

ANSWERS TO QUESTIONS - CHAPTER 1

- 1. Financial accounting deals with regulated, historical, financial information that pertains to the whole company and is designed primarily to meet the information needs of outsiders. Managerial accounting is concerned with unregulated financial, economic, and nonfinancial data, which pertains more to the sub-units of the organization, that is current and future oriented, and that is designed primarily to meet the information needs of insiders.**
- 2. The value-added principle means that management accountants are free to engage in any information gathering and reporting activity so long as the activity adds value in excess of its cost. Estimates of future product costs are permissible in managerial accounting reports for budgeting and product costing but would not be allowed by financial regulations in financial accounting.**
- 3. Sustainability and Environmental Reporting**
- 4. Both financial and managerial accountants need cost information about the company's products and services. In managerial accounting cost information is useful in product pricing decisions and is an essential part of cost control (comparing actual product cost to budgeted product cost to assess needed improvement) and performance evaluation (assess managers' success in controlling and eliminating unnecessary cost). In financial accounting, cost information about the product is needed to determine ending inventory on the balance sheet and cost of goods sold on the income statement. Product costing in financial accounting can impact the decisions of not only managers but also outsiders such as investors, creditors, and taxing authorities. Product costing information in managerial accounting can affect the product's selling price as well as management's decisions as to whether cost correction changes are needed.**
- 5. Costs are assets used in the process of earning revenue but not all costs of the earning process are used in the same period in which they are incurred. Therefore, a cost that is used in the process of earning revenue is recorded as an expense (e.g. administrative salaries and product cost for products sold) and a cost that has future benefit in the earning process is recorded as an asset in the period that it is incurred.**

- 6. The cash paid to production workers has not been used to produce revenue but to produce inventory. The revenue is earned when the inventory is sold at which time the cost of salaries associated with those products sold should be expensed as cost of goods sold.**
- 7. Product costs associated with goods that have not been sold are recorded in the account called inventory. Inventory cost is shown on the balance sheet as an asset. The amount of total assets and net income will be higher if a product cost is classified as an asset than if it is expensed. Product cost associated with goods that have been sold should be recorded in the account called cost of goods sold. Cost of goods sold is an expense shown on the income statement. The amount of total assets and net income will be lower if a product cost is classified as an expense as opposed to being classified as an asset.**
- 8. An indirect product cost cannot be easily or economically traced to a specific product. Product costs that would be considered indirect include costs such as production supplies, salaries of production supervisors, and depreciation, rent, and utilities on factory facilities.**
- 9. Product costs are all costs incurred to obtain a product or provide a service. These costs are treated as assets, recorded in inventory, and expensed when the associated products are sold. Period costs are all costs not associated with a product. They are associated with the general, selling, and administrative functions of the business and most are expensed in the period in which the associated economic sacrifice is made. A product cost would be the cost of direct materials used in the production of a product. A period cost would be rent on administrative facilities.**
- 10. The effects of cost classification on the financial statements can have important implications with respect to the following:**
 - (1) The availability of financing - Investors and creditors use financial statement data to predict businesses' future earnings. Favorable financial statements provide evidence of favorable future performance whereas unfavorable financial statements are an indication of possible poor future financial performance. A company with favorable financial performance is more likely to generate sufficient cash flows to make interest payments, to repay the principal balance of its**

liabilities, and to pay dividends. Hence, investors and creditors believe they have a greater probability of receiving interest payments, the return of principal, and return on investment when companies show favorable financial statements. Since expenses reduce profit and financial performance, classifying a cost as an expense will inhibit the company's ability to obtain financing. Classifying a cost as an asset, which will increase profit, total assets, and equity, enhances businesses' ability to obtain financing.

- (2) **Management motivation** - Executive compensation may be affected by financial statement data. Many managers' bonuses are based on a percentage of net income. If costs are classified as expenses, net income will be reduced which in turn affects managerial income. Managers may even be tempted to misclassify costs in order to manipulate financial statement data to their advantage.
 - (3) **Income tax considerations** - With respect to taxes, managers prefer to classify costs as expenses rather than assets. Classifying a cost as an expense reduces net income and in turn reduces income taxes, which are determined by computing a designated percentage of taxable income.
- 11. **Cost allocation** is the process of dividing a total cost into parts and assigning the parts to relevant objects. The determination of interest expense on a note payable is an allocation. If the note pays \$1,200 of interest a year and has been outstanding for 3 months, then $3/12$ or \$300 of the \$1,200 total interest expense should be allocated to interest expense for the three-month period. The remaining $9/12$ of interest would be allocated to interest expense for the remaining 9 months of the year.
 - 12. In recognition of its responsibility to uphold high ethical standards of conduct, the Institute of Management Accountants issued a Statement of Ethical Professional Conduct. The statement sets forth professional ethical standards covering the areas of competence, confidentiality, integrity, and objectivity that management accountants are required to abide by in order to maintain their professional and personal integrity.
 - 13. Some of the more common ethical conflicts encountered by accountants include the following:

- (1) Pressure to perform duties for which they are not competently trained.
 - (2) Pressure to disclose confidential information.
 - (3) Pressure to engage in falsification, embezzlement, and bribery.
 - (4) Pressure to issue misleading or incomplete reports.
14. A pricing decision must include all costs associated with the product. The manufacturing product cost as well as all upstream costs (costs that occur before the manufacturing process begins, e.g., research and development costs) and downstream costs (costs that are incurred after the manufacturing process, e.g., sales commissions) must be covered by the product's revenues in order for the company to be profitable.
15. JIT inventory system is a reengineering principle where inventory is made available for customer consumption at the time of customer demand. A JIT inventory system is designed to eliminate the storage of large amounts of inventory. By eliminating the storage of inventory, costs related to inventory such as financing, warehouse space, security and maintenance, theft, damage and obsolescence can be reduced or eliminated.
16. Reengineering is the term used to explain companies' responses to world-wide competition by changing production and delivery systems so as to eliminate waste, reduce errors, and minimize costs. Some of the best practices used by world-class competitors include activity-based management, value-added activities, and just-in-time inventory acquisition.
17. In traditional costing systems, indirect costs are assigned to products, services, or customers using some allocation base measured in volume such as direct labor hours. In activity-based costing a different allocation system is used to improve the accuracy of allocations. With activity-based costing, indirect costs are first assigned to organizational activities and then to products, services, or customers based on their use of that activity. There is usually a two-level allocation process and more than one allocation base may be used.
18. A value chain is the sequence of activities through which an organization provides products to its customers.

19. A value-added activity is any unit of work that contributes to a product's ability to satisfy customer needs. Value-added activities include the following:

- (1) Input activities - research and development, product design, and hiring and training.**
- (2) Processing activities - assembly, inspection, and storing.**
- (3) Output activities - marketing, distribution, and customer relations.**
- (4) Administrative activities - accounting and legal services, personnel management, and public relations.**

Nonvalue-added activities are tasks undertaken that do not contribute to a product's ability to satisfy customer needs. Examples would include the following:

- (1) Maintaining excess quantities of inventories.**
- (2) Transporting materials and products during production and storage stages.**
- (3) Machine set-ups.**

SOLUTIONS TO BRIEF EXERCISES – CHAPTER 1**BRIEF EXERCISE 1-1**

- a. Financial
- b. Financial
- c. Managerial

BRIEF EXERCISE 1-2

Cost Category	Product/SG&A	Asset/ Expense
Depreciation on the CEO's printer	SG&A	Expense
Cost of labor used to make inventory	Product	Asset
Shipping cost to acquire raw materials	Product	Asset

BRIEF EXERCISE 1-3

Balance Sheet										Income Statement					Statement of Cash Flows	
Event No.	Assets			=	Liab.		+	Stk Equity								
	Cash	+	Inventory	=	Accts. Pay.	+	Com. Stk.	+	Ret. Earn.	Rev.	-	Exp.	=	Net Inc.		
1	(50,000)	+	50,000	=	NA	+	NA	+	NA	NA	-	NA	=	NA	(50,000)	OA
2	(20,000)	+	NA	=	NA	+	NA	+	(20,000)	NA	-	20,000	=	(20,000)	(20,000)	OA
3	(40,000)	+	40,000	=	NA	+	NA	+	NA	NA	-	NA	=	NA	(40,000)	OA

BRIEF EXERCISE 1-4

Item	Upstream	Midstream	Downstream
Legal fees associated with warranty claims	X		
Labor costs to assemble the product		X	
Drafting engineering plans for product development			X

BRIEF EXERCISE 1-5

Characteristics	JIT
A bulk supply of inventory is kept on-hand	
Orders inventory as needed to minimize inventory holding costs	X
Requires strong IT systems to keep track of inventory needs	X

BRIEF EXERCISE 1-6

Benchmarking

BRIEF EXERCISE 1-7

Authority

BRIEF EXERCISE 1-8

Data analytics

SOLUTIONS TO EXERCISES - SERIES A - CHAPTER 1

EXERCISE 1-1A

	Managerial Accounting	Financial Accounting
a.		X
b.	X	
c.		X
d.		X
e.	X	
f.		X
g.	X	
h.	X	
i.		X
j.	X	

EXERCISE 1-2A

	Product Cost	Selling, General, and Administrative Cost
a.	X	
b.	X	
c.		X
d.		X
e.		X
f.	X	
g.		X
h.		X
i.		X
j.		X

EXERCISE 1-3A

Cost Category	Product SG&A	Asset Expense
Wages of production workers	Product	Asset
Advertising costs	SG&A	Expense
Promotion costs	SG&A	Expense
Production supplies	Product	Asset
Depreciation on administration building	SG&A	Expense
Depreciation on manufacturing equipment	Product	Asset
Research and development costs	SG&A	Expense
Cost to set up manufacturing equipment	Product	Asset
Utilities used in manufacturing facility	Product	Asset
Cars for sales staff	SG&A	Asset
Real estate tax levied on a factory	Product	Asset
General office supplies	SG&A	Asset
Raw materials used in the manufacturing process	Product	Asset
Costs to rent office equipment	SG&A	Expense

EXERCISE 1-4A

	Assets	=	Liab.	+	Stk. Equity		Rev.	Exp.	=	Net Inc.
1.	NA		I		D		NA	I		D
2.	I		I		NA		NA	NA		NA

EXERCISE 1-5A

Event No.	Assets				=	Stk. Equity		Income Statement		
	<i>BV</i>					<i>C.</i>	<i>Ret.</i>			
	<i>Cash</i>	<i>+ Inventory</i>	<i>+ Equip.</i>	<i>+ Furn.</i>	=	<i>Stk.</i>	<i>+ Earn.</i>	<i>Rev.</i>	<i>Exp.</i>	<i>Net Inc.</i>
1.	NA	NA	NA	D		NA	D	NA	I	D
2.	NA	I	D	NA		NA	NA	NA	NA	NA

EXERCISE 1-6A

- a. Payroll costs that would be classified as selling, general, and administrative expense include the following:

Salary of the company president	\$ 75,000
Salary of the chief financial officer	42,000
Salary of the vice president of marketing	40,000
Salaries of administrative personnel	60,000
Commissions paid to sales staff	146,000
Total	<u>\$363,000</u>

- b. Payroll costs that would be classified as product cost include the following:

Salary of the vice president of manufacturing	\$ 50,000
Salary of middle managers in manufacturing plant	147,000
Wages of production workers	703,500
Salaries of engineers and maintenance crew	133,500
Total	<u>\$1,034,000</u>

Since 4,000 units of 5,000 finished products were sold, 80% (*i.e.* $4,000 \div 5,000$) of the product cost would be classified as cost of goods sold. Therefore, the payroll cost that would be included in cost of goods sold is determined as follows:

$$\$1,034,000 \times 80\% = \$827,200$$

Alternative computation for the same result follows:

$$(\$1,034,000 \div 5,000) \times 4,000 = \$827,200$$

EXERCISE 1-7A

Event No.	Assets					=	Stk. Equity		Income Statement		
				BV Manuf.	BV Office		C.	Ret.			
	Cas h	+ Inventory	+ Equip.*	+ Furn.*	=	Stk.	+ Earn	.	Rev.	- Exp.	= Net Inc.
1.	I	+	NA	+	NA	+	NA	+	I	I	- NA = I
2.	NA	+	D	+	NA	+	NA	+	D	NA	- I = D

3.	I	+	NA	+	NA	+	NA	=	I	+	NA	NA	-	NA	=	NA
4.	D	+	I	+	NA	+	NA	=	NA	+	NA	NA	-	NA	=	NA
5.	D	+	I	+	NA	+	NA	=	NA	+	NA	NA	-	NA	=	NA
6.	D	+	NA	+	NA	+	NA	=	NA	+	D	NA	-	I	=	D
7.	NA	+	I	+	D	+	NA	=	NA	+	NA	NA	-	NA	=	NA
8.	NA	+	NA	+	NA	+	D	=	NA	+	D	NA	-	I	=	D

*Record accumulated depreciation as decreases under these columns.

EXERCISE 1-8A

a.

Raw materials purchased and used	\$ 6,200
Wages of production workers	7,400
Depreciation on manufacturing equipment	4,400
Total product cost	<u>\$18,000</u>

b. Cost of inventory per unit = $\$18,000 \div 3,000 = \6.00

Ending inventory in units = $3,000 - 2,400 = 600$

Cost of ending inventory = $\$6.00 \times 600 = \$3,600$

c. Cost of goods sold = $\$6.00 \times 2,400 = \$14,400$

EXERCISE 1-9A

Item	Upstream	Midstream	Downstream
Direct materials		x	
Research and development	x		
Product design	x		
Manufacturing overhead		x	
Sales salaries			x
Cost of delivering merchandise to customers			x
Cost to create a copyright	x		
Salaries of product engineers	x		
Salaries of production line workers		x	
Direct labor		x	
Cost of heating the manufacturing plant		x	
Advertising expenses			x
Patent filing fees	x		
Salary of company president			x
Depreciation on manufacturing equipment		x	
Depreciation on office equipment			x

EXERCISE 1-10A

- a. The \$8,000,000 of research and development cost is an upstream cost while packaging, shipping, and sales commissions are downstream costs.

- b. Cost of goods sold: $\$45 \times 400,000 = \$18,000,000$
Ending inventory: $\$45 \times 40,000 = \$1,800,000$

- c.
- | | |
|--|-----------------------|
| Upstream cost per unit, $\$8,000,000 \div 2,000,000$ | \$ 4.00 |
| Manufacturing cost per unit | 45.00 |
| Downstream costs per unit | 8.00 |
| Total cost | <u>57.00</u> |
| Plus: 25% profit margin, $\$57.00 \times 25\%$ | 14.25 |
| Price | <u><u>\$71.25</u></u> |

- d.

Income Statement	
Sales revenue ($\$71.25 \times 400,000$)	\$ 28,500,000
Cost of goods sold	(18,000,000)
Gross margin	10,500,000
Research and development	(8,000,000)
Selling expenses ($\$8 \times 400,000$)	(3,200,000)
Net income (Loss)	<u>\$ (700,000)</u>

- e. The upstream cost of research and development is required by GAAP to be expensed in the period that it is incurred. However, the R&D is expected to result in overall sales of 2,000,000 units. The income statement for Year 1 includes the sales of only 400,000 units while recognizing the entire cost of R&D as expense. In other words, the net loss is only temporary and a result of timing difference.

EXERCISE 1-11A

- a. The three main components of product cost for a manufacturing entity are direct materials, direct labor, and manufacturing overhead.**
- b. The product cost in a merchandising company, such as a retail toy store, is relatively easy to determine. It includes vendor's price charged on the invoice, freight cost, and other necessary costs to make the inventory available for sale. Measuring product cost for a manufacturing entity, though, requires a more complex system. First of all, the manufacturing firm has to classify its costs between product costs and period costs. The firm has to accumulate product costs such as direct materials, direct labor, and manufacturing overhead. Once the product costs have been accumulated, the firm has to classify the cost of a product that has been sold as expense, and the cost of an unsold product as inventory, an asset.**

EXERCISE 1-12A

- a. Event No. 1 represents the depreciation on the computers because no product inventory exists in a service organization. The cost of depreciation, thus, must be expensed.
- b. The computers in a service organization must be expensed as explained in *Part a*. This transaction decreases the asset equipment and retained earnings, both balance sheet accounts. The transaction increases expense on the income statement.

The depreciation on production equipment in a manufacturing company decreases the equipment account and increases the inventory account. It does not affect the income statement until the product is completed and sold.

EXERCISE 1-13A

If Perez has effectively implemented a 100% just-in-time inventory system, the company can sell products without maintaining any inventory on hand. This is true if Perez instructs its suppliers to ship products directly to Perez's customers when Perez receives customer orders.

EXERCISE 1-14A**a.**

Income Statement	
Sales revenue ($\$12 \times 600$)	\$ 7,200
Cost of goods sold ($\$5 \times 600$)	(3,000)
Gross margin	4,200
Waste due to excess inventory ($\$5 \times 100$)	(500)
Net income	\$ 3,700

b.

Income Statement	
Sales revenue ($\$12 \times 700$)	\$8,400
Cost of goods sold ($\$5 \times 700$)	(3,500)
Net income	\$4,900

The opportunity cost of lost profit: $(\$12 - \$5) \times 100 = \$700$

- c.** If Ms. Shelton can arrange an effective JIT system, the T-shirts would be delivered by the supplier just in time for customers to purchase. To give an example of such a system, assume that the supplier sets up a simple T-shirt printing facility at Douglass Enterprises. The supplier could bring in enough generic T-shirts. When a customer wants to buy a T-shirt from Becky Shelton, the supplier could print the company's special logo on a generic T-shirt and deliver the T-shirt to Ms. Shelton. In this JIT design, Ms. Shelton would not have to carry any inventory. The supplier would keep only generic product as inventory, which could be sold in other events.

If an effective JIT system is implemented, Ms. Shelton would not have to keep any inventory, and thus, would avoid the loss due to excessive inventory. Ms. Shelton would be able to meet all customer demand because the supplier could deliver whatever quantity of product that Ms. Shelton's customers demand. Therefore, Ms. Shelton could avoid the opportunity cost due to lost sales.

EXERCISE 1-15A

- a. The new inventory system is an approximate just-in-time system since it does not eliminate all inventory.
- b. Reduced cost of inventory: $\$67,000 - \$17,000 = \$50,000$
 Finance cost: $\$50,000 \times 5\% = \$2,500$
 Total eliminated inventory holding cost: $\$2,500 + \$9,000 = \$11,500$

EXERCISE 1-16A

Andes Adventure Inc.

Andes Adventure Inc. has higher profit margins, more daily foot traffic in its stores, and a much lower return rate on the merchandise it sells. All of these metrics indicate that Andes Adventure Inc. is experiencing higher operational effectiveness than Glacier Gear Co.

EXERCISE 1-17A

The CFO and controller violated the Statement of Ethical Professional Practice on two major items: integrity and objectivity. Regarding integrity, the officers' personal interests conflicted with the public interest because the officers reaped a bonus that they did not deserve. Moreover, their actions certainly discredited the accounting profession. Regarding objectivity, the officers did not communicate information fairly and objectively.

EXERCISE 1-18A

	Financial Measure	Non-financial Measure
Revenues	X	
Employee Headcount		X
Customer Satisfaction Score		X
Profit Margins	X	
Product Defect Rate		X

SOLUTIONS TO PROBLEMS - SERIES A - CHAPTER 1**PROBLEM 1-19A**

Information Item:	Financial Accounting	Managerial Accounting
Estimates of future revenue		X
GAAP-based product cost	X	
Salary of the manager of a particular branch of a bank		X
Salary expense for all company employees shown in the income statement	X	
Historical-based information included in financial statements	X	
Reporting rules established by government authorities	X	
Reports designed for the company president		X
Daily time clock reports		X
A company's annual report to stockholders	x	
Budgets		X
Information provided to investors and creditors	x	
Vacation schedules for key employees		X
Customer satisfaction survey results		X
Amount of total assets shown on the balance sheet	x	

PROBLEM 1-20A

The following horizontal financial statements model is not required in the problem. It is provided to show the process of computation.

Event No.	Assets				=	Stk. Equity		Income Statement		
	Cash	+ Invent.	+ BV Office Furn.*	+ BV Manuf. Equip*	=	C. Stk.	+ Ret. Earn.	Rev.	Exp.	= Net Inc.
1.	89,000	+		+		= 89,000	+		-	=
2a.	(32,000)	+		+ 32,000	+	=	+		-	=
2b.		+		+ (4,000)	+	=	+ (4,000)		- 4,000	= (4,000)
3a.	(40,000)	+			+ 40,000	=	+		-	=
3b.		+	6,000	+	+ (6,000)	=	+		-	=
4.	(12,000)	+		+		=	+(12,000)		- 12,000	= (12,000)
5.	(21,000)	+	21,000	+		=	+		-	=
6.	(26,000)	+	26,000	+		=	+		-	=
7a.	72,000	+		+		=	+72,000	72,000	-	= 72,000
7b.		+	(42,400)	+		=	+(42,400)		- 42,400	= (42,400)
Total	30,000	+	10,600	+	28,000 + 34,000	=	89,000 +13,600	72,000	- 58,400	= 13,600

*Record accumulated depreciation as negative amounts under these columns.

PROBLEM 1-20A (continued)

a.

Direct materials	\$26,000
Direct labor	21,000
Manufacturing overhead	6,000*
Total product cost	53,000
Divided by	÷10,000
Average cost per unit	\$5.30

***Depreciation of manufacturing equipment:
 (\$40,000 - \$4,000) ÷ 6 = \$6,000**

- b. Cost of Goods Sold: $\$5.30 \times 8,000 = \$42,400$**
- c. Ending Inventory: $\$5.30 \times (10,000 - 8,000) = \$10,600$**
- d. \$13,600**
- e. \$13,600**
- f. $\$30,000 + \$10,600 + \$28,000 + \$34,000 = \$102,600$**

PROBLEM 1-21A

Event		Assets					=	Stk. Equity		Income Statement			
				BV	BV						Rev.	Exp.	= Net Inc.
No.	Cash	+ Invent.	+ Equip.*	+ Manuf.	+ Office	=	C. Stk.	+ Ret. Earn.					
1.	68,000	+		+		+	68,000	+			-		=
2.	(8,700)	+	8,700	+		+		+			-		=
3.	(4,500)	+		+		+		+	(4,500)		-	4,500	= (4,500)
4.	(10,000)	+	10,000	+		+		+			-		=
5a.	(9,600)	+		+		+	9,600	+			-		=
5b.		+		+		+	(2,000)	+	(2,000)		-	2,000	= (2,000)
6a.	(16,000)	+		+	16,000	+		+			-		=
6b.		+	3,000	+	(3,000)	+		+			-		=
7a.	35,000	+		+		+		+	35,000	35,000	-		= 35,000
7b.		+	(14,000)	+		+		+	(14,000)		-	14,000	= (14,000)
Total	54,200	+	7,700	+	13,000	+	7,600	=	68,000	+	14,500	35,000	- 20,500 = 14,500

*Record accumulated depreciation as negative amounts under these columns.

PROBLEM 1-22A

Gibson Company			
Income Statement for Year 1		Balance Sheet as of 12/31/Year 1	
Sales revenue	\$9,000	Assets	
Cost of goods sold ¹	(7,200)	Cash ³	\$12,250
Gross margin	1,800	Fin. goods inventory ¹	800
Administrative expense ²	(750)	Total assets	\$13,050
Net income	<u>\$ 1,050</u>		
		Stk. equity	
		Common stock	\$12,000
		Retained earnings	1,050
		Total stk. equity	<u>\$13,050</u>

¹ The product costs include \$4,700 for materials, \$2,400 for labor, and \$900 for overhead. Accordingly, \$8,000 (*i.e.*, \$4,700 + \$2,400 + \$900) was used to make the 400 units of product. The cost per unit is \$20.00 (*i.e.* \$8,000 ÷ 400 units). Since 360 units were sold, ending inventory will be composed of 40 units (*i.e.* 400 units - 360 units). The amount of cost of goods sold is \$7,200 (*i.e.*, \$20.00 × 360 units). The balance in ending inventory would be \$800 (*i.e.*, \$20.00 × 40 units).

² Administrative expenses are composed of \$350 administrative salaries + \$400 administrative rent = \$750.

³ Cash balance: \$12,000 - \$4,700 - \$2,400 - \$900 - \$350 - \$400 + \$9,000 = \$12,250.

PROBLEM 1-23A

a. Upstream costs = \$30,000 research and development + \$20,000 fashion design = \$50,000

b. Downstream costs = \$25,000 advertising + \$45,000 administrative costs = \$70,000

c. Midstream costs = (\$15 direct materials + \$17 direct labor + \$8 manufacturing overhead) × 4,000 units = \$160,000

d. Sales price = GAAP defined product cost × 150%

Sales Price = (\$15 direct materials + \$17 direct labor + \$8 manufacturing overhead) × 1.5 = \$60

e.	Sales revenue (\$60 price × 4,000 units)	\$240,000
	Cost of goods sold (\$40 cost × 4,000 units)	(160,000)
	Gross margin	80,000
	General, selling, and administrative costs	
	Upstream costs (R&D, and Design)	(50,000)
	Downstream costs (Administrative and Advertising)	(70,000)
	Net loss	<u>\$ (40,000)</u>

PROBLEM 1-23A (continued)

f. It appears that management failed to give appropriate consideration to upstream and downstream costs when pricing the product. Only the GAAP based product cost was used to determine the price. The total cost of making a phone case is upstream cost + midstream cost + downstream cost.

Total per unit costs:

Midstream cost = (\$15 direct materials + \$17 direct labor + \$8 manufacturing overhead) = \$40

Upstream cost = (\$50,000 R&D and Design) / 4,000 units = \$12.50

Downstream cost = (\$70,000 Administrative and Advertising) / 4,000 units = \$17.50

Total cost = \$40 Midstream + \$12.50 Upstream + \$17.50 Downstream = \$70.

Note that the selling price of \$60 is below the total cost per unit of \$70. This explains the loss incurred by the company.

PROBLEM 1-24A**a.**

Wang Company			
Income Statement for Year 1		Balance Sheet as of 12/31/Year 1	
Sales revenue	\$88,000	Assets	
Operating expenses¹	(65,000)	Cash²	\$93,000
Net income (Loss)	<u>\$23,000</u>	Total assets	<u>\$93,000</u>
		Stk. equity	
		Common stock	\$70,000
		Retained earnings	23,000
		Total stk. equity	<u>\$93,000</u>

¹ The entire \$65,000 expenditure is a period cost that is recognized as an expense.

² The cash balance will be the same for all three scenarios. The company acquires \$70,000 of capital, earns \$88,000 sales revenue and spends \$65,000, thereby leaving a \$93,000 ending balance. Do not be confused by the fact that the \$65,000 is used to pay for different things under the alternative scenarios. The cash outflow is always \$65,000 regardless of what is bought.

PROBLEM 1-24A (continued)

b.

Wang Company			
Income Statement for Year 1		Balance Sheet as of 12/31/Year 1	
Sales revenue	\$88,000	Assets	
Depreciation exp.¹	(13,000)	Cash	\$ 93,000
Net income	<u>\$75,000</u>	Rental equipment	65,000
		Accumulated dep.¹	<u>(13,000)</u>
		Total assets	<u>\$145,000</u>
		Stk. equity	
		Common Stock	\$ 70,000
		Retained earnings	<u>75,000</u>
		Total stk. equity	<u>\$145,000</u>

¹ The \$65,000 was used to purchase automobiles that had 5-year useful lives with no salvage value. The depreciation charge is \$13,000 [*i.e.*, $(\$65,000 - 0) \div 5$ years]. Since the solution applies to the first year of operation, the amount in the accumulated depreciation account and the amount in depreciation expense are equal.

PROBLEM 1-24A (cont.)**c.**

Wang Company			
Income Statement for Year 1		Balance Sheet as of 12/31/Year 1	
Sales revenue	\$88,000	Assets	
Cost of goods sold¹	(28,500)	Cash	\$ 93,000
Gross margin	59,500	Finished goods inv.	9,500
Administrative expense²	(5,000)	Mfg. equipment	30,000
Net income	<u>\$54,500</u>	Accumulated dep.¹	(8,000)
		Total assets	<u>\$124,500</u>
		Stk. equity	
		Common stock	\$70,000
		Retained earnings	54,500
		Total stk. equity	<u>\$124,500</u>

¹The product costs are \$10,000 for materials, \$20,000 for labor, and \$8,000 for overhead. The overhead cost results from depreciation on the manufacturing equipment [*i.e.*, (\$30,000 cost - \$6,000 salvage) ÷ 3 year life]. Accordingly, total product costs amount to \$38,000 (*i.e.*, \$10,000 + \$20,000 + \$8,000). The cost per unit is \$19 (*i.e.*, \$38,000 ÷ 2,000 units). Since 1,500 units were sold, ending inventory will be composed of 500 units (*i.e.*, 2,000 units - 1,500 units). The amount of cost of goods sold is \$28,500 (*i.e.*, \$19 × 1,500 units). The balance in ending inventory would be \$9,500 (*i.e.*, \$19 × 500 units).

² Salaries of sales and administrative employees

- d. It is highly unlikely that Wang can determine the exact cost of any particular unit of product. Materials and labor usage will differ slightly between units of the same product. Cost averaging smoothes these differences across units of the same product.

PROBLEM 1-25A

- a. **Annual inventory holding cost:**
 $(\$1,200,000 \times 10\%) + (\$8,000 \times 12) = \$216,000$
- b. **A JIT system should enable Kenta to receive raw materials just in time for production. Therefore, it virtually eliminates the need to hold inventory. The inventory holding cost can be eliminated as well.**
- c. **Establishing a most-favored customer status with reliable suppliers could assure a steady supply of raw materials even when shortages exist for other customers. Such assurance can almost eliminate the need for maintaining raw material inventories.**

PROBLEM 1-26A

CIA Review normally orders 10 % more books than expected. When the expected enrollment is 200 students, the firm would order 220 books.

- a. **200 students enroll in the course:**

Revenue ($\$2,000 \times 200$)		\$400,000
Expenses		
Cost of textbooks ($\$150 \times 220$)	\$33,000	
Cost of teachers	50,000	
Other operating expenses	75,000	
Total expenses		158,000
Net income		<u>\$242,000</u>

Cost of unused books: $[(220 - 200) \times \$150] = \$3,000$.

PROBLEM 1-26A (continued)

- b. 240 students attempt to register, but only 220 students can be accepted:

Revenue ($\$2,000 \times 220$)		\$440,000
Expenses		
Cost of textbooks ($\$150 \times 220$)	\$33,000	
Cost of teachers	50,000	
Other operating expenses	75,000	
Total expenses		<u>158,000</u>
Net income		<u>\$282,000</u>

If all 240 students could be accepted, the income statement would be as follows:

Revenue ($\$2,000 \times 240$)		\$480,000
Expenses		
Cost of textbooks ($\$150 \times 240$)	\$36,000	
Cost of teachers	50,000	
Other operating expenses	75,000	
Total expenses		<u>161,000</u>
Net income		<u>\$319,000</u>

The lost profit resulting from rejecting 20 additional students is \$37,000 ($\$319,000 - \$282,000$).

PROBLEM 1-26A (cont.)

- c. 200 students enrolled under a JIT system:

Revenue ($\$2,000 \times 200$)		\$400,000
Expenses		
Cost of textbooks ($\$160 \times 200$)	\$32,000	
Cost of teachers	50,000	
Other operating expenses	75,000	
Total expenses		157,000
Net income		\$243,000

The savings from eliminating the cost of excessive books exceeds the increased cost for the required number of books. Therefore, the total expenses using the JIT system are less than those under the traditional inventory system in *requirement a*. Since the revenues are the same, the JIT system results in a greater net income than the traditional system.

- d. 240 students enrolled under the JIT system

Revenue ($\$2,000 \times 240$)		\$480,000
Expenses		
Cost of textbooks ($\$160 \times 240$)	\$38,400	
Cost of teacher	50,000	
Other operating expenses	75,000	
Total expenses		163,400
Net income		\$316,600

The additional revenue from 20 students who would have been turned away under the condition of *requirement b* exceeds the additional cost of books required under the JIT system. Therefore, the JIT system results in a greater net income than the traditional system.

PROBLEM 1-26A (cont.)

- e. Students who are denied enrollment may develop a negative image of CIA Review, Inc. The negative image could become widespread when the disgruntled students complain to their friends. The JIT system not only improves net income but improves customer satisfaction by allowing everyone entry into the course.

PROBLEM 1-27A

a. Option No. 1

Campbell Manufacturing Company			
Income Statement		Balance Sheet	
Sales revenue	\$140,000	<u>Assets</u>	
Cost of goods sold¹	<u>(60,000)</u>	Cash²	\$ 85,000
Gross margin	80,000	Finished goods inv.³	<u>15,000</u>
Sell., gen., & adm. exp.	<u>(60,000)</u>	Total assets	<u>\$100,000</u>
Net income	<u>\$20,000</u>		
		<u>Stk. Equity</u>	
		Common stock	\$ 80,000
		Retained earnings	<u>20,000</u>
		Total stk. equity	<u>\$100,000</u>

¹\$75,000 (Total product cost) ÷ 5,000 = \$15.00 per unit. \$15.00 × 4,000 = \$60,000.

²\$80,000 + \$140,000 - \$75,000 - \$60,000 = \$85,000

³Inventory: \$15.00 × 1,000 = \$15,000.

PROBLEM 1-27A (continued)**a. Option No. 2**

Campbell Manufacturing Company			
Income Statement		Balance Sheet	
Sales revenue	\$140,000	Assets	
Cost of goods sold¹	(108,000)	Cash	\$ 85,000
Gross margin	32,000	Finished goods inv.²	27,000
Sell., gen., & adm. exp.	0	Total assets	\$112,000
Net income	\$32,000		
		Stk. equity	
		Common Stock	\$ 80,000
		Retained earnings	32,000
		Total stk. equity	\$112,000

¹Total product cost: $\$75,000 + \$60,000 = \$135,000$. Product cost per unit:
 $\$135,000 \div 5,000 = \27.00

Cost of goods sold: $\$27.00 \times 4,000 = \$108,000$.

²Inventory: $\$27.00 \times 1,000 = \$27,000$

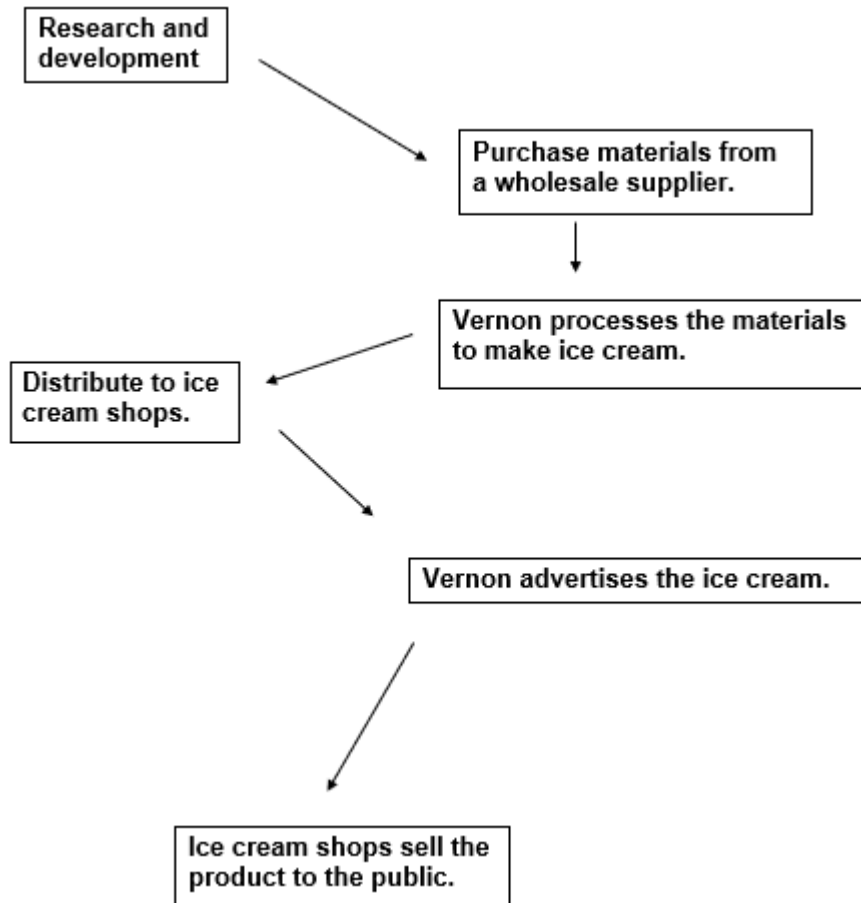
PROBLEM 1-27A (cont.)

- b. Option No. 2 results in financial statements that are more likely to leave a favorable impression on investors and creditors because the net income under option No. 2 is \$12,000 greater than that under option No. 1.**
- c. President's bonus under option No. 1: $\$20,000 \times 20\% = \$4,000$
 President's bonus under option No. 2: $\$32,000 \times 20\% = \$6,400$
 Option No. 2 provides the president with a higher bonus.**
- d. Income tax expense under option No. 1:
 $\$20,000 \times 30\% = \$6,000$
 Income tax expense under option No. 2:
 $\$32,000 \times 30\% = \$9,600$
 Option No. 1 minimizes the amount of the company's income tax expense.**
- e. Option No. 2 provides the president with a higher bonus. However, option No. 1 minimizes the amount of the company's income tax**

expense. As a result, these two options reveal a conflict of interest between the company and its president. To avoid the conflict of interest, the company can offer a bonus plan that is tied to the company's stock price instead of net income on financial statements. To the extent that the market is efficient, it will reward performance that adds value to a company by bidding up the company's stock price. An efficient market is not deceived by accounting policies that are designed solely to manipulate financial statements.

PROBLEM 1-28A

a. Value Chain



PROBLEM 1-28A (continued)

- b. Vernon's competitors engage in activities similar to Vernon's for materials acquisition, product manufacturing, product distribution, and advertising. The value-added activity that Vernon has created is its research and development effort, which resulted in a new product for consumers.**

PROBLEM 1-29A

- a. (1) Separation of duties – Ted exercised control over both purchasing and receiving functions. (2) Failure to force extended absences – Ted was always around. He never took vacations. Indeed, the embezzlement was discovered when Ted was in the hospital. It may have been discovered much earlier had Ted been required to take vacations. (3) Lack of prenumbered documents. The extent of the embezzlement could have been more easily determined had the purchase order forms been prenumbered. (4) Lack of physical control – The accounting records should have been kept under lock and key thereby preventing Ted from stealing and destroying the documents.**
- b. (1) Opportunity – Lack of internal controls described in the answer to part a. (2) Pressure – Ted had a fanatical desire to help the underprivileged children. (3) Rationalization – Ted had convinced himself that the good he was doing to help the children justified the wrong he was doing by embezzling from the company. Doing the wrong thing for the right reasons does not justify the wrong doing.**

PROBLEM 1-30A

1. D
2. E
3. A
4. B
5. C

SOLUTIONS TO EXERCISES - SERIES B - CHAPTER 1

EXERCISE 1-1B

	Managerial Accounting	Financial Accounting
a.		X
b.	X	
c.		X
d.		X
e.	X	
f.		X
g.		X
h.	X	
i.	X	
j.	X	

EXERCISE 1-2B

	Product Cost	Selling, General, and Administrative Cost
a.	X	
b.		X
c.		X
d.	X	
e.		X
f.	X	
g.		X
h.		X
i.	X	
j.	X	

EXERCISE 1-3B

Cost Category	Product SG&A	Asset Expense
Cost of merchandise shipped to customers	SG&A	Expense
Depreciation on vehicles used by salespeople	SG&A	Expense
Wages of administrative building security guards	SG&A	Expense
Supplies used in the plant manager's office	Product	Asset
Purchase of computers for the accounting department	SG&A	Asset
Depreciation on computers used in factory	Product	Asset
Natural gas used in the factory	Product	Asset
Cost of television commercials	SG&A	Expense
Wages of factory workers	Product	Asset
Paper and ink cartridges used in the cashier's office	SG&A	Expense
Raw material used to make products	Product	Asset
Lubricant used to maintain factory equipment	Product	Asset
Cost of a delivery truck	SG&A	Asset
Cash dividend to stockholders	Neither	Neither

EXERCISE 1-4B

	Assets	=	Liab.	+	Stk. Equity	Rev.	-	Exp.	=	Net Inc.
1.	NA		I		D	NA		I		D
2.	I		I		NA	NA		NA		NA

EXERCISE 1-5B

	Assets			=	Stk. Equity		Income Statement		
Event No.	Cas + Prepaid + Inventory	=	C. + Ret.		Stk.	Earn.	Rev.	-	Exp. = Net Inc.
1.	NA	D	NA		NA	D	NA	I	D
2.	NA	D	I		NA	NA	NA	NA	NA

EXERCISE 1-6B

- a. Depreciation costs that would be classified as selling, general, and administrative expense are the following:

Depreciation of a building for finished product display	\$24,000
Depreciation of delivery trucks	18,000
Depreciation of furniture used in the president's office	15,000
Depreciation of elevators in administrative buildings	20,000
Total	<u>\$77,000</u>

- b. Depreciation costs that would be classified as product costs are the following:

Depreciation of factory buildings	\$ 75,000
Depreciation of computers used in manufacturing	12,000
Depreciation of forklifts used in the factory	30,000
Depreciation of factory machinery	36,000
Total	<u>\$ 153,000</u>

Since 2,000 units of 3,000 products finished were sold, $2/3$ ($2,000 \div 3,000$) of the product cost would be included in cost of goods sold. Therefore, the total depreciation cost that would be included in cost of goods sold is:

$$\text{\$153,000} \times 2/3 = \text{\$102,000}$$

EXERCISE 1-7B

Event No.	Assets						=	Stk. Equity		Income Statement			
	BV			BV									
	Cash	Inventory	Equip.	Offices	Manuf.	Adm.		C.	Ret.	Rev.	Exp.	Net Inc.	
			*	*									
1.	I	+	NA	+	NA	+	NA	=	I	+	NA	NA	- NA = NA
2.	D	+	I	+	NA	+	NA	=	NA	+	NA	NA	- NA = NA
3.	D	+	NA	+	NA	+	NA	=	NA	+	D	NA	- I = D
4.	D	+	I	+	NA	+	NA	=	NA	+	NA	NA	- NA = NA
5.	NA	+	NA	+	NA	+	D	=	NA	+	D	NA	- I = D
6.	NA	+	I	+	D	+	NA	=	NA	+	NA	NA	- NA = NA
7.	I	+	NA	+	NA	+	NA	=	NA	+	I	I	- NA = I
8.	NA	+	D	+	NA	+	NA	=	NA	+	D	NA	- I = D

****Record accumulated depreciation as decreases under these columns.**

EXERCISE 1-8B

a.

Raw materials purchased and used	\$ 8,100
Wages of production workers	6,500
Depreciation on manufacturing equipment	3,400
Total product cost	<u>\$18,000</u>

b. Cost of inventory per unit = $\$18,000 \div 6,000 = \3

Ending inventory in units = $6,000 - 4,800 = 1,200$

Cost of ending inventory = $\$3 \times 1,200 = \$3,600$

c. Cost of goods sold = $\$3 \times 4,800 = \$14,400$

EXERCISE 1-9B

Item	Upstream	Midstream	Downstream
Telephone cost of a manufacturing plant		X	
Steering wheel used to assemble a car		X	
Wages of a manufacturing plant		X	
Cost of product warranty			X
Cost of researching a cancer treatment drug	X		
Plant manager's salary		X	
Sales commissions			X
Cost of pursuing FDA's approval on a new drug	X		
Cost of product advertisement			X
Cost of providing Internet service in a plant		X	
Year-end bonus paid to factory foremen		X	
Shipping manager's salary			X
Cost of research and development	X		
Depreciation on vehicles used by salespersons			X
Depreciation on vehicles used in a plant		X	

EXERCISE 1-10B

- a. The \$35,000,000 of research and development costs is an upstream cost. Packaging, shipping, and sales commissions are downstream costs.

- b. Cost of goods sold: $\$20 \times 600,000 = \$12,000,000$
Ending inventory: $\$20 \times 200,000 = \$4,000,000$

- c.
- | | |
|---|--------------------|
| Upstream cost per unit, $\$35,000,000 \div 5,000,000$ | \$ 7 |
| Manufacturing cost per unit | 20 |
| Downstream costs per unit | 3 |
| Total cost | <u>30</u> |
| Plus: 40% profit margin, $\$30 \times 40\%$ | 12 |
| Price | <u><u>\$42</u></u> |

- d.

Income Statement	
Sales revenue ($\$42 \times 600,000$)	\$ 25,200,000
Cost of goods sold ($\$20 \times 600,000$)	(12,000,000)
Gross margin	13,200,000
Research and development expense	(35,000,000)
Selling expenses ($\$3 \times 600,000$)	(1,800,000)
Net income (Loss)	<u><u>\$(23,600,000)</u></u>

- e. GAAP requires expensing research and development costs in the period in which they are incurred. However, Hutton expects the R&D costs to result in overall Allergone sales of 5,000,000 units in Year 1 and future years. The income statement for Year 1 recognizes revenue from selling 600,000 units while recognizing the entire R&D cost as expense. No R&D cost will be recognized on future income statements. The Year 1 net loss will be more than offset by positive net incomes from future Allergone sales.

EXERCISE 1-11B

- a. The three components of product cost incurred in producing cakes are direct materials such as flour, sugar, and eggs; direct labor such as Susan's effort to mix ingredients together and bake them into cakes; and manufacturing overhead such as the cost of an oven, electric power cost, and the cost of detergent to wash pans.
- b. Measuring product cost for a merchandising company, such as a retail store, is relatively easy. It includes the vendor's invoice price, freight cost, and other costs necessary to get the inventory ready to sell. Measuring product cost for a manufacturing entity requires a more complex system. A manufacturing enterprise must classify its costs as product costs or period costs. It must accumulate product costs (direct materials, direct labor, and manufacturing overhead). It must then classify the cost of sold products as expense and unsold products as inventory, an asset.

EXERCISE 1-12B

- a. Event No. 1 represents the expiration of insurance on a factory building because the recognition decreases prepaid insurance and increases inventory, both assets on the balance sheet. The expiration of insurance on a factory building does not affect the income statement until the products made in the factory are sold.
- b. The cost of insuring a factory is among the costs necessary to produce inventory. The expiration of factory insurance, therefore, is an asset exchange: the asset prepaid insurance is exchanged for the asset inventory, affecting only the balance sheet. The expiration of insurance on an administrative building, however, is an asset use transaction which increases expense on the income statement. No asset that will benefit future periods is produced in the administrative building.

EXERCISE 1-13B

Increases in inventory without corresponding increases in sales revenue often signal increasing working capital costs and a decreasing rate of cash inflows. More cash has been invested in inventory, but the inventory has not been sold and therefore converted back into cash. With a just-in-time inventory management system (JIT system), Fargo would only acquire inventory when it is needed for sale, eliminating its costly investment in idle inventory and speeding up its cash flow.

EXERCISE 1-14B

a.

Income Statement	
Sales revenue ($\$30 \times 900$)	\$27,000
Cost of goods sold ($\$20 \times 900$)	(18,000)
Gross margin	9,000
Waste due to excess inventory ($\$20 \times 100$)	(2,000)
Net income	\$ 7,000

b.

Income Statement	
Sales revenue ($\$30 \times 1,000$)	\$30,000
Cost of goods sold ($\$20 \times 1,000$)	(20,000)
Net income	\$10,000

The opportunity cost of lost sales: $(\$30 - \$20) \times 100 = \$1,000$

- c. If Denise could arrange to order only the number of yearbooks actually needed, the school could eliminate potential losses from either the waste attributable to unsold yearbooks or the opportunity cost of lost sales from having too few yearbooks available. For example, the yearbook staff could request that students, faculty members, and staff members who want to purchase yearbooks complete order forms 10 days in advance of the school fair day. On that day, the yearbook staff could set up a yearbook stand to receive customer payments and deliver yearbooks at the same time.

EXERCISE 1-15B

- a. The new inventory system is an approximate just-in-time system since it does not eliminate all inventory.
- b. Reduced cost of inventory: $\$12,000 - \$2,000 = \$10,000$
Finance cost: $\$10,000 \times 9\% = \900
Total eliminated inventory holding cost: $\$5,000 + \$900 = \$5,900$

EXERCISE 1-16B

The process of shampooing a customer's hair before cutting is nonvalue-added if the customer's hair is not dirty. The barber could change shop policy to offer a reduced-price haircut to customers who have just washed their hair before coming to the barbershop.

EXERCISE 1-17B

- a. While the entire \$1,500,000 of upstream research and development cost should have been expensed immediately, the CFO put the \$1,500,000 into an inventory account. Since some of the inventory was not sold, some of the R&D cost is still in the inventory account. The computations are shown below:

$$\text{Misclassified cost per unit} = \frac{\$1,500,000}{5,000} = \$300 \text{ per unit}$$

Number of units in ending inventory:

Inventory Completed	5,000
Less Inventory Sold	(4,000)
Ending Inventory	1,000

The portion of R&D cost still in ending inventory is \$300,000 (\$300 × 1,000 units).

Instead of being in the inventory account, the \$300,000 should have been expensed. As a result, assets, retained earnings (equity), and net income are overstated by \$300,000. Expenses are understated by the same amount. Revenue and liabilities are not affected.

- b. The CFO's motive was probably that he was under pressure to present an inflated amount of net income. Executive compensation is frequently tied to net income or stock price which is related by net income. Further, a strong balance sheet and income statement make borrowing money or selling stock easier, because the company appears more attractive to a potential lender or investor.

EXERCISE 1-18B

	Financial Measure	Nonfinancial Measure
Cost of Goods Sold	X	
Brand Recognition		X
Operating Cash Flows	X	
Retained Earnings	X	
Employee Satisfaction Ratings		X

SOLUTIONS TO PROBLEMS - SERIES B - CHAPTER 1**PROBLEM 1-19B**

Information Item	Financial Accountin g	Managerial Accountin g
Cost per unit of individual products		x
Profit margin of individual products		x
Annual report filed with SEC	x	
Cash flow of the company as a whole	x	
Income statement prepared according to GAAP	x	
Balance sheet prepared according to market-value estimates		x
Estimated profit of a new product ready to be launched		x
Footnote disclosures required by FASB	x	
Cost analysis provided to production manager		x
Facility utilization report provided to company president		x
Financial figures released to press	x	
Financial statements provided to creditors	x	
Report on employee turnover		x
Cost of goods sold as reported according to GAAP	x	

PROBLEM 1-20B

The following horizontal financial statements model is not required in the problem. It is provided to show the process of computation.

Event		Assets						=	Stk. Equity		Income Statement				
No.	Cash	+	Invent.	+	BV	BV	=	C. Stk.	+	Ret. Earn.	Rev.	Exp.	=	Net Inc.	
					Furn.*	Equip*.									
1.	98,000	+		+		+		=	98,000	+		—		=	
2a.	(28,000)	+		+	28,000	+		=		+		—		=	
2b.		+		+	(7,000)	+		=		+	(7,000)	—	7,000	=	(7,000)
3a.	(58,000)	+		+		+	58,000	=		+		—		=	
3b.		+	9,000	+		+	(9,000)	=		+		—		=	
4.	(20,000)	+		+		+		=		+	(20,000)	—	20,000	=	(20,000)
5.	(27,000)	+	27,000	+		+		=		+		—		=	
6.	(39,000)	+	39,000	+		+		=		+		—		=	
7a.	150,000	+		+		+		=		+	150,000	150,000	—		= 150,000
7b.		+	(62,500)	+		+		=		+	(62,500)	—	62,500	=	(62,500)
Total	76,000	+	12,500	+	21,000	+	49,000	=	98,000	+	60,500	150,000	—	89,500	= 60,500

*Record accumulated depreciation as negative amounts under these columns.

PROBLEM 1-20B (continued)

a.

Direct materials	\$39,000
Direct labor	27,000
Manufacturing overhead	9,000*
Total product cost	75,000
Divided by	÷ 12,000
Average cost per unit	\$6.25

***Depreciation of manufacturing equipment:**

$$(\$58,000 - \$4,000) \div 6 = \$9,000$$

b. Cost of goods sold: $\$6.25 \times 10,000 = \$62,500$

c. Ending inventory: $\$6.25 \times (12,000 - 10,000) = \$12,500$

d. **\$60,500**

e. **\$60,500**

f. $\$76,000^* + \$12,500 + \$21,000 + \$49,000 = \$158,500$

$$^*\$98,000 - \$28,000 - \$58,000 - \$20,000 - \$27,000 - \$39,000 + (\$15 \times 10,000) = \$76,000$$

PROBLEM 1-21B

Event		Assets					=	Stk. Equity		Income Statement							
No.	Cash	+ Invent.	+ BV Manuf. Equip*.	+ Office Furn.*	=	C. Stk.	+ Ret. Earn.	Rev.	Exp.	=	Net Inc.						
1.	87,000	+	+	+	=	87,000	+		-	=							
2.	(17,000)	+	17,000	+	=		+		-	=							
3.	(7,000)	+	+	+	=		+	(7,000)	-	7,000	= (7,000)						
4.	(10,000)	+	10,000	+	=		+		-	=							
5a.	(12,000)	+	+	+	=	12,000	+		-	=							
5b.		+	+	+	=	(1,500)	+	(1,500)	-	1,500	= (1,500)						
6a.	(18,000)	+	+	18,000	+	=	+		-	=							
6b.		+	3,000	+	(3,000)	+	=	+	-	=							
7a.	58,000	+	+	+	=		+	58,000	58,000	-	= 58,000						
7b.		+	(26,000)	+	+	=	+	(26,000)	-	26,000	= (26,000)						
Total	81,000	+	4,000	+	15,000	+	10,500	=	87,000	+	23,500	=	58,000	-	34,500	=	23,500

*Record accumulated depreciation as negative amounts under these columns.

PROBLEM 1-22B

Fuzhou Company			
Income Statement for Year 1		Balance Sheet as of 12/31/Year 1	
Sales revenue	\$29,700	<u>Assets</u>	
Cost of goods sold ¹	(22,000)	Cash ³	\$50,700
Gross margin	7,700	Fin. goods inventory ¹	2,000
Administrative expense ²	(5,000)	Total assets	<u>\$52,700</u>
Net income	<u>\$2,700</u>		
		<u>Stk. equity</u>	
		Common stock	\$50,000
		Retained earnings	2,700
		Total stk. equity	<u>\$52,700</u>

¹ The product costs are \$10,500 for materials, \$8,600 for labor, and \$4,900 for overhead. Accordingly, \$24,000 (*i.e.*, \$10,500 + \$8,600 + \$4,900) was used to make the 1,200 units of product. The cost per unit is \$20 (*i.e.* \$24,000 ÷ 1,200 units). Since 1,100 units were sold, ending inventory will be composed of 100 units (*i.e.* 1,200 units - 1,100 units). The amount of cost of goods sold is \$22,000 (*i.e.*, \$20 × 1,100 units). The balance in ending inventory would be \$2,000 (*i.e.*, \$20 × 100 units).

² Administrative expenses are composed of \$2,100 administrative salaries + \$2,900 administrative rent = \$5,000.

³ Cash balance: \$50,000 - \$10,500 - \$8,600 - \$4,900 - \$2,100 - \$2,900 + \$29,700 = \$50,700.

PROBLEM 1-23B

- a. Upstream costs = \$520,000 product design + \$1,800,000 research and development = \$2,320,000
- b. Downstream costs = \$400,000 advertising + \$250,000 administrative costs = \$650,000
- c. Midstream costs = (\$450 direct materials + \$180 direct labor + \$300 manufacturing overhead) $\times$ 5,000 units = \$4,650,000
- d. Sales price = GAAP defined product cost $\times$ 160%
 Sales Price = (\$450 direct materials + \$180 direct labor + \$300 manufacturing overhead) $\times$ 1.6 = \$1,488

e.	Sales revenue (\$1,488 price $\times$ 5,000 units)	\$7,440,000
	Cost of goods sold (\$930 cost $\times$ 5,000 units)	<u>(4,650,000)</u>
	Gross margin	2,790,000
	General, selling, and administrative costs	
	Upstream costs (R&D, and Design)	(2,320,000)
	Downstream costs (Administrative and Advertising)	(650,000)
	Net loss	<u>\$ (180,000)</u>

PROBLEM 1-23B (continued)

- f. It appears that management failed to give appropriate consideration to upstream and downstream costs when pricing the product. Only the GAAP based product cost was used to determine the price. The total cost of making a battery is upstream cost + midstream cost + downstream cost.

Total per unit costs:

Midstream cost = (\$450 direct materials + \$180 direct labor + \$300 manufacturing overhead) = \$930

Upstream cost = (\$2,320,000 R&D and Design) / 5,000 units = \$464

Downstream cost = (\$650,000 Administrative and Advertising) / 5,000 units = \$130

Total cost per unit = \$930 Midstream + \$464 Upstream + \$130

Downstream = \$1,524.

Note that the selling price of \$1,488 is below the total cost per unit of \$1,524. This explains the loss incurred by the company.

PROBLEM 1-24B**a.**

Financial Statements Packer Company			
Income Statement		Balance Sheet	
Sales revenue	\$98,000	<u>Assets</u>	
Operating expenses¹	(90,000)	Cash²	\$128,000
Net Income	<u>\$ 8,000</u>	Total assets	<u>\$128,000</u>
		<u>Stk. equity</u>	
		Common stock	\$120,000
		Retained earnings	8,000
		Total stk. equity	<u>\$128,000</u>

¹ The entire \$90,000 expenditure is an administrative cost that is recognized as an expense.

² The cash balance will be the same for all three scenarios. The company acquires \$120,000 of capital, earns sales revenue of \$98,000 and spends \$90,000 thereby leaving a \$128,000 ending balance. Do not be confused by the fact that the \$90,000 is used to pay for different things under the alternative scenarios. The cash outflow is always \$90,000 regardless of what is bought.

PROBLEM 1-24B (continued)

b.

Financial Statements			
Packer Company			
Income Statement		Balance Sheet	
Sales revenue	\$98,000	<u>Assets</u>	
Depreciation exp.¹	(18,000)	Cash	\$128,000
Net income	<u>\$80,000</u>	Trucks	90,000
		Accumulated dep.¹	<u>(18,000)</u>
		Total assets	<u>\$200,000</u>
		<u>Stk. equity</u>	
		Common stock	\$120,000
		Retained earnings	<u>80,000</u>
		Total stk. equity	<u>\$200,000</u>

¹ The \$90,000 was used to purchase trucks that had a zero salvage value and 5-year useful lives. The depreciation charge is \$18,000 [*i.e.*, (\$90,000 - 0) ÷ 5 years]. Since the solution applies to the first year of operation the amount in the accumulated depreciation account and the amount in depreciation expense are equal.

PROBLEM 1-24B (cont.)**c.**

Financial Statements			
Packer Company			
Income Statement		Balance Sheet	
Sales revenue	\$98,000	<u>Assets</u>	
Cost of goods Sold¹	(40,000)	Cash	\$128,000
Gross margin	58,000	Finished goods inv.¹	10,000
Administrative expense²	(2,000)	Mfg. equipment	48,000
Net income	<u>\$56,000</u>	Accumulated dep.¹	<u>(10,000)</u>
		Total assets	<u>\$176,000</u>
		<u>Stk. equity</u>	
		Common stock	\$120,000
		Retained earnings	<u>56,000</u>
		Total stk. equity	<u>\$176,000</u>

¹ The product costs are \$18,000 for materials, \$22,000 for labor, and \$10,000 for overhead. The overhead cost results from depreciation on the manufacturing equipment [*i.e.*, (\$48,000 cost - \$8,000 salvage) ÷ 4-year life]. Accordingly, \$50,000 (*i.e.*, \$18,000 + \$22,000 + \$10,000) was used to make the 2,500 units of product. The cost per unit is \$20 (*i.e.*, \$50,000 ÷ 2,500 units). Since 2,000 units were sold, ending inventory will be composed of 500 units (*i.e.*, 2,500 units - 2,000 units). The amount of cost of goods sold is \$40,000 (*i.e.*, \$20 × 2,000 units). The balance in ending inventory would be \$10,000 (*i.e.*, \$20 × 500 units).

² Salaries of sales and administrative employees.

- d. It is highly unlikely that Packer can determine the exact cost of any particular unit of product. Materials and labor usage will differ slightly between product units. Cost averaging smooths these differences across units of product.

PROBLEM 1-25B

- a. Annual inventory holding cost:
 $(\$750,000 \times 12\%) + \$80,000 = \$170,000$
- b. Hanna uses a JIT system. Hanna acquires automobiles only when it has received customer orders. Therefore, Hanna does not hold

inventory. Without the associated inventory holding cost, Hanna can afford to offer reduced prices to its customers.

PROBLEM 1-26B

- a. 240 hamburgers are sold:

Revenue (240 × \$4.50)	\$1,080
Cost of hamburgers (300 × \$1.50)	(450)
Gross margin	630
Selling, general, & administrative expenses	(130)
Net income	<u>\$500</u>

Cost of wasted hamburgers: $[(300 - 240) \times \$1.50] = \90 .

- b. 360 customers attempt to buy hamburgers but 60 of them must be turned away:

Revenue (300 × \$4.50)	\$1,350
Cost of hamburgers (300 × \$1.50)	(450)
Gross margin	900
Selling, general, & administrative expenses	(130)
Net income	<u>\$ 770</u>

Had Mark's prepared 360 hamburgers in advance, it could have made more profit:

Revenue (360 × \$4.50)	\$1,620
Cost of hamburgers (360 × \$1.50)	(540)
Gross margin	1,080
Selling, general, & administrative expenses	(130)
Net income	<u>\$ 950</u>

The lost profit resulting from insufficient supply is \$90 per day (\$950 - \$770 = \$180, or $\$3 \times 60 = \180).

PROBLEM 1-26B (continued)

- c. 240 hamburgers are sold under the JIT system:

Revenue (240 × \$4.50)	\$1,080
Cost of hamburgers (240 × \$1.50)	<u>(360)</u>
Gross margin	720
Selling, general, & administrative expenses	<u>(160)</u>
Net income	<u>\$ 560</u>

Under the JIT system, the cost of excessive hamburgers can be eliminated. The reduction of hamburger cost exceeds the increase of employee payroll cost. As a result, the net income increases by \$60, as compared to the net income under the original inventory system.

- d. 360 hamburgers are sold under the JIT system:

Revenue (360 × \$4.50)	\$1,620
Cost of hamburgers (360 × \$1.50)	<u>(540)</u>
Gross margin	1,080
Selling, general, & administrative expenses	<u>(160)</u>
Net income	<u>\$ 920</u>

Under the JIT system, additional customer orders can be accepted. The additional revenue exceeds the additional employee payroll cost. Therefore, the net income increases by \$150, as compared to that under the original inventory system.

- e. The hamburgers prepared under the JIT system are fresher than those prepared hours in advance. Mark's can also prepare hamburgers according to individual customer preferences. Consequently, customer satisfaction will increase. Better customer satisfaction will lead to more customer purchases and higher revenues. As the cost per hamburger remains stable, the higher sales revenue will result in a higher profit. In addition, Mark's can avoid turning excess customers away, which could have a negative impact on its reputation.

PROBLEM 1-27B

a. Option No. 1

Financial Statements Briggs Company			
Income Statement		Balance Sheet	
Sales revenue	\$160,000	Assets	
Cost of goods sold¹	(96,000)	Cash²	\$170,000
Gross margin	64,000	Finished goods inv.³	24,000
Gen., sell., & adm. exp.	(20,000)	Total assets	\$194,000
Net income	\$ 44,000		
		Stk. equity	
		Common stock	\$150,000
		Retained earnings	44,000
		Total stk. equity	\$194,000

¹\$120,000 (Total product cost) ÷ 10,000 = \$12 per unit. \$12 × 8,000 = \$96,000.

²Cash balance: \$150,000 - \$120,000 - \$20,000 + \$160,000 = \$170,000

³\$12 × 2,000 = \$24,000.

PROBLEM 1-27B (continued)**a. Option No. 2**

Income Statement		Balance Sheet	
Sales revenue	\$160,000	Assets	
Cost of goods sold¹	(112,000)	Cash	\$170,000
Gross margin	48,000	Finished goods inv.²	28,000
Gen., sell., & adm. exp.	0	Total assets	\$198,000
Net income	\$ 48,000		
		Stk. equity	
		Common stock	\$150,000
		Retained earnings	48,000
		Total stk. equity	\$198,000

¹Total product cost: $\$120,000 + \$20,000 = \$140,000$. Product cost per unit:
 $\$140,000 \div 10,000 = \14.00
 Cost of goods sold: $\$14.00 \times 8,000 = \$112,000$.

²Inventory: $\$14.00 \times 2,000 = \$28,000$.

PROBLEM 1-27B (cont.)

b. Option No. 2 results in financial statements that are more likely to leave a favorable impression on investors and creditors because the net income under option No. 2 is \$4,000 greater than that under option No. 1.

c. President's bonus under option No. 1:
 $\$44,000 \times 10\% = \$4,400$

President's bonus under option No. 2:
 $\$48,000 \times 10\% = \$4,800$

Option No. 2 provides the president with a higher bonus.

d. Income tax expense under option No. 1:
 $\$44,000 \times 35\% = \$15,400$

Income tax expense under option No. 2:
 $\$48,000 \times 35\% = \$16,800$

Option No. 1 minimizes the amount of the company's income tax expense.

- e. **Option No. 2 provides the president with a higher bonus. However, option No. 1 minimizes the amount of the company's income tax expense. As a result, these two options reveal a conflict of interest between the company and its president. To avoid the conflict of interest, the company can offer a bonus plan that is tied to the company's stock price instead of net income on financial statements. To the extent that the market is efficient, it will reward performance that adds value to a company by bidding up the company's stock price. An efficient market is not deceived by accounting policies that are designed solely to manipulate financial statements.**

PROBLEM 1-28B

- a. **The value-added activities include the doctor's weighing Ms. Watson, advising her to lose weight, taking her temperature, taking a throat culture and blood test, prescribing medicine, and advising Ms. Watson to get bed rest. The nonvalue-added activities include Ms. Watson's completing the same forms repeatedly, waiting for a long time again and again, answering the accounting clerk's unnecessary questions, and handling the billing error.**
- b. **Ms. Watson's personal information should have already been in her patient file when she walked in Dr. Holt's office. To eliminate the unnecessary repetition of completing personal information forms, the receptionist should ask the patient whether his or her personal information has changed since the last visit. If the answer is no, no additional forms should be given to the patient.**

The office administrator should maintain a *realistic* schedule of patient appointments. Tight process control of a realistic schedule can reduce the time that patients must wait.

The patient file should accompany the patient to the accounting office. By consulting the personal information in the file, the accounting clerk would not have to ask the same personal questions that the patient has been asked repeatedly.

If the doctor hires qualified employees, trains them well, and establishes proper accounting controls, billing errors can be reduced or eliminated.

PROBLEM 1-29B

- a. **Separation of duties failed to prevent the company's fraudulent reporting because collusion in the management team circumvented the control of separating duties.**
- b. **The entire executive team was under pressure to report inflated earnings because their bonuses depended on it. They rationalized that the fraud could keep the company's stock price high and, thus, was good for both company management and stockholders. Furthermore, they convinced themselves that the company would perform better in the future and the earnings growth would allow them to correct fraudulent revenues they were currently reporting. The opportunity was available because company management had the power to override any internal control design.**
- c. **The Sarbanes-Oxley act charges the chief executive officer and the chief financial officer with the ultimate responsibility for the accuracy of the company's financial statements and the accompanying notes. An intentional misrepresentation is punishable by a fine of up to \$5 million and imprisonment of up to 20 years. The penalty clause would have served as a strong deterrence against this type of fraudulent reporting.**
- d. **The CFO violated the Statement of Ethical Professional Practice on two major items: integrity and objectivity. Regarding integrity, the officer's interests conflicted with the company's because the CFO, with other officers, reaped the bonus that he or she didn't deserve. Moreover, their actions certainly discredited the accounting profession. Regarding objectivity, the CFO knowingly allowed unfair information to be communicated.**

PROBLEM 1-30B

1. B
2. C
3. A
4. E
5. D

SOLUTIONS TO BICAL THINKING – CHAPTER 1

CT 1-1

a.

Number of employees	Managerial
Revenues	Financial

Properties	Managerial
Total assets	Financial
Units shipped	Managerial
Net earnings	Financial

b. Worse

GoPro had lower revenues, total assets, and net earnings in fiscal year 2023 as compared to fiscal year 2022.

c. Better

GoPro shipped more units in 2023 than in 2022; which is an indicator of better performance. GoPro's also hired more employees in 2023 than in 2022 which suggest it has the capital needed for growth. Additionally, the square footage of its property was less in 2023 than in 2022 which would require further investigation to determine cause. This might be a good thing in terms of cost control, but it could also suggest the company does not see large growth in the near future. All things considered, the managerial data seem to indicate that GoPro's performance was better in 2023 as compared to 2022.

d. More efficiently

GoPro's ratio of units shipped to number of employees is 3,209 units per employee in 2023 and 3,204 units per employee in 2022. These numbers suggest the company used its employees slightly more efficiently in 2023 than in 2022.

CT 1-2

a. Cost of goods sold

Raw materials	\$ 720,000
Utilities ¹	96,000
Labor	880,000
Depreciation on manufacturing equipment ²	1,000,000
Setup cost	80,000
Total product cost	<u>\$2,776,000</u>

Cost of goods sold = \$2,776,000 ÷ 69,400 units = \$40 per unit

Cost of goods sold = \$40 per unit × 60,000 units = \$2,400,000

b. Upstream Costs

Note: The \$10,000 of accrued engineer's salaries is an upstream cost. However, it would not be used in the computation of net income because it applies to the previous accounting period.

Utilities ¹	\$ 16,000
Salaries	390,000
Redesign cost	186,000
Insurance expense ³	16,000
Total	<u>\$608,000</u>

c. Downstream Costs

Advertising	\$ 70,000
Utilities ¹	48,000
Salaries (\$658,000 + \$16,000)	674,000
Insurance expense ³	32,000
Total	<u>\$824,000</u>

CT 1-2 (cont.)

¹Allocation Rate for Utilities = $\$160,000 \div 100,000 = \1.60 per sq. foot.

Research and development	10,000	×	\$1.60	=	\$ 16,000
Manufacturing	60,000	×	\$1.60	=	96,000
Selling and administrative	30,000	×	\$1.60	=	48,000
Total	<u>100,000</u>	×	\$1.60	=	<u>\$160,000</u>

²Depreciation on manufacturing equipment = $(\$10,000,000 - \$2,000,000) \div 8 = \$1,000,000$

³Amount of prepaid insurance to recognize as expense
= $(\$72,000 \div 12 \text{ months}) \times 8 \text{ months} = \$48,000$

Rate for insurance expense = $\$48,000 \div 12 = \$4,000$ per employee.

Research and development	4	×	\$4,000	=	\$16,000
Selling and administrative	8	×	\$4,000	=	32,000
Total	<u>12</u>	×	\$4,000	=	<u>\$48,000</u>

d. Income Statement

Revenue (60,000 × \$70)	\$4,200,000
Cost of goods sold	<u>(2,400,000)</u>
Gross margin	1,800,000
Upstream expense	(608,000)
Downstream expenses	<u>(824,000)</u>
Net income	<u>\$ 368,000</u>

CT 1-3

a. External

The company's annual report provides little detail regarding the individual costs incurred to manufacture its products. This annual report, like those of all public companies, is designed primarily to meet the needs of external users.

b. Period cost

Stanley reports that advertising costs such as television advertising are "expensed the first time the advertisement airs, whereas other advertising is expensed as incurred. Advertising costs are classified in SG&A ..." Therefore, these costs are being treated as a period cost. The costs related to "cooperative advertising with customers" are subtracted from sales to arrive at net sales, so even though they are not listed as "expenses" they are still, in essence, being treated as a period cost.

c. Product cost

Stanley includes shipping costs incurred to have materials delivered to Stanley, "inbound freight," and the costs of delivering goods to customers, "outbound freight." "The Company generally does not bill customers for freight. Shipping and handling costs associated with inbound and outbound freight are reported in Cost of sales. Therefore, these costs are being treated as a product cost.

d. Three

The company reports the balances in three separate inventory accounts: Finished products, Work in process, and Raw materials.

e. \$135.1 million

As of December 30, 2023, the balance in the Land account was \$135.1 million.

CT 1-4

Each memo prepared by the students will be unique. Accordingly, there is no single solution. However, student's memos should include some discussion of at least a couple of the following ideas: (1) reduced manufacturing costs (2) diminished control over production and distribution (3) product quality concerns and (4) adherence to supplier codes of conduct.

CT 1-5

a. Greater than the number of units sold

Ms. Emerson apparently believes that the number of units produced will be greater than the number of units sold. Under these circumstances, some of the start-up costs would be included in the inventory account on the balance sheet, rather than being recognized as an expense on the income statement. This would increase assets and net income; Ms. Emerson would receive a higher bonus.

b. Better

As discussed in *part a*, misclassifying the start-up costs would present a more favorable representation of the company's financial condition (i.e., assets and net income are overstated) than actually exists. Accordingly, investors or creditors may be lured into making an investment in or loan to the company that they otherwise would have avoided.

c. Higher

The overstatement of income would result in the overpayment of taxes. This would be detrimental to the owners of the business.

d. 20 years

According to the Sarbanes-Oxley Act, the maximum jail time penalty for an intentional misrepresentation of financial statements is imprisonment of up to 20 years.

SOLUTION TO COMPREHENSIVE PROBLEM- CHAPTER 1**Requirement a**

	Assets						=	Stk. Equity		Income Statement						
Event Number	Cash	+	Inventory	+	Book Value Manuf Equip.	+	Book Value Office Equip.	=	Common Stock	+	Retained Earnings	Rev.	-	Exp	=	Net Inc.
1.	750,000	+		+		+		=	750,000	+			-		=	
2a.	(270,000)	+		+	270,000	+		=		+			-		=	
2b.		+	60,000	+	(60,000)	+		=		+			-		=	
3.	(200,000)	+	200,000	+		+		=		+			-		=	
4.	(125,000)	+	125,000	+		+		=		+			-		=	
5.	(20,000)	+	20,000	+		+		=		+			-		=	
6.	(50,000)	+	50,000	+		+		=		+			-		=	
7a.	600,000	+		+		+		=		+	600,000	600,000	-		=	600,000
7b.		+	(455,000)	+		+		=		+	(455,000)		-	455,000	=	(455,000)
8.	(30,000)	+		+		+		=		+	(30,000)		-	30,000	=	(30,000)
9a.	(39,000)	+		+		+	39,000	=		+			-		=	
							(12,000									
9b.		+		+		+	)	=		+	(12,000)		-	12,000	=	(12,000)
10.	(71,950)	+		+		+		=		+	(71,950)		-	71,950	=	(71,950)
Total	544,050	+	0	+	210,000	+	27,000	=	750,000	+	31,050	600,000	-	568,950	=	31,050

SOLUTION TO COMPREHENSIVE PROBLEM- CHAPTER 1

Requirement b

Income Statement	
Sales revenue	\$600,000
Cost of goods sold	<u>(455,000)</u>
Gross margin	-145,000
Sales commission	-(30,000)
Depreciation expense	-(12,000)
Administrative expense	<u>-(71,950)</u>
Net income	<u>\$ 31,050</u>

Balance Sheet	
Assets:	
Cash	\$544,050
Book Value Manufacturing equipment	210,000
Book Value Office equipment	<u>27,000</u>
Total assets	<u>\$781,050</u>
Stk. equity:	
Common stock	\$750,000
Retained earnings	<u>31,050</u>
Total stk. equity	\$781,050