CHAPTER 6
Inventories

ASSIGNMENT CLASSIFICATION TABLE

Learning Objectives	Questions	Brief Exercises	Do It!	Exercises	A Problems	B Problems
1. Determine how to classify inventory and inventory quantities.	1, 2, 3, 4, 5, 6	1	1	1, 2	1A	1B
2. Explain the accounting for inventories and apply the inventory cost flow methods.	7, 8, 9, 10, 19	2, 3, 4	2	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.	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	3	9, 10		
5. Indicate the effects of inventory errors on the financial statements.	16	8		11, 12		
6. Compute and interpret the inventory turnover.	17, 18	9	4	13, 14		
*7. Apply the inventory cost flow methods to perpetual inventory records.	20, 21	10		15, 16, 17	8A, 9A	8B, 9B
*8. Describe the two methods of estimating inventories.	22, 23, 24, 25	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 justify price increase.	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, moving-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	Compute gross profit rate and 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 influence earnings.	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 moving-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

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Number	LO	BT	Difficulty	Time (min.)
BE1	1	C	Simple	4–6
BE2	2	K	Simple	2–4
BE3	2	AP	Simple	4–6
BE4	2	AP	Simple	2–4
BE5	3	AP	Simple	2–4
BE6	3	AP	Moderate	6–8
BE7	4	AP	Simple	4–6
BE8	5	AN	Simple	4–6
BE9	6	AP	Simple	4–6
BE10	7	AP	Simple	8–10
BE11	8	AP	Simple	4–6
BE12	8	AP	Simple	4–6
DI1	1	AN	Simple	4–6
DI2	2	AP	Simple	6–8
DI3	4	AP	Simple	6–8
DI4	6	AP	Simple	4–6
EX1	1	AN	Simple	4–6
EX2	1	AN	Simple	6–8
EX3	2, 3	AN, E	Moderate	6–8
EX4	2	AN, E	Simple	8–10
EX5	2	AP	Simple	6–8
EX6	2, 3	AP	Simple	8–10
EX7	2, 3	AP	Simple	8–10
EX8	2, 3	AP	Simple	6–8
EX9	4	AP	Simple	6–8
EX10	4	AP	Simple	4–6
EX11	5	AN	Simple	6–8
EX12	5	AN	Simple	10–12
EX13	6	AP	Simple	10–12
EX14	6	AP	Simple	8–10
EX15	7	AP	Simple	8–10
EX16	7	AP, E	Moderate	12–15

INVENTORIES (Continued)

Number	LO	BT	Difficulty	Time (min.)
EX17	7	AP, E	Moderate	12–15
EX18	8	AP	Simple	8–10
EX19	8	AP	Simple	10–12
EX20	8	AP	Moderate	10–12
P1A	1	AN	Moderate	15–20
P2A	2, 3	AP	Simple	30–40
P3A	2, 3	AP	Simple	30–40
P4A	2, 3	AN	Moderate	30–40
P5A	2, 3	AP, E	Moderate	30–40
P6A	2, 3	AP, E	Moderate	20–30
P7A	2, 3	AN	Moderate	30–40
P8A	7	AP, E	Moderate	30–40
P9A	7	AP	Moderate	40–50
P10A	8	AP	Moderate	30–40
P11A	8	AP	Moderate	20–30
P1B	1	AN	Moderate	15–20
P2B	2, 3	AP	Simple	30–40
P3B	2, 3	AP	Simple	30–40
P4B	2, 3	AN	Moderate	30–40
P5B	2, 3	AP, E	Moderate	30–40
P6B	2, 3	AP, E	Moderate	20–30
P7B	2, 3	AN	Moderate	30–40
P8B	7	AP, E	Moderate	30–40
P9B	7	AP	Moderate	40–50
P10B	8	AP	Moderate	30–40
P11B	8	AP	Moderate	20–30
BYP1	2, 6	AP	Simple	10–15
BYP2	6	E	Simple	10–15
BYP3	6	E	Simple	10–15
BYP4	2, 6	AN	Simple	10–15
BYP5	8	AP	Moderate	20–25
BYP6	5	AN	Simple	10–15
BYP7	3	E	Simple	10–15
BYP8	5	E	Simple	10–15
BYP9	3, 4	AP	Simple	10–15

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

Learning Objective	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
1. Determine how to classify inventory and inventory quantities.	Q6-2 Q6-6	Q6-1 Q6-4 Q6-3 BE6-1	Q6-5 E6-1	DI6-1 P6-1A E6-1 P6-1B E6-2		
2. Explain the accounting for inventories and apply the inventory cost flow methods.	Q6-8 Q6-10 Q6-19 BE6-2 BE6-5	Q6-7 Q6-9	BE6-3 E6-7 P6-3B BE6-4 E6-8 P6-5A DI6-2 P6-2A P6-5B E6-5 P6-2B P6-6A E6-6 P6-3A P6-6B	E6-3 P6-7B E6-4 P6-4A P6-4B P6-7A		E6-3 E6-4 P6-5A P6-5B
3. Explain the financial effects of the inventory cost flow assumptions.		Q6-11 Q6-12	BE6-5 P6-2A P6-5B BE6-6 P6-2B P6-6A E6-6 P6-3A P6-6B E6-7 P6-3B E6-8 P6-5A	E6-3 P6-4A 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 Q6-14 DI6-3 Q6-15 E6-9 E6-10			
5. Indicate the effects of inventory errors on the financial statements.				Q6-16 E6-11 BE6-8 E6-12		
6. Compute and interpret the inventory turnover.		Q6-17	BE6-9 E6-13 DI6-4 E6-14	Q6-18 BE6-9		
*7. Apply the inventory cost flow methods to perpetual inventory records.		Q6-20 Q6-21	BE6-10 P6-8A E6-15 P6-8B E6-16 P6-9A E6-17 P6-9B			E6-16 E6-17 P6-8A P6-8B
*8. Describe the two methods of estimating inventories.		Q6-22 Q6-23	Q6-24 E6-18 P6-11A Q6-25 E6-19 P6-10B BE6-11 E6-20 P6-11B BE6-12 P6-10A			
Broadening Your Perspective		FASB Codification	Financial Reporting Decision Making Across the Organization FASB Codification	Real-World Focus Communication		Comp. Analysis All About You Ethics Case

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 for a merchandising company 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 Rochelle Company's inventory if the terms of sale are FOB destination.
(2) They will be included in Jay Company's inventory if the terms of sale are FOB shipping point.
(b) Rochelle Company should include goods shipped to another company on consignment in its inventory. Goods held by Rochelle 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. FOB shipping point means that ownership of the goods in transit passes to the buyer when the public carrier accepts the goods from the seller. FOB destination means that ownership of the goods in transit remains with the seller until the goods reach the buyer.

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 used consistently from one accounting period to another.

10. (a) FIFO.
(b) Average-cost.
(c) LIFO.

11. Gumby Company is using the FIFO method of inventory costing, and Pokey 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. Gumby Company will have the higher gross profit because cost of goods sold will include a higher proportion of goods purchased at earlier (lower) costs.

12. Davey 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. Josh 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. Taylor 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. Bonnie 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) Kuzu Company's 2013 net income will be understated $7,000; (b) 2014 net income will be overstated $7,000; and (c) the combined net income for the two years will be correct.

17. Ryder 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. Apple uses the first-in, first-out method for its inventories.

***20.** 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.

***21.** 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.

***22.** 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.

***23.** 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.

***24.** The estimated cost of the ending inventory is $40,000:

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

***25.** The estimated cost of the ending inventory is $28,000:

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

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

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

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 6-1

(a) Ownership of the goods belongs to Farley. Thus, these goods should be included in Farley's inventory.

(b) The goods in transit should not be included in the inventory count because ownership by Farley does not occur until the goods reach the buyer.

(c) The goods being held belong to the customer. They should not be included in Farley's inventory.

(d) Ownership of these goods rests with the other company. Thus, these goods should not be included in the physical inventory.

BRIEF EXERCISE 6-2

The items that should be included in goods available for sale 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
200 X $8 =	1,600
900	$6,200

$6,200 ÷ 900 = $6.89 (rounded).

The cost of the ending inventory is $2,480 or (360 X $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:

	LIFO	FIFO
Purchases	$6 X 120	$6 X 120
	$7 X 200	$7 X 200
	$8 X 140	$8 X 140
Cost of goods available for sale	$ 3,240	$ 3,240
Less: Ending inventory	1,140	1,400
Cost of goods sold	$ 2,100	$ 1,840

Since the cost of goods sold is $260 less under FIFO ($2,100 – $1,840) 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

Inventory Categories	Cost	Market	LCM
Cameras	$12,000	$12,100	$12,000
Camcorders	9,500	9,700	9,500
DVD players	14,000	12,800	12,800
Total valuation			$34,300

BRIEF EXERCISE 6-8

The understatement of ending inventory caused cost of goods sold to be overstated $7,000 and net income to be understated $7,000. The correct net income for 2014 is $97,000 or ($90,000 + $7,000).

Total assets in the balance sheet will be understated by the amount that ending inventory is understated, $7,000.

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

(a) FIFO Method

Product E2-D2

Date	Purchases	Cost of Goods Sold	Balance
May 7	(50 @ $10) $500		(50 @ $10) $500
June 1		(26 @ $10) $260	(24 @ $10) $240
July 28	(30 @ $13) $390		(24 @ $10) (30 @ $13) } $630
Aug. 27		(24 @ $10) (16 @ $13) } $448	(14 @ $13) $182

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

(b) LIFO Method

Product E2-D2

Date	Purchases		Cost of Goods Sold		Balance	
May 7	(50 @ $10)	$500			(50 @ $10)	$500
June 1			(26 @ $10)	$260	(24 @ $10)	$240
July 28	(30 @ $13)	$390			(24 @ $10) (30 @ $13)	} $630
Aug. 27			(30 @ $13) (10 @ $10)	} $490		
					(14 @ $10)	$140

(c) Average-Cost

Product E2-D2

Date	Purchases		Cost of Goods Sold		Balance	
May 7	(50 @ $10)	$500			(50 @ $10)	$500
June 1			(26 @ $10)	$260	(24 @ $10)	$240
July 28	(30 @ $13)	$390			(54 @ $11.67)*	$630
Aug. 27			(40 @ $11.67)	$467	(14 @ $11.67)	$163

***($240 + $390) ÷ 54**

***BRIEF EXERCISE 6-11**

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

***BRIEF EXERCISE 6-12**

	At Cost	At Retail
Goods available for sale	$38,000	$50,000
Net sales		40,000
Ending inventory at retail		$10,000

Cost-to-retail ratio = ($38,000 ÷ $50,000) = 76%
Estimated cost of ending inventory = ($10,000 X 76%) = $7,600

SOLUTIONS FOR DO IT! REVIEW EXERCISES

DO IT! 6-1

Inventory per physical count	$300,000
Inventory out on consignment	26,000
Inventory sold, in transit at year-end	–0–
Inventory purchased, in transit at year-end	17,000
Correct December 31 inventory	$343,000

DO IT! 6-2

Cost of goods available for sale = (3,000 X $5) + (8,000 X $7) = $71,000
Ending inventory = 3,000 + 8,000 – 9,400 = 1,600 units

(a) FIFO: $71,000 – (1,600 X $7) = $59,800
(b) LIFO: $71,000 – (1,600 X $5) = $63,000
(c) Average-cost: $71,000/11,000 = $6.455 per unit
9,400 X $6.455 = $60,677

DO IT! 6-3

(a) The lowest value for each inventory type is: Small $64,000, Medium $260,000, and Large $152,000. The total inventory value is the sum of these figures, $476,000.

(b)

	2013	2014
Ending inventory	$31,000 understated	No effect
Cost of goods sold	$31,000 overstated	$31,000 understated
Owner's equity	$31,000 understated	No effect

DO IT! 6-4

	2013	2014
Inventory turnover	$\frac{\$1,200,000}{(\$180,000 + \$220,000)/2} = 6$	$\frac{\$1,425,000}{(\$220,000 + \$100,000)/2} = 8.9$
Days in inventory	365 ÷ 6 = 60.8 days	365 ÷ 8.9 = 41 days

The company experienced a very significant decline in its ending inventory as a result of the just-in-time inventory. This decline improved its inventory turnover and its days in inventory. It is possible that this increase is the result of a more focused inventory policy. It appears that this change is a win-win situation for Chien Company.

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 Josef until goods are received	**0**
3. Add to inventory: Title passed to Josef when goods were shipped	**22,000**
4. Add to inventory: Title remains with Josef 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	**(44,000)**
Correct inventory	**$310,000**

EXERCISE 6-2

Ending inventory—as reported	**$740,000**
1. Subtract from inventory: The goods belong to Harmon Corporation. Schuda is merely holding them as a consignee	**(250,000)**
2. No effect—title does not pass to Schuda 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	**(14,000)**
4. Add to inventory: The goods belong to Schuda until they are shipped (Jan. 1)	**28,000**
5. Add to inventory: Reza Sales ordered goods with a cost of $8,000. Schuda should record the corresponding sales revenue of $10,000. Schuda's decision to ship extra "unordered" goods does not constitute a sale. The manager's statement that Reza could ship the goods back indicates that Schuda knows this over-shipment is not a legitimate sale. The manager acted unethically in an attempt to improve Schuda'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.....	(40,000)
Correct inventory	$516,000

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

(a)

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)	5,250	11,920
Cost of goods available for sale		14,442
Less: Ending inventory (20 X $105)		2,100
Cost of goods sold		$12,342

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
	121		$12,342

LIFO

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

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
	121		$12,502

(b)

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

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)	420	695
Cost of goods available for sale		935
Less: Ending inventory (25 X $12)		300
Cost of goods sold		$635

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	120
	65		$635

LIFO

Cost of goods available for sale	$935
Less: Ending inventory (25 X $8)	200
Cost of goods sold	$735

Proof

Date	Units	Unit Cost	Total Cost
5/24	35	$12	$420
5/15	25	11	275
5/1	5	8	40
	65		$735

EXERCISE 6-6

(a) FIFO

Beginning inventory (200 X $5)		$1,000
Purchases		
June 12 (400 X $6)	$2,400	
June 23 (300 X $7)	2,100	4,500
Cost of goods available for sale		5,500
Less: Ending inventory (100 X $7)		700
Cost of goods sold		$4,800

LIFO

Cost of goods available for sale	$5,500
Less: Ending inventory (100 X $5)	500
Cost of goods sold	$5,000

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 Kaleta Company, the ending inventory under FIFO is $700 or (100 X $7) compared to $500 or (100 X $5) under LIFO.

(c) The LIFO method will produce the higher cost of goods sold for Kaleta 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 $5,000 or [$5,500 – (100 X $5)] compared to $4,800 or ($5,500 – $700) under FIFO.

EXERCISE 6-7

(a) (1) FIFO

Beginning inventory	$10,000
Purchases	26,000
Cost of goods available for sale	36,000
Less: ending inventory (80 X $130)	10,400
Cost of goods sold	$25,600

(2) LIFO

Beginning inventory	$10,000
Purchases	26,000
Cost of goods available for sale	36,000
Less: ending inventory (80 X $100)	8,000
Cost of goods sold	$28,000

(3) AVERAGE-COST

Beginning inventory	$10,000
Purchases	26,000
Cost of goods available for sale	36,000
Less: ending inventory (80 X $120)	9,600
Cost of goods sold	$26,400

(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 Lisa 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
$5,500		900		$6.11

Ending inventory (100 X $6.11)	$ 611
Cost of goods sold (800 X $6.11)	4,889

(b) Ending inventory is lower than FIFO ($700) and higher than LIFO ($500). In contrast, cost of goods sold is higher than FIFO ($4,800) and lower than LIFO ($5,000).

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

EXERCISE 6-9

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

EXERCISE 6-10

	Cost	Market	Lower -of-Cost- or-Market:
Cameras	$ 6,500	$ 7,100	$ 6,500
DVD players	11,250	10,050	10,050
Ipods	10,000	9,750	9,750
Total inventory	$27,750	$26,900	$26,300

EXERCISE 6-11

	2013	2014
Beginning inventory	$ 20,000	$ 27,000
Cost of goods purchased	150,000	175,000
Cost of goods available for sale	170,000	202,000
Corrected ending inventory	27,000[a]	41,000[b]
Cost of goods sold	$143,000	$161,000

[a]$30,000 – $3,000 = $27,000. [b]$35,000 + $6,000 = $41,000.

EXERCISE 6-12

(a)

	2013	2014
Sales	$220,000	$250,000
Cost of goods sold		
Beginning inventory	32,000	38,000
Cost of goods purchased	173,000	202,000
Cost of goods available for sale	205,000	240,000
Ending inventory ($44,000 – $6,000)	38,000	52,000
Cost of goods sold	167,000	188,000
Gross profit	$ 53,000	$ 62,000

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

Incorrect gross profits:	$59,000 + $56,000 =	$115,000
Correct gross profits:	$53,000 + $62,000 =	115,000
Difference		$ 0

(c) Dear Mr./Ms. President:

Because your ending inventory of December 31, 2013 was overstated by $6,000, your net income for 2013 was overstated by $6,000. For 2014 net income was understated by $6,000.

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 2013, 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 2013. The inventory reported in the balance sheet is overstated; therefore, total assets are overstated. The overstatement of the 2013 net income results in the capital account balance being overstated. The balance sheet at the end of 2014 is correct because the overstatement of the capital account at the end of 2013 is offset by the understatement of the 2014 net income and the inventory at the end of 2014 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

	2012	2013	2014
Inventory turnover	$\frac{\$900,000}{(\$100,000 + \$300,000) \div 2}$	$\frac{\$1,120,000}{(\$300,000 + \$400,000) \div 2}$	$\frac{\$1,300,000}{(\$400,000 + \$480,000) \div 2}$
	$\frac{\$900,000}{\$200,000} = 4.5$	$\frac{\$1,120,000}{\$350,000} = 3.2$	$\frac{\$1,300,000}{\$440,000} = 2.95$
Days in inventory	$\frac{365}{4.5} = 81.1$ days	$\frac{365}{3.2} = 114.1$ days	$\frac{365}{2.95} = 123.7$ 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 decreased by approximately 34% from 2012 to 2014 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, Quick's Photo gross profit rate increased by 28% from 2012 to 2014, which is a positive sign.

EXERCISE 6-14

(a)	Alpha Company	Omega Company
Inventory Turnover	$190,000 / ($45,000 + $55,000)/2 = 3.80	$292,000 / ($71,000 + $69,000)/2 = 4.17
Days in Inventory	365/3.80 = 96 days	365/4.17 = 88 days

(b) Omega Company is moving its inventory more quickly, since its inventory turnover is higher, and its days in inventory is lower.

*EXERCISE 6-15

(1) FIFO

Date	Purchases	Cost of Goods Sold	Balance
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) LIFO

Date	Purchases	Cost of Goods Sold	Balance
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) MOVING-AVERAGE COST

Date	Purchases	Cost of Goods Sold	Balance
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) ÷ 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	400 @ $6	2,400
June 23 Purchase	300 @ $7	2,100
Total cost of goods available for sale		$5,500

FIFO

Date	Purchases	Cost of Goods Sold		Balance	
June 1				(200 @ $5)	$1,000
June 12	(400 @ $6) $2,400			(200 @ $5) (400 @ $6)	$3,400
June 15		(200 @ $5)	$1,000		
		(240 @ $6)	1,440	(160 @ $6)	$ 960
June 23	(300 @ $7) $2,100			(160 @ $6) (300 @ $7)	$3,060
June 27		(160 @ $6)	960		
		(200 @ $7)	1,400	(100 @ $7)	$ 700
			$4,800		

Ending inventory: $700. Cost of goods sold: $5,500 – $700 = $4,800.

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

LIFO

Date	Purchases		Cost of Goods Sold		Balance	
June 1					(200 @ $5)	$1,000
June 12	(400 @ $6)	$2,400			(200 @ $5) (400 @ $6)	$3,400
June 15			(400 @ $6)	$2,400		
			(40 @ $5)	$ 200	(160 @ $5)	$ 800
June 23	(300 @ $7)	$2,100			(160 @ $5) (300 @ $7)	$2,900
June 27			(300 @ $7)	$2,100		
			60 @ $5	300	(100 @ $5)	$ 500
				$5,000		

Ending inventory: $500. Cost of goods sold: $5,500 – $500 = $5,000.

Moving-Average Cost

Date	Purchases		Cost of Goods Sold		Balance	
June 1					(200 @ $5)	$1,000
June 12	(400 @ $6)	$2,400			(600 @ $5.666)	$3,400
June 15			(440 @ $5.666)	$2,493	(160 @ $5.666)	$ 907
June 23	(300 @ $7)	$2,100			(460 @ $6.537)	$3,007
June 27			(360 @ $6.537)	$2,353	(100 @ $6.537)	$ 654
				$4,846		

Ending inventory: $654. Cost of goods sold: $5,500 – $654 = $4,846.

(b) FIFO gives the same ending inventory and cost of goods sold values under both the periodic and perpetual inventory system. LIFO and average-cost normally give different ending inventory and cost of goods sold values under the periodic and perpetual inventory systems, but in this case LIFO gives the same results.

(c) The simple average would be [($5 + $6 + $7) ÷ 3)] or $6. However, the moving-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

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			(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

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			(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 @ $ 97)	
			(9 @ $104)	$6,186	(11 @ $104)	$2,017

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

Moving-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 usually yields different ending inventory values when using the periodic versus perpetual inventory system.

***EXERCISE 6-18**

(a)	**Sales**		**$840,000**
	Cost of goods sold		
	Inventory, November 1	**$130,000**	
	Cost of goods purchased	**536,000**	
	Cost of goods available for sale	**666,000**	
	Inventory, December 31	**120,000**	
	Cost of goods sold		**546,000**
	Gross profit		**$294,000**

Gross profit rate $294,000/$840,000 = 35%

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

(b)	**Sales**	**$1,000,000**
	Less: Estimated gross profit (35% X $1,000,000)	**350,000**
	Estimated cost of goods sold	**$ 650,000**
	Beginning inventory	**$120,000**
	Cost of goods purchased	**610,000**
	Cost of goods available for sale	**730,000**
	Less: Estimated cost of goods sold	**650,000**
	Estimated cost of ending inventory	**$ 80,000**

***EXERCISE 6-19**

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

*EXERCISE 6-20

	Women's Shoes		Men's Shoes	
	Cost	Retail	Cost	Retail
Beginning inventory	$ 25,000	$ 46,000	$ 45,000	$ 60,000
Goods purchased	110,000	179,000	136,300	185,000
Goods available for sale	$135,000	225,000	$181,300	245,000
Net sales		178,000		185,000
Ending inventory at retail		$ 47,000		$ 60,000
Cost-to-retail ratio	$135,000 / $225,000 = 60%		$181,300 / $245,000 = 74%	
Estimated cost of ending inventory	$47,000 X 60% = $28,200		$60,000 X 74% = $44,400	

PROBLEM 6-1A

(a) The sale will be recorded on February 26. The goods (cost, $800) should be excluded from Austin's February 28 inventory.

(b) Austin owns the goods once they are shipped on February 26. Include inventory of $480.

(c) Include $650 in inventory.

(d) Exclude the items from Austin's inventory. Title remains with the consignor.

(e) Title of the goods does not transfer to Austin until March 2. Exclude this amount from the February 28 inventory.

(f) Title to the goods does not transfer to the customer until March 2. The $200 cost should be included in ending inventory.

PROBLEM 6-2A

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

Date	Explanation	Units	Unit Cost	Total Cost
Oct. 1	Beginning Inventory	2,000	$7	$ 14,000
3	Purchase	2,500	8	20,000
9	Purchase	3,500	9	31,500
19	Purchase	3,000	10	30,000
25	Purchase	4,000	11	44,000
	Total	15,000		$139,500

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
Oct. 25	4,000	$11	$44,000
19	100	10	1,000
	4,100*		$45,000

(2) Cost of Goods Sold

Cost of goods available for sale	$139,500
Less: Ending inventory	45,000
Cost of goods sold	$ 94,500

*15,000 – 10,900 = 4,100

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
Oct. 1	2,000	$7	$14,000
3	2,500	8	20,000
9	3,500	9	31,500
19	2,900	10	29,000
	10,900		$94,500

LIFO

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
Oct. 1	2,000	$7	$14,000
3	2,100	8	16,800
	4,100		$30,800

(2) Cost of Goods Sold

Cost of goods available for sale	$139,500
Less: Ending inventory	30,800
Cost of goods sold	$108,700

PROBLEM 6-2A (Continued)

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
Oct. 25	4,000	$11	$ 44,000
19	3,000	10	30,000
9	3,500	9	31,500
3	400	8	3,200
	10,900		$108,700

AVERAGE COST

(1) Ending Inventory

$139,500 ÷ 15,000 = $9.30

Units	Unit Cost	Total Cost
4,100	$9.30	$38,130

(2) Cost of Goods Sold

Cost of goods available for sale	$139,500
Less: Ending inventory	38,130
Cost of goods sold	$101,370

(c) (1) FIFO results in the highest inventory amount for the balance sheet, $45,000.

(2) LIFO results in the highest cost of goods sold, $108,700.

PROBLEM 6-3A

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

Date	Explanation	Units	Unit Cost	Total Cost
1/1	Beginning Inventory	150	$20	$ 3,000
3/15	Purchase	400	23	9,200
7/20	Purchase	250	24	6,000
9/4	Purchase	350	26	9,100
12/2	Purchase	100	29	2,900
	Total	1,250		$30,200

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
12/2	100	$29	$2,900
9/4	150	26	3,900
	250		$6,800

(2) Cost of Goods Sold

Cost of goods available for sale	$30,200
Less: Ending inventory	6,800
Cost of goods sold	$23,400

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
1/1	150	$20	$ 3,000
3/15	400	23	9,200
7/20	250	24	6,000
9/4	200	26	5,200
	1,000		$23,400

LIFO

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
1/1	150	$20	$3,000
3/15	100	23	2,300
	250		$5,300

(2) Cost of Goods Sold

Cost of goods available for sale	$30,200
Less: Ending inventory	5,300
Cost of goods sold	$24,900

PROBLEM 6-3A (Continued)

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
12/2	100	$29	$ 2,900
9/4	350	26	9,100
7/20	250	24	6,000
3/15	300	23	6,900
	1,000		$24,900

AVERAGE COST

(1) Ending Inventory

$30,200 ÷ 1,250 = $24.16

Units	Unit Cost	Total Cost
250	$24.16	$6,040

(2) Cost of Goods Sold

Cost of goods available for sale	$30,200
Less: Ending inventory	6,040
Cost of goods sold	$24,160

Proof of Cost of Goods Sold

1,000 units X $24.16 = $24,160

(c) (1) FIFO results in the highest inventory amount, $6,800, as shown in (b) above.

(2) LIFO produces the highest cost of goods sold, $24,900 as shown in (b) above.

PROBLEM 6-4A

(a)

Felipe INC.
Condensed Income Statements
For the Year Ended December 31, 2014

	FIFO	LIFO
Sales revenue	$747,000	$747,000
Cost of goods sold		
Beginning inventory	14,000	14,000
Cost of goods purchased	466,000	466,000
Cost of goods available for sale	480,000	480,000
Ending inventory	45,900[a]	36,000[b]
Cost of goods sold	434,100	444,000
Gross profit	312,900	303,000
Operating expenses	130,000	130,000
Income before income taxes	182,900	173,000
Income tax expense (40%)	73,160	69,200
Net income	$109,740	$103,800

[a] 17,000 X $2.70 = $45,900.
[b] $14,000 + (10,000 X $2.20) = $36,000.

(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 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 $3,960 additional cash available under LIFO because income taxes are $69,200 under LIFO and $73,160 under FIFO.

(5) Gross profit under the average cost method will be: (a) lower than FIFO and (b) higher than LIFO.

PROBLEM 6-5A

(a) Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
June 1	Beginning Inventory	40	$40	$ 1,600
June 4	Purchase	135	44	5,940
June 18	Purchase	55	46	2,530
June 18	Purchase return	(10)	46	(460)
June 28	Purchase	30	50	1,500
	Total	250		$11,110

Ending Inventory in Units:

Units available for sale	250
Sales (110 – 15 + 65)	160
Units remaining in ending inventory	90

Sales Revenue

Date	Units	Unit Price	Total Sales
June 10	110	$70	$ 7,700
11	(15)	70	(1,050)
25	65	75	4,875
	160		$11,525

(1) LIFO

(i) Ending Inventory

June 1	40 @ $40	$1,600
4	50 @ 44	2,200
	90	$3,800

(ii) Cost of Goods Sold

Cost of goods available for sale	$11,110
Less: Ending inventory	3,800
Cost of goods sold	$ 7,310

(iii) Gross Profit

Sales revenue	$11,525
Cost of goods sold	7,310
Gross profit	$ 4,215

(iv) Gross Profit Rate

$$\frac{\text{Gross profit } \$\ 4,215}{\text{Net sales } \$11,525} = 36.6\%$$

PROBLEM 6-5A (Continued)

(2) FIFO

(i) Ending Inventory

June 28	30 @ $50	$1,500
18	45 @ $46	2,070
4	15 @ $44	660
	90	$4,230

(ii) Cost of Goods Sold

Cost of goods available for sale	$11,110
Less: Ending inventory	4,230
Cost of goods sold	$ 6,880

(iii) Gross Profit

Sales revenue	$11,525
Cost of goods sold	6,880
Gross profit	$ 4,645

(iv) Gross Profit Rate

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{\$\ 4,645}{\$11,525} = 40.3\%$$

(3) Average-Cost

Weighted-average cost per unit:

$$\frac{\text{Cost of goods available for sale}}{\text{Units available for sale}}$$

$$\frac{\$11,110}{250} = \$44.44$$

(i) Ending Inventory

90 units @$44.44	3,999.60

(ii) Cost of Goods Sold

Cost of goods available for sale	$11,110.00
Less: Ending inventory	3,999.60
Cost of goods sold	$ 7,110.40

(iii) Gross Profit

Sales revenue	$11,525.00
Cost of goods sold	7,110.40
Gross profit	$ 4,414.60

(iv) Gross Profit Rate

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{\$\ 4,414.60}{\$11,525.00} = 38.3\%$$

(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 6-6A

(a)

BARTON INC.
Income Statement (partial)
For the Year Ended December 31, 2014

	Specific Identification	FIFO	LIFO
Sales revenue[a]	$8,915	$8,915	$8,915
Beginning inventory	1,200	1,200	1,200
Purchases[b]	6,505	6,505	6,505
Cost of goods available for sale	7,705	7,705	7,705
Ending inventory[c]	2,505	2,720	2,175
Cost of goods sold	5,200	4,985	5,530
Gross profit	$3,715	$3,930	$3,385

[a](2,300 @ $1.05) + (5,200 @ $1.25)
[b](2,500 @ $ .65) + (4,000 @ $.72) + (2,500 @ $.80)
[c]Specific identification ending inventory consists of:

Beginning inventory (2,000 liters – 1,000 – 450)	550 @ $.60	$ 330.00
March 3 purchase (2,500 liters – 1,300 – 550)	650 @ $.65	422.50
March 10 purchase (4,000 liters – 2,900)	1,100 @ $.72	792.00
March 20 purchase (2,500 liters – 1,300)	1,200 @ $.80	960.00
	3,500 liters	$2,504.50

FIFO ending inventory consists of:

March 20 purchase	2,500 @ $.80	$2,000
March 10 purchase	1,000 @ $.72	720
	3,500 liters	$2,720

LIFO ending inventory consists of:

Beginning inventory	2,000 @ $.60	$1,200
March 3 purchase	1,500 @ $.65	975
	3,500 liters	$2,175

(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 6-7A

(a)

Sherlynn CO.
Condensed Income Statement
For the Year Ended December 31, 2014

	FIFO	LIFO
Sales revenue	$700,000	$700,000
Cost of goods sold		
Beginning inventory	45,000	45,000
Cost of goods purchased	532,000	532,000
Cost of goods available for sale	577,000	577,000
Ending inventory	168,000[a]	147,000[b]
Cost of goods sold	409,000	430,000
Gross profit	291,000	270,000
Operating expenses	140,000	140,000
Income before income taxes	151,000	130,000
Income tax expense (30%)	45,300	39,000
Net income	$105,700	$ 91,000

[a](30,000 @ $5.60) = $168,000.
[b](10,000 @ $4.50) + (20,000 @ $5.10) = $147,000.

(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 $6,300 additional cash available under LIFO because income taxes are $39,000 under LIFO and $45,300 under FIFO.

(5) The illusionary gross profit is $21,000 or ($291,000 – $270,000). Under LIFO, Sherlynn Co. has recovered the current replacement cost of the units ($430,000), whereas under FIFO, it has only recovered the earlier costs ($409,000). This means that, under FIFO, the company must reinvest at least $21,000 of the gross profit to replace the units used.

*PROBLEM 6-8A

(a)

Sales:

January 8	110 units @ $28	$3,080
January 10 (return)	(10 units @ $28)	(280)
January 20	90 units @ $32	2,880
	190 units	$5,680

(1) LIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(100 @ $15)	$1,500
January 5	(140 @ $18) $2,520			(100 @ $15) (140 @ $18)	$4,020
January 8		(110 @ $18)	$1,980	(100 @ $15) (30 @ $18)	$2,040
January 10		(–10 @ $18)	($ 180)	(100 @ $15) (40 @ $18)	$2,220
January 15	(55 @ $20) $1,100			(100 @ $15) (40 @ $18) (55 @ $20)	$3,320
January 16	(–5 @ $20) ($ 100)			(100 @ $15) (40 @ $18) (50 @ $20)	$3,220
January 20		(50 @ $20) (40 @ $18)	$1,720	(100 @ $15)	$1,500
January 25	(20 @ $22) $ 440			(100 @ $15) (20 @ $22)	$1,940
			$3,520		

(i) Cost of goods sold = $3,520. (ii) Ending inventory = $1,940. (iii) Gross profit = $5,680 – $3,520 = $2,160.

*PROBLEM 6-8A (Continued)

(2) FIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(100 @ $15)	$1,500
January 5	(140 @ $18) $2,520			(100 @ $15) (140 @ $18)	$4,020
January 8		(100 @ $15) (10@ $18)	$1,680	(130 @ $18)	$2,340
January 10		(–10 @ $18)	($ 180)	(140 @ $18)	$2,520
January 15	(55 @ $20) $1,100			(140 @ $18) (55 @ $20)	$3,620
January 16	(–5 @ $20)($ 100)			(140 @ $18) (50 @ $20)	$3,520
January 20		(90 @ $18)	$1,620	(50 @ $18) (50 @ $20)	$1,900
January 25	(20 @ $22) $ 440			(50 @ $18) (50 @ $20) (20 @ $22)	$2,340
			$3,120		

(i) Cost of goods sold = $3,120. (ii) Ending inventory = $2,340. (iii) Gross profit = $5,680 – $3,120 = $2,560.

(3) Moving-Average Cost

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(100 @ $15)	$1,500
January 5	(140 @ $18) $2,520			(240 @ $16.75)[a]	$4,020
January 8		(110 @ $16.75)	$1,843	(130 @ $16.75)	$2,177
January 10		(–10 @ $16.75)	($ 168)	(140 @ $16.75)	$2,345
January 15	(55 @ $20) $1,100			(195 @ $17.667)[b]	$3,445
January 16	(–5 @ $20) ($ 100)			(190 @ $17.605)[c]	$3,345
January 20		(90 @ $17.605)	$1,584	(100 @ $17.605)	$1,761
January 25	(20 @ $22) $ 440			(120 @ $18.342)[d]	$2,201
			$3,259		

*rounded

[a] $4,020 ÷ 240 = $16.75
[b] $3,445 ÷ 195 = $17.667
[c] $3,345 ÷ 190 = $17.61
[d] $2,201 ÷ 120 = $18.342

(i) Cost of goods sold = $3,259. (ii) Ending inventory = $2,201. (iii) Gross profit = $5,680 – $3,259 = $2,421.

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

(b)

Gross profit:	LIFO	FIFO	Moving-Average Cost
Sales	$5,680	$5,680	$5,680
Cost of goods sold	3,520	3,120	3,259
Gross profit	$2,160	$2,560	$2,421
Ending inventory	$1,940	$2,340	$2,201

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 moving-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	
July 1	(5 @ $120)	$ 600			(5 @ $120)	$ 600
6			(4 @ $120)	$480	(1 @ $120)	$ 120
11	(7 @ $136)	$ 952			(1 @ $120) (7 @ $136)	} $1,072
14			(1 @ $120) (2 @ $136)	} $392	(5 @ $136)	$ 680
21	(8 @ $147)	$1,176			(5 @ $136) (8 @ $147)	} $1,856
27			(5 @ $136) (1 @ $147)	} $827	(7 @ $147)	$1,029

(2) MOVING-AVERAGE COST

Date	Purchases		Cost of Goods Sold		Balance	
July 1	(5 @ $120)	$ 600			(5 @ $120)	$ 600
6			(4 @ $120)	$480	(1 @ $120)	$ 120
11	(7 @ $136)	$ 952			(8 @ $134)*	$1,072
14			(3 @ $134)	$402	(5 @ $134)	$ 670
21	(8 @ $147)	$1,176			(13 @ $142)**	$1,846
27			(6 @ $142)	$852	(7 @ $142)	$ 994

*$1,072 ÷ 8 = $134
**$1,846 ÷ 13 = $142

(3) LIFO

Date	Purchases		Cost of Goods Sold		Balance	
July 1	(5 @ $120)	$ 600			(5 @ $120)	$ 600
6			(4 @ $120)	$480	(1 @ $120)	$ 120
11	(7 @ $136)	$ 952			(1 @ $120) (7 @ $136)	} $1,072
14			(3 @ $136)	$408	(1 @ $120) (4 @ $136)	} $ 664
21	(8 @ $147)	$1,176			(1 @ $120) (4 @ $136) (8 @ $147)	} $1,840
27			(6 @ $147)	$882	(1 @ $120) (4 @ $136) (2 @ $147)	} $ 958

(b) The highest ending inventory is $1,029 under the FIFO method.

*PROBLEM 6-10A

(a)

			November
Net sales			$600,000
Cost of goods sold			
Beginning inventory		$ 32,000	
Purchases	$389,000		
Less: Purchase returns and allowances	13,300		
Purchase discounts	8,500		
Add: Freight-in	8,800		
Cost of goods purchased		376,000	
Cost of goods available for sale		408,000	
Ending inventory		36,000	
Cost of goods sold			372,000
Gross profit			$228,000

$$\text{Gross profit rate} = \frac{\$228,000}{\$600,000} = 38\%$$

(b)

Net sales			$700,000
Less: Estimated gross profit (38% X $700,000)			266,000
Estimated cost of goods sold			$434,000
Beginning inventory			$ 36,000
Purchases		$420,000	
Less: Purchase returns and allowances	$14,900		
Purchase discounts	9,500	24,400	
Net purchases		395,600	
Freight-in		9,900	
Cost of goods purchased			405,500
Cost of goods available for sale			441,500
Less: Estimated cost of goods sold			434,000
Estimated inventory lost in fire			$ 7,500

*PROBLEM 6-11A

(a)

	Hardcovers		Paperbacks	
	Cost	Retail	Cost	Retail
Beginning inventory	$ 420,000	$ 700,000	$ 280,000	$ 360,000
Purchases	2,135,000	3,200,000	1,155,000	1,540,000
Freight-in	24,000		12,000	
Purchase discounts	(44,000)		(22,000)	
Goods available for sale	$2,535,000	3,900,000	$1,425,000	1,900,000
Net sales		3,100,000		1,570,000
Ending inventory at retail		$ 800,000		$ 330,000

Cost-to-retail ratio:

Hardcovers—$2,535,000 ÷ $3,900,000 = 65%.
Paperbacks—$1,425,000 ÷ $1,900,000 = 75%.

Estimated ending inventory at cost:

$800,000 X 65% = $520,000—Hardcovers.
$330,000 X 75% = $247,500—Paperbacks.

(b) Hardcovers—$790,000 X 65% = $513,500.
Paperbacks—$335,000 X 75% = $251,250.

SOLUTIONS TO PROBLEMS

PROBLEM 6-1B

(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. Weber 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 in inventory.

(d) Include $400 in 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 6-2B

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

Date	Explanation	Units	Unit Cost	Total Cost
March 1	Beginning Inventory	1,500	$ 7	$ 10,500
5	Purchase	3,000	8	24,000
13	Purchase	4,500	9	40,500
21	Purchase	4,000	10	40,000
26	Purchase	2,500	11	27,500
	Total	15,500		$142,500

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
March 26	2,500	$11	$27,500
21	1,000	10	10,000
	3,500*		$37,500

(2) Cost of Goods Sold

Cost of goods available for sale	$142,500
Less: Ending inventory	37,500
Cost of goods sold	$105,000

*15,500 – 12,000 = 3,500

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
March 1	1,500	$ 7	$ 10,500
5	3,000	8	24,000
13	4,500	9	40,500
21	3,000	10	30,000
	12,000		$105,000

PROBLEM 6-2B (Continued)

LIFO

(1) Ending Inventory				(2) Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost	Cost of goods available for sale	$142,500
March 1	1,500	$7	$10,500	Less: Ending inventory	26,500
5	2,000	8	16,000	Cost of goods sold	$116,000
	3,500		$26,500		

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
March 26	2,500	$11	$27,500
21	4,000	10	40,000
13	4,500	9	40,500
5	1,000	8	8,000
	12,000		$116,000

AVERAGE-COST

(1) Ending Inventory			(2) Cost of Goods Sold	
$142,500 ÷ 15,500 = $9.194			Cost of goods available for sale	$142,500
Units	Unit Cost	Total Cost	Less: Ending inventory	32,179
3,500	$9.194	$32,179*	Cost of goods sold	$110,321

*rounded to nearest dollar

(c) (1) As shown in (b) above, FIFO produces the highest inventory amount, $37,500.

(2) As shown in (b) above, LIFO produces the highest cost of goods sold, $116,000.

PROBLEM 6-3B

(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	2,000		$19,300

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
12/8	200	$12	$2,400
8/12	300	11	3,300
	500		$5,700

(2) Cost of Goods Sold

Cost of goods available for sale	$19,300
Less: Ending inventory	5,700
Cost of goods sold	$13,600

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
	1,500		$13,600

PROBLEM 6-3B (Continued)

(b) **LIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
1/1	400	$8	$3,200
2/20	100	9	900
	500		$4,100

(2) Cost of Goods Sold

Cost of goods available for sale	$19,300
Less: Ending inventory	4,100
Cost of goods sold	$15,200

Proof of Cost of Goods Sold

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

AVERAGE-COST

(1) Ending Inventory

$19,300 ÷ 2,000 = $9.65

Units	Unit Cost	Total Cost
500	$9.65	$4,825

(2) Cost of Goods Sold

Cost of goods available for sale	$19,300
Less: Ending inventory	4,825
Cost of goods sold	$14,475

Proof of Cost of Goods Sold

1,500 units X 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 6-4B

(a)

Patel CO.
Condensed Income Statement
For the Year Ended December 31, 2014

	FIFO	LIFO
Sales revenue	$865,000	$865,000
Cost of goods sold		
Beginning inventory	32,000	32,000
Cost of goods purchased	600,000	600,000
Cost of goods available for sale	632,000	632,000
Ending inventory	78,400[a]	63,200[b]
Cost of goods sold	553,600	568,800
Gross profit	311,400	296,200
Operating expenses	147,000	147,000
Income before income taxes	164,400	149,200
Income tax expense (34%)	55,896	50,728
Net income	$108,504	$98,472

[a]28,000 X $2.80 = $78,400. [b]$32,000 + (13,000 X $2.40) = $63,200.

(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 $5,168 additional cash available under LIFO because income taxes are $50,728 under LIFO and $55,896 under FIFO.

(5) Gross profit under the average cost method will be: (a) lower than FIFO and (b) higher than LIFO.

PROBLEM 6-5B

Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
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	330		$8,750

Ending Inventory in Units:

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

Sales Revenue

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

(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	1,500
Cost of goods sold	$7,250

(iii) Gross Profit

Sales revenue	$10,300
Cost of goods sold	7,250
Gross profit	$ 3,050

(iv) Gross Profit Rate

$$\frac{\text{Gross profit } \$3,050}{\text{Net sales } \$10,300} = 29.6\%$$

PROBLEM 6-5B (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

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{\$\ 3,230}{\$10,300} = 31.4\%$$

(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

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{\$\ 3,141}{\$10,300} = 30.5\%$$

(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 6-6B

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

Sale Date	Cost of Goods Sold		Sales Revenue	
March 5	150 @ $300	$ 45,000	180 @ $600	$108,000
	30 @ $360	10,800	400 @ $650	260,000
March 25	170 @ $360	61,200		
	230 @ $380	87,400		
	580	$204,400	580	$368,000

Gross profit $368,000 – $204,400 = $163,600.

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

Sale Date	Cost of Goods Sold		Sales Revenue	
March 5	180 @ $360	$ 64,800	180 @ $600	$108,000
March 25	350 @ $380	133,000	400 @ $650	260,000
	20 @ $360	7,200		
	30 @ $300	9,000		
	580	$214,000	580	$368,000

Gross profit $368,000 – $214,000 = $154,000.

(b) FIFO

Cost of goods available for sale

March 1	Beginning inventory	150 @ $300	$ 45,000
3	Purchase	200 @ $360	72,000
10	Purchase	350 @ $380	133,000
		700	$250,000

Goods available for sale	700	
Units sold	580	
Ending inventory	120 @ $380	$45,600

PROBLEM 6-6B (Continued)

Goods available for sale	**$250,000**
– Ending inventory	**45,600**
Cost of goods sold	**$204,400**

Gross profit: $368,000 – $204,400 = $163,600.

(c) LIFO

Cost of goods available for sale (from part b)		**$250,000**
– Ending inventory	**120 @ $300**	**36,000**
Cost of goods sold		**$214,000**

Gross profit: $368,000 – $214,000 = $154,000.

(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 6-7B

(a)

Chelsea INC.
Condensed Income Statement
For the Year Ended December 31, 2014

	FIFO	LIFO
Sales revenue	$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	$ 92,880	$ 79,560

[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 6-7B (Continued)

(5) The illusionary gross profit is $18,500 or ($259,000 – $240,500). Under LIFO, Chelsea 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 Chelsea Inc.

After preparing the comparative condensed income statements for 2014 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 illusionary gross profit of $18,500 ($259,000 – $240,500) under FIFO. 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 6-8B

(a)

Sales:

Date		
January 6	150 units @ $40	$ 6,000
January 9 (return)	(10 units @ $40)	(400)
January 10	60 units @ $45	2,700
January 30	110 units @ $50	5,500
Total sales		$13,800

(1) LIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(160 @ $17)	$2,720
January 2	(100 @ $21) $2,100			(160 @ $17) (100 @ $21)	$4,820
January 6		(100 @ $21) (50 @ $17)	$2,950	(110 @ $17)	$1,870
January 9	(80 @ $24) $1,920			(120 @ $17)	
January 9		(–10 @ $17)	($ 170)	(80 @ $24)	$3,960
January 10	(–10 @ $24) ($ 240)			(120 @ $17) (70 @ $24)	$3,720
January 10		(60 @ $24)	$1,440	(120 @ $17) (10 @ $24)	$2,280
January 23	(100 @ $28) $2,800			(120 @ $17) (10 @ $24) (100 @ $28)	$5,080
January 30		(100 @ $28) (10 @ $24)	$3,040	(120 @ $17)	$2,040
			$7,260		

(i) Cost of goods sold: = $7,260. (ii) Ending inventory = $2,040. (iii) Gross profit = $13,800 – $7,260 = $6,540

*PROBLEM 6-8B (Continued)

(2) FIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(160 @ $17)	$2,720
January 2	(100 @ $21) $2,100			(160 @ $17) (100 @ $21)	$4,820
January 6		(150 @ $17)	$2,550	(10 @ $17) (100 @ $21)	$2,270
January 9		(–10 @ $17)	($ 170)		
January 9	(80 @ $24) $1,920			(20 @ $17) (100 @ $21) (80 @ $24)	$4,360
January 10	(–10 @ $24) ($ 240)			(20 @ $17) (100 @ $21) (70 @ $24)	$4,120
January 10		(20 @ $17) (40 @ $21)	$1,180	(60 @ $21) (70 @ $24)	$2,940
January 23	(100 @ $28) $2,800			(60 @ $21) (70 @ $24) (100 @ $28)	$5,740
January 30		(60 @ $21) (50 @ $24)	$2,460	(20 @ $24) (100 @ $28)	$3,280
			$6,020		

(i) Cost of goods sold = $6,020. (ii) Ending inventory = $3,280. (iii) Gross profit = $13,800 – $6,020 = $7,780.

(3) Moving-Average

Date	Purchases	Cost of goods sold		Balance	
January 1				(160 @ $17)	$2,720
January 2	(100 @ $21) $2,100			(260 @ $18.538)[a]	$4,820
January 6		(150 @ $18.538)	$2,781	(110 @ $18.538)	$2,039
January 9		(–10 @ $18.538)	($ 185)	(120 @ $18.538)	$2,224
January 9	(80 @ $24) $1,920			(200 @ $20.72)[b]	$4,144
January 10	(–10 @ $24) ($ 240)			(190 @ $20.547)[c]	$3,904
January 10		(60 @ $20.547)	$1,233	(130 @ $20.547)	$2,671
January 23	(100 @ $28) $2,800			(230 @ $23.787)[d]	$5,471
January 30		(110 @ $23.787)	$2,617	(120 @ $23.787)	$2,854
			$6,446		

[a] $4,820 ÷ 260 = $18.538
[b] $4,144 ÷ 200 = $20.72
[c] $3,904 ÷ 190 = $20.547
[d] $5,471 ÷ 230 = $23.787

(i) Cost of goods sold = $6,446. (ii) Ending inventory = $2,854. (iii) Gross profit = $13,800 – $6,446 = $7,354.

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

(b)

Gross profit:	LIFO	FIFO	Moving-Average
Sales	$13,800	$13,800	$13,800
Cost of goods sold	7,260	6,020	6,446
Gross profit	$ 6,540	$ 7,780	$ 7,354
Ending inventory	$ 2,040	$ 3,280	$ 2,854

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 the moving average-cost results in an ending inventory falling between the other two.

*PROBLEM 6-9B

(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) MOVING-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 6-9B (Continued)

(3) **LIFO**

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			(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 6-10B

(a)

		February	
Net sales			$300,000
Cost of goods sold			
Beginning inventory		$ 4,500	
Net purchases	$176,800		
Add: Freight-in	3,900		
Cost of goods purchased		180,700	
Cost of goods available for sale		185,200	
Ending inventory		20,200	
Cost of goods sold			165,000
Gross profit			$135,000

$$\text{Gross profit rate} = \frac{\$135,000}{\$300,000} = 45\%$$

(b)

Net sales			$250,000
Less: Estimated gross profit (45% X $250,000)			112,500
Estimated cost of goods sold			$137,500
Beginning inventory			$ 20,200
Net purchases		$139,000	
Add: Freight-in		3,000	
Cost of goods purchased			142,000
Cost of goods available for sale			162,200
Less: Estimated cost of goods sold			137,500
Estimated total cost of ending inventory			24,700
Less: Inventory not lost (30% X $24,700)			7,410
Estimated inventory lost in fire (70% X $24,700)			$ 17,290

*PROBLEM 6-11B

(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	$693,000	1,100,000	$780,000	1,200,000
Net sales		(1,000,000)		(1,160,000)
Ending inventory at retail		$ 100,000		$ 40,000

Cost-to-retail ratio:

Sporting Goods—$693,000 ÷ $1,100,000 = 63%.
Jewelry and Cosmetics—$780,000 ÷ $1,200,000 = 65%.

Estimated ending inventory at cost:

$100,000 X 63% = $63,000—Sporting Goods.
$ 40,000 X 65% = $26,000—Jewelry and Cosmetics.

(b) Sporting Goods—$95,000 X 60% = $57,000.
Jewelry and Cosmetics—$44,000 X 64% = $28,160.

COMPREHENSIVE PROBLEM SOLUTION

(a) Dec.	3	Inventory (4,000 X $0.72)	2,880	
		Accounts Payable		2,880
	5	Accounts Receivable (4,400 X $0.90)	3,960	
		Sales Revenue		3,960
		Cost of Good Sold	2,808	
		Inventory (3,000 X $0.60) + (1,400 X $0.72)		2,808
	7	Sales Returns and Allowances	180	
		Accounts Receivable		180
		Inventory	120	
		Cost of Good Sold		120
	17	Inventory (2,200 X $0.80)	1,760	
		Cash		1,760
	22	Accounts Receivable (2,000 X $0.95)	1,900	
		Sales Revenue		1,900
		Cost of Goods Sold (2,000 X $0.72)	1,440	
		Inventory		1,440
	31	Salaries and Wages Expense	400	
		Salaries and Wages Payable		400
		Depreciation Expense	200	
		Accumulated Depreciation—Equipment		200

(b) **General Ledger**

Cash

Bal.	4,800	1,760
Bal.	3,040	

Inventory

Bal.	1,800	2,808
	2,880	1,440
	120	
	1,760	
Bal.	2,312	

Accounts Payable

	Bal.	3,000
		2,880
	Bal.	5,880

Salaries and Wages Payable

		400
	Bal.	400

Sales Revenue

		3,960
		1,900
	Bal.	5,860

Cost of Goods Sold

	2,808	120
	1,440	
Bal.	4,128	

Depreciation Expense

	200	
Bal.	200	

Accounts Receivable

Bal.	3,900	180
	3,960	
	1,900	
Bal.	9,580	

Equipment

Bal.	21,000	

Accumulated Depreciation—Equipment

	Bal.	1,500
		200
	Bal.	1,700

Owner's Capital

	Bal.	27,000

Salaries and Wages Expense

	400	
Bal.	400	

Sales Returns & Allowances

	180	
Bal.	180	

COMPREHENSIVE PROBLEM SOLUTION (Continued)

(c)

Matthias COMPANY
Adjusted Trial Balance
December 31, 2014

	DR.	CR.
Cash	$ 3,040	
Accounts Receivable	9,580	
Inventory	2,312	
Equipment	21,000	
Accumulated Depreciation—Equipment		$ 1,700
Accounts Payable		5,880
Salaries and Wages Payable		400
Owner's Capital		27,000
Sales Revenue		5,860
Sales Returns & Allowances	180	
Cost of Goods Sold	4,128	
Salaries and Wages Expense	400	
Depreciation Expense	200	
	$40,840	$40,840

(d)

Matthias COMPANY
Income Statement
For the Month Ending December 31, 2014

Sales revenue		$5,860
Less: Sales returns and allowances		180
Net sales		5,680
Cost of goods sold		4,128
Gross profit		1,552
Operating expenses		
Salaries and wages expense	$400	
Depreciation expense	200	600
Net income		$ 952

COMPREHENSIVE PROBLEM SOLUTION (Continued)

Matthias COMPANY
Balance Sheet
December 31, 2014

Assets		
Current assets		
Cash	$ 3,040	
Accounts receivable	9,580	
Inventory	2,312	
Total current assets		$14,932
Property, plant, and equipment		
Equipment	21,000	
Less: Accumulated depreciation—Equipment	1,700	19,300
Total assets		$34,232
Liabilities and Owner's Equity		
Current liabilities		
Accounts payable	$5,880	
Salaries and wages payable	400	
Total current liabilities		$ 6,280
Owner's equity		
Owner's capital ($27,000 + $952)		27,952
Total liabilities and owner's equity		$34,232

COMPREHENSIVE PROBLEM SOLUTION (Continued)

(e) FIFO Method

	Units	Unit Cost	Cost of Goods Available for Sales
Beg. Inventory	3,000	$0.60	$1,800
Dec. 3 purchase.	4,000	$0.72	2,880
Dec. 17 purchase.	2,200	$0.80	1,760
	9,200		$6,440

Ending Inventory			Cost of Goods Sold	
Dec. 17	2,200 X $0.80 =	$1,760	Cost of goods available for sale	$6,440
Dec. 3	800* X $0.72 =	576	Less: Ending inventory	2,336
	3,000	$2,336	Cost of goods sold	$4,104

*(9,200 – 4,400 + 200 – 2,000) – 2,200

(f) LIFO Method

Ending Inventory		Cost of Goods Sold	
Dec. 1	3,000 X $0.60 = $1,800	Cost of goods available for sale	$6,440
		Less: Ending inventory	1,800
		Cost of goods sold	$4,640

BYP 6-1 FINANCIAL REPORTING PROBLEM

(a)

	September 24, 2011	September 25, 2010
Inventories	$776 million	$1,051 million

(b) Dollar change in inventories between 2010 and 2011:

$776 – $1,051 = $275 million decrease

Percentage change in inventories between 2010 and 2011:

$275 ÷ $1,051 = 26.2% decrease

2011 inventory as a percent of current assets:

$776 ÷ $44,988 = 1.7%

(c) Inventories are valued at lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method.

(d)

Apple (in millions)	2011	2010	2009
Cost of Goods Sold	$64,431	$39,541	$25,683

2011 cost of goods sold as a percent of sales:

$64,431 ÷ $108,249 = 59.5%

BYP 6-2 COMPARATIVE ANALYSIS PROBLEM

(a) (1) Inventory turnover:

PepsiCo: $$\$31{,}593 \div \frac{\$3{,}827 + 3{,}372}{2} = 8.78 \text{ times}$$

Coca-Cola: $$\$18{,}216 \div \frac{\$3{,}092 + 2{,}650}{2} = 6.34 \text{ times}$$

(2) Days in inventory:

PepsiCo: 365 ÷ 8.78 = 41.6 days
Coca-Cola: 365 ÷ 6.34 = 57.6 days

(b) PepsiCo's turnover of 8.78 times is approximately 40% higher than Coca-Cola's 6.34 times, resulting in days in inventory of 41.6 versus 57.6. Thus, PepsiCo's inventory control is significantly more effective.

BYP 6-3 COMPARATIVE ANALYSIS PROBLEM

(a) (1) Inventory turnover:

Amazon: $$\$37{,}288 \div \frac{\$4{,}992 + \$3{,}202}{2} = 9.10 \text{ times}$$

Wal-Mart: $$\$335{,}127 \div \frac{\$40{,}714 + \$36{,}437}{2} = 8.69 \text{ times}$$

(2) Days in inventory:

Amazon: 365 ÷ 9.10 = 40.1 days
Wal-Mart: 365 ÷ 8.69 = 42.0 days

(b) Amazon's turnover of 9.10 times is approximately 5% higher than Wal-Mart's 8.69 times, resulting in days in inventory of 40.1 versus 42.0. Thus, Amazon's inventory control is slightly more effective.

BYP 6-4 REAL-WORLD FOCUS

The following responses are based on the 2011 annual report:

(a) $1,486,000,000, as of July 30, 2011.

(b) $1,486,000,000 – $1,327,000,000 = $159,000,000 decrease.

(c) 64.7 percent ($962 ÷ $1,486).

(d) Lower of cost or market using standard cost, which approximates FIFO.

BYP 6-5 DECISION MAKING ACROSS THE ORGANIZATION

(a)	(1)	Sales January 1–March 31		$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		5,600
		Sales as of April 10		$230,000
	(2)	Purchases January 1–March 31		$ 94,000
		Cash purchases 4/1–4/10		4,200
		Credit purchases 4/1–4/10	$12,400	
		Less: Items in transit	1,600	10,800
		Purchases as of April 10		$109,000

*(b)	2013	2012
Net sales	$600,000	$480,000
Cost of goods sold		
Inventory, January 1	60,000	40,000
Cost of goods purchased	404,000	356,000
Cost of goods available for sale	464,000	396,000
Inventory, December 31	80,000	60,000
Cost of goods sold	384,000	336,000
Gross profit	$216,000	$144,000
Gross profit rate	36%	30%
Average gross profit rate	33%	

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

BYP 6-6 COMMUNICATION ACTIVITY

MEMO

To: Marta Johns, President
From: Student

Re: 2013 ending inventory error

As you know, 2013 ending inventory was overstated by $1 million. Of course, this error will cause 2013 net income to be incorrect because the ending inventory is used to compute 2013 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 2014 net income. The 2013 ending inventory is also the 2014 beginning inventory. Therefore, 2014 beginning inventory is also overstated, which causes an overstatement of cost of goods sold and an understatement of 2014 net income.

BYP 6-7 ETHICS CASE

(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.

BYP 6-8 ALL ABOUT YOU

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.

BYP 6-9 FASB CODIFICATION ACTIVITY

(a) The primary basis of accounting for inventories is cost, which has been defined generally as the price paid or consideration given to acquire an asset. As applied to inventories, cost means in principle the sum of the applicable expenditures and charges directly or indirectly incurred in bringing an article to its existing condition and location. It is understood to mean acquisition and production cost, and its determination involves many considerations. (330-10-30-1).

(b) The basis of stating inventories shall be consistently applied and shall be disclosed in the financial statements; whenever a significant change is made therein, there shall be disclosure of the nature of the change and, if material, the effect on income. A change of such basis may have an important effect upon the interpretation of the financial statements both before and after that change, and hence, in the event of a change, a full disclosure of its nature and of its effect, if material, upon income shall be made. Codification reference (330-10-50-1).

(c) A departure from the cost basis of pricing the *inventory* is required when the utility of the goods is no longer as great as their cost. Where there is evidence that the utility of goods, in their disposal in the ordinary course of business, will be less than cost, whether due to physical deterioration, obsolescence, changes in price levels, or other causes, the difference shall be recognized as a loss of the current period. This is generally accomplished by stating such goods at a lower level commonly designated as *market*. Codification reference (330-10-35-1).

IFRS EXERCISES

IFRS6-1

Key Similarities are **(1) the definitions for inventory are essentially the same, (2) the guidelines on who owns the goods—goods in transit, consigned goods, and the costs to include in inventory are essentially accounted for the same under IFRS and U.S. GAAP; (3) use of specific identification cost flow assumption, where appropriate; (4) unlike property, plant, and equipment, IFRS does not permit the option of valuing inventories at fair value; (5) certain agricultural products and minerals and mineral products can be reported at net realizable value using IFRS.**

Key differences are **related to (1) the LIFO cost flow assumption—U.S. GAAP permits the use of LIFO for inventory valuation, but IFRS prohibits its use. FIFO and average-cost are the only two acceptable cost flow assumptions permitted under IFRS; (2) lower-of-cost-or-market test for inventory valuation—IFRS defines market as net realizable value. U.S. GAAP on the other hand defines market as replacement cost; (3) inventory write-downs—under U.S. GAAP, if inventory is written down under the lower-of-cost-or-market valuation, the new basis is now considered its cost. As a result, the inventory may not be written back up to its original cost in a subsequent period. Under IFRS, the write-down may be reversed in a subsequent period up to the amount of the previous write-down. Both the write-down and any subsequent reversal should be reported on the income statement; (4) The requirements for accounting and reporting for inventories are more principles-based under IFRS. That is, U.S. GAAP provides more detailed guidelines for inventory accounting.**

IFRS6-2

Under IFRS, LaTour's inventory turnover is computed as follows:
Cost of Goods Sold/Average Inventory
€578/ €154 = 3.75 or approximately 97 days (365 ÷ 3.75).

Difficulties in comparison to a company using U.S. GAAP could arise if the U.S. company uses the LIFO cost flow assumption, which is prohibited under IFRS. Generally in times of rising prices, LIFO results in a lower inventory balance reported on the balance sheet (assume more recently purchased items are sold first). Thus, the U.S. GAAP company will report higher inventory turnovers. The LIFO reserve can be used to adjust the reported LIFO numbers to FIFO and to permit an "apples to apples" comparison.

IFRS6-3

Item No.	Cost	Net Realizable Value	LCNRV
AB	$ 1,700	$ 1,400	$ 1,400
TRX	2,200	2,300	2,200
NWA	7,800	7,100	7,100
SGH	3,000	3,700	3,000
	$14,700	$14,500	$13,700

IFRS6-4 INTERNATIONAL FINANCIAL REPORTING PROBLEM

(a) Inventories are stated at the lower-of-cost-or-net realizable value, using first-in-first out cost flow assumption.

(b) During 2011, Zetar wrote off £192,000 of inventory.

(c) As of April 30, 2011, Zetar reported raw materials of £9,026, work-in-process of £1,195, and finished goods inventory of £4,098.

