

CHAPTER 6

Inventories

ASSIGNMENT CLASSIFICATION TABLE

<u>Study Objectives</u>	<u>Questions</u>	<u>Brief Exercises</u>	<u>Exercises</u>	<u>A Problems</u>	<u>B Problems</u>
1. Describe the steps in determining inventory quantities.	1, 2, 3, 4, 5	1	1, 2	1A	1B
2. Explain the accounting for inventories and apply the inventory cost flow methods.	5, 7, 8, 9, 10,	2, 3, 4	3, 4, 5, 6, 7, 8	2A, 3A, 4A, 5A, 6A, 7A	2B, 3B, 4B, 5B, 6B, 7B
3. Explain the financial effects of the inventory cost flow assumptions.	6, 11, 12	5, 6	3, 6, 7, 8	2A, 3A, 4A, 5A, 6A, 7A	2B, 3B, 4B, 5B, 6B, 7B
4. Explain the lower-of-cost-or-market basis of accounting for inventories.	13, 14, 15	7	9, 10		
5. Indicate the effects of inventory errors on the financial statements.	16	8	11, 12		
6. Compute and interpret the inventory turnover ratio.	17, 18	9	13, 14		
*7. Apply the inventory cost flow methods to perpetual inventory records.	19, 20	10	15, 16, 17	8A, 9A	8B, 9B
*8. Describe the two methods of estimating inventories.	21, 22, 23, 24	11, 12	18, 19, 20	10A, 11A	10B, 11B

***Note:** All **asterisked** Questions, Exercises, and Problems relate to material contained in the appendices to the chapter.

ASSIGNMENT CHARACTERISTICS TABLE

Problem Number	Description	Difficulty Level	Time Allotted (min.)
1A	Determine items and amounts to be recorded in inventory.	Moderate	15–20
2A	Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis.	Simple	30–40
3A	Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis.	Simple	30–40
4A	Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.	Moderate	30–40
5A	Calculate ending inventory, cost of goods sold, gross profit, and gross profit rate under periodic method; compare results.	Moderate	30–40
6A	Compare specific identification, FIFO, and LIFO under periodic method; use cost flow assumption to influence earnings.	Moderate	20–30
7A	Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.	Moderate	30–40
*8A	Calculate cost of goods sold and ending inventory for FIFO, average-cost, and LIFO, under the perpetual system; compare gross profit under each assumption.	Moderate	30–40
*9A	Determine ending inventory under a perpetual inventory system.	Moderate	40–50
*10A	Estimate inventory loss using gross profit method.	Moderate	30–40
*11A	Compute ending inventory using retail method.	Moderate	20–30
1B	Determine items and amounts to be recorded in inventory.	Moderate	15–20
2B	Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis.	Simple	30–40
3B	Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis.	Simple	30–40
4B	Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.	Moderate	30–40
5B	Calculate ending inventory, cost of goods sold, gross profit, and gross profit rate under periodic method; compare results.	Moderate	30–40
6B	Compare specific identification, FIFO, and LIFO under periodic method; use cost flow assumption to justify price increase.	Moderate	20–30

ASSIGNMENT CHARACTERISTICS TABLE (Continued)

Problem Number	Description	Difficulty Level	Time Allotted (min.)
7B	Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.	Moderate	30–40
*8B	Calculate cost of goods sold and ending inventory under LIFO, FIFO, and average-cost, under the perpetual system; compare gross profit under each assumption.	Moderate	30–40
*9B	Determine ending inventory under a perpetual inventory system.	Moderate	40–50
*10B	Compute gross profit rate and inventory loss using gross profit method.	Moderate	30–40
*11B	Compute ending inventory using retail method.	Moderate	20–30

BLOOM'S TAXONOMY TABLE

Correlation Chart between Bloom's Taxonomy, Study Objectives and End-of-Chapter Exercises and Problems

Study Objective	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
1. Describe the steps in determining inventory quantities.	Q6-2	Q6-1 Q6-3	Q6-4 Q6-5 E6-1	E6-1 E6-2	P6-1A P6-1B	
2. Explain the accounting for inventories and apply the inventory cost flow methods.	Q6-8 Q6-10 BE6-5	Q6-7 Q6-9	Q6-5 E6-7 BE6-2 E6-8 BE6-3 P6-2A BE6-4 P6-3A E6-5 P6-2B E6-6 P6-3B	P6-5A E6-3 P6-5B E6-4 P6-6A P6-4A P6-6B P6-4B P6-7A P6-7B		E6-3 E6-4 P6-5A P6-5B
3. Explain the financial effects of the inventory cost flow assumptions.		Q6-6 Q6-11 Q6-12	BE6-5 P6-2A BE6-6 P6-2B E6-6 P6-3A E6-7 P6-3B E6-8 P6-5A	P6-5B E6-3 P6-6A P6-4A P6-6B P6-4B P6-7A P6-7B		E6-3 P6-5A P6-5B P6-6A P6-6B
4. Explain the lower-of-cost-or-market basis of accounting for inventories.		Q6-13	BE6-7 E6-9 E6-10	Q6-14 Q6-15		
5. Indicate the effects of inventory errors on the financial statements.				Q6-16 BE6-8 E6-12		
6. Compute and interpret the inventory turnover ratio.		Q6-17	BE6-9 E6-13	Q6-18 BE6-9		
*7. Apply the inventory cost flow methods to perpetual inventory records.		Q6-19 Q6-20	BE6-10 E6-15 E6-16 E6-17	P6-8A P6-9A P6-8B P6-9B		E6-16 E6-17 P6-8A P6-8B
*8. Describe the two methods of estimating inventories.		Q6-21 Q6-22	Q6-23 E6-18 Q6-24 E6-19 BE6-11 E6-20 BE6-12 P6-10A	P6-11A P6-10B P6-11B		
Broadening Your Perspective			Financial Reporting Decision Making Across the Organization	Communication Exploring the Web		All About You Ethics Case Comp. Analysis

ANSWERS TO QUESTIONS

1. Agree. Effective inventory management is frequently the key to successful business operations. Management attempts to maintain sufficient quantities and types of goods to meet expected customer demand. It also seeks to avoid the cost of carrying inventories that are clearly in excess of anticipated sales.
2. Inventory items have two common characteristics: (1) they are owned by the company and (2) they are in a form ready for sale in the ordinary course of business.
3. Taking a physical inventory involves actually counting, weighing or measuring each kind of inventory on hand. Retailers, such as a hardware store, generally have thousands of different items to count. This is normally done when the store is closed.
4. (a) (1) The goods will be included in Reeves Company's inventory if the terms of sale are FOB destination.
(2) They will be included in Cox Company's inventory if the terms of sale are FOB shipping point.
(b) Reeves Company should include goods shipped to a consignee in its inventory. Goods held by Reeves Company on consignment should not be included in inventory.
5. Inventoriable costs are \$3,020 (invoice cost \$3,000 + freight charges \$50 – purchase discounts \$30). The amount paid to negotiate the purchase is a buying cost that normally is not included in the cost of inventory because of the difficulty of allocating these costs. Buying costs are expensed in the year incurred.
6. There are three distinguishing features in the income statement of a merchandising company: (1) a sales revenues section, (2) a cost of goods sold section, and (3) gross profit.
7. Actual physical flow may be impractical because many items are indistinguishable from one another. Actual physical flow may be inappropriate because management may be able to manipulate net income through specific identification of items sold.
8. The major advantage of the specific identification method is that it tracks the actual physical flow of the goods available for sale. The major disadvantage is that management could manipulate net income.
9. No. Selection of an inventory costing method is a management decision. However, once a method has been chosen, it should be consistently applied.
10. (a) FIFO.
(b) Average-cost.
(c) LIFO.
11. Plato Company is using the FIFO method of inventory costing, and Cecil Company is using the LIFO method. Under FIFO, the latest goods purchased remain in inventory. Thus, the inventory on the balance sheet should be close to current costs. The reverse is true of the LIFO method. Plato Company will have the higher gross profit because cost of goods sold will include a higher proportion of goods purchased at earlier (lower) costs.

Questions Chapter 6 (Continued)

12. Casey Company may experience severe cash shortages if this policy continues. All of its net income is being paid out as dividends, yet some of the earnings must be reinvested in inventory to maintain inventory levels. Some earnings must be reinvested because net income is computed with cost of goods sold based on older, lower costs while the inventory must be replaced at current, higher costs. Because of this factor, net income under FIFO is sometimes referred to as “phantom profits.”
13. Peter should know the following:
- (a) A departure from the cost basis of accounting for inventories is justified when the value of the goods is lower than its cost. The writedown to market should be recognized in the period in which the price decline occurs.
 - (b) Market means current replacement cost, not selling price. For a merchandising company, market is the cost at the present time from the usual suppliers in the usual quantities.
14. Garitson Music Center should report the CD players at \$380 each for a total of \$1,900. \$380 is the current replacement cost under the lower-of-cost-or-market basis of accounting for inventories. A decline in replacement cost usually leads to a decline in the selling price of the item. Valuation at LCM is conservative.
15. Ruthie Stores should report the toasters at \$27 each for a total of \$540. The \$27 is the lower of cost or market. It is used because it is the lower of the inventory’s cost and current replacement cost.
16. (a) Mintz Company’s 2007 net income will be understated \$7,000; (b) 2008 net income will be overstated \$7,000; and (c) the combined net income for the two years will be correct.
17. Willingham Company should disclose: (1) the major inventory classifications, (2) the basis of accounting (cost or lower of cost or market), and (3) the costing method (FIFO, LIFO, or average).
18. An inventory turnover that is too high may indicate that the company is losing sales opportunities because of inventory shortages. Inventory outages may also cause customer ill will and result in lost future sales.
- *19. Disagree. The results under the FIFO method are the same but the results under the LIFO method are different. The reason is that the pool of inventoriable costs (cost of goods available for sale) is not the same. Under a periodic system, the pool of costs is the goods available for sale for the entire period, whereas under a perpetual system, the pool is the goods available for sale up to the date of sale.
- *20. In a periodic system, the average is a weighted average based on total goods available for sale for the period. In a perpetual system, the average is a moving average of goods available for sale after each purchase.
- *21. Inventories must be estimated when: (1) management wants monthly or quarterly financial statements but a physical inventory is only taken annually and (2) a fire or other type of casualty makes it impossible to take a physical inventory.

Questions Chapter 6 (Continued)

- *22.** In the gross profit method, the average is the gross profit rate, which is gross profit divided by net sales. The rate is often based on last year's actual rate. The gross profit rate is applied to net sales in using the gross profit method.

In the retail inventory method, the average is the cost-to-retail ratio, which is the goods available for sale at cost divided by the goods available for sale at retail. The ratio is based on current year data and is applied to the ending inventory at retail.

- *23.** The estimated cost of the ending inventory is \$40,000:

Net sales	\$400,000
Less: Gross profit (\$400,000 X 35%)	<u>140,000</u>
Estimated cost of goods sold	<u>\$260,000</u>
Cost of goods available for sale	\$300,000
Less: Cost of goods sold.....	<u>260,000</u>
Estimated cost of ending inventory	<u>\$ 40,000</u>

- *24.** The estimated cost of the ending inventory is \$28,000:

Cost-to-retail ratio: $70\% = \left(\frac{\$84,000}{\$120,000} \right)$

Ending inventory at retail: $\$40,000 = (\$120,000 - \$80,000)$

Ending inventory at cost: $\$28,000 = (\$40,000 \times 70\%)$

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 6-1

- (a) Ownership of the goods belongs to the consignor (Smart). Thus, these goods should be included in Smart's inventory.
- (b) The goods in transit should not be included in the inventory count because ownership by Smart does not occur until the goods reach the buyer.
- (c) The goods being held belong to the customer. They should not be included in Smart's inventory.
- (d) Ownership of these goods rests with the other company (the consignor). Thus, these goods should not be included in the physical inventory.

BRIEF EXERCISE 6-2

The items that should be included in inventoriable costs are:

- (a) Freight-in
- (b) Purchase Returns and Allowances
- (c) Purchases
- (e) Purchase Discounts

BRIEF EXERCISE 6-3

- (a) The ending inventory under FIFO consists of 200 units at \$8 + 160 units at \$7 for a total allocation of \$2,720 or (\$1,600 + \$1,120).
- (b) The ending inventory under LIFO consists of 300 units at \$6 + 60 units at \$7 for a total allocation of \$2,220 or (\$1,800 + \$420).

BRIEF EXERCISE 6-4

Average unit cost is \$6.89 computed as follows:

300 X \$6 =	\$1,800
400 X \$7 =	2,800
<u>200 X \$8 =</u>	<u>1,600</u>
<u>900</u>	<u>\$6,200</u>

$\$6,200 \div 900 = \6.89 (rounded).

The cost of the ending inventory is \$2,480 or $(360 \times \$6.89)$.

BRIEF EXERCISE 6-5

- (a) FIFO would result in the highest net income.
- (b) FIFO would result in the highest ending inventory.
- (c) LIFO would result in the lowest income tax expense (because it would result in the lowest net income).
- (d) Average-cost would result in the most stable income over a number of years because it averages out any big changes in the cost of inventory.

BRIEF EXERCISE 6-6

Cost of good sold under:

	<u>LIFO</u>	<u>FIFO</u>
Purchases	\$6 X 100	\$6 X 100
	\$7 X 200	\$7 X 200
	<u>\$8 X 150</u>	<u>\$8 X 150</u>
Cost of goods available for sale	\$ 3,200	\$ 3,200
Less: Ending inventory	<u>\$ 1,160</u>	<u>\$ 1,410</u>
Cost of goods sold	<u>\$ 2,040</u>	<u>\$ 1,790</u>

Since the cost of goods sold is \$250 less under FIFO ($\$2,040 - \$1,790$) that is the amount of the phantom profit. It is referred to as “phantom profit” because FIFO matches current selling prices with old inventory costs. To replace the units sold, the company will have to pay the current price of \$8 per unit, rather than the \$6 per unit which some of the units were priced at under FIFO. Therefore, profit under LIFO is more representative of what the company can expect to earn in future periods.

BRIEF EXERCISE 6-7

<u>Inventory Categories</u>	<u>Cost</u>	<u>Market</u>	<u>LCM</u>
Cameras	\$12,000	\$12,100	\$12,000
Camcorders	9,500	9,700	9,500
VCRs	14,000	12,800	12,800
Total valuation			<u>\$34,300</u>

BRIEF EXERCISE 6-8

The understatement of ending inventory caused cost of goods sold to be overstated \$10,000 and net income to be understated \$10,000. The correct net income for 2008 is \$100,000 or (\$90,000 + \$10,000).

Total assets in the balance sheet will be understated by the amount that ending inventory is understated, \$10,000.

BRIEF EXERCISE 6-9

$$\text{Inventory turnover: } \frac{\$270,000}{(\$60,000 + \$40,000) \div 2} = \frac{\$270,000}{\$50,000} = 5.4$$

$$\text{Days in inventory: } \frac{365}{5.4} = 67.6 \text{ days}$$

*BRIEF EXERCISE 6-10

(1) FIFO Method

Product E2-D2						
<u>Date</u>	<u>Purchases</u>		<u>Cost of Goods Sold</u>		<u>Balance</u>	
May 7	(50 @ \$10)	\$500			(50 @ \$10)	\$500
June 1			(30 @ \$10)	\$300	(20 @ \$10)	\$200
July 28	(30 @ \$13)	\$390			(20 @ \$10)	} \$590
					(30 @ \$13)	
Aug. 27			(20 @ \$10)	} \$460		
			(20 @ \$13)		(10 @ \$13)	\$130

***BRIEF EXERCISE 6-10 (Continued)**

(2) LIFO Method

Product E2-D2						
Date	Purchases		Cost of Goods Sold		Balance	
May 7	(50 @ \$10)	\$500			(50 @ \$10)	\$500
June 1			(30 @ \$10)	\$300	(20 @ \$10)	\$200
July 28	(30 @ \$13)	\$390			(20 @ \$10)	} \$590
					(30 @ \$13)	
Aug. 27			(30 @ \$13)	} \$490		
			(10 @ \$10)			(10 @ \$10)

(3) Average-Cost

Product E2-D2						
Date	Purchases		Cost of Goods Sold		Balance	
May 7	(50 @ \$10)	\$500			(50 @ \$10)	\$500
June 1			(30 @ \$10)	\$300	(20 @ \$10)	\$200
July 28	(30 @ \$13)	\$390			(50 @ \$11.80)*	\$590
Aug. 27			(40 @ \$11.80)	\$472	(10 @ \$11.80)	\$118

* $(\$200 + \$390) \div 50$

***BRIEF EXERCISE 6-11**

(1) Net sales	\$330,000
Less: Estimated gross profit (35% X \$330,000)	<u>115,500</u>
Estimated cost of goods sold	<u>\$214,500</u>
 (2) Cost of goods available for sale	 \$230,000
Less: Estimated cost of goods sold	<u>214,500</u>
Estimated cost of ending inventory	<u>\$ 15,500</u>

***BRIEF EXERCISE 6-12**

	<u>At Cost</u>	<u>At Retail</u>
Goods available for sale	\$35,000	\$50,000
Net sales		<u>40,000</u>
Ending inventory at retail		<u>\$10,000</u>

Cost-to-retail ratio = $(\$35,000 \div \$50,000) = 70\%$

Estimated cost of ending inventory = $(\$10,000 \times 70\%) = \$7,000$

SOLUTIONS TO EXERCISES

EXERCISE 6-1

Ending inventory—physical count.....	\$297,000
1. No effect—title passes to purchaser upon shipment when terms are FOB shipping point.....	0
2. No effect—title does not transfer to Lima until goods are received.....	0
3. Add to inventory: Title passed to Lima when goods were shipped	22,000
4. Add to inventory: Title remains with Lima until purchaser receives goods	35,000
5. The goods did not arrive prior to year-end. The goods, therefore, cannot be included in the inventory.....	<u>(44,000)</u>
Correct inventory	<u>\$310,000</u>

EXERCISE 6-2

Ending inventory—as reported.....	\$740,000
1. Subtract from inventory: The goods belong to Superior Corporation. Strawser is merely holding them as a consignee	(250,000)
2. No effect—title does not pass to Strawser until goods are received (Jan. 3).....	0
3. Subtract from inventory: Office supplies should be carried in a separate account. They are not considered inventory held for resale.....	(17,000)
4. Add to inventory: The goods belong to Strawser until they are shipped (Jan. 1).....	30,000
5. Add to inventory: District Sales ordered goods with a cost of \$8,000. Strawser should record the corresponding sales revenue of \$10,000. Strawser’s decision to ship extra “unordered” goods does not constitute a sale. The manager’s statement that District could ship the goods back indicates that Strawser knows this over-shipment is not a legitimate sale. The manager acted unethically in an attempt to improve Strawser’s reported income by over-shipping	52,000

EXERCISE 6-2 (Continued)

6. Subtract from inventory: GAAP require that inventory be valued at the lower of cost or market. Obsolete parts should be adjusted from cost to zero if they have no other use.....	<u>(40,000)</u>
Correct inventory.....	<u>\$515,000</u>

EXERCISE 6-3

(a) FIFO Cost of Goods Sold

$$(\#1012) \$100 + (\#1045) \$90 = \$190$$

(b) It could choose to sell specific units purchased at specific costs if it wished to impact earnings selectively. If it wished to minimize earnings it would choose to sell the units purchased at higher costs—in which case the Cost of Goods Sold would be \$190. If it wished to maximize earnings it would choose to sell the units purchased at lower costs—in which case the cost of goods sold would be \$170.

(c) I recommend they use the FIFO method because it produces a more appropriate balance sheet valuation and reduces the opportunity to manipulate earnings.

(The answer may vary depending on the method the student chooses.)

EXERCISE 6-4

FIFO

Beginning inventory (26 X \$97).....		\$ 2,522
Purchases		
Sept. 12 (45 X \$102).....	\$4,590	
Sept. 19 (20 X \$104).....	2,080	
Sept. 26 (50 X \$105).....	<u>5,250</u>	<u>11,920</u>
Cost of goods available for sale.....		14,442
Less: Ending inventory (20 X \$105)		<u>2,100</u>
Cost of goods sold.....		<u>\$12,342</u>

EXERCISE 6-4 (Continued)

Proof			
Date	Units	Unit Cost	Total Cost
9/1	26	\$ 97	\$ 2,522
9/12	45	102	4,590
9/19	20	104	2,080
9/26	30	105	3,150
	<u>121</u>		<u>\$12,342</u>

LIFO

Cost of goods available for sale.....	\$14,442
Less: Ending inventory (20 X \$97).....	<u>1,940</u>
Cost of goods sold.....	<u>\$12,502</u>

Proof			
Date	Units	Unit Cost	Total Cost
9/26	50	\$105	\$ 5,250
9/19	20	104	2,080
9/12	45	102	4,590
9/1	6	97	582
	<u>121</u>		<u>\$12,502</u>

(b)

FIFO \$2,100 (ending inventory) + \$12,342 (COGS) = \$14,442	}	Cost of goods available for sale
LIFO \$1,940 (ending inventory) + \$12,502 (COGS) = \$14,442		

Under both methods, the sum of the ending inventory and cost of goods sold equals the same amount, \$14,442, which is the cost of goods available for sale.

EXERCISE 6-5

FIFO

Beginning inventory (30 X \$8).....		\$240
Purchases		
May 15 (25 X \$11)	\$275	
May 24 (35 X \$12)	<u>420</u>	<u>695</u>
Cost of goods available for sale.....		935
Less: Ending inventory (25 X \$12).....		<u>300</u>
Cost of goods sold.....		<u>\$635</u>

EXERCISE 6-5 (Continued)

Proof			
Date	Units	Unit Cost	Total Cost
5/1	30	\$ 8	\$240
5/15	25	11	275
5/24	10	12	<u>120</u>
			<u>\$635</u>

LIFO

Cost of goods available for sale.....	\$935
Less: Ending inventory (25 X \$8).....	<u>200</u>
Cost of goods sold.....	<u>\$735</u>

Proof			
Date	Units	Unit Cost	Total Cost
5/24	35	\$12	\$420
5/15	25	11	275
5/1	5	8	<u>40</u>
			<u>\$735</u>

EXERCISE 6-6

(a)		FIFO	
Beginning inventory (200 X \$5).....			\$1,000
Purchases			
June 12 (300 X \$6)	\$1,800		
June 23 (500 X \$7)	<u>3,500</u>		<u>5,300</u>
Cost of goods available for sale.....			6,300
Less: Ending inventory (120 X \$7).....			<u>840</u>
Cost of goods sold.....			<u>\$5,460</u>

LIFO

Cost of goods available for sale.....	\$6,300
Less: Ending inventory (120 X \$5).....	<u>600</u>
Cost of goods sold.....	<u>\$5,700</u>

EXERCISE 6-6 (Continued)

- (b) The FIFO method will produce the higher ending inventory because costs have been rising. Under this method, the earliest costs are assigned to cost of goods sold and the latest costs remain in ending inventory. For Yount Company, the ending inventory under FIFO is \$840 or (120 X \$7) compared to \$600 or (120 X \$5) under LIFO.
- (c) The LIFO method will produce the higher cost of goods sold for Yount Company. Under LIFO the most recent costs are charged to cost of goods sold and the earliest costs are included in the ending inventory. The cost of goods sold is \$5,700 or [\$6,300 – (120 X \$5)] compared to \$5,460 or (\$6,300 – \$840) under FIFO.

EXERCISE 6-7

(a) 1.	FIFO	
	Beginning inventory	\$10,000
	Purchases.....	<u>26,000</u>
	Cost of goods available for sale	36,000
	Less: ending inventory (80 X \$130)	<u>(10,400)</u>
	Cost of goods sold	<u>\$25,600</u>
2.	LIFO	
	Beginning inventory	\$10,000
	Purchases.....	<u>26,000</u>
	Cost of goods available for sale	36,000
	Less: ending inventory (80 X \$100)	<u>(8,000)</u>
	Cost of goods sold	<u>\$28,000</u>
3.	AVERAGE	
	Beginning inventory	\$10,000
	Purchases.....	<u>26,000</u>
	Cost of goods available for sale	36,000
	Less: ending inventory (80 X \$120)	<u>(9,600)</u>
	Cost of goods sold	<u>\$26,400</u>

- (b) The use of FIFO would result in the highest net income since the earlier lower costs are matched with revenues.
- (c) The use of FIFO would result in inventories approximating current cost in the balance sheet, since the more recent units are assumed to be on hand.
- (d) The use of LIFO would result in Jones paying the least taxes in the first year since income will be lower.

EXERCISE 6-8

(a) Cost of Goods Available for Sale	÷	Total Units Available for Sale	=	Weighted Average Unit Cost
\$6,300		1,000		\$6.30

Ending inventory (120 X \$6.30)	\$ 756
Cost of goods sold (880 X \$6.30)	5,544

(b) Ending inventory is lower than FIFO (\$840) and higher than LIFO (\$600). In contrast, cost of goods sold is higher than FIFO (\$5,460) and lower than LIFO (\$5,700).

(c) The average-cost method uses a weighted-average unit cost, not a simple average of unit costs.

EXERCISE 6-9

	<u>Cost</u>	<u>Market</u>	<u>Lower of Cost or Market:</u>
Cameras			
Minolta	\$ 850	\$ 780	\$ 780
Canon	900	912	900
Total	<u>1,750</u>	<u>1,692</u>	
Light meters			
Vivitar	1,500	1,380	1,380
Kodak	1,680	1,890	1,680
Total	<u>3,180</u>	<u>3,270</u>	
Total inventory	<u>\$4,930</u>	<u>\$4,962</u>	<u>\$4,740</u>

EXERCISE 6-10

	<u>Cost</u>	<u>Market</u>	<u>Lower of Cost or Market:</u>
VCRs	\$ 6,500	\$ 7,100	\$ 6,500
DVD players	11,250	10,350	10,350
Ipods	10,000	9,750	9,750
Total inventory	<u>\$27,750</u>	<u>\$27,200</u>	<u>\$26,600</u>

EXERCISE 6-11

	<u>2008</u>	<u>2009</u>
Beginning inventory	\$ 20,000	\$ 27,000
Cost of goods purchased	<u>150,000</u>	<u>175,000</u>
Cost of goods available for sale	170,000	202,000
Corrected ending inventory	<u>27,000^a</u>	<u>41,000^b</u>
Cost of goods sold	<u>\$143,000</u>	<u>\$161,000</u>

^a\$30,000 – \$3,000 = \$27,000.

^b\$35,000 + \$6,000 = \$41,000.

EXERCISE 6-12

(a)	<u>2008</u>	<u>2009</u>
Sales	<u>\$210,000</u>	<u>\$250,000</u>
Cost of goods sold		
Beginning inventory	32,000	39,000
Cost of goods purchased	<u>173,000</u>	<u>202,000</u>
Cost of goods available for sale	205,000	241,000
Ending inventory (\$44,000 – \$5,000)	<u>39,000</u>	<u>52,000</u>
Cost of goods sold	<u>166,000</u>	<u>189,000</u>
Gross profit	<u>\$ 44,000</u>	<u>\$ 61,000</u>

(b) The cumulative effect on total gross profit for the two years is zero as shown below:

Incorrect gross profits:	\$49,000 + \$56,000 = \$105,000
Correct gross profits:	\$44,000 + \$61,000 = <u>105,000</u>
Difference	<u>\$ 0</u>

(c) Dear Mr./Ms. President:

Because your ending inventory of December 31, 2008 was overstated by \$5,000, your net income for 2008 was overstated by \$5,000. For 2009 net income was understated by \$5,000.

In a periodic system, the cost of goods sold is calculated by deducting the cost of ending inventory from the total cost of goods you have available for sale in the period. Therefore, if this ending inventory figure is overstated, as it was in December 2008, then the cost of goods sold is understated and therefore net income will be overstated by that amount. Consequently, this overstated ending inventory figure goes on to become the next period's beginning inventory amount and is a part of the total cost of goods available for sale. Therefore, the mistake repeats itself in the reverse.

EXERCISE 6-12 (Continued)

The error also affects the balance sheet at the end of 2008. The inventory reported in the balance sheet is overstated; therefore, total assets are overstated. The overstatement of the 2008 net income results in the capital account balance being overstated. The balance sheet at the end of 2009 is correct because the overstatement of the capital account at the end of 2008 is offset by the understatement of the 2009 net income and the inventory at the end of 2009 is correct.

Thank you for allowing me to bring this to your attention. If you have any questions, please contact me at your convenience.

Sincerely,

EXERCISE 6-13

	2007	2008	2009
Inventory turnover	$\frac{\$900,000}{(\$100,000 + \$300,000) \div 2} = 4.5$	$\frac{\$1,120,000}{(\$300,000 + \$400,000) \div 2} = 3.2$	$\frac{\$1,300,000}{(\$400,000 + \$480,000) \div 2} = 2.95$
Days in inventory	$\frac{365}{4.5} = 81.1 \text{ days}$	$\frac{365}{3.2} = 114.1 \text{ days}$	$\frac{365}{2.95} = 123.7 \text{ days}$
Gross profit rate	$\frac{\$1,200,000 - \$900,000}{\$1,200,000} = .25$	$\frac{\$1,600,000 - \$1,120,000}{\$1,600,000} = .30$	$\frac{\$1,900,000 - \$1,300,000}{\$1,900,000} = .32$

The inventory turnover ratio decreased by approximately 34% from 2007 to 2009 while the days in inventory increased by almost 53% over the same time period. Both of these changes would be considered negative since it's better to have a higher inventory turnover with a correspondingly lower days in inventory. However, Santo's Photo gross profit rate increased by 28% from 2007 to 2009, which is a positive sign.

EXERCISE 6-14

	<u>O'Brien Company</u>	<u>Weinberg Company</u>
(a)		
Inventory Turnover	$\frac{\$190,000}{(\$45,000 + \$55,000)/2}$ $= \underline{3.80}$	$\frac{\$292,000}{(\$71,000 + \$69,000)/2}$ $= \underline{4.17}$
Days in Inventory	$365/3.80 = \underline{96 \text{ days}}$	$365/4.17 = \underline{88 \text{ days}}$
(b)	Weinberg Company is moving its inventory more quickly, since its inventory turnover is higher, and its days in inventory is lower.	

***EXERCISE 6-15**

(1)

<u>FIFO</u>			
<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
Jan. 1			(3 @ \$600) \$1,800
8		(2 @ \$600) \$1,200	(1 @ \$600) 600
10	(6 @ \$660) \$3,960		(1 @ \$600)
			(6 @ \$660) 4,560
15		(1 @ \$600)	
		(3 @ \$660) \$2,580	(3 @ \$660) 1,980

(2)

<u>LIFO</u>			
<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
Jan. 1			(3 @ \$600) \$1,800
8		(2 @ \$600) \$1,200	(1 @ \$600) 600
10	(6 @ \$660) \$3,960		(1 @ \$600)
			(6 @ \$660) 4,560
15		(4 @ \$660) \$2,640	(1 @ \$600)
			(2 @ \$660) 1,920

***EXERCISE 6-15 (Continued)**

(3)

AVERAGE-COST

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
Jan. 1			(3 @ \$600) \$1,800
8		(2 @ \$600) \$1,200	(1 @ \$600) 600
10	(6 @ \$660) \$3,960		(7 @ \$651.43)* 4,560
15		(4 @ \$651.43) \$2,606	(3 @ \$651.43) 1,954

*Average-cost = $(\$600 + \$3,960) \div 7 = \$651.43$ (rounded)

***EXERCISE 6-16**

(a) The cost of goods available for sale is:

June 1 Inventory	200 @ \$5	\$1,000
June 12 Purchase	300 @ \$6	1,800
June 23 Purchase	500 @ \$7	<u>3,500</u>
Total cost of goods available for sale		<u>\$6,300</u>

FIFO

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
June 1			(200 @ \$5) \$1,000
June 12	(300 @ \$6) \$1,800		(200 @ \$5) } (300 @ \$6) } \$2,800
June 15		(200 @ \$5) \$1,000 (200 @ \$6) 1,200	(100 @ \$6) \$ 600
June 23	(500 @ \$7) \$3,500		(100 @ \$6) } (500 @ \$7) } \$4,100
June 27		(100 @ \$6) 600 (380 @ \$7) <u>2,660</u> <u>\$5,460</u>	(120 @ \$7) \$ 840

Ending inventory: \$840. Cost of goods sold: $\$6,300 - \$840 = \$5,460$.

***EXERCISE 6-16 (Continued)**

LIFO

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>		<u>Balance</u>	
June 1				(200 @ \$5)	\$1,000
June 12	(300 @ \$6) \$1,800			(200 @ \$5) (300 @ \$6) }	\$2,800
June 15		(300 @ \$6) \$1,800 (100 @ \$5) \$ 500		(100 @ \$5)	\$ 500
June 23	(500 @ \$7) \$3,500			(100 @ \$5) (500 @ \$7) }	\$4,000
June 27		(480 @ \$7) <u>\$3,360</u>		(20 @ \$7) }	\$ 640
			<u>\$5,660</u>		

Ending inventory: \$640. Cost of goods sold: \$6,300 – \$640 = \$5,660.

Moving-Average

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>		<u>Balance</u>	
June 1				(200 @ \$5)	\$1,000
June 12	(300 @ \$6) \$1,800			(500 @ \$5.60)	\$2,800
June 15		(400 @ \$5.60) \$2,240		(100 @ \$5.60)	\$ 560
June 23	(500 @ \$7) \$3,500			(600 @ \$6.767)	\$4,060
June 27		(480 @ \$6.767) <u>\$3,248</u>		(120 @ \$6.767)	\$ 812
			<u>\$5,488</u>		

Ending inventory: \$812. Cost of goods sold: \$6,300 – \$812 = \$5,488.

- (b) FIFO gives the same ending inventory and cost of goods sold values under both the periodic and perpetual inventory system. LIFO and average give different ending inventory and cost of goods sold values under the periodic and perpetual inventory systems, due to the Last-in, First-out assumption being applied to a different pool of costs.
- (c) The simple average would be $[(\$5 + \$6 + \$7) \div 3]$ or \$6. However, the average-cost method uses a weighted-average unit cost that changes each time a purchase is made rather than a simple average.

***EXERCISE 6-17**

(a)

FIFO			
<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
9/1			(26 @ \$ 97) \$2,522
9/5		(12 @ \$ 97) \$1,164	(14 @ \$ 97) \$1,358
9/12	(45 @ \$102) \$4,590		(14 @ \$ 97) (45 @ \$102) \$5,948
9/16		(14 @ \$ 97) (36 @ \$102) \$5,030	(9 @ \$102) \$ 918
9/19	(20 @ \$104) \$2,080		(9 @ \$102) (20 @ \$104) \$2,998
9/26	(50 @ \$105) \$5,250		(9 @ \$102) (20 @ \$104) (50 @ \$105) \$8,248
9/29		(9 @ \$102) (20 @ \$104) (30 @ \$105) \$6,148	(20 @ \$105) \$2,100

LIFO			
<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
9/1			(26 @ \$ 97) \$2,522
9/5		(12 @ \$ 97) \$1,164	(14 @ \$ 97) \$1,358
9/12	(45 @ \$102) \$4,590		(14 @ \$ 97) (45 @ \$102) \$5,948
9/16		(45 @ \$102) (5 @ \$ 97) \$5,075	(9 @ \$ 97) \$ 873
9/19	(20 @ \$104) \$2,080		(9 @ \$ 97) (20 @ \$104) \$2,953
9/26	(50 @ \$105) \$5,250		(9 @ \$ 97) (20 @ \$104) (50 @ \$105) \$8,203
9/29		(50 @ \$105) (9 @ \$104) \$6,186	(9 @ \$ 97) (11 @ \$104) \$2,017

***EXERCISE 6-17 (Continued)**

		Average-Cost			
Date	Purchases	Cost of Goods Sold		Balance	
9/1				(26 @ \$97)	\$2,522
9/5		(12 @ \$97)	\$1,164	(14 @ \$97)	\$1,358
9/12	(45 @ \$102) \$4,590			(59 @ \$100.81) ^a	\$5,948
9/16		(50 @ \$100.81)	\$5,041*	(9 @ \$100.81)	\$ 907
9/19	(20 @ \$104) \$2,080			(29 @ \$103.00) ^b	\$2,987
9/26	(50 @ \$105) \$5,250			(79 @ \$104.27) ^c	\$8,237
9/29		(59 @ \$104.27)	\$6,152*	(20 @ \$104.27)	\$2,085

*Rounded

^a \$5,948 ÷ 59 = \$100.81

^b \$2,987 ÷ 29 = \$103.00

^c \$8,237 ÷ 79 = \$104.27

(b)

	Periodic	Perpetual
Ending Inventory FIFO	\$2,100	\$2,100
Ending Inventory LIFO	\$1,940	\$2,017

(c) FIFO yields the same ending inventory value under both the periodic and perpetual inventory system.

LIFO yields different ending inventory values when using the periodic versus perpetual inventory system.

***EXERCISE 6-18**

(a) Sales	\$800,000
Cost of goods sold	
Inventory, November 1	\$100,000
Cost of goods purchased	<u>500,000</u>
Cost of goods available for sale.....	600,000
Inventory, December 31	<u>(120,000)</u>
Cost of goods sold.....	<u>480,000</u>
Gross profit	<u>\$320,000</u>

Gross profit rate $\$320,000/\$800,000 = \underline{40\%}$

***EXERCISE 6-18 (Continued)**

(b) Sales	\$1,000,000
Less: Estimated gross profit (40% X \$1,000,000)	<u>400,000</u>
Estimated cost of goods sold	<u>\$ 600,000</u>
Beginning inventory	\$120,000
Cost of goods purchased	<u>610,000</u>
Cost of goods available for sale.....	730,000
Less: Estimated cost of goods sold	<u>600,000</u>
Estimated cost of ending inventory	<u>\$130,000</u>

***EXERCISE 6-19**

(a) Net sales (\$51,000 – \$1,000).....	\$50,000
Less: Estimated gross profit (40% X \$50,000).....	<u>20,000</u>
Estimated cost of goods sold	<u>\$30,000</u>
Beginning inventory	\$20,000
Cost of goods purchased (\$31,200 – \$1,400 + \$1,200).....	<u>31,000</u>
Cost of goods available for sale.....	51,000
Less: Estimated cost of goods sold	<u>30,000</u>
Estimated cost of merchandise lost	<u>\$21,000</u>
(b) Net sales	\$50,000
Less: Estimated gross profit (30% X \$50,000).....	<u>15,000</u>
Estimated cost of goods sold	<u>\$35,000</u>
Beginning inventory	\$30,000
Cost of goods purchased	<u>31,000</u>
Cost of goods available for sale.....	61,000
Less: Estimated cost of goods sold	<u>35,000</u>
Estimated cost of merchandise lost	<u>\$26,000</u>

***EXERCISE 6-20**

	Women's Department		Men's Department	
	Cost	Retail	Cost	Retail
Beginning inventory	\$ 32,000	\$ 46,000	\$ 45,000	\$ 60,000
Goods purchased	<u>148,000</u>	<u>179,000</u>	<u>136,300</u>	<u>185,000</u>
Goods available for sale	<u>\$180,000</u>	225,000	<u>\$181,300</u>	245,000
Net sales		<u>178,000</u>		<u>185,000</u>
Ending inventory at retail		<u>\$ 47,000</u>		<u>\$ 60,000</u>
 Cost/retail ratio	 $\frac{\$180,000}{\$225,000} = \underline{80\%}$		 $\frac{\$181,300}{\$245,000} = \underline{74\%}$	
 Estimated cost of ending inventory	 $\$47,000 \times 80\% = \underline{\$37,600}$		 $\$60,000 \times 74\% = \underline{\$44,400}$	

SOLUTIONS TO PROBLEMS

PROBLEM 6-1A

- (a) The goods should not be included in inventory as they were shipped FOB shipping point and shipped February 26. Title to the goods transfers to the customer February 26. Heath should have recorded the transaction in the Sales and Accounts Receivable accounts.
- (b) The amount should not be included in inventory as they were shipped FOB destination and not received until March 2. The seller still owns the inventory. No entry is recorded.
- (c) Include \$500 inventory.
- (d) Include \$400 inventory.
- (e) \$750 should be included in inventory as the goods were shipped FOB shipping point.
- (f) The sale will be recorded on March 2. The goods should be included in inventory at the end of February at their cost of \$250.
- (g) The damaged goods should not be included in inventory. They should be recorded in a loss account since they are not saleable.

PROBLEM 6-2A

(a) COST OF GOODS AVAILABLE FOR SALE

<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
March 1	Beginning Inventory	1,500	\$ 7	\$ 10,500
5	Purchase	3,000	8	24,000
13	Purchase	5,500	9	49,500
21	Purchase	4,000	10	40,000
26	Purchase	<u>2,000</u>	11	<u>22,000</u>
	Total	<u>16,000</u>		<u>\$146,000</u>

(b) FIFO

<u>(1) Ending Inventory</u>			<u>(2) Cost of Goods Sold</u>		
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>		
March 26	2,000	\$11	\$22,000	Cost of goods available for sale	\$146,000
21	1,500	10	15,000	Less: Ending inventory	<u>37,000</u>
	<u>3,500*</u>		<u>\$37,000</u>	Cost of goods sold	<u>\$109,000</u>

*16,000 – 12,500 = 3,500

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
March 1	1,500	\$ 7	\$ 10,500
5	3,000	8	24,000
13	5,500	9	49,500
21	<u>2,500</u>	10	<u>25,000</u>
	<u>12,500</u>		<u>\$109,000</u>

PROBLEM 6-2A(Continued)

(1) Ending Inventory			LIFO	(2) Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost	Cost of goods available for sale	\$146,000
March 1	<u>1,500</u>	<u>\$7</u>	<u>\$10,500</u>	Less: Ending inventory	<u>26,500</u>
5	<u>2,000</u>	<u>8</u>	<u>16,000</u>	Cost of goods sold	<u>\$119,500</u>
	<u>3,500</u>		<u>\$26,500</u>		

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
March 26	2,000	\$11	\$22,000
21	4,000	10	40,000
13	5,500	9	49,500
5	<u>1,000</u>	<u>8</u>	<u>8,000</u>
	<u>12,500</u>		<u>\$119,500</u>

AVERAGE-COST

(1) Ending Inventory			(2) Cost of Goods Sold	
$\$146,000 \div 16,000 = \underline{\$9.125}$			Cost of goods available for sale	\$146,000
Units	Unit Cost	Total Cost	Less: Ending inventory	<u>31,938</u>
<u>3,500</u>	<u>\$9.125</u>	<u>\$31,938*</u>	Cost of goods sold	<u>\$114,062</u>

*rounded to nearest dollar

- (c) (1) As shown in (b) above, FIFO produces the highest inventory amount, \$37,000.
- (2) As shown in (b) above, LIFO produces the highest cost of goods sold, \$119,500.

PROBLEM 6-3A

(a) **COST OF GOODS AVAILABLE FOR SALE**

Date	Explanation	Units	Unit Cost	Total Cost
1/1	Beginning Inventory	400	\$ 8	\$ 3,200
2/20	Purchase	600	9	5,400
5/5	Purchase	500	10	5,000
8/12	Purchase	300	11	3,300
12/8	Purchase	200	12	2,400
	Total	<u>2,000</u>		<u>\$19,300</u>

(b) **FIFO**

(1) Ending Inventory			(2) Cost of Goods Sold		
Date	Units	Unit Cost	Total Cost		
12/8	200	\$12	\$2,400	Cost of goods available for sale	\$19,300
8/12	300	11	3,300	Less: Ending inventory	5,700
	<u>500</u>		<u>\$5,700</u>	Cost of goods sold	<u>\$13,600</u>

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
1/1	400	\$ 8	\$ 3,200
2/20	600	9	5,400
5/5	500	10	5,000
	<u>1,500</u>		<u>\$13,600</u>

PROBLEM 6-3A (Continued)

			LIFO			
(b)	<u>(1) Ending Inventory</u>			<u>(2) Cost of Goods Sold</u>		
	<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Cost of goods available for sale</u>	<u>\$19,300</u>
	1/1	400	\$8	\$3,200	Less: Ending inventory	<u>4,100</u>
	2/20	100	9	900	Cost of goods sold	<u>\$15,200</u>
		<u>500</u>		<u>\$4,100</u>		

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
12/8	200	\$12	\$ 2,400
8/12	300	11	3,300
5/5	500	10	5,000
2/20	500	9	4,500
	<u>1,500</u>		<u>\$15,200</u>

AVERAGE-COST

<u>(1) Ending Inventory</u>			<u>(2) Cost of Goods Sold</u>	
$\$19,300 \div 2,000 = \underline{\$9.65}$			<u>Cost of goods available for sale</u>	<u>\$19,300</u>
<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	Less: Ending inventory	<u>4,825</u>
<u>500</u>	<u>\$9.65</u>	<u>\$4,825</u>	Cost of goods sold	<u>\$14,475</u>

Proof of Cost of Goods Sold

$1,500 \text{ units} \times 9.65 = \$14,475$

(c) (1) LIFO results in the lowest inventory amount for the balance sheet, \$4,100.

(2) FIFO results in the lowest cost of goods sold, \$13,600.

PROBLEM 6-4A

(a) **MORALES CO.**
Condensed Income Statement
For the Year Ended December 31, 2008

	FIFO	LIFO
Sales	\$865,000	\$865,000
Cost of goods sold		
Beginning inventory	32,000	32,000
Cost of goods purchased	595,000	595,000
Cost of goods available for sale	627,000	627,000
Ending inventory	84,000^a	68,000^b
Cost of goods sold	543,000	559,000
Gross profit	322,000	306,000
Operating expenses	147,000	147,000
Income before income taxes	175,000	159,000
Income taxes (34%)	59,500	54,060
Net income	\$115,500	\$104,940

^a30,000 X \$2.80 = \$84,000.

^b\$32,000 + (15,000 X \$2.40) = \$68,000.

- (b) (1) The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices.**
- (2) The LIFO method produces the most meaningful net income because the costs of the most recent purchases are matched against sales.**
- (3) The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.**
- (4) There will be \$5,440 additional cash available under LIFO because income taxes are \$54,060 under LIFO and \$59,500 under FIFO.**
- (5) Gross profit under the average cost method will be: (a) lower than FIFO and (b) higher than LIFO.**

PROBLEM 6-5A

Cost of Goods Available for Sale

<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
October 1	Beginning Inventory	60	\$25	\$1,500
9	Purchase	120	26	3,120
17	Purchase	70	27	1,890
25	Purchase	80	28	2,240
	Total	<u>330</u>		<u>\$8,750</u>

Ending Inventory in Units:

Units available for sale	330
Sales (100 + 60 + 110)	<u>270</u>
Units remaining in ending inventory	<u>60</u>

Sales Revenue

<u>Date</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Sales</u>
October 11	100	\$35	\$ 3,500
22	60	40	2,400
29	<u>110</u>	40	<u>4,400</u>
	<u>270</u>		<u>\$10,300</u>

(a)

(1) LIFO

(i) Ending Inventory

October 1 60 @ \$25 = \$1,500

(ii) Cost of Goods Sold

Cost of goods available for sale	\$8,750
Less: Ending inventory	<u>1,500</u>
Cost of goods sold	<u>\$7,250</u>

(iii) Gross Profit

Sales revenue	\$10,300
Cost of goods sold	<u>7,250</u>
Gross profit	<u>\$ 3,050</u>

(iv) Gross Profit Rate

<u>Gross profit</u>	<u>\$ 3,050</u>	= 29.6%
<u>Net sales</u>	<u>\$10,300</u>	

PROBLEM 6-5A (Continued)

(2) FIFO

(i) Ending Inventory
October 25 60 @ \$28 = \$1,680

(ii) Cost of Goods Sold
Cost of goods available
for sale \$ 8,750
Less: Ending inventory 1,680
Cost of goods sold \$ 7,070

(iii) Gross Profit
Sales revenue \$10,300
–Cost of goods sold 7,070
Gross profit \$ 3,230

(iv) Gross Profit Rate
Gross profit \$ 3,230 = 31.4%
Net sales \$10,300

(3) Average-Cost

Weighted-average cost per unit: $\frac{\text{cost of goods available for sale}}{\text{units available for sale}}$
 $\frac{\$8,750}{330} = \26.515

(i) Ending Inventory
60 @ \$26.515 = \$1,591*

*rounded to nearest dollar

(ii) Cost of Goods Sold
Cost of goods available
for sale \$8,750
Less: Ending inventory 1,591
Cost of goods sold \$7,159

(iii) Gross Profit
Sales revenue \$10,300
Cost of goods sold 7,159
Gross profit \$ 3,141

(iv) Gross Profit Rate
Gross profit \$ 3,141 = 30.5%
Net sales \$10,300

(b) LIFO produces the lowest ending inventory value, gross profit, and gross profit rate because its cost of goods sold is higher than FIFO or average-cost.

PROBLEM 6-6A

- (a) (1) To maximize gross profit, Bernelli Diamonds should sell the diamonds with the lowest cost.

<u>Sale Date</u>	<u>Cost of Goods Sold</u>		<u>Sales Revenue</u>	
March 5	150 @ \$300	\$ 45,000	180 @ \$600	\$108,000
	30 @ \$350	10,500	<u>400 @ \$650</u>	<u>260,000</u>
March 25	170 @ \$350	59,500		
	<u>230 @ \$375</u>	<u>86,250</u>		
	<u>580</u>	<u>\$201,250</u>	<u>580</u>	<u>\$368,000</u>

Gross profit \$368,000 – \$201,250 = \$166,750.

- (2) To minimize gross profit, Bernelli Diamonds should sell the diamonds with the highest cost.

<u>Sale Date</u>	<u>Cost of Goods Sold</u>		<u>Sales Revenue</u>	
March 5	180 @ \$350	\$ 63,000	180 @ \$600	\$108,000
March 25	350 @ \$375	131,250	<u>400 @ \$650</u>	<u>260,000</u>
	20 @ \$350	7,000		
	<u>30 @ \$300</u>	<u>9,000</u>		
	<u>580</u>	<u>\$210,250</u>	<u>580</u>	<u>\$368,000</u>

Gross profit \$368,000 – \$210,250 = \$157,750.

- (b) FIFO

Cost of goods available for sale

March 1	Beginning inventory	150 @ \$300	\$ 45,000
3	Purchase	200 @ \$350	70,000
10	Purchase	<u>350 @ \$375</u>	<u>131,250</u>
		<u>700</u>	<u>\$246,250</u>
Goods available for sale		700	
Units sold		<u>580</u>	
Ending inventory		<u>120 @ \$375</u>	\$45,000

PROBLEM 6-6A (Continued)

Goods available for sale	\$246,250
– Ending inventory	<u>45,000</u>
Cost of goods sold	<u>\$201,250</u>

Gross profit: \$368,000 – \$201,250 = \$166,750.

(c) LIFO

Cost of goods available for sale	\$246,250
(from part b)	
– Ending inventory 120 @ \$300	<u>36,000</u>
Cost of goods sold	<u>\$210,250</u>

Gross profit: \$368,000 – \$210,250 = \$157,750.

(d) The choice of inventory method depends on the company’s objectives. Since the diamonds are marked and coded, the company could use specific identification. This could, however, result in “earnings management” by the company because, as shown, it could carefully choose which diamonds to sell to result in the maximum or minimum income. Employing a cost flow assumption, such as LIFO or FIFO, would reduce record-keeping costs. FIFO would result in higher income, but LIFO would reduce income taxes and provide better matching of current sales revenue with current costs.

PROBLEM 6-7A

(a)

UTLEY INC.
Condensed Income Statement
For the Year Ended December 31, 2008

	FIFO	LIFO
Sales	\$665,000	\$665,000
Cost of goods sold		
Beginning inventory	35,000	35,000
Cost of goods purchased	504,500	504,500
Cost of goods available for sale.....	539,500	539,500
Ending inventory	133,500^a	115,000^b
Cost of goods sold.....	406,000	424,500
Gross profit	259,000	240,500
Operating expenses.....	130,000	130,000
Income before income taxes	129,000	110,500
Income tax expense (28%).....	36,120	30,940
Net income.....	<u>\$ 92,880</u>	<u>\$ 79,560</u>

^a(25,000 @ \$4.50) + (5,000 @ \$4.20) = \$133,500.

^b(10,000 @ \$3.50) + (20,000 @ \$4.00) = \$115,000.

(b) **Answers to questions:**

- (1) **The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices.**
- (2) **The LIFO method produces the most meaningful net income because the costs of the most recent purchases are matched against sales.**
- (3) **The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.**
- (4) **There will be \$5,180 additional cash available under LIFO because income taxes are \$30,940 under LIFO and \$36,120 under FIFO.**

PROBLEM 6-7A (Continued)

- (5) The illusory gross profit is \$18,500 or (\$259,000 – \$240,500). Under LIFO, Utley Inc. has recovered the current replacement cost of the units (\$424,500), whereas under FIFO, it has only recovered the earlier costs (\$406,000). This means that under FIFO the company must reinvest \$18,500 of the gross profit to replace the units used.

Answer in business letter form:

Dear Utley Inc.

After preparing the comparative condensed income statements for 2008 under FIFO and LIFO methods, we have found the following:

The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices. This method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

The LIFO method produces the most meaningful net income because the costs of the most recent purchases are matched against sales. There will be \$5,180 additional cash available under LIFO because income taxes are \$30,940 under LIFO and \$36,120 under FIFO.

There exists an illusory gross profit of \$18,500 (\$259,000 – \$240,500). Under LIFO, you have recovered the current replacement cost of the units (\$424,500) whereas under FIFO you have only recovered the earlier costs (\$406,000). This means that under FIFO, the company must reinvest \$18,500 of the gross profit to replace the units sold.

Sincerely,

***PROBLEM 6-8A**

(a) Cost of goods available for sale:

Inventory	150 units @ \$17	\$ 2,550
<u>Purchases:</u>		
January 2	100 units @ \$21	2,100
January 9	75 units @ \$24	1,800
January 10 return	(15 units @ \$24)	(360)
January 23	100 units @ \$28	2,800
	<u>410 units</u>	<u>\$ 8,890</u>

Sales:

<u>Date</u>		
January 6	150 units @ \$40	\$ 6,000
January 9 (return)	(10 units @ \$40)	(400)
January 10	50 units @ \$45	2,250
January 30	110 units @ \$50	5,500
Total sales		<u>\$13,350</u>

(1) LIFO

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
January 1			(150 @ \$17) \$2,550
January 2	(100 @ \$21) \$2,100		(150 @ \$17) } \$4,650 (100 @ \$21) }
January 6		(100 @ \$21) } (50 @ \$17) } \$2,950	(100 @ \$17) \$1,700
January 9	(75 @ \$24) \$1,800		(110 @ \$17) } \$3,670 (75 @ \$24) }
January 9		(-10 @ \$17) (\$ 170)	
January 10	(-15 @ \$24)(\$ 360)		(110 @ \$17) } \$3,310 (60 @ \$24) }
January 10		(50 @ \$24) \$1,200	(110 @ \$17) } \$2,110 (10 @ \$24) }
January 23	(100 @ \$28) \$2,800		(110 @ \$17) } \$4,910 (10 @ \$24) }
January 30		(100 @ \$28) } (10 @ \$24) } \$3,040	(110 @ \$17) \$1,870
		<u>\$7,020</u>	

(i) Cost of goods sold: \$8,890 – \$1,870 = \$7,020. (ii) Ending inventory = \$1,870. (iii) Gross profit = \$13,350 – \$7,020 = \$6,330

***PROBLEM 6-8A (Continued)**

(2) FIFO

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
January 1			(150 @ \$17) \$2,550
January 2	(100 @ \$21) \$2,100		(150 @ \$17) } \$4,650 (100 @ \$21) }
January 6		(150 @ \$17) \$2,550	(100 @ \$21) \$2,100
January 9		(-10 @ \$17) (\$ 170)	(10 @ \$17) }
January 9	(75 @ \$24) \$1,800		(100 @ \$21) } \$4,070 (75 @ \$24) }
January 10	(-15 @ \$24)(\$ 360)		(10 @ \$17) } \$3,710 (60 @ \$24) }
January 10		(10 @ \$17) } \$1,010 (40 @ \$21) }	(60 @ \$21) } \$2,700 (60 @ \$24) }
January 23	(100 @ \$28) \$2,800		(60 @ \$21) } \$5,500 (60 @ \$24) }
January 30		(60 @ \$21) } \$2,460 (50 @ \$24) }	(100 @ \$28) } \$3,040
		<u>\$5,850</u>	

(i) Cost of goods sold: $\$8,890 - \$3,040 = \$5,850$. (ii) Ending inventory = $\$3,040$. (iii) Gross profit = $\$13,350 - \$5,850 = \$7,500$.

(3) Moving-Average

<u>Date</u>	<u>Purchases</u>	<u>Cost of goods sold</u>	<u>Balance</u>
January 1			(150 @ \$17) \$2,550
January 2	(100 @ \$21) \$2,100		(250 @ \$18.60) ^a \$4,650
January 6		(150 @ \$18.60) \$2,790	(100 @ \$18.60) \$1,860
January 9		(-10 @ \$18.60) (\$ 186)	(110 @ \$18.60) \$2,046
January 9	(75 @ \$24) \$1,800		(185 @ \$20.789) ^b \$3,846
January 10	(-15 @ \$24) (\$ 360)		(170 @ \$20.506) ^c \$3,486
January 10		(50 @ \$20.506) \$1,025	(120 @ \$20.506) \$2,461
January 23	(100 @ \$28) \$2,800		(220 @ \$23.914) ^d \$5,261
January 30		(110 @ \$23.914) \$2,631	(110 @ \$23.914) \$2,630
		<u>\$6,260</u>	

^a $\$4,650 \div 250 = \18.60

^b $\$3,846 \div 185 = \20.789

^c $\$3,486 \div 170 = \20.506

^d $\$5,261 \div 220 = \23.914

(i) Cost of goods sold: $\$8,890 - \$2,630 = \$6,260$. (ii) Ending inventory = $\$2,630$. (iii) Gross profit = $\$13,350 - \$6,260 = \$7,090$.

***PROBLEM 6-8A (Continued)**

(b)

Gross profit:	<u>LIFO</u>	<u>FIFO</u>	<u>Moving-Average</u>
Sales	\$13,350	\$13,350	\$13,350
–Cost of goods sold	<u>7,020</u>	<u>5,850</u>	<u>6,260</u>
Gross profit	<u>\$ 6,330</u>	<u>\$ 7,500</u>	<u>\$ 7,090</u>
Ending inventory	<u>\$ 1,870</u>	<u>\$ 3,040</u>	<u>\$ 2,630</u>

In a period of rising costs, the LIFO cost flow assumption results in the highest cost of goods sold and lowest gross profit. FIFO gives the lowest cost of goods sold and highest gross profit. The weighted average cost flow assumption results in amounts between the other two.

On the balance sheet, FIFO gives the highest ending inventory (representing the most current costs); LIFO gives the lowest ending inventory (representing the oldest costs); and average-cost results in an ending inventory falling between the other two.

***PROBLEM 6-9A**

(a) (1) **FIFO**

Date	Purchases	Cost of Goods Sold	Balance
May 1	(7 @ \$150) \$1,050		(7 @ \$150) \$1,050
4		(4 @ \$150) \$600	(3 @ \$150) \$ 450
8	(8 @ \$170) \$1,360		(3 @ \$150) } (8 @ \$170) } \$1,810
12		(3 @ \$150) } (2 @ \$170) } \$790	(6 @ \$170) \$1,020
15	(6 @ \$185) \$1,110		(6 @ \$170) } (6 @ \$185) } \$2,130
20		(3 @ \$170) \$510	(3 @ \$170) } (6 @ \$185) } \$1,620
25		(3 @ \$170) } (1 @ \$185) } \$695	(5 @ \$185) \$ 925

(2) **AVERAGE-COST**

Date	Purchases	Cost of Goods Sold	Balance
May 1	(7 @ \$150) \$1,050		(7 @ \$150) \$1,050
4		(4 @ \$150) \$600	(3 @ \$150) \$ 450
8	(8 @ \$170) \$1,360		(11 @ \$164.55)* \$1,810
12		(5 @ \$164.55) \$823	(6 @ \$164.55) \$ 987
15	(6 @ \$185) \$1,110		(12 @ \$174.75)** \$2,097
20		(3 @ \$174.75) \$524	(9 @ \$174.75) \$1,573
25		(4 @ \$174.75) \$699	(5 @ \$174.75) \$ 874

*Average-cost = \$1,810 ÷ 11 (rounded)

**\$2,097 ÷ 12

***PROBLEM 6-9A (Continued)**

		LIFO			
<u>Date</u>	<u>Purchases</u>		<u>Cost of Goods Sold</u>		<u>Balance</u>
May 1	(7 @ \$150)	\$1,050			(7 @ \$150) \$1,050
4			(4 @ \$150)	\$600	(3 @ \$150) \$ 450
8	(8 @ \$170)	\$1,360			(3 @ \$150) } (8 @ \$170) } \$1,810
12			(5 @ \$170)	\$850	(3 @ \$150) } (3 @ \$170) } \$ 960
15	(6 @ \$185)	\$1,110			(3 @ \$150) } (3 @ \$170) } (6 @ \$185) } \$2,070
20			(3 @ \$185)	\$555	(3 @ \$150) } (3 @ \$170) } (3 @ \$185) } \$1,515
25			(3 @ \$185) (1 @ \$170) }	\$725	(3 @ \$150) } (2 @ \$170) } \$ 790

- (b) (1) The highest ending inventory is \$925 under the FIFO method.
 (2) The lowest ending inventory is \$790 under the LIFO method.

***PROBLEM 6-10A**

	February
(a) Net sales	\$300,000
Cost of goods sold	
Beginning inventory.....	\$ 4,500
Net purchases	\$197,800
Add: Freight-in.....	<u>2,900</u>
Cost of goods purchased.....	<u>200,700</u>
Cost of goods available for sale	205,200
Ending inventory	<u>13,200</u>
Cost of goods sold	<u>192,000</u>
Gross profit.....	<u>\$108,000</u>

$$\text{Gross profit rate} = \frac{\$108,000}{\$300,000} = 36\%$$

(b) Net sales	\$250,000
Less: Estimated gross profit	
(36% X \$250,000)	<u>90,000</u>
Estimated cost of goods sold.....	<u>\$160,000</u>
Beginning inventory.....	\$ 13,200
Net purchases	\$191,000
Add: Freight-in.....	<u>4,000</u>
Cost of goods purchased.....	<u>195,000</u>
Cost of goods available for sale	208,200
Less: Estimated cost of goods sold.....	<u>160,000</u>
Estimated total cost of ending	
inventory	48,200
Less: Inventory not lost	
(30% X \$48,200).....	<u>14,460</u>
Estimated inventory lost in fire	
(70% X \$48,200)	<u>\$ 33,740</u>

***PROBLEM 6-11A**

(a)	Sporting Goods		Jewelry and Cosmetics	
	Cost	Retail	Cost	Retail
Beginning inventory	\$ 47,360	\$ 74,000	\$ 39,440	\$ 62,000
Purchases	675,000	1,066,000	741,000	1,158,000
Purchase returns	(26,000)	(40,000)	(12,000)	(20,000)
Purchase discounts	(12,360)		(2,440)	
Freight-in	9,000		14,000	
Goods available for sale	<u>\$693,000</u>	<u>1,100,000</u>	<u>\$780,000</u>	<u>1,200,000</u>
Net sales		<u>(1,000,000)</u>		<u>(1,160,000)</u>
Ending inventory at retail		<u>\$ 100,000</u>		<u>\$ 40,000</u>

Cost-to-retail ratio:

Sporting Goods— $\$693,000 \div \$1,100,000 = 63\%$.

Jewelry and Cosmetics— $\$780,000 \div \$1,200,000 = 65\%$.

Estimated ending inventory at cost:

$\$100,000 \times 63\% = \underline{\$63,000}$ —Sporting Goods.

$\$ 40,000 \times 65\% = \underline{\$26,000}$ —Jewelry and Cosmetics.

(b) Sporting Goods— $\$95,000 \times 60\% = \$57,000$.

Jewelry and Cosmetics— $\$44,000 \times 64\% = \$28,160$.

PROBLEM 6-1B

- (a) Title to the goods does not transfer to the customer until March 2. Include the \$800 in ending inventory.**
- (b) Slaymakker owns the goods once they are shipped on February 26. Include inventory of \$375.**
- (c) Include \$500 inventory.**
- (d) Exclude the items from Slaymakker's inventory. Title remains with the consignor.**
- (e) Title of the goods does not transfer to Slaymakker until March 2. Exclude this amount from the February 28 inventory.**
- (f) The sale will be recorded on February 26. The goods (cost, \$300) should be excluded from Slaymakker's inventory at the end of February.**

PROBLEM 6-2B

(a) **COST OF GOODS AVAILABLE FOR SALE**

<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Oct. 1	Beginning Inventory	1,000	\$5	\$ 5,000
3	Purchase	3,500	6	21,000
9	Purchase	4,000	7	28,000
19	Purchase	2,000	8	16,000
25	Purchase	<u>2,000</u>	9	<u>18,000</u>
	Total	<u>12,500</u>		<u>\$88,000</u>

(b) **FIFO**

<u>(1) Ending Inventory</u>				<u>(2) Cost of Goods Sold</u>	
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Cost of goods available for sale</u>	
Oct. 25	2,000	\$9	\$18,000	\$88,000	
19	<u>1,000</u>	8	<u>8,000</u>	Less: Ending inventory	<u>26,000</u>
	<u>3,000*</u>		<u>\$26,000</u>	Cost of goods sold	<u>\$62,000</u>

*12,500 – 9,500 = 3,000

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Oct. 1	1,000	\$5	\$ 5,000
3	3,500	6	21,000
9	4,000	7	28,000
19	<u>1,000</u>	8	<u>8,000</u>
	<u>9,500</u>		<u>\$62,000</u>

LIFO

<u>(1) Ending Inventory</u>				<u>(2) Cost of Goods Sold</u>	
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Cost of goods available for sale</u>	
Oct. 1	1,000	\$5	\$ 5,000	\$88,000	
3	<u>2,000</u>	6	<u>12,000</u>	Less: Ending inventory	<u>17,000</u>
	<u>3,000</u>		<u>\$17,000</u>	Cost of goods sold	<u>\$71,000</u>

PROBLEM 6-2B (Continued)

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Oct. 25	2,000	\$9	\$18,000
19	2,000	8	16,000
9	4,000	7	28,000
3	1,500	6	9,000
	<u>9,500</u>		<u>\$71,000</u>

AVERAGE COST

(1) Ending Inventory			(2) Cost of Goods Sold	
$\$88,000 \div 12,500 = \underline{\$7.04}$			Cost of goods available for sale	\$88,000
<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	Less: Ending inventory	<u>21,120</u>
<u>3,000</u>	<u>\$7.04</u>	<u>\$21,120</u>	Cost of goods sold	<u>\$66,880</u>

(c) (1) FIFO results in the highest inventory amount for the balance sheet, \$26,000.

(2) LIFO results in the highest cost of goods sold, \$71,000.

PROBLEM 6-3B

(a) **COST OF GOODS AVAILABLE FOR SALE**

<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
1/1	Beginning Inventory	100	\$21	\$ 2,100
3/15	Purchase	300	24	7,200
7/20	Purchase	200	25	5,000
9/4	Purchase	300	28	8,400
12/2	Purchase	100	30	3,000
	Total	<u>1,000</u>		<u>\$25,700</u>

(b) **FIFO**

<u>(1) Ending Inventory</u>			<u>(2) Cost of Goods Sold</u>		
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>		
12/2	100	\$30	\$3,000	Cost of goods available for sale	\$25,700
9/4	100	28	2,800	Less: Ending inventory	5,800
	<u>200</u>		<u>\$5,800</u>	Cost of goods sold	<u>\$19,900</u>

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
1/1	100	\$21	\$ 2,100
3/15	300	24	7,200
7/20	200	25	5,000
9/4	200	28	5,600
	<u>800</u>		<u>\$19,900</u>

(c) **LIFO**

<u>(1) Ending Inventory</u>			<u>(2) Cost of Goods Sold</u>		
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>		
1/1	100	\$21	\$2,100	Cost of goods available for sale	\$25,700
3/15	100	24	2,400	Less: Ending inventory	4,500
	<u>200</u>		<u>\$4,500</u>	Cost of goods sold	<u>\$21,200</u>

PROBLEM 6-3B (Continued)

Proof of Cost of Goods Sold

<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
12/2	100	\$30	\$ 3,000
9/4	300	28	8,400
7/20	200	25	5,000
3/15	<u>200</u>	24	<u>4,800</u>
	<u>800</u>		<u>\$21,200</u>

AVERAGE COST

(1) Ending Inventory			(2) Cost of Goods Sold	
$\$25,700 \div 1,000 = \underline{\$25.70}$			Cost of goods available for sale	\$25,700
<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	Less: Ending inventory	<u>5,140</u>
<u>200</u>	<u>\$25.70</u>	<u>\$5,140</u>	Cost of goods sold	<u>\$20,560</u>

Proof of Cost of Goods Sold

800 units X \$25.70 = \$20,560

- (c) (1) FIFO results in the highest inventory amount, \$5,800, as shown in (b) above.
- (2) LIFO produces the highest cost of goods sold, \$21,200, as shown in (b) above.

PROBLEM 6-4B

(a)

**GRONEMAN INC.
Condensed Income Statements
For the Year Ended December 31, 2008**

	FIFO	LIFO
Sales	<u>\$865,000</u>	<u>\$865,000</u>
Cost of goods sold		
Beginning inventory	22,800	22,800
Cost of goods purchased	<u>578,500</u>	<u>578,500</u>
Cost of goods available for sale	601,300	601,300
Ending inventory	<u>53,000^a</u>	<u>45,800^b</u>
Cost of goods sold.....	<u>548,300</u>	<u>555,500</u>
Gross profit	316,700	309,500
Operating expenses	<u>147,000</u>	<u>147,000</u>
Income before income taxes	169,700	162,500
Income taxes (32%)	<u>54,304</u>	<u>52,000</u>
Net income.....	<u>\$115,396</u>	<u>\$110,500</u>

^a20,000 X \$2.65 = \$53,000.

^b\$22,800 + (10,000 X \$2.30) = \$45,800.

- (b) (1) The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices.
- (2) The LIFO method produces the most meaningful net income because the cost of the most recent purchases are matched against sales.
- (3) The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.
- (4) There will be \$2,304 additional cash available under LIFO because income taxes are \$52,000 under LIFO and \$54,304 under FIFO.
- (5) Gross profit under the average cost method will be: (a) lower than FIFO and (b) higher than LIFO.

PROBLEM 6-5B

(a) Cost of Goods Available for Sale

<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
June 1	Beginning Inventory	25	\$60	\$ 1,500
June 4	Purchase	85	64	5,440
June 18	Purchase	35	68	2,380
June 18	Purchase return	(5)	68	(340)
June 28	Purchase	20	72	1,440
	Total	<u>160</u>		<u>\$10,420</u>

Ending Inventory in Units:

<u>Units available for sale</u>	<u>160</u>	<u>Sales Revenue</u>			
<u>—Sales (70 – 10 + 40)</u>	<u>100</u>	<u>Date</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Sales</u>
<u>Units remaining in ending inventory</u>	<u>60</u>	June 10	70	\$90	\$6,300
		11	(10)	90	(900)
		25	40	95	3,800
			<u>100</u>		<u>\$9,200</u>

(1) LIFO

(i) Ending Inventory

June 1	25 @ \$60	\$1,500
4	35 @ 64	2,240
	<u>60</u>	<u>\$3,740</u>

(ii) Cost of Goods Sold

Cost of goods available for sale	\$10,420
Less: Ending inventory	<u>3,740</u>
Cost of goods sold	<u>\$ 6,680</u>

(iii) Gross Profit

Sales revenue	\$9,200
–Cost of goods sold	<u>6,680</u>
Gross profit	<u>\$2,520</u>

(iv) Gross Profit Rate

Gross profit	<u>\$2,520</u>	= 27.4%
Net sales	<u>\$9,200</u>	

PROBLEM 6-5B (Continued)

(2) FIFO

(i) Ending Inventory

June 28	20 @ \$72	\$1,440
	18 30 @ \$68	2,040
	4 10 @ \$64	640
	<u>60</u>	<u>\$4,120</u>

(ii) Cost of Goods Sold

Cost of goods available for sale	\$10,420
Less: Ending inventory	4,120
Cost of goods sold	<u>\$ 6,300</u>

(iii) Gross Profit

Sales revenue	\$9,200
–Cost of goods sold	6,300
Gross profit	<u>\$2,900</u>

(iv) Gross Profit Rate

Gross profit	\$2,900	= 31.5%
Net sales	\$9,200	

(3) Average-Cost

Weighted-average cost per unit:

$$\frac{\text{Cost of goods available for sale}}{\text{Units available for sale}} = \frac{\$10,420}{160} = \$65.125$$

(i) Ending Inventory

60 units @ \$65.125	<u>3,907.50</u>
---------------------	-----------------

(ii) Cost of Goods Sold

Cost of goods available for sale	\$10,420.00
Less: Ending inventory	3,907.50
Cost of goods sold	<u>\$ 6,512.50</u>

(iii) Gross Profit

Sales revenue	\$9,200.00
–Cost of goods sold	6,512.50
Gross profit	<u>\$2,687.50</u>

(iv) Gross Profit Rate

Gross profit	\$2,687.50	= 29.2%
Net sales	\$9,200.00	

(b) In this period of rising prices, LIFO gives the highest cost of goods sold and the lowest gross profit. FIFO gives the lowest cost of goods sold and the highest gross profit.

PROBLEM 6-6B

**(a) RONDELLI INC.
Income Statement (partial)
For the Year Ended December 31, 2008**

	Specific Identification	FIFO	LIFO
Sales revenue ^a	<u>\$4,230</u>	<u>\$4,230</u>	<u>\$4,230</u>
Beginning inventory	600	600	600
Purchases ^b	<u>3,715</u>	<u>3,715</u>	<u>3,715</u>
Cost of goods available for sale	4,315	4,315	4,315
Ending inventory ^c	<u>1,341</u>	<u>1,443</u>	<u>1,140</u>
Cost of goods sold	<u>2,974</u>	<u>2,872</u>	<u>3,175</u>
Gross profit	<u>\$1,256</u>	<u>\$1,358</u>	<u>\$1,055</u>

(a) $(1,800 @ \$0.60) + (4,500 @ \$0.70)$

(b) $(2,000 @ \$0.45) + (3,500 @ \$0.49) + (2,000 @ \$0.55)$

(c) Specific identification ending inventory consists of:

Beginning inventory (1,500 litres – 900 – 400)	200 @ \$0.40	\$ 80
March 3 purchase (2,000 litres – 900 – 500)	600 @ \$0.45	270
March 10 purchase (3,500 litres – 2,600)	900 @ \$0.49	441
March 20 purchase (2,000 litres – 1,000)	<u>1,000 @ \$0.55</u>	<u>550</u>
	<u>2,700 litres</u>	<u>\$1,341</u>

FIFO ending inventory consists of:

March 20 purchase	2,000 @ \$0.55	\$1,100
March 10 purchase	<u>700 @ \$0.49</u>	<u>343</u>
	<u>2,700 litres</u>	<u>\$1,443</u>

LIFO ending inventory consists of:

Beginning inventory	1,500 @ \$0.40	\$ 600
March 3 purchase	<u>1,200 @ \$0.45</u>	<u>540</u>
	<u>2,700 litres</u>	<u>\$1,140</u>

(b) Companies can choose a cost flow method that produces the highest possible cost of goods sold and lowest gross profit to justify price increases. In this example, LIFO produces the lowest gross profit and best support to increase selling prices.

PROBLEM 6-7B

(a) **DAINS CO.**
Condensed Income Statement
For the Year Ended December 31, 2008

	<u>FIFO</u>	<u>LIFO</u>
Sales	<u>\$630,000</u>	<u>\$630,000</u>
Cost of goods sold		
Beginning inventory	37,000	37,000
Cost of goods purchased	<u>479,000</u>	<u>479,000</u>
Cost of goods available for sale.....	516,000	516,000
Ending inventory	<u>135,000^a</u>	<u>121,000^b</u>
Cost of goods sold.....	<u>381,000</u>	<u>395,000</u>
Gross profit	249,000	235,000
Operating expenses.....	<u>120,000</u>	<u>120,000</u>
Income before income taxes	129,000	115,000
Income tax expense (30%).....	<u>38,700</u>	<u>34,500</u>
Net income.....	<u>\$ 90,300</u>	<u>\$ 80,500</u>

^a(20,000 @ \$4.55) + (10,000 @ \$4.40) = \$135,000.

^b(10,000 @ \$3.70) + (20,000 @ \$4.20) = \$121,000.

(b) **Answers to questions:**

- (1) The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices.
- (2) The LIFO method produces the most meaningful net income because the costs of the most recent purchases are matched against sales.
- (3) The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.
- (4) There will be \$4,200 additional cash available under LIFO because income taxes are \$34,500 under LIFO and \$38,700 under FIFO.
- (5) The illusionary gross profit is \$14,000 or (\$249,000 – \$235,000). Under LIFO, Dains Co. has recovered the current replacement cost of the units (\$395,000), whereas under FIFO, it has only recovered the earlier costs (\$381,000). This means that, under FIFO, the company must reinvest \$14,000 of the gross profit to replace the units used.

***PROBLEM 6-8B**

(a) Cost of goods available for sale:

Inventory	50 units @ \$12	\$ 600
Purchases:		
January 5	100 units @ \$14	1,400
January 15	30 units @ \$18	540
January 16 (return)	(5 units @ \$18)	(90)
January 25	10 units @ \$20	200
	185 units	\$2,650
 Sales:		
January 8	80 units @ \$25	\$2,000
January 10 (return)	(10 units @ \$25)	(250)
January 20	75 units @ \$25	1,875
	145 units	\$3,625

(1) LIFO

Date	Purchases	Cost of Goods Sold	Balance
January 1			(50 @ \$12) \$ 600
January 5	(100 @ \$14) \$1,400		(50 @ \$12) } (100 @ \$14) } \$2,000
January 8		(80 @ \$14) \$1,120	(50 @ \$12) } (20 @ \$14) } \$ 880
January 10		(-10 @ \$14) (\$ 140)	(50 @ \$12) } (30 @ \$14) } \$1,020
January 15	(30 @ \$18) \$ 540		(50 @ \$12) } (30 @ \$14) } \$1,560 (30 @ \$18) }
January 16	(-5 @ \$18) (\$ 90)		(50 @ \$12) } (30 @ \$14) } \$1,470 (25 @ \$18) }
January 20		(25 @ \$18) } (30 @ \$14) } \$1,110 (20 @ \$12) }	(30 @ \$12) \$ 360
January 25	(10 @ \$20) \$ 200		(30 @ \$12) } (10 @ \$20) } \$ 560
		\$2,090	

**(i) Cost of goods sold: \$2,650 – \$560 = \$2,090. (ii) Ending inventory = \$560.
(iii) Gross profit = \$3,625 – \$2,090 = \$1,535.**

***PROBLEM 6-8B (Continued)**

(2) FIFO

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
January 1			(50 @ \$12) \$ 600
January 5	(100 @ \$14) \$1,400		(50 @ \$12) } (100 @ \$14) } \$2,000
January 8		(50 @ \$12) } (30 @ \$14) } \$1,020	(70 @ \$14) \$ 980
January 10		(-10 @ \$14) (\$ 140)	(80 @ \$14) \$1,120
January 15	(30 @ \$18) \$ 540		(80 @ \$14) } (30 @ \$18) } \$1,660
January 16	(-5 @ \$18)(\$ 90)		(80 @ \$14) } (25 @ \$18) } \$1,570
January 20		(75 @ \$14) \$1,050	(5 @ \$14) } (25 @ \$18) } \$ 520
January 25	(10 @ \$20) \$ 200		(5 @ \$14) } (25 @ \$18) } (10 @ \$20) } \$ 720
		<u>\$1,930</u>	

**(i) Cost of goods sold: \$2,650 – \$720 = \$1,930. (ii) Ending inventory = \$720.
(iii) Gross profit = \$3,625 – \$1,930 = \$1,695.**

(3) Moving-Average

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance</u>
January 1			(50 @ \$12) \$ 600
January 5	(100 @ \$14) \$1,400		(150 @ \$13.333) ^a \$2,000
January 8		(80 @ \$13.333) \$1,067*	(70 @ \$13.333) \$ 933
January 10		(-10 @ \$13.333) (\$ 133)*	(80 @ \$13.333) \$1,066
January 15	(30 @ \$18) \$ 540		(110 @ \$14.600) ^b \$1,606
January 16	(-5 @ \$18) (\$ 90)		(105 @ \$14.438) ^c \$1,516
January 20		(75 @ \$14.438) \$1,083*	(30 @ \$14.438) ^d \$ 433
January 25	(10 @ \$20) \$ 200		(40 @ \$15.83) \$ 633
		<u>\$2,017</u>	

*rounded

^a\$2,000 ÷ 150 = \$13.333

^c\$1,516 ÷ 105 = \$14.438

^b\$1,606 ÷ 110 = \$14.60

^d\$633 ÷ 40 = \$15.83

**(i) Cost of goods sold: \$2,650 – \$633 = \$2,017. (ii) Ending inventory = \$633.
(iii) Gross profit = \$3,625 – \$2,017 = \$1,608.**

***PROBLEM 6-8B (Continued)**

(b)

Gross profit:	<u>LIFO</u>	<u>FIFO</u>	<u>Moving-Average</u>
Sales	<u>\$3,625</u>	<u>\$3,625</u>	<u>\$3,625</u>
–Cost of goods sold	<u>2,090</u>	<u>1,930</u>	<u>2,017</u>
Gross profit	<u>\$1,535</u>	<u>\$1,695</u>	<u>\$1,608</u>
Ending inventory	<u>\$ 560</u>	<u>\$ 720</u>	<u>\$ 633</u>

In a period of rising costs, the LIFO cost flow assumption results in the highest cost of goods sold and lowest gross profit. FIFO gives the lowest cost of goods sold and highest gross profit. The moving-average-cost flow assumption results in amounts between the other two.

On the balance sheet, FIFO gives the highest ending inventory (representing the most current costs); LIFO gives the lowest ending inventory (representing the oldest costs); and average cost results in an ending inventory falling between the other two.

***PROBLEM 6-9B**

(1) **FIFO**

Date	Purchases	Cost of Goods Sold		Balance	
July 1	(4 @ \$ 90) \$360			(4 @ \$ 90)	\$ 360
6		(3 @ \$ 90)	\$270	(1 @ \$ 90)	\$ 90
11	(5 @ \$ 99) \$495			(1 @ \$ 90)	} \$ 585
				(5 @ \$ 99)	
14		(1 @ \$ 90)	} \$189	(4 @ \$ 99)	\$ 396
		(1 @ \$ 99)			(4 @ \$ 99)
21	(6 @ \$106) \$636			(6 @ \$106)	
27		(4 @ \$ 99)	} \$502	(5 @ \$106)	\$ 530
		(1 @ \$106)			

(2) **AVERAGE-COST**

Date	Purchases	Cost of Goods Sold		Balance	
July 1	(4 @ \$ 90) \$360			(4 @ \$ 90)	\$ 360
6		(3 @ \$ 90)	\$270	(1 @ \$ 90)	\$ 90
11	(5 @ \$ 99) \$495			(6 @ \$ 97.50)*	\$ 585
14		(2 @ \$ 97.5)	\$195	(4 @ \$ 97.50)	\$ 390
21	(6 @ \$106) \$636			(10 @ \$102.60)**	\$1,026
27		(5 @ \$102.60)	\$513	(5 @ \$102.60)	\$ 513

*\$585 ÷ 6 = \$97.5
 **\$1,026 ÷ 10 = \$102.60

(3) **LIFO**

Date	Purchases	Cost of Goods Sold		Balance	
July 1	(4 @ \$ 90) \$360			(4 @ \$ 90)	\$ 360
6		(3 @ \$ 90)	\$270	(1 @ \$ 90)	\$ 90
11	(5 @ \$ 99) \$495			(1 @ \$ 90)	} \$ 585
				(5 @ \$ 99)	
14		(2 @ \$ 99)	\$198	(1 @ \$ 90)	} \$ 387
				(3 @ \$ 99)	
21	(6 @ \$106) \$636			(1 @ \$ 90)	} \$1,023
				(3 @ \$ 99)	
				(6 @ \$106)	
27		(5 @ \$106)	\$530	(1 @ \$ 90)	} \$ 493
				(3 @ \$ 99)	
				(1 @ \$106)	

(b) The highest ending inventory is \$530 under the FIFO method.

***PROBLEM 6-10B**

		November
(a) Net sales		\$500,000
Cost of goods sold		
Beginning inventory.....		\$ 34,100
Purchases.....	\$334,975	
Less: Purchase returns and		
Allowances.....	(11,800)	
Purchase discounts	(7,577)	
Add: Freight-in.....	<u>6,402</u>	
Cost of goods purchased.....		<u>322,000</u>
Cost of goods available for sale		356,100
Ending inventory.....		<u>31,100</u>
Cost of goods sold		<u>325,000</u>
Gross profit.....		<u>\$175,000</u>

$$\text{Gross profit rate} = \frac{\$175,000}{\$500,000} = 35\%$$

(b) Net sales		\$400,000
Less: Estimated gross profit		
(35% X \$400,000)		<u>140,000</u>
Estimated cost of goods sold.....		<u>\$260,000</u>
Beginning inventory.....		\$ 31,100
Purchases.....	\$246,000	
Less: Purchase returns and		
allowances.....	\$5,000	
Purchase discounts	<u>6,000</u>	
Net purchases		<u>235,000</u>
Freight-in.....		<u>3,700</u>
Cost of goods purchased.....		<u>238,700</u>
Cost of goods available for sale		269,800
Less: Estimated cost of goods		
sold		<u>260,000</u>
Estimated inventory lost in fire		<u>\$ 9,800</u>

***PROBLEM 6-11B**

(a)	Hardcovers		Paperbacks	
	Cost	Retail	Cost	Retail
Beginning inventory	\$ 256,000	\$ 400,000	\$ 65,000	\$ 90,000
Purchases	1,180,000	1,825,000	266,000	380,000
Freight-in	4,000		2,000	
Purchase discounts	(16,000)		(4,000)	
Goods available for sale	<u>\$1,424,000</u>	<u>2,225,000</u>	<u>\$329,000</u>	<u>470,000</u>
Net sales		<u>1,827,000</u>		<u>385,000</u>
Ending inventory		<u>\$ 398,000</u>		<u>\$ 85,000</u>

Cost-to-retail ratio:

Hardcovers— $\$1,424,000 \div \$2,225,000 = 64\%$.

Paperbacks— $\$329,000 \div \$470,000 = 70\%$.

Estimated ending inventory at cost:

$\$398,000 \times 64\% = \$254,720$ —Hardcovers.

$\$85,000 \times 70\% = \$59,500$ —Paperbacks.

(b) Hardcovers— $\$395,000 \times 65\% = \$256,750$.

Paperbacks— $\$ 88,000 \times 70\% = \$61,600$.

(a)		<u>December 31, 2005</u>	<u>December 25, 2004</u>
	Inventory	\$1,693 million	\$1,541 million

(b) Dollar change in inventories between 2004 and 2005:

$$\$1,693 - \$1,541 = \$152.0 \text{ million increase}$$

Percent change in inventories between 2004 and 2005:

$$\$152 \div \$1,541 = 9.9\% \text{ increase}$$

2005 inventory as a percent of current assets:

$$\$1,693 \div \$10,454 = 16.2\%$$

(c) Inventories are valued at lower of cost or market. Cost is determined using the average, first-in, first-out (FIFO) or last-in, first-out (LIFO) methods (per Note 14 on Supplemental Financial Information).

(d)	<u>PepsiCo (in millions)</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>
	Cost of Goods Sold	\$14,176	\$12,674	\$11,691

2005 cost of goods sold as a percent of sales:

$$\$14,176 \div \$32,562 = 43.5\%$$

(a) 1. Inventory turnover:

$$\text{PepsiCo: } \$14,176 \div \frac{\$1,541 + 1,693}{2} = 8.77 \text{ times}$$

$$\text{Coca-Cola: } \$8,195 \div \frac{\$1,420 + 1,424}{2} = 5.76 \text{ times}$$

2. Days in inventory:

$$\text{PepsiCo: } 365 \div 8.77 = 41.6 \text{ days}$$

$$\text{Coca-Cola: } 365 \div 5.76 = 63.4 \text{ days}$$

(b) PepsiCo's turnover of 8.77 times is approximately one and a half times as high as Coca-Cola's 5.76 times, resulting in days in inventory of 41.6 versus 63.4. Thus, PepsiCo's inventory control is much more effective.

The following responses are based on the 2005 annual report:

- (a) \$1,297,000,000, as of July 30, 2005.
- (b) $\$1,297,000,000 - \$1,207,000,000 = \$90,000,000$ increase.
- (c) 43.9 percent ($\$569 \div \$1,297$).
- (d) Lower of cost or market using standard cost, which approximates FIFO.

(a) (1) Sales per trial balance.....		\$180,000
Cash sales 4/1–4/10 (\$18,500 X 40%)....		7,400
Acknowledged credit sales 4/1–4/10.....		37,000
Sales made but unacknowledged		<u>5,600</u>
Sales as of April 10		<u>\$230,000</u>

(2) Purchases per trial balance		\$ 94,000
Cash purchases 4/1–4/10		4,200
Credit purchases 4/1–4/10	\$12,400	
Less: Items in transit.....	<u>1,600</u>	<u>10,800</u>
Purchases as of April 10		<u>\$109,000</u>

*(b)	<u>2007</u>	<u>2006</u>
Net sales	<u>\$600,000</u>	<u>\$480,000</u>
Cost of goods sold		
Inventory, January 1	60,000	40,000
Cost of goods purchased	<u>404,000</u>	<u>356,000</u>
Cost of goods available for sale.....	464,000	396,000
Inventory, December 31	<u>80,000</u>	<u>60,000</u>
Cost of goods sold.....	<u>384,000</u>	<u>336,000</u>
Gross profit	<u>\$216,000</u>	<u>\$144,000</u>
Gross profit rate.....	<u>36%</u>	<u>30%</u>
Average gross profit rate		<u>33%</u>

*(c) Sales	\$230,000
Less: Gross profit (\$230,000 X 33%).....	<u>75,900</u>
Cost of goods sold.....	<u>\$154,100</u>
Inventory, January 1	\$ 80,000
Purchases	<u>109,000</u>
Cost of goods available for sale.....	189,000
Cost of goods sold.....	<u>154,100</u>
Estimated inventory at time of fire	34,900
Less: Inventory salvaged.....	<u>17,000</u>
Estimated inventory loss	<u>\$ 17,900</u>

MEMO

To: Janice Lemay, President
From: Student
Re: 2007 ending inventory error

As you know, 2007 ending inventory was overstated by \$1 million. Of course, this error will cause 2007 net income to be incorrect because the ending inventory is used to compute 2007 cost of goods sold. Since the ending inventory is subtracted in the computation of cost of goods sold, an overstatement of ending inventory results in an understatement of cost of goods sold and therefore an overstatement of net income.

Unfortunately, unless corrected, this error will also affect 2008 net income. The 2007 ending inventory is also the 2008 beginning inventory. Therefore, 2008 beginning inventory is also overstated, which causes an overstatement of cost of goods sold and an understatement of 2008 net income.

- (a) The higher cost of the items ordered, received, and on hand at year-end will be charged to cost of goods sold, thereby lowering current year's income and income taxes. If the purchase at year-end had been made in the next year, the next year's cost of goods sold would have absorbed the higher cost. Next year's income will be increased if unit purchases (next year) are less than unit sales (next year). This is because the lower costs carried from the earlier year as inventory will be charged to next year's cost of goods sold. Therefore, next year's income taxes will increase.**
- (b) No. The president would not have given the same directive because the purchase under FIFO would have had no effect on net income of the current year.**
- (c) The accountant has no grounds for not ordering the goods if the president insists. The purchase is legal and ethical.**

Students responses to this question will vary depending on the inventory fraud they choose to investigate. Here are responses for the two examples given in the activity.

The fraud at Leslie Fay involved a number of illegal actions, all of which increased net income. The company intentionally overstated ending inventory, which has the effect of understating cost of goods sold. It also understated or completely omitted discounts and allowances that it gave to retailers. In addition, it recorded inventory costs at amounts that differed from the invoice amount. It also reported sales in incorrect periods.

McKesson Corporation increased its reported net income through manipulation of inventory and sales records. It back-dated many transactions to increase current period results. It also swapped inventory to increase reported revenue. Many of the transactions that it reported as sales, and which resulted in reductions in inventory, were actually not sales because they had negotiated side agreements which allowed the buyer to return the merchandise.