total Cost	Unit Cost (Total ÷ 10,550)
Total direct materials costs	$36,925	$3.50
Total direct labor costs	24,265	2.30
Total overhead costs	34,815	3.30
Total production costs	$96,005	$9.10

2. Recommendation made.

The price for a bottle of wine should be increased to around $12 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.

3. Prime costs and conversion costs per unit computed.

	Prime Costs	Conversion Costs
Direct materials	$3.50	NA
Direct labor	2.30	$2.30
Overhead	NA	3.30
Totals	$5.80	$5.60

Chapter 2, E 12.

Gas							**$150**
Tractor maintenance							**115**
Tractor depreciation	**(**	**$1,500**	**÷**	**12**	**months)**		**125**
Labor							**600**
Total costs							**$990**

Cost per bale	**=**	**$ 990**	**÷**	**3,000**	**bales**	**=**	**$0.33**
Revenue per bale	**=**	**$2,400**	**÷**	**3,000**	**bales**	**=**	**$0.80**

Green is currently covering his costs and making an adequate profit. He does not need to increase the amount he charges to his customers if he is satisfied with his profit for the year or if he obtains profits from other farming services. However, to increase his profits, he may either increase the service charge to his customers or reduce some of his operating expenses. This also assumes that his business is steady throughout the year and not seasonal or cyclical. If the tractor generates revenue only four months of the year, the depreciation expense allocation would increase to $375 ($1,500 × 1/4).

Chapter 2, E 13.

1 and 2. **Past year's and next year's predetermined overhead rates computed.**

	(1) Past Year		(2) Next Year's Percentage	(3) Next Year (1 × 2)	
Indirect materials and supplies	$ 79,200		110%	$ 87,120	
Repairs and maintenance	14,900		110%	16,390	
Outside service contracts	17,300		110%	19,030	
Indirect labor	79,100		110%	87,010	
Factory supervision	42,900		110%	47,190	
Depreciation, machinery	85,000		112%	95,200	
Factory insurance	8,200		110%	9,020	
Property taxes	6,500		120%	7,800	
Heat, light, and power	7,700		110%	8,470	
Miscellaneous overhead	5,760		120%	6,912	
Totals	$346,560			$384,142	
Divided by machine hours	45,600			50,000	
Predetermined overhead rates	$ 7.600	/MH		$ 7.683	/MH

*(45,600 + 4,400 = 50,000)

Chapter 2, E 14.

1. Anticipated overhead determined.

$916,000	×	125%	=	$1,145,000

2. Overhead rate computed.

Increase in labor hours:

75,000	hours	×	120%	=	90,000 hours

Predetermined overhead rate:

$1,145,000	÷	90,000 hours	=	$12.72	per labor hour

3. Overhead applied.

11,980	hours	×	$12.72	=	$152,412 *

***Discrepancy due to Excel rounding.**

Chapter 16, E 15.

1. Overhead applied to operations computed.

89,920	hours	×	$12.72	per hour	=	$1,143,782

2. Overapplied overhead computed.

Overhead applied	$1,143,782
Less actual overhead incurred	1,143,400
Overapplied overhead	$ 382

3. Effect of overapplied overhead on Cost of Goods Sold determined.

Since the overapplied overhead amount is immaterial, the Cost of Goods Sold account will be decreased to reflect actual overhead costs.

Chapter 2, P 1.

1. Accounts in manufacturing and retail organizations identified.

a. The asset accounts on the balance sheet of Mills Manufacturing Company 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; 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. Key figures calculated.

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

3. Manager insight: Use of inventory method discussed.

Whether Mills Manufacturing Company uses the periodic or perpetual inventory method cannot be determined from the accounts shown since the account balances are after the closing entries have been made.

Chapter 2, P 2.

1 and 2. **Unit cost by department and total unit cost computed.**

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**	**1.84**	
	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**	**1.20**	
	Total unit cost, Dept. 61						**2.82**
Total unit cost							**$13.72**

3. **Manager insight: Analysis of the Milo Company order.**

Selling price			**$14.00**
Unit cost			**13.72**
Gross margin per unit			**$ 0.28**
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.

Chapter 2, P 2.

4. Prime costs and conversion costs per unit computed.

	Department 60		Department 61	
	Prime Costs	Conversion Costs	Prime Costs	Conversion Costs
Direct materials	$7.36	NA	$0.98	NA
Direct labor	1.70	$1.70	0.64	$0.64
Overhead	NA	1.84	NA	1.20
Totals	$9.06	$3.54	$1.62	$1.84

Chapter 2, P 3.

1. Predetermined overhead rate computed.

Natural Cosmetics Company
Overhead Rate Computation Schedule
For this Year

Overhead Cost Item		(1) Last Year	(2) Projected Percentage Increase	(3) Projection This Year (1 × 2)
Indirect labor		$ 23,530	130%	$ 30,589
Employee benefits		28,600	130%	37,180
Manufacturing supervision		18,480	110%	20,328
Utilities		14,490	140%	20,286
Factory insurance		7,800	120%	9,360
Janitorial services		12,100	110%	13,310
Depreciation, factory and machinery		21,300	120%	25,560
Miscellaneous overhead		7,475	130%	9,718 *
Total overhead		$133,775		$166,331

Predetermined overhead rate for this year:

$166,331	÷	68,832	machine hours =	$2.416	per machine hour

*Rounded.

Chapter 2, P 3.

2. Amount of applied overhead determined

Job No.	Machine Hours	Predetermined Overhead Rate	Overhead Applied*
2214	12,300	$2.416	$ 29,717
2215	14,200	$2.416	34,307
2216	9,800	$2.416	23,677
2217	13,600	$2.416 **	32,858
2218	11,300	$2.416	27,301
2219	8,100	$2.416	19,570
Totals	69,300		$167,429

* Rounded.

** Discrepancy due to Excel rounding.

3. Computation and adjustment of overapplied overhead.

Overhead applied	$167,429
Actual overhead incurred this year	165,845
Overapplied overhead	$ 1,584

Decrease Cost of Goods Sold by $1,584.

Chapter 2, P 4.

1. Total costs assigned to the Grater order.

	Traditional Costing Method	
Direct materials cost	$36,750.00	
Cost of purchased parts	21,300.00	
Direct labor cost		
$15.25		
× 220 DLH	3,355.00	
Overhead cost:		
Traditional costing method		
$3,355		
× 270%	9,058.50	
Total costs assigned to the Grater order	$70,463.50	

Chapter 2, P 4.	
2.	Manager insight: Cost difference discussed.

The difference in the Grater order is unknown until the ABC method is applied.

There is additional cost in implementing the ABC method to replace a traditional costing method. Activity-based costing does not guarantee cost reduction for every product. ABC improves cost traceability and so often identifies products that have been either over- or undercosted by a traditional product costing system. Because the total overhead represented by the activity pools must be assigned to the same number of products, the decrease in the costs assigned to one product, will be offset by an increase in costs assigned to another product.

Chapter 2, P 6.

Dillo 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	**6,750,000**	
Cost of direct materials available for use	**$8,906,200**	
Less materials inventory, ending	**1,803,800**	
Cost of direct materials used		**$ 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	**76,100**	
Total overhead		**1,285,800**
Total manufacturing costs		**$ 9,556,700**
Add work in process inventory, beginning		**3,371,000**
Total cost of work in process during the year		**$12,927,700**
Less work in process inventory, ending		**2,764,500**
Cost of goods manufactured		**$10,163,200**

*	142,500	hours ×	$8.20	/ hour =	$1,168,500

Chapter 2, P 6.

1. Cost per patient day computed.

Equipment usage						$ 179
Doctors' care	(	2	×	$360	)	720
Special nursing care	(	4	×	$ 85	)	340
Regular nursing care	(	24	×	$ 28	)	672
Medications						237
Medical supplies						134
Room rental						350
Food and services						140
Total cost per patient day						$2,772

* *

2 and 3. Billing per patient day computed.

	Cost		2. Normal Billing*			3. Industry Average Billing Approach*	
Equipment usage	$ 179	×	1.40	$ 251	×	1.30	$ 233
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	237	×	1.40	332	×	1.50	356
Medical supplies	134	×	1.40	188	×	1.50	201
Room rental	350	×	1.40	490	×	1.30	455
Food and services	140	×	1.40	196	×	1.25	175
Totals	$2,772			$3,882			$3,984

*Rounded.

4. Billing procedure recommended.

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 Municipal Hospital's immediate competition. Before adopting the new rate, the controller should compare it to rates charged by other hospitals in the area.

Chapter 2, P 7.

1. Predetermined overhead rate computed.

Lund Products, Inc.
Overhead Rate Computation Schedule
For this Year

Overhead Cost Item		(1) Last Year	(2) Projected Percentage Increase	(3) Projection for this year (1× 2)
Indirect materials		$ 57,850	130%	$ 75,205
Indirect labor		25,440	120%	30,528
Supervision		41,580	110%	45,738
Utilities		11,280	120%	13,536
Labor-related costs		9,020	110%	9,922
Depreciation, factory		10,780	110%	11,858
Depreciation, machinery		27,240	120%	32,688
Property taxes		2,880	120%	3,456
Insurance		1,920	120%	2,304
Miscellaneous overhead		4,840	110%	5,324
Total overhead		$192,830		$230,559

Predetermined overhead rate for this year:

$230,559	÷	45,980	machine hours =	$5.014	* per machine hour

***Rounded.**

Chapter 2, P 7.

2. Amount of applied overhead determined.

Job No.	Actual Machine Hours	×	Rate	Overhead Applied*
H-142	7,840		$5.014	$ 39,310
H–164	5,260		$5.014	26,374
H–175	8,100		$5.014	40,613
H–201	10,680		$5.014	53,550
H–218	12,310		$5.014	61,722
H–304	2,460		$5.014	12,334
Totals	46,650			$233,903

*Rounded.

3. Computation and adjustment of underapplied overhead.

Actual overhead incurred this year	$234,485
Overhead applied	233,903
Underapplied overhead	$ 582

Increase Cost of Goods Sold by $582.

4. Overhead rate discussed.

The overhead rate was computed at the beginning of the year. During the year, as products were produced, the overhead rate was used to apply overhead to production. At year end the Overhead account balance was computed, determined to be underapplied, and closed to the Cost of Goods Sold account so that it would reflect the actual overhead costs of the period.

Chapter 2, P 8.

1. Total costs assigned to the Kent order.

	Traditional Costing Method
Cost of direct materials	$17,450.00
Cost of purchased parts	14,800.00
Direct labor costs	
$16.50	
× 140 hours	2,310.00
Overhead cost:	
Traditional costing method	
$2,310	
× 240%	5,544.00
Total costs assigned to the Kent order	$40,104.00

Chapter 2, P 8.

2. Manager insight: Cost differences discussed.

The change to activity-based costing may increase or decrease the costs assigned to this order. Activity-based costing does not guarantee cost reduction for every product, but it does improve cost traceability. It often identifies products that have been either under-costed or overcosted by a traditional product costing system. Because the total overhead represented by the activity pools must be allocated to the same number of products, the decrease in costs assigned to one product will be offset by an increase in costs assigned to another product.

Chapter 2, C 1.

Note to the instructor: **This assignment should produce many differen tions of processes and lists of costs. Students are very familiar with fas restaurants, but few will have observed such operations closely or thou about the costs incurred by restaurants.**

A few of the many examples students will identify are shown below. Ex bates over the proper classification of many items.

Sample Costs	Traceability to Product	Cost Behavior	Value Attribute
Bread	Direct	Variable	Value-adding
Meat	Direct	Variable	Value-adding
Condiments			
(mustard, catsup)	Indirect	Variable	Value-adding
Depreciation of			
cooking equipment	Indirect	Fixed	Value-adding
Cook's wages	Direct	Variable	Value-adding
Counter clerks' pay	Indirect	Variable	Value-adding
Janitorial wages	Indirect	Fixed	Value-adding
Manager's salary	Neither	Fixed	Nonvalue-adding
Insurance	Neither	Fixed	Nonvalue-adding
Property taxes	Neither	Fixed	Nonvalue-adding
Depreciation of			
playground			
equipment	Neither	Fixed	Value-adding

Chapter 2, C 2.

1. Ratios computed.

a. Ratios of cost of direct materials used, direct labor, and total overhead to total manufacturing costs.

	This Year		Last Year	
	Amount	Ratio	Amount	Ratio
Cost of direct materials used	$ 983,860	48.3%	$ 962,260	48.2%*
Direct labor	571,410	28.0%	579,720	29.1%
Total overhead	482,880	23.7%	452,110	22.7%
Total manufacturing costs	$2,038,150	100.0%	$1,994,090	100.0%

*Adjusted for total of percentages to equal 100.0%.

b. Ratios of sales salaries and commission expense, advertising expense, other selling expenses, administrative expenses, and total selling and administrative expenses to sales.

	This Year		Last Year	
	Amount	Ratio	Amount	Ratio
Sales salaries and commission 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	242,600	8.2%	195,530	6.3%
Total selling and administrative expenses	$ 836,230	28.4%*	$ 792,230	25.6%
Sales	$2,942,960	100.0%	$3,096,220	100.0%

*Difference due to Excel rounding.

c. Ratios of gross margin and net income to sales.

	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	2,942,960	100.0%	3,096,220	100.0%

Chapter 2, C 2.

2. Comments on ratios.

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 commission 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 *volume* of unit sales changed little between years, but the selling price *per unit* 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. Other factors and ratios suggested.

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 for several years, 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.

Chapter 2, C 3.

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.

Latchey: 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	xxx
Total costs for gardening activities	$xxx

		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.
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.	**A nonvalue-adding activity, because it does not directly add value to the company's business of providing insurance services. (*Note:* Students may argue that it adds value indirectly because it provides pleasing views that improve employee morale, which adds value to the service.)**
	e.	**An actual cost.**

Chapter 2, C 4.

1. Statement of cost of goods manufactured and income statement prepared.

H & W Pharmaceuticals 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		303,500
Total manufacturing costs		$1,106,400
Add work in process inventory, beginning		138,800
Total cost of work in process during the month		$1,245,200
Less work in process inventory, ending		127,200
Cost of goods manufactured		$1,118,000

*Cost of direct materials used	=	$258,400	+	$612,600	−	$228,100

H & W Pharmaceuticals 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	1,118,000	
Cost of finished goods available for sale	$1,229,700	
Less finished goods inventory, ending	114,100	
Cost of goods sold		1,115,600
Gross margin		$1,072,800
Operating expenses		
General and administrative expenses		362,000
Operating income		$ 710,800

Chapter 2, C 4.

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 *that* 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. Period cost

c. Product cost

d. Product cost

e. Period cost

Chapter 2, C 5.

At issue is Lake Weir 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 Weir 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 Weir will be held liable. Therefore, Lake Weir 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.

Sundeep cannot take Alton's advice to ignore the waste disposal costs. Besides monitoring the condition of the waste at the disposal site, Sundeep must record the full cost of the waste as a cost of the product. Normally the cost of waste disposal 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.

Chapter 2, C 6.

1.-4. The answers to this case will vary depending upon the management decisions each cookie company makes. Student groups, as a minimum, should supply all the required information.

5. Student groups should answer these questions with supporting reasons.