Cornerstones of Managerial Accounting 6th edition Mowen Solutions Manual

SKU: 9781305103962-SOLUTIONS

2 BASIC MANAGERIAL ACCOUNTING CONCEPTS

DISCUSSION QUESTIONS

1. Cost is the amount of cash or cash equivalent sacrificed for goods and/or services that are expected to bring a current or future benefit to the organization. An expense is an expired cost; the benefit has been used up.

2. Accumulating costs is the way that costs are measured and recorded. Assigning costs is linking costs to some cost object. For example, a company accumulates or tracks costs by entering them into the general ledger accounts. Direct materials would be entered into the materials account; direct labor would be entered into the direct labor account. Then, these costs are assigned to units of product.

3. A cost object is something for which you want to know the cost. For example, a cost object may be the human resources department of a company. The costs related to that cost object might include salaries of employees of that department, telephone costs for that department, and depreciation on office equipment. Another example is a customer group of a company. Atlantic City and Las Vegas casinos routinely treat heavy gamblers to free rooms, food, and drink. The casino owners know the benefits yielded by these high rollers and need to know the costs of keeping them happy, such as the opportunity cost of lost revenue from the rooms, the cost of the food, and so on.

4. A direct cost is one that can be traced to the cost object, typically by physical observation. An indirect cost cannot be traced easily and accurately to the cost object. The same cost can be direct for one purpose and indirect for another. For example, the salaries paid to purchasing department employees in a factory are a direct cost to the purchasing department but an indirect cost (overhead) to units of product.

5. Allocation means that an indirect cost is assigned to a cost object using a reasonable and convenient method. Since no causal relationship exists, allocating indirect costs is based on convenience or some assumed linkage.

6. A product is tangible in that you can see, feel, and take it with you. Examples of products include a tube of toothpaste, a car, or an orange. A service is a task or an activity performed for a customer. For example, the dental hygienist who cleans your teeth provides a service.

7. Manufacturing overhead includes all product costs other than direct materials and direct labor. It is because the remaining manufacturing (product) costs are gathered into one category that overhead is often thought of as a "catchall."

8. Direct materials purchases are first entered into the materials inventory. They may or may not be used during the month. Only when the materials are withdrawn from inventory for use in production are they known as "direct materials."

9. Prime cost is the sum of direct materials and direct labor. Conversion cost is the sum of direct labor and overhead. Total product cost consists of direct materials, direct labor, and overhead. This is not equal to the sum of prime cost and conversion cost because then direct labor would be double counted.

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10. A period cost is one that is expensed immediately, rather than being inventoried like a product cost

11. Selling cost is the cost of selling and delivering products and services. Examples include free samples, advertising, sponsorship of sporting events, commissions on sales, and the depreciation on delivery trucks (such as Coca-Cola or Pepsi trucks).

12. The cost of goods manufactured is the sum of direct materials, direct labor, and overhead used in producing the units completed during the current period and transferred to finished goods inventory.

13. The cost of goods manufactured is the cost of direct materials, direct labor, and overhead for the units produced (completed) during a time period. The cost of goods sold is the cost of direct materials, direct labor, and overhead for the units sold during a time period. The number of units produced is not necessarily equal to the number of units sold during a period. For example, a company may produce 1,000 pairs of jeans in a month but sell only 900 pairs.

14. The income statement for a manufacturing firm includes the cost of goods sold, which is the sum of direct materials, direct labor, and manufacturing overhead. The income statement for a service firm contains no cost of goods sold because there is no product to purchase or to manufacture and, thus, there is no inventory account to expense as cost of goods sold. In addition, because there is no cost of goods sold on the income statement of a service firm, there is no gross margin, unlike a manufacturing firm.

15. The percentage column on the income statement gives some insight into the relative spending on the various expense categories. These percentages can then be compared with those of other firms in the same industry to see if the company's spending appears to be in line or out of line with the experiences of others.

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MULTIPLE-CHOICE QUESTIONS

2-1. c

2-2. d

2-3. b Conversion Cost per Unit = $6 + $19 = $25

2-4. b Sales = $75 × 2,000 units = $150,000
Production Cost per Unit = $15 + $6 + $19 = $40
Cost of Goods Sold = $40 × 2,000 = $80,000
Gross Margin = $150,000 – $80,000 = $70,000

2-5. e

2-6. d

2-7. c

2-8. d

2-9. b

2-10. a

2-11. e Prime Cost per Unit = $8.65 + $1.10 = $9.75

2-12. b

2-13. a Total Prime Cost = $50,000 + $20,000 = $70,000
Prime Cost per Unit = $70,000/10,000 units = $7.00

2-14. c Total Conversion Cost = $20,000 + $130,000 = $150,000
Conversion Cost per Unit = $150,000/10,000 units = $15.00

2-15. b Cost of Goods Sold = $50,000 + $20,000 + $130,000 = $200,000
Cost of Goods Sold per Unit = $200,000/10,000 units = $20.00

2-16. b Sales = $31 × 10,000 = $310,000
Gross Margin = $310,000 – $200,000 = $110,000
Gross Margin per Unit = $110,000/10,000 units = $11.00

2-17. c Period Expense = $40,000 + $36,000 = $76,000

2-18. a Operating Income = $310,000 – $200,000 – $76,000 = $34,000

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CORNERSTONE EXERCISES

CE 2-19

1.	Direct materials	$ 32,000
	Direct labor	28,000
	Manufacturing overhead	60,000
	Total product cost	$120,000

2. Per-Unit Product Cost = $\frac{\$120,000}{500 \text{ units}} = \$240$

Therefore, one hockey stick costs $240 to produce.

CE 2-20

1.	Direct materials	32,000
	Direct labor	28,000
	Total prime cost	$60,000

2. Per-Unit Prime Cost = $\frac{\$60,000}{500 \text{ units}} = \$120$

3.	Direct labor	28,000
	Manufacturing overhead	60,000
	Total Conversion Cost	$88,000

4. Per-Unit Conversion Cost = $\frac{\$88,000}{500 \text{ units}} = \$176$

CE 2-21

Materials inventory, June 1	$ 48,000
Purchases	132,000
Materials inventory, June 30	(45,000)
Direct materials used in production	$135,000

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CE 2-22

1.

Direct materials*	$135,000
Direct labor	113,000
Manufacturing overhead	187,000
Total manufacturing cost for June	$435,000
WIP, June 1	65,000
WIP, June 30	(63,000)
Cost of goods manufactured	$437,000

* Direct Materials = $48,000 + $132,000 – $45,000 = $135,000
[This was calculated in Cornerstone Exercise 2-21.]

2. Per-Unit Cost of Goods Manufactured = $\frac{\$437,000}{1,900 \text{ units}}$ = $230

CE 2-23

1.

Slapshot Company Cost of Goods Sold Statement For the Month of June	
Cost of goods manufactured	$437,000
Finished goods inventory, June 1	80,000
Finished goods inventory, June 30	(84,000)
Cost of goods sold	$433,000

2.

Number of units sold:	
Finished goods inventory, June 1	350
Units finished during June	1,900
Finished goods inventory, June 30	(370)
Units sold during June	1,880

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CE 2-24

Slapshot Company Income Statement For the Month of June		
Sales revenue (1,880 × $400)		$752,000
Cost of goods sold		433,000
Gross margin		$319,000
Less:		
Selling expense:		
Commissions (0.10 × $752,000)	$75,200	
Fixed selling expense	65,000	140,200
Administrative expense		53,800
Operating income		$125,000

CE 2-25

Slapshot Company Income Statement For the Month of June			
			Percent*
Sales revenue (1,880 × $400)		$752,000	100.0
Cost of goods sold		433,000	57.6
Gross margin		$319,000	42.4
Less:			
Selling expense:			
Commissions (0.10 × $752,000)	$75,200		
Fixed selling expense	65,000	140,200	18.6
Administrative expense		53,800	7.2
Operating income		$125,000	16.6

* Steps in calculating the percentages (the percentages are rounded):

1. Sales Revenue Percent = $752,000/$752,000 = 1.00, or 100% (sales revenue is always 100% of sales revenue)
2. Cost of Goods Sold Percent = $433,000/$752,000 = 0.576, or 57.6%
3. Gross Margin Percent = $319,000/$752,000 = 0.424, or 42.4%
4. Selling Expense Percent = $140,200/$752,000 = 0.186, or 18.6%
5. Administrative Expense Percent = $53,800/$752,000 = 0.072, or 7.2%
6. Operating Income Percent = $125,000/$752,000 = 0.166, or 16.6%

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CE 2-26

1.

Allstar Exposure Income Statement For the Past Month		
Sales revenues		$410,000
Less operating expenses:		
Sales commissions	$ 50,000	
Technology	75,000	
Research and development	200,000	
Selling expenses	10,000	
Administrative expenses	35,000	370,000
Operating income		$ 40,000

2. **Allstar has no Cost of Goods Sold line item because the company is a service provider, rather than a manufacturer. Therefore, as a service provider, Allstar has no inventory costs (raw materials, work in process, or finished goods) to flow through to Cost of Goods Sold when it recognizes its sales revenue. Instead, all of the costs it incurs in providing advertising services appear as Operating Expenses on the income statement.**

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EXERCISES

E 2-27

1.

Cost	Salaries	Commissions
Derek	$25,000	$6,000
Lawanna	30,000	1,500
Total	$55,000	$7,500

2. All of Derek's time is spent selling, so all of his salary cost is selling cost. Lawanna spends two-thirds of her time selling, so $20,000 ($30,000 × 2/3) of her salary is selling cost. The remainder is administrative cost. All commissions are selling costs.

Cost	Selling Costs	Administrative Costs
Derek's salary	$25,000	—
Lawanna's salary	20,000	$10,000
Derek's commissions	6,000	—
Lawanna's commissions	1,500	—
Total	$52,500	$10,000

E 2-28

1. The two products that Holmes sells are playhouses and the installation of playhouses. The playhouse itself is a product, and the installation is a service.

2. Holmes could assign the costs to production and to installation, but if the installation is a minor part of its business, it probably does not go to the trouble.

3. The opportunity cost of the installation process is the loss of the playhouses that could have been built by the two workers who were pulled off the production line.

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E 2-29

a. Salary of cell supervisor—Direct

b. Power to heat and cool the plant in which the cell is located—Indirect

c. Materials used to produce the motors—Direct

d. Maintenance for the cell's equipment—Indirect

e. Labor used to produce motors—Direct

f. Cafeteria that services the plant's employees—Indirect

g. Depreciation on the plant—Indirect

h. Depreciation on equipment used to produce the motors—Direct

i. Ordering costs for materials used in production—Indirect

j. Engineering support—Indirect

k. Cost of maintaining the plant and grounds—Indirect

l. Cost of the plant's personnel office—Indirect

m. Property tax on the plant and land—Indirect

E 2-30

1. Direct materials—Product cost
Direct labor—Product cost
Manufacturing overhead—Product cost
Selling expense—Period cost

2.

Direct materials	**$ 7,000**
Direct labor	**3,000**
Manufacturing overhead	**2,000**
Total product cost	**$12,000**

3. Unit Product Cost = $\frac{\$12,000}{4,000 \text{ units}}$ = $3.00

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E 2-31

1.

Costs	Product Cost			Period Cost	
	Direct Materials	Direct Labor	Manufact. Overhead	Selling Expense	Administrative Expense
Direct materials	$216,000				
Factory rent			$ 24,000		
Direct labor		$120,000			
Factory utilities			6,300		
Supervision in the factory			50,000		
Indirect labor in the factory			30,000		
Depreciation on factory equipment			9,000		
Sales commissions				$ 27,000	
Sales salaries				65,000	
Advertising				37,000	
Depreciation on the headquarters building					$ 10,000
Salary of the corporate receptionist					30,000
Other administrative costs					175,000
Salary of the factory receptionist			28,000		
Totals	$216,000	$120,000	$147,300	$129,000	$215,000

2.

Direct materials	$216,000
Direct labor	120,000
Manufacturing overhead	147,300
Total product cost	$483,300

3. Total Period Cost = $129,000 + $215,000 = $344,000

4. Unit Product Cost = $\frac{\$483,300}{30,000 \text{ units}}$ = $16.11

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E 2-32

Costs	Direct Materials	Direct Labor	Manufact. Overhead
Jars	X		
Sugar	X		
Fruit	X		
Pectin	X		
Boxes	X		
Depreciation on the factory building			X
Cooking equipment operators' wages		X	
Filling equipment operators' wages		X	
Packers' wages		X	
Janitors' wages			X
Receptionist's wages			X
Telephone			X
Utilities			X
Rental of Santa Suit			X
Supervisory labor salaries			X
Insurance on factory building			X
Depreciation on factory equipment			X
Oil to lubricate filling equipment			X

E 2-33

1.

Direct materials	$400,000
Direct labor	80,000
Manufacturing overhead	320,000
Total product cost	$800,000

2.

$$\text{Product Cost per Unit} = \frac{\text{Total Product Cost}}{\text{Number of Units}}$$

$$= \frac{\$800,000}{4,000 \text{ units}} = \$200.00$$

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E 2-34

1.

Direct materials	$400,000
Direct labor	80,000
Total prime cost	$480,000

2. Prime Cost per Unit $= \frac{\text{Total Prime Cost}}{\text{Number of Units}}$

$= \frac{\$480,000}{4,000 \text{ units}}$

$= \$120.00$

3.

Direct labor	$ 80,000
Manufacturing overhead	320,000
Total conversion cost	$400,000

4. Conversion Cost per Unit $= \frac{\text{Total Conversion Cost}}{\text{Number of Units}}$

$= \frac{\$400,000}{4,000 \text{ units}}$

$= \$100.00$

E 2-35

1.

Materials inventory, June 1	$ 3,700
Materials purchases in June	15,500
Materials inventory, June 30	(1,600)
Direct materials used in June	$17,600

2. As shown in the exercise, the cost of direct materials purchased in June is $15,500. Also, as calculated in response to Requirement 1, the cost of direct materials used in production in June is $17,600. Therefore, in this case, the cost of direct materials used is greater than the cost of direct material purchased, which means that—for whatever reason—Hannah Banana Bakers decided to let its ending inventory (of $1,600) drop below its beginning inventory (of $3,700). The difference in beginning and ending inventories ($3,700 – $1,600 = $2,100) accounts for the difference between the cost of direct materials purchased and the cost of direct materials used in production (also $2,100; or $17,600 – $15,500). Hannah might have elected to let its ending materials inventory drop in order to save cash for purchases other than buying materials inventory. Also, it might have elected to do so to reduce its materials inventory holding costs (e.g., inspection, handling, insurance, etc.). Furthermore, Hannah might have reduced its ending materials inventory because it foresaw that demand in July would be lower than in June and did not want to be left holding additional inventory at the end of July. Alternately, Hannah might have experienced stronger than expected sales in June and used more direct materials in production than it had anticipated when purchasing materials. Regardless of the reason, it is helpful for students to understand the relationship between the cost of materials purchased versus the cost of materials used in production in a given period.

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E 2-36

1.	Finished goods inventory, January 1		6,800
	Units completed during the year		94,000
	Finished goods inventory, December 31		(7,200)
	Units sold		93,600
2.	Units sold		93,600
	× Unit cost	×	$2,200
	Cost of goods sold		$205,920,000

E 2-37

1.	Materials inventory, March 1		$14,000
	Materials purchases in March		25,000
	Materials inventory, March 31		(6,500)
	Direct materials used in March		$32,500
2.	Direct materials		$32,500
	Direct labor		10,000
	Manufacturing overhead		42,000
	Total manufacturing cost		$84,500
3.	Total manufacturing cost		$84,500
	Add: Work in process, March 1		8,000
	Less: Work in process, March 31		(4,000)
	Cost of goods manufactured		$88,500

E 2-38

Cost of goods manufactured*		$88,500
Finished goods, March 1		9,000
Finished goods, March 31		(7,000)
Cost of goods sold		$90,500

* See solution to Exercise 2-37.

E 2-39

Direct materials		$180,000
Direct labor		505,000
Manufacturing overhead		110,000
Cost of goods sold		$795,000

Note: **Because there were no beginning nor ending work-in-process or finished goods inventories, no adjustments were made for them in this statement.**

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E 2-40

1. Sales revenue = Number of Units Sold × Selling Price
= 280,000 units × $12
= $3,360,000

2.

Jasper Company Income Statement For the Last Year	
Sales revenue	$3,360,000
Cost of goods sold*	795,000
Gross profit	$2,565,000
Less:	
Selling expense	437,000
Administrative expense	854,000
Operating income	$1,274,000

*

Direct materials	$180,000
Direct labor	505,000
Manufacturing overhead	110,000
Cost of goods sold	$795,000

E 2-41

1.

Jasper Company Income Statement For the Last Year	Sales & Expenses	Percent of Sales
Sales revenue	$3,360,000	100.0 [a]
Cost of goods sold*	795,000	23.7 [b]
Gross profit	$2,565,000	76.3 [c]
Less:		
Selling expense	437,000	13.0 [d]
Administrative expense	854,000	25.4 [e]
Operating income	$1,274,000	37.9 [f]

* See solution to Exercise 2-40, Requirement 2.

[a] Sales revenue: $3,360,000/$3,360,000 = 1.00, or 100%

[b] Cost of goods sold: $795,000/$3,360,000 = 0.237, or 23.7%

[c] Gross profit: $2,565,000/$3,360,000 = 0.763, or 76.3%

[d] Selling expense: $437,000/$3,360,000 = 0.130, or 13.0%

[e] Administrative expense: $854,000/$3,360,000 = 0.254, or 25.4%

[f] Operating income: $1,274,000/$3,360,000 = 0.379, or 37.9%

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E 2-41 (Concluded)

2. The income statement showing each account as a percentage of sales helps focus managerial attention on those expenses that are relatively high. For Jasper, it appears as though administrative expense is twice as large as selling expense. Perhaps management could explain ways to reduce certain administrative expenses, such as research and development or fees incurred for general counsel (e.g., size of Jasper's legal staff).

E 2-42

a (Direct Materials Used in Production) = Beginning Inventory Direct Materials + Purchases – Ending Inventory Direct Materials

a = $10,000 + $45,000 – $15,000
= $40,000

To find b, one can rearrange the Cost of Goods Manufactured equation to solve for Direct Labor Used in Production (i.e., the unknown, or b):

b (Direct Labor Used in Production) = Cost of Goods Manufactured – Direct Materials Used in Production – Manufacturing Overhead Costs Used in Production – Beginning WIP Inventory + Ending WIP Inventory

b = COGM – $40,000 (from a) – $80,000 – $17,000 + $14,000

Thus, in order to find b, we first need to calculate Cost of Goods Manufactured as follows:

Cost of Goods Manufactured = Cost of Goods Sold – Beginning Finished Goods Inventory + Ending Finished Goods Inventory

COGM = $169,000 – $8,000 + $7,000
= $168,000

Finally, inserting Cost of Goods Manufactured into the earlier equation:

b = $168,000 – $40,000 – $80,000 – $17,000 + $14,000
= $45,000

---

c (Direct Materials Beginning Inventory for Year 2) = Direct Materials Ending Inventory for Year 1 = $15,000

---

d (Direct Materials Purchases for Year 2) = Direct Materials Used in Production – Direct Materials Beginning Inventory + Direct Materials Ending Inventory

d = $50,000 – $15,000 + $17,000
= $52,000

---

e (Cost of Goods Sold for Year 2) = Beginning Finished Goods Inventory + Cost of Goods Manufactured – Ending Finished Goods Inventory

e = $7,000 + COGM – $11,000; therefore, we must first calculate COGM to be able to calculate COGS.

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E 2-42 (Concluded)

So, COGM = Direct Materials Used in Production + Direct Labor Used in Production + MOH Costs Used in Production + Beginning WIP Inventory – Ending WIP Inventory

COGM = $50,000 + $53,000 + $76,000 + $14,000 – $19,000
= $174,000

Therefore, e = $7,000 + $174,000 – $11,000
= $170,000

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PROBLEMS

P 2-43

1.

Cost	Direct Materials	Direct Labor	Manufact. Overhead	Selling and Administrative
Hamburger meat	$4,500			
Buns, lettuce, pickles, and onions	800			
Frozen potato strips	1,250			
Wrappers, bags, and condiment packages	600			
Other ingredients	660			
Part-time employees' wages		$7,250		
John Peterson's salary				$3,000
Utilities			$1,500	
Rent			1,800	
Depreciation, cooking equipment and fixtures			600	
Advertising				500
Janitor's wages			520	
Janitorial supplies			150	
Accounting fees				1,500
Taxes				4,250
Totals	$7,810	$7,250	$4,570	$9,250

Explanation of Classification

Direct materials include all the food items that go into a burger bag, as well as the condiment packages and the wrappers and bags themselves. These materials go "out the door" in the final product. "Other ingredients" might include the oil to fry the potato strips and grease the frying surface for the hamburgers and the salt for the fries. They are direct materials but could also be classified as overhead because of cost and convenience.

Direct labor consists of the part-time employees who cook food and fill orders.

Manufacturing overhead consists of all indirect costs associated with the production process. These are the utilities, rent for the building, depreciation on the equipment and register, and cost of janitorial fees and supplies.

Selling and administrative expense includes John Peterson's salary, advertising, accounting fees, and taxes.

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P 2-43 (Continued)

2.

Pop's Drive-Thru Burger Heaven Income Statement For the Month of December		
Sales ($3.50 × 10,000)		$35,000
Less cost of goods sold:		
Direct materials	$7,810	
Direct labor	7,250	
Manufacturing overhead	4,570	19,630
Gross margin		$15,370
Less: Selling and administrative expense		9,250
Net income		$ 6,120

3. Elena's simplifying assumptions were:

(1) all part-time employees are production workers,

(2) John Peterson's salary is for selling and administrative functions,

(3) all building-related expense as well as depreciation on cooking equipment and fixtures are for production, and

(4) all taxes are administrative expense.

These make it easy to classify 100% of each expense as product cost or selling and administrative cost. The result is that she does not have to perform studies of the time spent by each employee on producing versus selling burger bags. In addition, it is likely that John Peterson pitches in to help fry burgers or assemble burger bags when things get hectic. Of course, during those times, he is engaged in production—not selling or administration. The cost of determining just exactly how many minutes of each employee's day is spent in production versus selling is probably not worth it. (Remember, accountants charge by the number of hours spent—the more time Elena spends separating costs into categories, the higher her fees.)

For this small business, there is little problem with misclassifying Pop's expenses. Pop's Drive-Thru Burger Heaven is not a publicly traded company, and its income statements do not have to conform to GAAP. Outside use of the statements is confined to government taxing authorities and a bank (if a loan or line of credit is necessary). Elena's accounting works well for those purposes.

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P 2-44

1. Cost per Page for Black Ink = $\frac{\$25.50}{850 \text{ pages}} = \$0.03$

   Total Owed to Harry by Mary = $0.03 × 500 pages = $15
   Total Owed to Harry by Natalie = $0.03 × 1,000 pages = $30

2. Cost per Sheet for Paper = $\frac{\$2.50}{500 \text{ sheets}} = \$0.005$

   Total Cost for Mary = 500 pages × ($0.03 + $0.005) = $17.50
   Total Cost for Natalie = 1,000 pages × ($0.03 + $0.005) = $35

3. Cost per Page for Color Ink = $\frac{\$31}{310 \text{ pages}} = \$0.10$

   Number of Black Ink Pages for Natalie = 1,000 × 0.80 = 800

   Number of Color Ink Pages for Natalie = 1,000 × 0.20 = 200

   Total Owed to Harry by Natalie = ($0.03 × 800 pages) + ($0.10 × 200) = $44

   Total Cost to Natalie = [($0.03 + $0.005) × 800 pages] + [($0.10 + $0.005) × 200 pages] = $49

P 2-45

1. Direct Materials = $40,000 + $64,000 – $19,800 = $84,200

2.

Direct materials used	$ 84,200
Direct labor	43,500
Manufacturing overhead	108,750
Total manufacturing cost for July	$236,450
Work in process, July 1	21,000
Work in process, July 31	(32,500)
Cost of goods manufactured	$224,950

3.

Cost of goods manufactured	$224,950
Finished goods inventory, July 1	23,200
Finished good inventory, July 31	(22,100)
Cost of goods sold	$226,050

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P 2-46

1.

Direct materials	$18
Direct labor	12
Manufacturing overhead	16
Unit product cost	$46

Total Product Cost = $46 × 200,000 units = $9,200,000

2.

Laworld Inc. Income Statement For Last Year	
Sales revenue ($60 × 200,000)	$12,000,000
Cost of goods sold	9,200,000
Gross margin	$ 2,800,000
Less:	
Commissions ($2 × 200,000)	$ 400,000
Fixed selling expense	100,000
Administrative expense	300,000
Operating income	$ 2,000,000

No, we do not need to prepare a statement of cost of goods manufactured because there were no beginning or ending inventories of work in process. As a result, total manufacturing cost is equal to the cost of goods manufactured.

3. **The 10,000 tents in beginning finished goods inventory have a cost of $40, and that is lower than the year's unit product cost of $46. The FIFO assumption says that beginning inventory is sold before current year production. Therefore, the cost of goods sold will be lower than it would be if there were no beginning inventory. This can be seen in the following statement of cost of goods sold.**

Cost of goods manufactured ($46 × 200,000)	$9,200,000
Beginning inventory finished goods ($40 × 10,000)	400,000
Ending inventory finished goods ($46 × 10,000)	(460,000)
Cost of goods sold	$9,140,000

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P 2-46 (Continued)

Laworld Inc. Revised Income Statement For Last Year	
Sales revenue ($60 × 200,000)	$12,000,000
Cost of goods sold	9,140,000
Gross margin	$ 2,860,000
Less:	
Commissions ($2 × 200,000)	$ 400,000
Fixed selling expense	100,000
Administrative expense	300,000
Operating income	$ 2,060,000

P 2-47

1. Direct Materials = $3,475 + $15,000 – $9,500 = $8,975

Hayward Company Statement of Cost of Goods Manufactured For the Month of May		
Direct materials used		$ 8,975
Direct labor		10,500
Manufacturing overhead:		
Factory supplies	$ 675	
Factory insurance	350	
Factory supervision	2,225	
Material handling	3,750	7,000
Total manufacturing cost for May		$ 26,475
Work in process, May 1		12,500
Work in process, May 31		(14,250)
Cost of goods manufactured		$ 24,725

2.

Hayward Company Statement of Cost of Goods Sold For the Month of May	
Cost of goods manufactured	$24,725
Finished goods inventory, May 1	6,685
Finished goods inventory, May 31	(4,250)
Cost of goods sold	$27,160

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P 2-48

1. **c. These costs include direct materials, direct labor, and manufacturing overhead. The total of these three types of costs equals product cost.**
2. **a. If Linda returns to school, she will need to quit her job. The lost salary is the opportunity cost of returning to school.**
3. **b. If Randy were engaged in manufacturing a product, his salary would be a product cost. Instead, the product has been manufactured. It is in the finished goods warehouse waiting to be sold. This is a period cost.**
4. **j. Jamie is working at company headquarters, and her salary is part of administrative cost.**
5. **i. All factory costs other than direct materials and direct labor are, by definition, overhead.**
6. **d. The design engineer is estimating the total number of labor hours required to complete the manufacturing of a product. This total will be used to compute direct labor cost.**
7. **h. This is direct materials cost.**
8. **g. The sum of direct materials and direct labor is, by definition, prime cost.**
9. **f. The cost of converting direct materials into finished product is the sum of direct labor and manufacturing overhead. This is conversion cost.**
10. **e. The depreciation on the delivery trucks is part of selling cost, the cost of selling and delivering product.**

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P 2-49

1. Before COGM can be calculated, Direct Materials Used in Production must first be calculated as:

Direct Materials Used in Production = Beginning Direct Materials Inventory + Direct Materials Purchases – Ending Direct Materials Inventory

= $20,000 + $40,000 – $10,000
= $50,000

Now,

COGM = Direct Materials Used in Production + Direct Labor Costs Used in Production + Manufacturing Overhead Costs Used in Production + Beginning WIP Inventory – Ending WIP Inventory

= $50,000 + $800,000 + $100,000 + $60,000 – $100,000
= $910,000

2. COGS = Beginning Finished Goods Inventory + COGM – Ending Finished Goods Inventory

= $300,000 + $910,000 – $280,000
= $930,000

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P 2-49 (Continued)

3.

Berry Company Income Statement For Last Year	
Sales (2,100 × 700)	$1,470,000
Cost of goods sold	930,000
Gross margin	$ 540,000
Less:	
Selling expense	60,000
Administrative expense	150,000
Operating income	$ 330,000

4. The dominant cost is direct labor cost of $800,000. Direct labor is the dominant cost because Berry's core business is creating building plans, which is a labor-intensive process requiring expensive, well-trained architects. The materials used to create building plans are relatively inexpensive.

P 2-50

1.

W. W. Phillips Company Statement of Cost of Goods Manufactured For Last Year		
Direct materials*		$300,000
Direct labor		200,000
Manufacturing overhead:		
Indirect labor	$40,000	
Rent, factory building	42,000	
Depreciation, factory equipment	60,000	
Utilities, factory	11,900	153,900
Total cost of product		$653,900
Beginning work in process		13,040
Ending work in process		(14,940)
Cost of goods manufactured		$652,000

* Direct Materials Used = $46,800 + $320,000 – $66,800 = $300,000

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P 2-50 (Continued)

2. Average Cost of One Unit of Product = $\frac{\$652,000}{4,000} = \$163$

3.

W. W. Phillips Company Income Statement For Last Year		
Sales ($400 × 3,800*)		$1,520,000
Cost of goods sold**		617,900
Gross margin		$ 902,100
Less:		
Selling expense:		
Sales supervisor's salary	$ 90,000	
Commissions	180,000	270,000
General administration expense		300,000
Operating income		$ 332,100

* Units Sold = 4,000 + 500 – 700 = 3,800

** Cost of Goods Sold = $652,000 + $80,000 – $114,100 = $617,900

P 2-51

1. The Internet payment of $40 is an expense that would appear on the income statement. This is because the Internet services are used up each month—Luisa cannot "save" any unused Internet time for the next month.

2. The opportunity cost is the $100 that Luisa would have made if she had been able to accept the movie role. It is an opportunity cost because it is the cost of the next best alternative to dog walking.

3. The price is $250 per month per dog. (Note: The price is charged by Luisa to her clients; it is not her cost.)

   Total Revenue for a Month = $250 × 12 dogs = $3,000

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P 2-52

1.	**Direct materials:**		
	Magazine (5,000 × $0.40)	$2,000	
	Brochure (10,000 × $0.08)	800	$2,800
	Direct labor:		
	Magazine (5,000/20 × $10)	$2,500	
	Brochure (10,000/100 × $10)	1,000	3,500
	Manufacturing overhead:		
	Rent	$1,400	
	Depreciation ($40,000/20,000 × 350*)	700	
	Setups	600	
	Insurance	140	
	Power	350	3,190
	Cost of goods manufactured		$9,490

* Production is 20 units per printing hour for magazines and 100 units per printing hour for brochures, yielding monthly machine hours of 350 [(5,000/20) + (10,000/100)]. This is also monthly labor hours as machine labor only operates the presses.

2.	Direct materials	$2,800	
	Direct labor	3,500	
	Total prime costs	$6,300	
	Magazine:		
	Direct materials	$2,000	
	Direct labor	2,500	
	Total prime costs	$4,500	
	Brochure:		
	Direct materials	$ 800	
	Direct labor	1,000	
	Total prime costs	$1,800	
3.	**Total monthly conversion cost:**		
	Direct labor	$3,500	
	Manufacturing overhead	3,190	
	Total	$6,690	
	Magazine:		
	Direct labor		$2,500
	Manufacturing overhead:		
	Power ($1 × 250)	$ 250	
	Depreciation ($2 × 250)	500	
	Setups (2/3 × $600)	400	
	Rent and insurance ($4.40 × 250 DLH)*	1,100	2,250
	Total		$4,750

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P 2-52 (Continued)

Brochures:		
Direct labor		**$1,000**
Manufacturing overhead:		
Power ($1 × 100)	**$100**	
Depreciation ($2 × 100)	**200**	
Setups (1/3 × $600)	**200**	
Rent and insurance ($4.40 × 100 DLH)*	**440**	**940**
Total		**$1,940**

*** Rent and insurance cannot be traced to each product so the costs are assigned using direct labor hours: $1,540/350 DLH = $4.40 per direct labor hour. The other overhead costs are traced according to their usage. Depreciation and power are assigned by using machine hours (250 for magazines and 100 for brochures); $350/350 = $1.00 per machine hour for power and $40,000/20,000 = $2.00 per machine hour for depreciation. Setups are assigned according to the time required. Since magazines use twice as much time, they receive twice the cost: Letting X = the proportion of setup time used for brochures, 2X + X = 1 implies a cost assignment ratio of 2/3 for magazines and 1/3 for brochures.**

4.

Sales [(5,000 × $1.80) + (10,000 × $0.45)]		**$13,500**
Less cost of goods sold		**9,490**
Gross margin		**$ 4,010**
Less operating expenses:		
Selling	**$ 500 ****	
Administrative	**1,500 *****	**2,000**
Operating income		**$ 2,010**

**** Distribution of goods is a selling expense.**

***** A case could be made for assigning part of her salary to production. However, since she is responsible for coordinating and managing all business functions, an administrative classification is more convincing.**

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P 2-53

1. The costs of the tent sales are accounted for as selling expense. The tent sales are designed to sell outdated or remanufactured products. They are not the main reason that Kicker is in business. In fact, an important objective is simply to increase awareness of the Kicker brand. As a result, these related costs are selling expense.

2.

Revenue	**$ 20,000**
Cost of goods sold	**(7,000)**
Tent sale expense	**(14,300)**
Tent sale loss	**$ (1,300)**

A couple of actions could be taken. First, it could look for a more appropriate venue. The outer parking lot of a shopping center, or even a large grocery store, would enable Kicker employees to easily load purchased product into customer cars. Second, the disc jockey could be dispensed with; instead, music could be played from CDs over the audio system in the truck. Third, Kicker could spend a year or so raising brand awareness in the Austin market before attempting another tent sale.

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CASES

Case 2-54

1.

Production	Selling	Administrative
(DL) Machine operators	Sales salaries	Utilities
(DL) Other direct labor	Advertising	Rent
(OH) Supervisory salaries		CPA fees
(DM) Pipe		Adm. salaries
(OH) Tires and fuel		
(OH) Depreciation, equipment		
(OH) Salaries of mechanics		

2. Traceable costs using equipment hours:

Machine operators	$ 218,000
Other direct labor	265,700
Pipe	1,401,340
Tires and fuel	418,600
Depreciation, equipment	198,000
Salaries of mechanics	50,000
Total	$2,551,640

Machine operators, tires and fuel, and depreciation are all directly caused by equipment usage, which is measured by equipment hours. One can also argue that required is also a function of equipment hours and so the salaries of mechanics can assigned using equipment hours. Pipe and other direct labor can be assigned using equipment hours because their usage should be highly correlated with equipment That is, equipment hours increase because there is more pipe being laid. As hours increase, so does the pipe usage. A similar argument can be made for other direct labor. Actually, it is not necessary to use equipment hours to assign pipe or other direct labor because these two costs are directly traceable to jobs.

$$\text{Traceable Cost per Equipment Hour} = \frac{\$2,551,640}{18,200 \text{ hours}}$$

$$= \$140.20 \text{ per hour}$$

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Case 2-55

1. **Leroy should politely and firmly decline the offer. The offer includes an implicit request to use confidential information to help Jean win the bid. Use of such information for personal advantage is wrong. Leroy has a professional and personal obligation to his current employer. This obligation must take precedence over the opportunity for personal financial gain.**

   Corporate codes of conduct emphasize honesty and integrity. Leroy has a responsibility to act on behalf of his company, and clearly, disclosing confidential information acquired in the course of his work to a competitor would be prohibited. In addition, codes of corporate conduct also require employees to avoid conflicts of interest and to refuse any gift, favor, or hospitality that would influence employee actions inappropriately.

2. **If Leroy agrees to review the bid, he will likely use his knowledge of his current employer's position to help Jean win the bid. In fact, agreement to help probably would reflect a desire for the bonus and new job with the associated salary increase. Helping would likely ensure that Jean would win the bid. Leroy was concerned about the political fallout and subsequent investigation revealing his involvement—especially if he sent up a red flag by switching to his friend's firm. An investigation may reveal the up-front bonus and increase the suspicion about Leroy's involvement. There is a real possibility that Leroy could be implicated. Whether this would lead to any legal difficulties is another issue. At the very least, some tarnishing of his professional reputation and personal character is possible. Some risk to Leroy exists. The amount of risk, though, should not be a factor in Leroy's decision. What is right should be the central issue, not the likelihood of getting caught.**

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