

Chapter Review

Problems

Problem 2-43

Manufacturing, Cost Classification, Income Statement Service Firm Product Costs and Selling and Administrative Costs, Income Statement

OBJECTIVE 2 - Define the various costs of manufacturing products and providing services as well as the costs of selling and administration. 3 - Prepare income statements for manufacturing and service organizations.

Pop's Drive-Thru Burger Heaven produces and sells quarter-pound hamburgers. Each burger is wrapped and put in a "burger bag," which also includes a serving of fries and a soft drink. The price for the burger bag is \$3.50. During December, 10,000 burger bags were sold. The restaurant employs college students part-time to cook and fill orders. There is one supervisor (the owner, John Peterson). Pop's maintains a pool of part-time employees so that the number of employees scheduled can be adjusted to the changes in demand. Demand varies on a weekly as well as a monthly basis.

A janitor is hired to clean the building early each morning. Cleaning supplies are used by the janitor, as well as the staff, to wipe counters, wash cooking equipment, and so on. The building is leased from a local real estate company; it has no seating capacity. All orders are filled on a drive-thru basis.

The supervisor schedules work, opens the building, counts the cash, advertises, and is responsible for hiring and firing. The following costs were incurred during December:

Hamburger meat	\$4,500	Rent	\$1,800
Buns, lettuce, pickles, and onions	800	Depreciation, cooking equipment and fixtures	600
Frozen potato strips	1,250	Advertising	500
Wrappers, bags, and condiment packages	600	Janitor's wages	520
Other ingredients	660	Janitorial supplies	150
Part-time employees' wages	7,250	Accounting fees	1,500
John Peterson's salary	3,000	Taxes	4,250
Utilities	1,500		

Pop's accountant, Elena DeMarco, does the bookkeeping, handles payroll, and files all necessary taxes. She noted that there were no beginning or ending inventories of materials. To simplify accounting for costs, Elena assumed that all part-time employees are production employees and that John Peterson's salary is selling and administrative expense. She further assumed that all rent and depreciation expense on the building and fixtures are part of product cost. Finally, she decided to put all taxes into one category, taxes, and to treat them as administrative expense.

Required:

1. Classify each of the costs for Pop's December operations using the table format given below. Be sure to total the amounts in each column.

Example: Hamburger meat, \$4,500.

Cost	Direct Materials	Direct Labor	Manufacturing Overhead	Selling and Administrative
Hamburger meat	\$4,500			
Total				

2. Prepare an income statement for the month of December.
3. **CONCEPTUAL CONNECTION** Elena made some simplifying assumptions. Were those reasonable? Suppose a good case could be made that the portion of the employees' time spent selling the burger bags was really a part of sales. In that case, would it be better to divide their time between production and selling? Should John Peterson's time be divided between marketing and administrative duties? What difference (if any) would that make on the income statement?

Problem 2-44

Cost Assignment, Direct Costs

OBJECTIVE 1 - Explain the meaning of cost and how costs are assigned to products and services.

Harry Whipple, owner of an inkjet printer, has agreed to allow Mary and Natalie, two friends who are pursuing master's degrees, to print several papers for their graduate courses. However, he has imposed two conditions. First, they must supply their own paper. Second, they must pay Harry a fair amount for the usage of the ink cartridge. Harry's printer takes two types of

cartridges, a black one and a color one that contains the inks necessary to print in color. Black replacement cartridges cost \$25.50 each and print approximately 850 pages. The color cartridge replacement cost \$31 and prints approximately 310 color pages. One ream of paper costs \$2.50 and contains 500 sheets. Mary's printing requirements are for 500 pages, while Natalie's are for 1,000 pages.

Required:

1. Assuming that both women write papers using text only (i.e., black ink), what is the total amount owed to Harry by Mary? By Natalie?
2. What is the total cost of printing (ink and paper) for Mary? For Natalie?
3. Now suppose that Natalie illustrates her writing with many large colorful pie charts and pictures and that about 20% of her total printing is primarily color. Mary uses no color illustrations. What is the total amount owed to Harry by Natalie? What is the total cost of printing (ink and paper) for Natalie?

Problem 2-45

Cost of Direct Materials, Cost of Goods Manufactured, Cost of Goods Sold

OBJECTIVE 3 - Prepare income statements for manufacturing and service organizations.

Bisby Company manufactures fishing rods. At the beginning of July, the following information was supplied by its accountant:

Raw materials inventory	\$40,000
Work-in-process inventory	21,000
Finished goods inventory	23,200

During July, the direct labor cost was \$43,500, raw materials purchases were \$64,000, and the total overhead cost was \$108,750. The inventories at the end of July were:

Raw materials inventory	\$19,800
Work-in-process inventory	32,500
Finished goods inventory	22,100

Required:

1. What is the cost of the direct materials used in production during July?
2. What is the cost of goods manufactured for July?
3. What is the cost of goods sold for July?

Problem 2-46

Preparation of Income Statement: Manufacturing Firm

OBJECTIVE 3 - Prepare income statements for manufacturing and service organizations.

Laworld Inc. manufactures small camping tents. Last year, 200,000 tents were made and sold for \$60 each. Each tent includes the following costs:

Direct materials	\$18
Direct labor	12
Manufacturing overhead	16

The only selling expenses: a commission of \$2 per unit sold and advertising totaling \$100,000. Administrative expenses, all fixed, equaled \$300,000. There were no beginning or ending finished goods inventories. There were no beginning or ending work-in-process inventories.

Required:

1. Calculate the product cost for one tent. Calculate the total product cost for last year.
2. **CONCEPTUAL CONNECTION** Prepare an income statement for external users. Did you need to prepare a supporting statement of cost of goods manufactured? Explain.
3. **CONCEPTUAL CONNECTION** Suppose 200,000 tents were produced (and 200,000 sold) but that the company had a beginning finished goods inventory of 10,000 tents produced in the prior year at \$40 per unit. The company follows a first-in, first-out policy for its inventory (meaning that the units produced first are sold first for purposes of cost flow). What effect does this have on the income statement? Show the new statement.

Problem 2-47

Cost of Goods Manufactured, Cost of Goods Sold

OBJECTIVE 3 - Prepare income statements for manufacturing and service organizations.

Hayward Company, a manufacturing firm, has supplied the following information from its accounting records for the month of May:



Direct labor cost	\$10,500	Material handling	\$ 3,750
Purchases of raw materials	15,000	Materials inventory, May 1	3,475
Supplies used	675	Work-in-process inventory, May 1	12,500
Factory insurance	350	Finished goods inventory, May 1	6,680
Commissions paid	2,500	Materials inventory, May 31	9,500
Factory supervision	2,225	Work-in-process inventory, May 31	14,250
Advertising	800	Finished goods inventory, May 31	4,250

Required:

1. Prepare a statement of cost of goods manufactured.
2. Prepare a statement of cost of goods sold.

Problem 2-48

Cost Identification

OBJECTIVE 1 - Explain the meaning of cost and how costs are assigned to products and services. 2 - Define the various costs of manufacturing products and providing services as well as the costs of selling and administration.

Following is a list of cost terms described in the chapter as well as a list of brief descriptive settings for each item.

Cost terms:

- a. Opportunity cost
- b. Period cost
- c. Product cost
- d. Direct labor cost
- e. Selling cost

- f. Conversion cost
- g. Prime cost
- h. Direct materials cost
- i. Manufacturing overhead cost
- j. Administrative cost

Settings:

1. Marcus Armstrong, manager of Timmins Optical, estimated that the cost of plastic, wages of the technician producing the lenses, and overhead totaled \$30 per pair of single-vision lenses.
2. Linda was having a hard time deciding whether to return to school. She was concerned about the salary she would have to give up for the next 4 years.
3. Randy Harris is the finished goods warehouse manager for a medium-sized manufacturing firm. He is paid a salary of \$90,000 per year. As he studied the financial statements prepared by the local certified public accounting firm, he wondered how his salary was treated.
4. Jamie Young is in charge of the legal department at company headquarters. Her salary is \$95,000 per year. She reports to the chief executive officer.
5. All factory costs that are not classified as direct materials or direct labor.
6. The new product required machining, assembly, and painting. The design engineer asked the accounting department to estimate the labor cost of each of the three operations. The engineer supplied the estimated labor hours for each operation.
7. After obtaining the estimate of direct labor cost, the design engineer estimated the cost of the materials that would be used for the new product.
8. The design engineer totaled the costs of materials and direct labor for the new product.
9. The design engineer also estimated the cost of converting the raw materials into its final form.

10. The auditor for a soft drink bottling plant pointed out that the depreciation on the delivery trucks had been incorrectly assigned to product cost (through overhead). Accordingly, the depreciation charge was reallocated on the income statement.

Required:

Match the cost terms with the settings. More than one cost classification may be associated with each setting; however, select the setting that seems to fit the item best. When you are done, each cost term will be used just once.

Problem 2-49

Income Statement, Cost of Services Provided, Service Attributes

OBJECTIVE 2 - Define the various costs of manufacturing products and providing services as well as the costs of selling and administration. 3 - Prepare income statements for manufacturing and service organizations.

Berry Company is an architectural firm located in Detroit, Michigan. The company works with small and medium-size construction businesses to prepare building plans according to the client's contract. The following data are provided for the previous year:

Number of designs completed and sold	700	Direct labor	\$800,000
Beginning inventory of direct materials	\$ 20,000	Manufacturing overhead	100,000
Beginning inventory of designs in process	60,000	Administrative expense	150,000
Ending inventory of direct materials	10,000	Selling expense	60,000
Ending inventory of designs in process	100,000	Beginning inventory of finished designs	300,000
Purchases, direct materials	40,000	Ending inventory of finished designs	280,000

Required:

1. Calculate the cost of goods manufactured.
2. Calculate the cost of goods sold.
3. Assume that the average fee for a design is \$2,100. Prepare an income statement for Berry.
4. **CONCEPTUAL CONNECTION** Refer to the cost of goods sold (calculated in Requirement 2). What is the dominant cost? Briefly explain why this cost is the dominant one for Berry.

Problem 2-50

Cost of Goods Manufactured, Income Statement

OBJECTIVE 3 - Prepare income statements for manufacturing and service organizations.

W. W. Phillips Company produced 4,000 leather recliners during the year. These recliners sell for \$400 each. Phillips had 500 recliners in finished goods inventory at the beginning of the year. At the end of the year, there were 700 recliners in finished goods inventory. Phillips' accounting records provide the following information:

Purchases of raw materials	\$320,000	Salary, sales supervisor	\$ 90,000
Beginning materials inventory	46,800	Commissions, salespersons	180,000
Ending materials inventory	66,800	General administration	300,000
Direct labor	200,000	Beginning work-in-process inventory	13,040
Indirect labor	40,000	Ending work-in-process inventory	14,940
Rent, factory building	42,000	Beginning finished goods inventory	80,000
Depreciation, factory equipment	60,000	Ending finished goods inventory	114,100
Utilities, factory	11,900		

Required:

1. Prepare a statement of cost of goods manufactured.
2. Compute the average cost of producing one unit of product in the year.
3. Prepare an income statement for external users.

Problem 2-51

Cost Definitions

OBJECTIVE 1 - Explain the meaning of cost and how costs are assigned to products and services.

Luisa Giovanni is a student at New York University. To help pay her way through college, Luisa started a dog walking service. She has 12 client dogs—six are walked on the first shift (6:30 A.M. and 5:00 P.M.), and six are walked on the second shift (7:30 A.M. and 6:00 P.M.).

Last month, Luisa noted the following:

1. Purchase of three leashes at \$10 each (she carries these with her in case a leash breaks during a walk).
2. Internet service cost of \$40 a month. This enables her to keep in touch with the owners, bill them by email, and so on.
3. Dog treats of \$50 to reward each dog at the end of each walk.
4. A heavy-duty raincoat and hat for \$100.
5. Partway through the month, Luisa's friend, Jason, offered her a chance to play a bit role in a movie that was shooting on location in New York City. The job paid \$100 and would have required Luisa to be on location at 6:00 A.M. and to remain for 12 hours. Regretfully, Luisa turned it down.
6. The dog owners pay Luisa \$250 per month per dog for her services.

Required:

1. At the end of the month, how would Luisa classify her Internet payment of \$40—as a cost on the balance sheet or as an expense on the income statement?
2. **CONCEPTUAL CONNECTION** Which of the above item is an opportunity cost? Why?
3. What price is charged? What is Luisa's total revenue for a month?

Problem 2-52

Cost Identification and Analysis, Cost Assignment, Income Statement

OBJECTIVE 1 - Explain the meaning of cost and how costs are assigned to products and services. 2 - Define the various costs of manufacturing products and providing services as well as the costs of selling and administration. 3 - Prepare income statements for manufacturing and service organizations.

Melissa Vassar has decided to open a printing shop. She has secured two contracts. One is a 5-year contract to print a popular regional magazine. This contract calls for 5,000 copies each month. The second contract is a 3-year agreement to print tourist brochures for the state. The state tourist office requires 10,000 brochures per month.

Melissa has rented a building for \$1,400 per month. Her printing equipment was purchased for \$40,000 and has a life expectancy of 20,000 hours with no

salvage value. Depreciation is assigned to a period based on the hours of usage. Melissa has scheduled the delivery of the products so that two production runs are needed. In the first run, the equipment is prepared for the magazine printing. In the second run, the equipment is reconfigured for brochure printing. It takes twice as long to configure the equipment for the magazine setup as it does for the brochure setup. The total setup costs per month are \$600.

Insurance costs for the building and equipment are \$140 per month. Power to operate the printing equipment is strongly related to machine usage. The printing equipment causes virtually all the power costs. Power costs will run \$350 per month. Printing materials will cost \$0.40 per copy for the magazine and \$0.08 per copy for the brochure. Melissa will hire workers to run the presses as needed (part-time workers are easy to hire). She must pay \$10 per hour. Each worker can produce 20 copies of the magazine per printing hour or 100 copies of the brochure. Distribution costs are \$500 per month. Melissa will receive a salary of \$1,500 per month. She is responsible for personnel, accounting, sales, and production—in effect, she is responsible for administering all aspects of the business.

Required:

1. What are the total monthly manufacturing costs?
2. What are the total monthly prime costs? What are the total monthly prime costs for the regional magazine? For the brochure?
3. What are the total monthly conversion costs? Suppose Melissa wants to determine monthly conversion costs for each product. Assign monthly conversion costs to each product using direct tracing and driver tracing whenever possible. For those costs that cannot be assigned using a tracing approach, you may assign them using direct labor hours.
4. Melissa receives \$1.80 per copy of the magazine and \$0.45 per brochure. Prepare an income statement for the first month of operations.

Problem 2-53

Cost Analysis, Income Statement

OBJECTIVE 1 - Explain the meaning of cost and how costs are assigned to products and services. 2 - Define the various costs of manufacturing products and providing services as well as the costs of selling and administration.

Five to six times a year, **Kicker** puts on tent sales in various cities throughout Oklahoma and the surrounding states. The tent sales are designed to show Kicker customers new products, engender enthusiasm about those products, and sell soon to be out-of-date products at greatly reduced prices. Each tent sale lasts one day and requires parking lot space to set up the Kicker semitrailer; a couple of show cars; a disc jockey playing music; and a tent to sell Kicker merchandise, distribute brochures, and so on.



Last year, the Austin tent sale was held in a far corner of the parking lot outside the city exhibition hall where the automotive show was in progress. Because most customers were interested more in the new model cars than in the refurbishment of their current cars, foot traffic was low. In addition, customers did not want to carry speakers and amplifiers all the way back to where they had originally parked. Total direct costs for this tent sale were \$14,300. Direct costs included gasoline and fuel for three pickup trucks and the semitrailer; wages and per diem for the five Kicker personnel who traveled to the show; rent on the parking lot space; and depreciation on the semitrailer, pickups, tent, tables (in tent), sound equipment; and the like. Revenue was \$20,000. Cost of goods sold for the speakers was \$7,000.

Required:

1. **CONCEPTUAL CONNECTION** How do you suppose Kicker accounts for the costs of the tent sales? What income statement items are affected by the tent sales?
2. **CONCEPTUAL CONNECTION** What was the profit (loss) from the Austin tent sale? What do you think Kicker might do to make it more profitable in the future?