CHAPTER 6

Inventories

ASSIGNMENT CLASSIFICATION TABLE

Learning Objectives		Questions	Brief Exercises	Do It!	Exercises	A Problems	B Problems
1.	Discuss how to classify and determine inventory.	1, 2, 3, 4, 5, 6	1, 2	1	1, 2	1A	1B
2.	Explain the accounting for inventories and apply the inventory cost flow methods.	7, 8, 9, 10	3	2	3, 4, 5, 6, 7	2A, 3A, 4A, 5A, 6A, 7A	2B, 3B, 4B, 5B, 6B, 7B
3.	Explain the financial effects of the inventory cost flow assumptions.		4		3, 6, 7	2A, 3A, 4A, 5A, 6A, 7A	2B, 3B, 4B, 5B, 6B, 7B
4.	Explain the lower-of-cost-or-net realizable value basis of accounting for inventories.	11, 12, 13	5	3	8, 9		
5.	Indicate the effects of inventory errors on the financial statements.	14	6		10, 11		
6.	Discuss the presentation and analysis of inventory.	15, 16	7	4	12, 13		
*7.	Apply the inventory cost flow methods to perpetual inventory records.	17	8		14, 15, 16	8A, 9A	8B, 9B
*8.	Describe the two methods of estimating inventories.	18, 19, 20, 21	9, 10		17, 18, 19	10A, 11A	10B, 11B
*9.	Apply the LIFO inventory costing method	22, 23, 24	11		20, 21	12A	12B

*__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 and average-cost with analysis.	Simple	30–40
3A	Determine cost of goods sold and ending inventory using FIFO and average-cost with analysis.	Simple	30–40
4A	Compute ending inventory, prepare income statements, and answer questions using FIFO and average-cost.	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 average-cost 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 average-cost.	Moderate	30–40
*8A	Calculate cost of goods sold and ending inventory for FIFO and moving-average cost 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
*12A	Apply the LIFO cost method (periodic)	Simple	10–15
1B	Determine items and amounts to be recorded in inventory.	Moderate	15–20
2B	Determine cost of goods sold and ending inventory using FIFO and average-cost with analysis.	Simple	30–40
3B	Determine cost of goods sold and ending inventory using FIFO and average-cost with analysis.	Simple	30–40
4B	Compute ending inventory, prepare income statements, and answer questions using FIFO and average-cost.	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 average-cost 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 average-cost.	Moderate	30–40
*8B	Calculate cost of goods sold and ending inventory under 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
*12B	Apply the LIFO cost method (periodic)	Simple	10–15

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Number	LO	BT	Difficulty	Time (min.)
BE1	1	C	Simple	4–6
BE2	1	K	Simple	2–4
BE3	2	AP	Simple	4–6
BE4	3	C	Simple	2–4
BE5	4	AP	Simple	2–4
BE6	5	AN	Moderate	6–8
BE7	6	AP	Simple	4–6
BE8	*7	AP	Simple	4–6
BE9	*8	AP	Simple	4–6
BE10	*8	AP	Simple	8–10
BE11	*9	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	AP, E	Moderate	6–8
EX4	2	AP, 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	4	AP	Simple	6–8
EX9	4	AP	Simple	6–8
EX10	5	AN	Simple	4–6
EX11	5	AN	Simple	6–8
EX12	6	AP	Simple	10–12
EX13	6	AP	Simple	10–12
EX14	*7	AP	Simple	8–10
EX15	*7	AP, E	Moderate	8–10
EX16	*7	AP, E	Moderate	12–15

INVENTORIES (Continued)

Number	LO	BT	Difficulty	Time (min.)
EX17	*8	AP	Simple	8–10
EX18	*8	AP	Simple	10–12
EX19	*8	AP	Moderate	10–12
EX20	*9	AP	Moderate	10–12
EX21	*9	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
P12A	*9	AP	Simple	10–15
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
P12B	*9	AP	Simple	10–15
BYP1	2, 6	AP	Simple	10–15
BYP2	6	E	Simple	10–15
BYP3	2	AN	Simple	10–15
BYP4	8	AP	Moderate	20–25
BYP5	5	AN	Simple	10–15
BYP6	3	E	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. Discuss how to classify and determine inventory.	Q6-2 Q6-6 BE6-2	Q6-1 Q6-4 Q6-3 BE6-1	Q6-5	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	Q6-7 Q6-9	BE6-3 E6-7 P6-3B DI6-2 P6-2A P6-5A E6-3 P6-2B P6-5B E6-4 P6-3A P6-6A E6-5 P6-6B E6-6	P6-4A P6-7B P6-4B P6-7A		E6-3 E6-4 P6-5A P6-5B
3. Explain the financial effects of the inventory cost flow assumptions.		BE 6-4	E6-3 P6-2A P6-5B E6-6 P6-2B P6-6A E6-7 P6-3A P6-6B P6-3B P6-5A	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-net realizable value basis of accounting for inventories.		Q6-11 Q6-12 Q6-13	BE6-5 DI6-3 E6-8 E6-9			
5. Indicate the effects of inventory errors on the financial statements.				Q6-14 E6-10 BE6-6 E6-11		
6. Discussion the presentation and analysis of inventory.		Q6-15 Q6-16	BE6-7 E6-12 DI6-4 E6-13			
*7. Apply the inventory cost flow methods to perpetual inventory records.		Q6-17	BE6-8 P6-8A E6-14 P6-8B E6-15 P6-9A E6-16 P6-9B			E6-15 E6-16 P6-8A P6-8B
*8. Describe the two methods of estimating inventories.		Q6-18 Q6-19	Q6-20 E6-17 P6-11A Q6-21 E6-18 P6-10B BE6-9 E6-19 P6-11B BE6-10 P6-10A			
*9. Apply the LIFO inventory costing method		Q6-22 Q6-23 Q6-24	BE6-11 P6-12A E6-20 P6-12B E6-21			
Broadening Your Perspective			Financial Reporting Decision–Making Across the Organization	Real–World Focus Communication		Comp. Analysis 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 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 Girard Company's inventory if the terms of sale are FOB destination.
(2) They will be included in Liu Company's inventory if the terms of sale are FOB shipping point.
(b) Girard Company should include goods shipped to another company on consignment in its inventory. Goods held by Girard Company on consignment should not be included in inventory.

5. Inventoriable costs are £3,050 (invoice cost £3,000 + freight charges £80 – 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 goods in transit passes to the buyer when the public carrier accepts the goods from the seller. FOB destination means that ownership of 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) FIFO.

11. Beatriz 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 net realizable value should be recognized in the period in which the price decline occurs.
(b) Net realizable value (NRV) means the net amount that a company expects to realize from the sale, not the selling price. NRV is estimated selling price less estimated costs to complete and to make a sale.

12. Beethovan Music Center should report the televisions at €90 each for a total of €450. €90 is the net realizable value under the lower-of-cost-or-net realizable value basis of accounting for inventories. A decline in net realizable value usually leads to a decline in the selling price of the item. Valuation at LCNRV is an example of the accounting concept of prudence.

13. Maggie Stores should report the toasters at £28 each for a total of £560. The £28 is the lower of cost or net realizable value.

14. (a) Bakkar Company's 2016 net income will be understated €7,600; (b) 2017 net income will be overstated €7,600; and (c) the combined net income for the two years will be correct.

15. Xu Company should disclose: (1) the major inventory classifications, (2) the basis of accounting (cost or lower of cost or net realizable value), and (3) the costing method (FIFO or average cost).

16. 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.

***17.** 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.

***18.** 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.

***19.** 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.

***20.** The estimated cost of the ending inventory is €60,000:

Net sales	€400,000
Less: Gross profit (€400,000 X 40%)	160,000
Estimated cost of goods sold	€240,000
Cost of goods available for sale	€300,000
Less: Cost of goods sold	240,000
Estimated cost of ending inventory	€ 60,000

***21.** The estimated cost of the ending inventory is €21,000:

Ending inventory at retail: €30,000 = (€120,000 – €90,000)

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

Ending inventory at cost: €21,000 = (€30,000 X 70%)

***22.** Kanth Company is using the FIFO method of inventory costing, and Phelan Company is using the LIFO method. Under FIFO, the latest goods purchased remain in inventory. Thus, the inventory on the statement of financial position should be close to current costs. The reverse is true of the LIFO method. Kanth Company will have the higher gross profit because cost of goods sold will include a higher proportion of goods purchased at earlier (lower) costs.

***23.** 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.

***24.** During times of rising prices, using the LIFO method for costing inventories rather than FIFO or average-cost will result in lower income taxes. Since LIFO uses the most recent, higher, costs to calculate cost of goods sold, taxable income is lower, and income taxes are also lower.

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 6-1

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

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

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

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

BRIEF EXERCISE 6-2

Physical inventory	**€200,000**
Add: Goods purchased from Pelzer	**25,000**
Goods sold to Alvarez	**22,000**
Stallman ending Inventory	**€247,000**

The goods purchased from Pelzer of €25,000 are included in ending inventory because the terms are FOB shipping point which means Stallman takes title at the time the goods are shipped. Goods sold to Alvarez FOB destination means that the goods are still Stallman's until delivered.

BRIEF EXERCISE 6-3

(a) The ending inventory under FIFO consists of 200 units at NT$240 + 220 units at NT$210 for a total allocation of NT$94,200 or (NT$48,000 + NT$46,200).

(b) Average unit cost is NT$206.67 computed as follows:

300 X NT$180	=	NT$54,000
400 X NT$210	=	84,000
200 X NT$240	=	48,000
900		NT$186,000

NT$186,000 ÷ 900 = NT$206.67 (rounded).

The cost of the ending inventory is NT$86,801.40 or (420 X NT$206.67).

BRIEF EXERCISE 6-4

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

BRIEF EXERCISE 6-5

Inventory Categories	Cost	NRV	Lower -of-cost -or-NRV
Cameras	£12,000	£12,100	£12,000
Camcorders	9,420	9,200	9,200
Blu-ray players	14,000	12,800	12,800
Total valuation			£34,000

BRIEF EXERCISE 6-6

The understatement of ending inventory caused cost of goods sold to be overstated €5,000 and net income to be understated €5,000. The correct net income for 2017 is €95,000 or (€90,000 + €5,000).

Total assets in the statement of financial position will be understated by the amount that ending inventory is understated, €5,000.

BRIEF EXERCISE 6-7

$$\text{Inventory turnover: } \frac{\text{HK\$2,842,000}}{(\text{HK\$580,000} + \text{HK\$400,000}) \div 2} = \frac{\text{HK\$2,842,000}}{\text{HK\$490,000}} = 5.8$$

$$\text{Days in inventory: } \frac{365}{5.8} = 62.9 \text{ days}$$

***BRIEF EXERCISE 6-8**

(a) FIFO Method

Product E2-D2

Date	Purchases	Cost of Goods Sold	Balance
May 7	(50 @ £11) £550		(50 @ £11) £550
June 1		(30 @ £11) £330	(20 @ £11) £220
July 28	(30 @ £13) £390		(20 @ £11) (30 @ £13) } £610
Aug. 27		(20 @ £11) (15 @ £13) } £415	(15 @ £13) £195

(b) Average-Cost

Product E2-D2

Date	Purchases	Cost of Goods Sold	Balance
May 7	(50 @ $11) £550		(50 @ £11) £550
June 1		(30 @ £11) £330	(20 @ £11) £220
July 28	(30 @ $13) £390		(50 @ £12.20) *£610
Aug. 27		(35 @ £12.20) £427	(15 @ £12.20) £183

***(£220 + £390) ÷ 50**

***BRIEF EXERCISE 6-9**

(1)	**Net sales**	**¥330,000**
	Less: Estimated gross profit (45% X ¥330,000)	**148,500**
	Estimated cost of goods sold	**¥181,500**
(2)	**Cost of goods available for sale**	**¥230,000**
	Less: Estimated cost of goods sold	**181,500**
	Estimated cost of ending inventory	**¥ 48,500**

***BRIEF EXERCISE 6-10**

	At Cost	At Retail
Goods available for sale	**€35,000**	**€50,000**
Net sales		**42,000**
Ending inventory at retail		**€ 8,000**

Cost-to-retail ratio = (€35,000 ÷ €50,000) = 70%
Estimated cost of ending inventory = (€8,000 X 70%) = €5,600

***BRIEF EXERCISE 6-11**

The ending inventory under LIFO consists of 300 units at NT$180 + 120 units at NT$210 for a total allocation of NT$79,200 or (NT$54,000 + NT$25,200).

SOLUTIONS FOR DO IT! REVIEW EXERCISES

DO IT! 6-1

Inventory per physical count	R$300,000
Inventory out on consignment	18,000
Inventory purchased, in transit at year-end	20,000
Inventory sold, in transit at year-end	–0–
Correct December 31 inventory	R$338,000

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) Average-cost: £71,000/11,000 = £6.455 per unit
9,400 X £6.455 = £60,677

DO IT! 6-3

(a) The lower value for each inventory type is: Small HK$640,000, Medium HK$2,600,000, and Large HK$1,485,000. The total inventory value is the sum of these figures, HK$4,725,000.

(b)

	2016	2017
Ending inventory	HK$284,000 understated	No effect
Cost of goods sold	HK$284,000 overstated	HK$284,000 understated
Equity	HK$284,000 understated	No effect

DO IT! 6-4

	2016		2017	
Inventory turnover	CHF1,200,000 / (CHF180,000 + CHF220,000)/2	= 6	CHF1,425,000 / (CHF220,000 + CHF100,000)/2	= 8.9
Days in inventory	365 ÷ 6 = 60.8 days		365 ÷ 8.9 = 41.0 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 appears that this change is a win-win situation for Lausanne 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 Alou until goods are received	**0**
3. Add to inventory: Title passed to Alou when goods were shipped	**25,000**
4. Add to inventory: Title remains with Alou until purchaser receives goods	**35,000**
5. No effect: Title passes to purchaser upon shipment when terms are FOB shipping point	**0**
Correct inventory	**£357,000**

EXERCISE 6-2

Ending inventory—as reported	**£740,000**
1. Subtract from inventory: The goods belong to Superior Corporation. Platinum is merely holding them as a consignee	**(250,000)**
2. No effect: Title does not pass to Platinum 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 Platinum until they are shipped (Jan. 1)	**33,000**
5. Add to inventory: District Sales ordered goods with a cost of £8,000. Platinum should record the corresponding sales revenue of £10,000. Platinum decision to ship extra "unordered" goods does not constitute a sale. The manager's statement that District could ship the goods back indicates that Platinum knows this over-shipment is not a legitimate sale. The manager acted unethically in an attempt to improve Platinum reported income by over-shipping	**52,000**

EXERCISE 6-2 (Continued)

6. Subtract from inventory: IFRS require that inventory be valued at the lower of cost or net realizable value. Obsolete parts should be adjusted from cost to zero if they have no other use	(48,000)
Correct inventory	£510,000

EXERCISE 6-3

(a) FIFO Cost of Goods Sold

(#1012) NT$3,000 + (#1045) NT$2,760 = NT$5,760

(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 NT$5,760. 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 NT$5,280.

(c) I recommend they use the FIFO method because it produces a more appropriate Statement of Financial Position 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 (23 X HK$970).....		HK$ 22,310
Purchases		
Sept. 12 (45 X HK$1,020).....	HK$45,900	
Sept. 19 (20 X HK$1,040).....	20,800	
Sept. 26 (44 X HK$1,050).....	46,200	112,900
Cost of goods available for sale		135,210
Less: Ending inventory (11 X HK$1,050)....		11,550
Cost of goods sold.....		HK$123,660

EXERCISE 6-4 (Continued)

Proof

Date	Units	Unit Cost	Total Cost
9/1	23	HK$ 970	HK$ 22,310
9/12	45	1,020	45,900
9/19	20	1,040	20,800
9/26	33	1,050	34,650
	121		HK$123,660

Average-Cost

Cost of goods available for sale	HK$135,210
Less: Ending inventory (11 X HK$1,024.32*)	11,268
Cost of goods sold	HK$123,942

***Average unit cost is HK$1024.32 computed as follows:**

$$\frac{\text{HK\$135,210 (Cost of goods available for sale)}}{\text{132 units (Total units available for sale)}} = \text{HK\$1,024.32 (rounded)}$$

Proof

121 units X HK$1,024.32 = HK$123,943 (HK$1 difference due to rounding)

(b)

FIFO HK$11,550 (ending inventory) + HK$123,660 (COGS) = HK$135,210
Average-cost HK$11,268 (ending inventory) + HK$123,942 (COGS) = HK$135,210
} Cost of goods available for sale

Under both methods, the sum of the ending inventory and cost of goods sold equals the same amount, HK$135,210, which is the cost of goods available for sale.

EXERCISE 6-5

FIFO

Beginning inventory (30 X €9)		€270
Purchases		
May 15 (22 X €11)	€242	
May 24 (38 X €12)	456	698
Cost of goods available for sale		968
Less: Ending inventory (22 X €12)		264
Cost of goods sold		€704

EXERCISE 6-5 (Continued)

Proof

Date	Units	Unit Cost	Total Cost
5/1	30	€ 9	€270
5/15	22	11	242
5/24	16	12	192
	68		€704

AVERAGE-COST

Cost of goods available for sale	€968
Less: Ending inventory (22 X €10.76*)	237
Cost of goods sold	€731

***Average unit cost is €10.76 computed as follows:**

$$\frac{\text{€968 (Cost of goods available for sale)}}{\text{90 units (Total units available for sale)}} = \text{€10.76 (rounded)}$$

Proof

68 units X €10.76 = €731 (rounded €1)

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)	3,500	5,300
Cost of goods available for sale		6,300
Less: Ending inventory (160 X £7)		1,120
Cost of goods sold		£5,180

EXERCISE 6-6 (Continued)

AVERAGE-COST	
Cost of goods available for sale	£6,300
Less: Ending inventory (160 X £6.30*).....	1,008
Cost of goods sold	£5,292

*Average unit cost is:

$$\frac{\text{£6,300 (Cost of goods available for sale)}}{\text{1,000 units (Total units available for sale)}} = \text{£6.30}$$

(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 Howsham Company, the ending inventory under FIFO is £1,120 or (160 X £7) compared to £1,008 or (160 X £6.30) under average-cost.

(c) The average-cost method will produce the higher cost of goods sold for Howsham Company. The cost of goods sold is £5,292 or [£6,300 – £1,008] compared to £5,180 or (£6,300 – £1,120) under FIFO.

EXERCISE 6-7

(a) (1)

FIFO	
Beginning inventory	NT$300,000
Purchases	680,000
Cost of goods available for sale	980,000
Less: ending inventory (75 X NT$3,400*)	255,000
Cost of goods sold	NT$725,000

*NT$680,000 ÷ 200

(2)

AVERAGE-COST	
Beginning inventory	NT$300,000
Purchases	680,000
Cost of goods available for sale	980,000
Less: ending inventory (75 X NT$3,266.67*) ...	245,000
Cost of goods sold	NT$735,000

*[(NT$300,000 + NT$680,000) ÷ (100 + 200)]

EXERCISE 6-7 (Continued)

(b) The use of FIFO would result in the higher 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 statement of financial position, since the more recent units are assumed to be on hand.
(d) The use of average-cost would result in Thaam paying lower taxes in the first year since taxable income will be lower.

EXERCISE 6-8

	Cost	NRV	Lower -of-Cost -or-NRV
Cameras			
Minolta	**₩1,360,000**	**₩1,248,000**	**₩1,248,000**
Canon	**900,000**	**912,000**	**900,000**
Total	**2,260,000**	**2,160,000**	
Light meters			
Vivitar	**1,500,000**	**1,380,000**	**1,380,000**
Kodak	**1,610,000**	**1,890,000**	**1,610,000**
Total	**3,110,000**	**3,270,000**	
Total inventory	**₩5,370,000**	**₩5,430,000**	**₩5,138,000**

EXERCISE 6-9

	Cost	NRV	Lower -of-Cost- or-NRV
Tennis shoes	**€ 6,800**	**€ 7,000**	**€ 6,800**
Running shoes	**11,250**	**10,650**	**10,650**
Basketball shoes	**10,000**	**9,250**	**9,250**
Total inventory	**€28,050**	**€26,900**	**€26,700**

EXERCISE 6-10

	2016	2017
Beginning inventory	**€ 20,000**	**€ 28,000**
Cost of goods purchased	**150,000**	**175,000**
Cost of goods available for sale	**170,000**	**203,000**
Corrected ending inventory	**28,000[a]**	**41,000[b]**
Cost of goods sold	**€142,000**	**€162,000**

[a]€30,000 – €2,000 = €28,000. [b]€35,000 + €6,000 = €41,000.

EXERCISE 6-11

(a)

	2016	2017
Sales	HK$2,100,000	HK$2,500,000
Cost of goods sold		
Beginning inventory	320,000	500,000
Cost of goods purchased	1,730,000	2,040,000
Cost of goods available for sale	2,050,000	2,540,000
Ending inventory (HK$440,000 + HK$60,000)	500,000	520,000
Cost of goods sold	1,550,000	2,020,000
Gross profit	HK$ 550,000	HK$ 480,000

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

Incorrect gross profits:	HK$490,000 + HK$540,000 =	HK$1,030,000
Correct gross profits:	HK$550,000 + HK$480,000 =	1,030,000
Difference		HK$ 0

(c) Dear Mr./Ms. President:

Because your ending inventory of December 31, 2016 was understated by HK$60,000, your net income for 2016 was understated by HK$60,000. For 2017 net income was overstated by HK$60,000.

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 understated, as it was in December 2016, then the cost of goods sold is overstated and therefore net income will be understated by that amount. Consequently, this understated 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.

The error also affects the statement of financial position at the end of 2016. The inventory reported in the statement of financial position is understated; therefore, total assets are understated. The understatement of the 2016 net income results in the Retained Earnings account balance being understated. The statement of financial position at the end of 2017 is correct because the understatement of the Retained Earnings account at the end of 2016 is offset by the overstatement of the 2017 net income and the inventory at the end of 2017 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 6-12

	2015	2016	2017
Inventory turnover	£900,000 / (£100,000 + £330,000) ÷ 2	£1,120,000 / (£330,000 + £400,000) ÷ 2	£1,300,000 / (£400,000 + £480,000) ÷ 2
	£900,000 / £215,000 = 4.19	£1,120,000 / £365,000 = 3.07	£1,300,000 / £440,000 = 2.95
Days in inventory	365 / 4.19 = 87.1 days	365 / 3.07 = 118.9 days	365 / 2.95 = 123.7 days
Gross profit rate	(£1,200,000 – £900,000) / £1,200,000 = .25	(£1,600,000 – £1,120,000) / £1,600,000 = .30	(£1,900,000 – £1,300,000) / £1,900,000 = .32

The inventory turnover ratio decreased by approximately 30% from 2015 to 2017 while the days in inventory increased by almost 42% 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, Sepia Photo's gross profit rate increased by 28% from 2015 to 2017, which is a positive sign.

EXERCISE 6-13

(a)

	Gouda Company	Edam Company
Inventory Turnover	€189,000 / (€47,000 + €58,000)/2 = 3.60	€292,000 / (€71,000 + €69,000)/2 = 4.17
Days in Inventory	365/3.60 = 101 days	365/4.17 = 88 days

(b) Edam Company is moving its inventory quicker, since its inventory turnover is higher, and its days in inventory is lower.

***EXERCISE 6-14**

(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 @ €648)	€3,888			(1 @ €600) (6 @ €648)	4,488
15			(1 @ €600) (3 @ €648)	€2,544	(3 @ €648)	1,944

(2) 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 @ €648)	€3,888			(7 @ €641.14)*	4,488
15			(4 @ €641.14)	€2,565	(3 @ €641.14)	1,923

***Average-cost = (€600 + €3,888) ÷ 7 = €641.14 (rounded)**

***EXERCISE 6-15**

(1) FIFO

Date	Purchases	Cost of Goods Sold		Balance	
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		
		(340 @ £7)	2,380	(160 @ £7)	£1,120
			£5,180		

Ending inventory: £1,120. Cost of goods sold: £6,300 – £1,120 = £5,180.

(2) Moving-Average Cost

Date	Purchases	Cost of Goods Sold		Balance	
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		(440 @ £6.767)	£2,977	(160 @ £6.767)	£1,083
			£5,217		

Ending inventory: £1,083. Cost of goods sold: £6,300 – £1,083 = £5,217.

(b) FIFO gives the same ending inventory and cost of goods sold values under both the periodic and perpetual inventory system. Moving average gives different ending inventory and cost of goods sold values under the periodic and perpetual inventory systems, due to the average calculation being based on different pools of costs.

(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 6-16

(a)

FIFO

Date	Purchases		Cost of Goods Sold		Balance	
9/1					(23 @ HK$ 970)	HK$22,310
9/5			(12 @ HK$ 970)	HK$11,640	(11 @ HK$ 970)	HK$10,670
9/12	(45 @ HK$1,020)	HK$45,900			(11 @ HK$ 970) (45 @ HK$1,020)	HK$56,570
9/16			(11 @ HK$ 970)			
			(39 @ HK$1,020)	HK$50,450	(6 @ HK$1,020)	HK$ 6,120
9/19	(20 @ HK$1,040)	HK$20,800			(6 @ HK$1,020) (20 @ HK$1,040)	HK$26,920
9/26	(44 @ HK$1,050)	HK$46,200			(6 @ HK$1,020) (20 @ HK$1,040) (44 @ HK$1,050)	HK$73,120
9/29			(6 @ HK$1,020)			
			(20 @ HK$1,040)			
			(33 @ HK$1,050)	HK$61,570	(11 @ HK$1,050)	HK$11,550

Moving-Average Cost

Date	Purchases		Cost of Goods Sold			Balance	
9/1						(23 @ HK$970)	HK$22,310
9/5			(12 @ HK$970)	HK$11,640		(11 @ HK$970)	HK$10,670
9/12	(45 @ HK$1,020)	HK$45,900				(56 @ HK$1,010.18)[a]	HK$56,570
9/16			(50 @ HK$1,010.18)	HK$50,509*	*	(6 @ HK$1,010.18)	HK$ 6,061
9/19	(20 @ HK$1040)	HK$20,800				(26 @ HK$1,033.12)[b]	HK$26,861
9/26	(44 @ HK$1050)	HK$46,200				(70 @ HK$1,043.73)[c]	HK$73,061
9/29			(59 @ HK$1,043.73)	HK$61,580*		(11 @ HK$1,043.73)	HK$11,481

***Rounded**

[a] HK$56,570 ÷ 56 = HK$1,010.18

[b] HK$26,861 ÷ 26 = HK$1,033.12

[c] HK$73,061 ÷ 70 = HK$1,043.73

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

(b)

	Periodic	Perpetual
Ending Inventory FIFO	HK$11,550	HK$11,550
Ending Inventory Average	HK$11,268	HK$11,481

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

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

***EXERCISE 6-17**

(a)	**Sales**		**Rs7,500,000**
	Cost of goods sold		
	Inventory, November 1	**Rs1,000,000**	
	Cost of goods purchased	**5,000,000**	
	Cost of goods available for sale	**6,000,000**	
	Inventory, December 31	**1,200,000**	
	Cost of goods sold		**4,800,000**
	Gross profit		**Rs2,700,000**

Gross profit rate Rs2,700,000/Rs7,500,000 = 36%

(b)	**Sales**	**Rs10,000,000**
	Less: Estimated gross profit (36% X Rs10,000,000)	**3,600,000**
	Estimated cost of goods sold	**Rs 6,400,000**

Beginning inventory	**Rs 1,200,000**
Cost of goods purchased	**6,000,000**
Cost of goods available for sale	**7,200,000**
Less: Estimated cost of goods sold	**6,400,000**
Estimated cost of ending inventory	**Rs 800,000**

*EXERCISE 6-18

(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 – £1,800 + £1,200)	30,600
	Cost of goods available for sale	50,600
	Less: Estimated cost of goods sold	30,000
	Estimated cost of merchandise lost	£20,600
(b)	Net sales	£50,000
	Less: Estimated gross profit (32% X £50,000)	16,000
	Estimated cost of goods sold	£34,000
	Beginning inventory	£30,000
	Cost of goods purchased	30,600
	Cost of goods available for sale	60,600
	Less: Estimated cost of goods sold	34,000
	Estimated cost of merchandise lost	£26,600

*EXERCISE 6-19

	Women's Shoes		Men's Shoes	
	Cost	Retail	Cost	Retail
Beginning inventory	€ 36,500	€ 46,000	€ 45,000	€ 60,000
Goods purchased	150,000	187,000	136,300	185,000
Goods available for sale	€186,500	233,000	€181,300	245,000
Less: Net sales		178,000		185,000
Ending inventory at retail		€ 55,000		€ 60,000
Cost-to-retail ratio	€186,500 / €233,000 = 80%		€181,300 / €245,000 = 74%	
Estimated cost of ending inventory	€55,000 X 80% = €44,000		€60,000 X 74% = €44,400	

***EXERCISE 6-20**

	LIFO	
Beginning inventory (200 X £5)		£1,000
Purchases		
June 12 (300 X £6)	£1,800	
June 23 (500 X £7)	3,500	5,300
Cost of goods available for sale		6,300
Less: Ending inventory (160 X £5)		800
Cost of goods sold		£5,500

***EXERCISE 6-21**

(a)

	LIFO
Beginning inventory	NT$300,000
Purchases	680,000
Cost of goods available for sale	980,000
Less: ending inventory (75 X NT$3,000)	225,000
Cost of goods sold	NT$755,000

(b) The use of FIFO would result in the higher 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 statement of financial position, since the more recent units are assumed to be on hand.

(d) The use of LIFO would result in Thaam paying lower taxes in the first year since taxable income will be lower.

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. Anatolia should have recorded the transaction in the Sales Revenue 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 ₺620 in inventory.**

(d) **Include ₺400 in inventory.**

(e) **₺780 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 ₺220.**

(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**

Date	Explanation	Units	Unit Cost	Total Cost
March 1	Beginning Inventory	1,500	€ 7	€ 10,500
5	Purchase	3,500	8	28,000
13	Purchase	4,000	9	36,000
21	Purchase	2,000	10	20,000
26	Purchase	2,000	11	22,000
	Total	13,000		€116,500

(b) **FIFO**

(1) Ending Inventory				(2) Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost	Cost of goods available for sale	€116,500
March 26	2,000	€11	€22,000	Less: Ending	
21	1,000	10	10,000	inventory	32,000
	3,000*		€32,000	Cost of goods sold	€ 84,500

*13,000 – 10,000 = 3,000

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
March 1	1,500	€ 7	€10,500
5	3,500	8	28,000
13	4,000	9	36,000
21	1,000	10	10,000
	10,000		€84,500

PROBLEM 6-2A (Continued)

AVERAGE-COST

(1) Ending Inventory

€116,500 ÷ 13,000 = €8.9615

Units	Unit Cost	Total Cost
3,000	€8.9615	€26,885

(2) Cost of Goods Sold

Cost of goods available for sale	€116,500
Less: Ending inventory	26,885
Cost of goods sold	€ 89,615

*rounded to nearest dollar

Proof of Cost of Goods Sold

10,000 units X €8.9615 = €89,615

(c) (1) As shown in (b) above, FIFO produces the higher inventory amount, €32,000.

(2) As shown in (b) above, Average-cost produces the higher cost of goods sold, €89,615.

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	200	9	1,800
5/5	Purchase	500	10	5,000
8/12	Purchase	600	11	6,600
12/8	Purchase	300	12	3,600
	Total	2,000		£20,200

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
12/8	300	£12	£3,600
8/12	200	11	2,200
	500*		£5,800

(2) Cost of Goods Sold

Cost of goods available for sale	£20,200
Less: Ending inventory	5,800
Cost of goods sold	£14,400

*2,000 – 1,500 = 500

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
1/1	400	£ 8	£ 3,200
2/20	200	9	1,800
5/5	500	10	5,000
8/12	400	11	4,400
	1,500		£14,400

PROBLEM 6-3A (Continued)

AVERAGE-COST

(1) Ending Inventory

£20,200 ÷ 2,000 = £10.10

Units	Unit Cost	Total Cost
500	£10.10	£5,050

(2) Cost of Goods Sold

Cost of goods available for sale	£20,200
Less: Ending inventory	5,050
Cost of goods sold	£15,150

Proof of Cost of Goods Sold

1,500 units X £10.10 = £15,150

(c) (1) Average-cost results in the lower inventory amount for the statement of financial position, £5,050.

(2) FIFO results in the lower cost of goods sold, £14,400.

PROBLEM 6-4A

(a)

GISEL CO., SA
Condensed Income Statement
For the Year Ended December 31, 2017

	FIFO	Average-cost
Sales revenue	€865,000	€865,000
Cost of goods sold		
Beginning inventory	22,800	22,800
Cost of goods purchased	578,500	578,500
Cost of goods available for sale	601,300	601,300
Ending inventory	39,750[a]	37,575[b]
Cost of goods sold	561,550	563,725
Gross profit	303,450	301,275
Operating expenses	147,000	147,000
Income before income taxes	156,450	154,275
Income tax expense (32%)	50,064	49,368
Net income	€106,386	€104,907

[a] 15,000 X €2.65 = €39,750.

[b] €601,300 ÷ 240,000 units = €2.505.
15,000 x €2.505 = €37,575

(b) (1) The FIFO method produces the more meaningful inventory amount for the statement of financial position because the units are costed at the most recent purchase prices.

(2) The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

(3) There will be €696 additional cash available under average-cost because income taxes are €49,368 under average-cost and €50,064 under FIFO.

PROBLEM 6-5A

Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
October 1	Beginning Inventory	60	€24	€1,440
9	Purchase	120	26	3,120
17	Purchase	70	27	1,890
25	Purchase	80	28	2,240
	Total	330		€8,690

Ending Inventory in Units:

Units available for sale	330
Sales (100 + 65 + 120)	285
Units remaining in ending inventory	45

Sales Revenue

Date	Units	Unit Price	Total Sales
October 11	100	€35	€ 3,500
22	65	40	2,600
29	120	40	4,800
	285		€10,900

(a)

(1) FIFO

(i) Ending Inventory

October 25 45 @ €28 = €1,260

(ii) Cost of Goods Sold

Cost of goods available for sale	€ 8,690
Less: Ending inventory	1,260
Cost of goods sold	€ 7,430

(iii) Gross Profit

Sales revenue	€10,900
Cost of goods sold	7,430
Gross profit	€ 3,470

(iv) Gross Profit Rate

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{€\ 3,470}{€10,900} = 31.8\%$$

PROBLEM 6-5A (Continued)

(2) Average-Cost

Weighted-average cost per unit: $\frac{\text{cost of goods available for sale}}{\text{units available for sale}}$

$$\frac{€8,690}{330} = €26.333$$

(i) Ending Inventory

45 @ €26.333 = €1,185*

*rounded to nearest dollar

(ii) Cost of Goods Sold

Cost of goods available for sale	€8,690
Less: Ending inventory	1,185
Cost of goods sold	€7,505

(iii) Gross Profit

Sales revenue	€10,900
Cost of goods sold	7,505
Gross profit	€ 3,395

(iv) Gross Profit Rate

$$\frac{\text{Gross profit}}{\text{Net sales}} \quad \frac{€\ 3,395}{€10,900} = 31.1\%$$

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

PROBLEM 6-6A

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

Sale Date	Cost of Goods Sold		Sales Revenue	
March 5	150 @ €310	€ 46,500	180 @ €600	€108,000
	30 @ €350	10,500	400 @ €650	260,000
March 25	170 @ €350	59,500		
	230 @ €380	87,400		
	580	€203,900	580	€368,000

Gross profit €368,000 – €203,900 = €164,100.

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

Sale Date	Cost of Goods Sold		Sales Revenue	
March 5	180 @ €350	€ 63,000	180 @ €600	€108,000
March 25	350 @ €380	133,000	400 @ €650	260,000
	20 @ €350	7,000		
	30 @ €310	9,300		
	580	€212,300	580	€368,000

Gross profit €368,000 – €212,300 = €155,700.

(b) FIFO

Cost of goods available for sale

March 1	Beginning inventory	150 @ €310	€ 46,500
3	Purchase	200 @ €350	70,000
10	Purchase	350 @ €380	133,000
		700	€249,500

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

PROBLEM 6-6A (Continued)

Goods available for sale	**€249,500**
– Ending inventory	**45,600**
Cost of goods sold	**€203,900**

Gross profit: €368,000 – €203,900 = €164,100.

(c) Average-cost

Cost of goods available for sale (from part b)		**€249,500**
– Ending inventory	**120 @ €356.429***	**42,771**
Cost of goods sold		**€ 206,729**

Gross profit: €368,000 – €206,729 = €161,271.

***€249,500 ÷ 700 = €356.429.**

(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 Average-cost or FIFO, would reduce record-keeping costs. FIFO would result in higher income, but Average-cost would reduce income taxes.

PROBLEM 6-7A

(a)

TUDOR LTD.
Condensed Income Statement
For the Year Ended December 31, 2017

	FIFO	Average-Cost
Sales revenue	£695,000	£695,000
Cost of goods sold		
Beginning inventory	35,000	35,000
Cost of goods purchased	501,000	501,000
Cost of goods available for sale	536,000	536,000
Ending inventory	110,000[a]	103,075[b]
Cost of goods sold	426,000	432,925
Gross profit	269,000	262,075
Operating expenses	130,000	130,000
Income before income taxes	139,000	132,075
Income tax expense (28%)	38,920	36,981
Net income	£100,080	£ 95,094

[a](20,000 @ £4.45) + (5,000 @ £4.20) = £110,000.
[b](£536,000 ÷130,000 units) = £4.123 per unit; 25,000 @ £4.123 = £103,075

(b) Answers to questions:

(1) The FIFO method produces the most meaningful inventory amount for the statement of financial position because the units are costed at the most recent purchase prices.

(2) The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

(3) There will be £1,939 additional cash available under average-cost because income taxes are £36,981 under average-cost and £38,920 under FIFO.

PROBLEM 6-7A (Continued)

Answer in business letter form:

Dear Tudor Ltd.

After preparing the comparative condensed income statements for 2017 under FIFO and average-cost methods, we have found the following:

The FIFO method produces the most meaningful inventory amount for the statement of financial position 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.

There will be £1,939 additional cash available under average-cost because income taxes are £36,981 under average-cost and £38,920 under FIFO.

Sincerely,

*PROBLEM 6-8A

(a)

Sales:

Date		
January 6	150 units @ £40	£ 6,000
January 9 (return)	(10 units @ £40)	(400)
January 10	50 units @ £45	2,250
January 30	160 units @ £50	8,000
Total sales		£15,850

(1) FIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(150 @ £19)	£2,850
January 2	(100 @ £21) £2,100			(150 @ £19) (100 @ £21)	£4,950
January 6		(150 @ £19)	£2,850	(100 @ £21)	£2,100
January 9		(–10 @ £19)	(£ 190)	(10 @ £19)	
January 9	(75 @ £24) £1,800			(100 @ £21) (75 @ £24)	£4,090
January 10	(–15 @ £24) (£ 360)			(10 @ £19) (100 @ £21) (60 @ £24)	£3,730
January 10		(10 @ £19) (40 @ £21)	£1,030	(60 @ £21) (60 @ £24)	£2,700
January 23	(100 @ £26) £2,600			(60 @ £21) (60 @ £24) (100 @ £26)	£5,300
January 30		(60 @ £21) (60 @ £24) (40 @ £26)	£3,740 £7,430	(60 @ £26)	£1,560

(i) Cost of goods sold = £7,430. (ii) Ending inventory = £1,560. (iii) Gross profit = £15,850 – £7,430 = £8,420.

*PROBLEM 6-8A (Continued)

(2) Moving-Average

Date	Purchases	Cost of goods sold	Balance
January 1			(150 @ £19) £2,850
January 2	(100 @ £21) £2,100		(250 @ £19.80)[a] £4,950
January 6		(150 @ £19.80) £2,970	(100 @ £19.80) £1,980
January 9		(–10 @ £19.80) (£ 198)	(110 @ £19.80) £2,178
January 9	(75 @ £24) £1,800		(185 @ £21.503)[b] £3,978
January 10	(–15 @ £24) (£ 360)		(170 @ £21.282)[c] £3,618
January 10		(50 @ £21.282) £1,064	(120 @ £21.282) £2,554
January 23	(100 @ £26) £2,600		(220 @ £23.427)[d] £5,154
January 30		(160 @ £23.427) £3,748	(60 @ £23.427) £1,406
		£7,584	

[a]£4,950 ÷ 250 = £19.80
[b]£3,978 ÷ 185 = £21.503
[c]£3,618 ÷ 170 = £21.282
[d]£5,154 ÷ 220 = £23.427

(i) Cost of goods sold = £7,584. (ii) Ending inventory = £1,406. (iii) Gross profit = £15,850 – £7,584 = £8,266.

(b)

	FIFO	Moving-Average
Sales	£15,850	£15,850
Cost of goods sold	7,430	7,584
Gross profit	£ 8,420	£ 8,266
Ending inventory	£ 1,560	£ 1,406

In a period of rising costs, the moving-average cost flow assumption results in the higher cost of goods sold and lower gross profit. FIFO gives the lower cost of goods sold and higher gross profit.

On the statement of financial position, FIFO gives the higher ending inventory (representing the most current costs); moving-average gives the lower ending inventory.

*PROBLEM 6-9A

(a) (1) FIFO

Date		Purchases		Cost of Goods Sold		Balance	
May	1	(7 @ NT$4,600)	NT$32,200			(7 @ NT$4,600)	NT$32,200
	4			(4 @ NT$4,600)	NT$18,400	(3 @ NT$4,600)	NT$13,800
	8	(8 @ NT$5,100)	NT$40,800			(3 @ NT$4,600) (8 @ NT$5,100)	NT$54,600
	12			(3 @ NT$4,600) (2 @ NT$5,100)	NT$24,000	(6 @ NT$5,100)	NT$30,600
	15	(6 @ NT$5,520)	NT$33,120			(6 @ NT$5,100) (6 @ NT$5,520)	NT$63,720
	20			(3 @ NT$5,100)	NT$15,300	(3 @ NT$5,100) (6 @ NT$5,520)	NT$48,420
	25			(3 @ NT$5,100) (2 @ NT$5,520)	NT$26,340	(4 @ NT$5,520)	NT$22,080

(2) MOVING-AVERAGE COST

Date	Purchases		Cost of Goods Sold		Balance	
May 1	(7 @ NT$4,600)	NT$32,200			(7 @ NT$4,600)	NT$32,200
4			(4 @ NT$4,600)	NT$18,400	(3 @ NT$4,600)	NT$13,800
8	(8 @ NT$5,100)	NT$40,800			(11 @ NT$4,963.64)*	NT$54,600
12			(5 @ NT$4,963.64)	NT$24,818	(6 @ NT$4,963.64)	NT$29,782
15	(6 @ NT$5,520)	NT$33,120			(12 @ NT$5,241.83)**	NT$62,902
20			(3 @ NT$5,241.83)	NT$15,725	(9 @ NT$5,241.83)	NT$47,176
25			(5 @ NT$5,241.83)	NT$26,209	(4 @ NT$5,241.83)	NT$20,967

***Average-cost = NT$54,600 ÷ 11 (rounded)**
****NT$62,902 ÷ 12**

(b) (1) The higher ending inventory is NT$22,080 under the FIFO method.
(2) The lower ending inventory is NT$20,967 under the moving-average method.

*PROBLEM 6-10A

(a)

			February
Net sales			€300,000
Cost of goods sold			
Beginning inventory		€ 4,500	
Net purchases	€197,800		
Add: Freight-in	2,900		
Cost of goods purchased		200,700	
Cost of goods available for sale		205,200	
Ending inventory		25,200	
Cost of goods sold			180,000
Gross profit			€120,000

$$\text{Gross profit rate} = \frac{€120,000}{€300,000} = 40\%$$

(b)

Net sales			€260,000
Less: Estimated gross profit (40% X €260,000)			104,000
Estimated cost of goods sold			€156,000
Beginning inventory			€ 25,200
Net purchases		€191,000	
Add: Freight-in		4,000	
Cost of goods purchased			195,000
Cost of goods available for sale			220,200
Less: Estimated cost of goods sold			156,000
Estimated total cost of ending inventory			64,200
Less: Inventory not lost (30% X €64,200)			19,260
Estimated inventory lost in fire (70% X €64,200)			€ 44,940

*PROBLEM 6-11A

(a)

	Sporting Goods		Jewelry and Cosmetics	
	Cost	Retail	Cost	Retail
Beginning inventory	€ 47,360	€ 74,000	€ 32,860	€ 62,000
Purchases	675,000	1,066,000	639,000	1,158,000
Purchase returns	(26,000)	(40,000)	(10,000)	(20,000)
Purchase discounts	(12,360)		(8,860)	
Freight-in	9,000		7,000	
Goods available for sale	€693,000	1,100,000	€660,000	1,200,000
Net sales		(1,010,000)		(1,150,000)
Ending inventory at retail		€ 90,000		€ 50,000

Cost-to-retail ratio:

Sporting Goods—€693,000 ÷ €1,100,000 = 63%.
Jewelry and Cosmetics—€660,000 ÷ €1,200,000 = 55%.

Estimated ending inventory at cost:

€90,000 X 63% = €56,700—Sporting Goods.
€50,000 X 55% = €27,500—Jewelry and Cosmetics.

(b) Sporting Goods—€85,000 X 60% = €51,000.
Jewelry and Cosmetics—€52,000 X 54% = €28,080.

*PROBLEM 6-12A

Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
October 1	Beginning Inventory	60	€24	€1,440
9	Purchase	120	26	3,120
17	Purchase	70	27	1,890
25	Purchase	80	28	2,240
	Total	330		€8,690

Ending Inventory in Units:

Units available for sale	330
Sales (100 + 65 + 120)	285
Units remaining in ending inventory	45

LIFO Ending Inventory
October 1 45 @ €24 = €1,080

PROBLEM 6-1B

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

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

(c) Include £860 in inventory.

(d) Exclude the items from Banff inventory. Title remains with the consignor.

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

(f) Title to the goods transferred to the customer on February 28. The £200 cost should be excluded from Banff's February 28 inventory.

PROBLEM 6-2B

(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	3,000	8	24,000
9	Purchase	5,500	9	49,500
19	Purchase	4,000	10	40,000
25	Purchase	2,000	11	22,000
	Total	16,500		£149,500

(b) **FIFO**

(1) Ending Inventory				(2) Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost	Cost of goods available for sale	£149,500
Oct. 25	2,000	£11	£22,000	Less: Ending	
19	1,000	10	10,000	inventory	32,000
	3,000*		£32,000	Cost of goods sold	£117,500

*16,500 – 13,500 = 3,000

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
Oct. 1	2,000	£7	£14,000
3	3,000	8	24,000
9	5,500	9	49,500
19	3,000	10	30,000
	13,500		£117,500

PROBLEM 6-2B (Continued)

AVERAGE COST

(1) Ending Inventory

£149,500 ÷ 16,500 = £9.0606

Units	Unit Cost	Total Cost
3,000	£9.0606	£27,182

(2) Cost of Goods Sold

Cost of goods available for sale	£149,500
Less: Ending inventory	27,182
Cost of goods sold	£122,318

Proof of Cost of Goods Sold

13,500 units X £9.0606 = £122,318

(c) (1) FIFO results in the higher inventory amount for the statement of financial position, £32,000.

(2) Average-cost results in the higher cost of goods sold, £122,318.

PROBLEM 6-3B

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

Date	Explanation	Units	Unit Cost	Total Cost
1/1	Beginning Inventory	100	HK$210	HK$21,000
3/15	Purchase	300	240	72,000
7/20	Purchase	200	250	50,000
9/4	Purchase	300	270	81,000
12/2	Purchase	100	290	29,000
	Total	1,000		HK$253,000

(b) **FIFO**

(1) Ending Inventory

Date	Units	Unit Cost	Total Cost
12/2	100	HK$290	HK$29,000
9/4	200	$270	54,000
	300		HK$83,000

(2) Cost of Goods Sold

Cost of goods available for sale	HK$253,000
Less: Ending inventory	83,000
Cost of goods sold	HK$170,000

Proof of Cost of Goods Sold

Date	Units	Unit Cost	Total Cost
1/1	100	HK$210	HK$ 21,000
3/15	300	240	72,000
7/20	200	250	50,000
9/4	100	270	27,000
	700		HK$170,000

PROBLEM 6-3B (Continued)

AVERAGE COST

(1) Ending Inventory

HK$253,000 ÷ 1,000 = HK$253

Units	Unit Cost	Total Cost
300	HK$253	HK$75,900

(2) Cost of Goods Sold

Cost of goods available for sale	HK$253,000
Less: Ending inventory	75,900
Cost of goods sold	HK$177,100

Proof of Cost of Goods Sold

700 units X HK$253 = HK$177,100

(c) (1) FIFO results in the higher inventory amount, HK$83,000, as shown in (b) above.

(2) Average-cost produces the higher cost of goods sold, HK$177,100 as shown in (b) above.

PROBLEM 6-4B

(a)

MUNICH COMPANY SE
Condensed Income Statements
For the Year Ended December 31, 2017

	FIFO	Average-cost
Sales revenue	€780,000	€780,000
Cost of goods sold		
Beginning inventory	16,000	16,000
Cost of goods purchased	480,500	480,500
Cost of goods available for sale	496,500	496,500
Ending inventory	40,500[a]	36,690[b]
Cost of goods sold	456,000	459,810
Gross profit	324,000	320,190
Operating expenses	130,000	130,000
Income before income taxes	194,000	190,190
Income tax expense (36%)	69,840	68,468
Net income	€124,160	€121,722

[a]15,000 X €2.70 = €40,500.
[b]€496,500 ÷ 203,000=€2.446 per unit; 15,000 × €2.446=€36,690

(b) (1) The FIFO method produces the more meaningful inventory amount for the statement of financial position because the units are costed at the most recent purchase prices.

(2) The FIFO method is more likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

(3) There will be €1,372 additional cash available under average-cost because income taxes are €68,468 under average-cost and €69,840 under FIFO.

PROBLEM 6-5B

(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	43	5,805
June 18	Purchase	55	46	2,530
June 18	Purchase return	(10)	46	(460)
June 28	Purchase	30	50	1,500
	Total	250		£10,975

Ending Inventory in Units:

Units available for sale	250
Sales (110 – 15 + 60)	155
Units remaining in ending inventory	95

Sales Revenue

Date	Units	Unit Price	Total Sales
June 10	110	£70	£ 7,700
11	(15)	70	(1,050)
25	60	75	4,500
	155		£11,150

(1) FIFO

(i) Ending Inventory

June 28	30 @ £50	£1,500
18	45 @ £46	2,070
4	20 @ £43	860
	95	£4,430

(ii) Cost of Goods Sold

Cost of goods available for sale	£10,975
Less: Ending inventory	4,430
Cost of goods sold	£ 6,545

(iii) Gross Profit

Sales revenue	£11,150
Cost of goods sold	6,545
Gross profit	£ 4,605

(iv) Gross Profit Rate

$$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{£\ 4,605}{£11,150} = 41.3\%$$

PROBLEM 6-5B (Continued)

(2) Average-Cost

Weighted-average cost per unit: $\frac{\text{Cost of goods available for sale}}{\text{Units available for sale}}$

$\frac{£10,975}{250} = £43.90$

(i) Ending Inventory

95 units @ £43.90	£4,170.50

(ii) Cost of Goods Sold

Cost of goods available for sale	£10,975.00
Less: Ending inventory	4,170.50
Cost of goods sold	£ 6,804.50

(iii) Gross Profit

Sales revenue	£11,150.00
Cost of goods sold	6,804.50
Gross profit	£ 4,345.50

(iv) Gross Profit Rate

$\frac{\text{Gross profit}}{\text{Net sales}} = \frac{£\ 4,345.50}{£11,150.00} = 39\%$

(b) In this period of rising prices, average-cost gives the higher cost of goods sold and the lower gross profit. FIFO gives the lower cost of goods sold and the higher gross profit.

PROBLEM 6-6B

(a)

PETRO PUSHERS
Income Statement (partial)
For the Year Ended December 31, 2017

	(1) Specific Identification	(2) FIFO	(3) Average-cost
Sales revenue[a]	£9,185	£9,185	£9,185
Beginning inventory	1,320	1,320	1,320
Purchases[b]	6,505	6,505	6,505
Cost of goods available for sale	7,825	7,825	7,825
Ending inventory[c]	2,500	2,720	2,450
Cost of goods sold	5,325	5,105	5,375
Gross profit	£3,860	£4,080	£3,810

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

Beginning inventory	(2,200 liters – 1,100 – 450)	650 @ £.60	£ 390.00
March 3 purchase	(2,500 liters – 1,100 – 850)	550 @ £.65	357.50
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	£2,499.50

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

Average-cost ending inventory consists of: 3,500 liters @ £.70 = £2,450

Weighted-average cost per liter:

$$\frac{7,825}{(2,200 + 2,500 + 4,000 + 2,500)} = £.70 \text{ per liter}$$

(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, Average-cost produces the lowest gross profit and best support to increase selling prices.

PROBLEM 6-7B

(a)

AAR CO. SA
Condensed Income Statement
For the Year Ended December 31, 2017

	FIFO	Average-cost
Sales revenue	CHF750,000	CHF750,000
Cost of goods sold		
Beginning inventory	47,000	47,000
Cost of goods purchased	532,000	532,000
Cost of goods available for sale	579,000	579,000
Ending inventory	140,000[a]	131,600[b]
Cost of goods sold	439,000	447,400
Gross profit	311,000	302,600
Operating expenses	160,000	160,000
Income before income taxes	151,000	142,600
Income tax expense (30%)	45,300	42,780
Net income	CHF105,700	CHF99,820

[a](25,000 @ CHF5.60) = CHF140,000.
[b](CHF579,000 ÷ 110,000 units=CHF5.264 per unit; 25,000 @ CHF5.264=CHF131,600

(b) Answers to questions:

(1) The FIFO method produces the more meaningful inventory amount for the statement of financial position because the units are costed at the most recent purchase prices.

(2) The FIFO method is more likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

(3) There will be CHF2,520 additional cash available under average-cost because income taxes are CHF42,780 under average-cost and CHF45,300 under FIFO.

*PROBLEM 6-8B

(a)

Sales:

January 8	110 units @ £28	£3,080
January 10 (return)	(10 units @ £28)	(280)
January 20	80 units @ £32	2,560
	180 units	£5,360

(1) FIFO

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(100 @ £14)	£1,400
January 5	(150 @ £17) £2,550			(100 @ £14) (150 @ £17)	£3,950
January 8		(100 @ £14) (10 @ £17)	£1,570	(140 @ £17)	£2,380
January 10		(–10 @ £17)	(£ 170)	(150 @ £17)	£2,550
January 15	(55 @ £19) £1,045			(150 @ £17) (55 @ £19)	£3,595
January 16	(–5 @ £19)(£ 95)			(150 @ £17) (50 @ £19)	£3,500
January 20		(80 @ £17)	£1,360	(70 @ £17) (50 @ £19)	£2,140
January 25	(30 @ £22) £ 660			(70 @ £17) (50 @ £19) (30 @ £22)	£2,800
			£2,760		

(i) Cost of goods sold = £2,760. (ii) Ending inventory = £2,800. (iii) Gross profit = £5,360 – £2,760 = £2,600.

*PROBLEM 6-8B (Continued)

(2) Moving-Average Cost

Date	Purchases	Cost of Goods Sold		Balance	
January 1				(100 @ £14)	£1,400
January 5	(150 @ £17) £2,550			(250 @ £15.80)[a]	£3,950
January 8		(110 @ £15.80)	£1,738	(140 @ £15.80)	£2,212
January 10		(–10 @ £15.80)	(£ 158)	(150 @ £15.80)	£2,370
January 15	(55 @ £19) £1,045			(205 @ £16.659)[b]	£3,415
January 16	(–5 @ £19) (£ 95)			(200 @ £16.60)[c]	£3,320
January 20		(80 @ £16.60)	£1,328	(120 @ £16.60)	£1,992
January 25	(30 @ £22) £ 660			(150 @ £17.68)[d]	£2,652
			£2,908		

*rounded

[a]£3,950 ÷ 250 = £15.80
[b]£3,415 ÷ 205 = £16.659
[c]£3,320 ÷ 200 = £16.60
[d]£2,652 ÷ 150 = £17.68

(i) Cost of goods sold = £2,908. (ii) Ending inventory = £2,652. (iii) Gross profit = £5,360 – £2,908 = £2,452.

(b)

	FIFO	Moving-Average Cost
Sales	£5,360	£5,360
Cost of goods sold	2,760	2,908
Gross profit	£2,600	£2,452
Ending inventory	£2,800	£2,652

In a period of rising costs, the moving-average cost flow assumption results in the higher cost of goods sold and lower gross profit. FIFO gives the lower cost of goods sold and higher gross profit.

On the statement of financial position, FIFO gives the higher ending inventory (representing the most current costs); and moving-average cost results in the lower ending inventory.

*PROBLEM 6-9B

(a) (1)

FIFO

Date	Purchases	Cost of Goods Sold	Balance
July 1	(5 @ HK$120) HK$ 600		(5 @ HK$120) HK$ 600
6		(3 @ HK$120) HK$360	(2 @ HK$120) HK$ 240
11	(7 @ HK$136) HK$ 952		(2 @ HK$120) (7 @ HK$136) } HK$1,192
14		(2 @ HK$120) (4 @ HK$136) } HK$784	(3 @ HK$136) HK$ 408
21	(8 @ HK$147) HK$1,176		(3 @ HK$136) (8 @ HK$147) } HK$1,584
27		(3 @ HK$136) (3 @ HK$147) } HK$849	(5 @ HK$147) HK$ 735

(2) MOVING-AVERAGE COST

Date	Purchases	Cost of Goods Sold	Balance
July 1	(5 @ HK$120) HK$ 600		(5 @ HK$120) HK$ 600
6		(3 @ HK$120) HK$360	(2 @ HK$120) HK$ 240
11	(7 @ HK$136) HK$ 952		(9 @ HK$132.44)* HK$1,192
14		(6 @ HK$132.44) HK$795	(3 @ HK$132.44) HK$ 397
21	(8 @ HK$147) HK$1,176		(11 @ HK$143)** HK$1,573
27		(6 @ HK$143) HK$858	(5 @ HK$143) HK$ 715

* HK$1,192 ÷ 9 = HK$132.44
** HK$1,573 ÷ 11 = HK$143

(b) The higher ending inventory is HK$735 under the FIFO method.

*PROBLEM 6-10B

(a)			November
Net sales			£600,000
Cost of goods sold			
Beginning inventory		£ 30,000	
Purchases	£368,000		
Less: Purchase returns and allowances	£13,300		
Purchase discounts	8,500	21,800	
Net purchases		346,200	
Add: Freight-in		4,800	
Cost of goods purchased		351,000	
Cost of goods available for sale		381,000	
Ending inventory		33,000	
Cost of goods sold			348,000
Gross profit			£252,000

$$\text{Gross profit rate} = \frac{£252,000}{£600,000} = 42\%$$

(b)			
Net sales			£700,000
Less: Estimated gross profit (42% X £700,000)			294,000
Estimated cost of goods sold			£406,000
Beginning inventory			£ 33,000
Purchases		£420,000	
Less: Purchase returns and allowances	£14,900		
Purchase discounts	9,500	24,400	
Net purchases		395,600	
Freight-in		5,900	
Cost of goods purchased			401,500
Cost of goods available for sale			434,500
Less: Estimated cost of goods sold			406,000
Estimated inventory lost in fire			£ 28,500

*PROBLEM 6-11B

(a)

	Hardcovers		Paperbacks	
	Cost	Retail	Cost	Retail
Beginning inventory	€ 440,000	€ 700,000	€ 280,000	€ 360,000
Purchases	2,168,000	3,200,000	1,155,000	1,540,000
Freight-in	20,000		12,000	
Purchase discounts	(54,000)		(22,000)	
Goods available for sale	€2,574,000	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—€2,574,000 ÷ €3,900,000 = 66%.
Paperbacks—€1,425,000 ÷ €1,900,000 = 75%.

Estimated ending inventory at cost:

€800,000 X 66% = €528,000—Hardcovers.
€330,000 X 75% = €247,500—Paperbacks.

(b) Hardcovers—€790,000 X 65% = €513,500.
Paperbacks—€333,000 X 77% = €256,410.

*PROBLEM 6-12B

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	43	5,805
June 18	Purchase	55	46	2,530
June 18	Purchase return	(10)	46	(460)
June 28	Purchase	30	50	1,500
	Total	250		£10,975

Ending Inventory in Units:

Units available for sale	250
Sales (110 – 15 + 60)	155
Units remaining in ending inventory	95

LIFO Ending Inventory

June 1	40	@ £40	£1,600
4	55	@ 43	2,365
	95		£3,965

COMPREHENSIVE PROBLEM SOLUTION

(a)	Dec.	3	Inventory (4,000 X £0.72)	2,880	
			Accounts Payable.....		2,880
		5	Accounts Receivable (4,400 X £0.92).....	4,048	
			Sales Revenue		4,048
			Cost of Good Sold.....	2,958	
			Inventory (3,000 X £0.65) +		
			(1,400 X £0.72).....		2,958
		7	Sales Returns and Allowances	184	
			Accounts Receivable.....		184
			Inventory.....	144	
			Cost of Good Sold		144
		17	Inventory (2,200 X £0.78)	1,716	
			Cash		1,716
		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.	4,650	1,716
Bal.	2,934	

Inventory

Bal.	1,950	2,958
	2,880	1,440
	144	
	1,716	
Bal.	2,292	

Accumulated Depreciation—Equipment

	Bal.	1,500
		200
	Bal.	1,700

Salaries and Wages Payable

		400
	Bal.	400

Retained Earnings

	Bal.	7,000

Sales Returns & Allowances

	184	
Bal.	184	

Cost of Goods Sold

	2,958	144
	1,440	
Bal.	4,254	

Accounts Receivable

Bal.	3,900	184
	4,048	
	1,900	
Bal.	9,664	

Equipment

Bal.	21,000	

Accounts Payable

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

Share Capital—Ordinary

	Bal.	20,000

Sales Revenue

		4,048
		1,900
	Bal.	5,948

Salaries and Wages Expense

	400	
Bal.	400	

Depreciation Expense

	200	
Bal.	200	

COMPREHENSIVE PROBLEM SOLUTION (Continued)

(c)

CAMBRIDGE COMPANY, LTD.
Adjusted Trial Balance
December 31, 2017

	Dr.	Cr.
Cash	£ 2,934	
Accounts Receivable	9,664	
Inventory	2,292	
Equipment	21,000	
Accumulated Depreciation—Equipment		£ 1,700
Accounts Payable		5,880
Salaries and Wages Payable		400
Share Capital—Ordinary		20,000
Retained Earnings		7,000
Sales Revenue		5,948
Sales Returns & Allowances	184	
Cost of Goods Sold	4,254	
Salaries and Wages Expense	400	
Depreciation Expense	200	
	£40,928	£40,928

(d)

CAMBRIDGE COMPANY, LTD.
Income Statement
For the Month Ending December 31, 2017

Sales revenue		£5,948
Less: Sales returns and allowances		184
Net sales		5,764
Cost of goods sold		4,254
Gross profit		1,510
Operating expenses		
Salaries and wages expense	£400	
Depreciation expense	200	600
Net income		£ 910

COMPREHENSIVE PROBLEM SOLUTION (Continued)

CAMBRIDGE COMPANY, LTD.
Statement of Financial Position
December 31, 2017

Assets		
Property, plant, and equipment		
Equipment	£21,000	
Less: Accumulated depreciation—Equipment	1,700	£19,300
Current assets		
Inventory	2,292	
Accounts receivable	9,664	
Cash	2,934	14,890
Total assets		£34,190
Equity and liabilities		
Equity		
Share capital—ordinary	£20,000	
Retained earnings (£7,000 + £910)	7,910	£27,910
Current liabilities		
Accounts payable	5,880	
Salaries and wages payable	400	6,280
Total equity and liabilities		£34,190

COMPREHENSIVE PROBLEM SOLUTION (Continued)

(e) FIFO Method

	Units	Unit Cost	Cost of Goods Available for Sale
Beg. Inventory	3,000	£0.65	£1,950
Dec. 3 purchase.	4,000	£0.72	2,880
Dec. 17 purchase.	2,200	£0.78	1,716
	9,200		£6,546

Ending Inventory			Cost of Goods Sold	
Dec. 17	2,200 X £0.78 =	£1,716	Cost of goods available for sale	£6,546
Dec. 3	800* X £0.72 =	576	Less: Ending inventory	2,292
	3,000	£2,292	Cost of goods sold	£4,254

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

(f) Average-cost Method

Weighted-average cost per unit $\frac{£6,546}{9,200 \text{ units}}$ = £.712/unit

Ending Inventory	Cost of Goods Sold	
3,000 X £0.712 = £2,136	Cost of goods available for sale	£6,546
	Less: Ending inventory	2,136
	Cost of goods sold	£4,410

MC6 MATCHA CREATIONS

(a)

COST OF GOODS AVAILABLE FOR SALE

Date	Explanation	Units	Unit Cost	Total Cost
Feb. 1	Beginning Inventory	3	$595	$1,785
Feb. 2	Purchase	2	600	1,200
Mar. 2	Purchase	1	618	618
Apr. 1	Purchase	2	612	1,224
May 4	Purchase	3	625	1,875
	Total	11		$6,702

(b)

FIFO

Ending Inventory

Date	Units	Unit Cost	Total Cost
May 4	3	$625	$1,875
Apr. 1	1	612	612
	4		$2,487

Cost of Goods Sold

Cost of goods available for sale	$6,702
Less: Ending inventory	2,487
Cost of goods sold	$4,215

Gross Profit

Sales	$8,050
Less: Cost of goods sold	4,215
Gross profit	$3,835

Gross Profit Rate

$3,835 / $8,050 = 47.64%

Average Cost

Ending Inventory

$6,702/11 = $609.273

Units	Unit Cost	Total Cost
4	$609.273	$2,437.09

Cost of Goods Sold

Cost of goods available for sale	$6,702.00
Less: Ending inventory	2,437.09
Cost of goods sold	$4,264.91

Gross Profit

Sales	$8,050.00
Less: Cost of goods sold	4,264.91
Gross profit	$3,785.09

Gross Profit Rate

$3,785.09 / $8,050.00 = 47.02%

BYP 6-1 FINANCIAL REPORTING PROBLEM

(a)

	December 31, 2013	December 31, 2012
Inventories	NT$37,494.9 million	NT$37,830.5 million

(b) Taiwan dollar change in inventories between 2012 and 2013:

NT$37,494.9 – NT$37,830.5 = NT$335.6 million decrease

Percent change in inventories between 2012 and 2013:

NT$335.6 ÷ NT$37,830.5 = 0.9% decrease

2013 inventory as a percent of current assets:

NT$37,494.9 ÷ NT$358,486.7 = 10.5%

(c) Inventories are valued at lower of cost or net realizable value. Cost is determined using the weighted-average cost method. (See Note 5, Summary of significant accounting policies).

(d)

TSMC (in millions)	2013	2012
Cost of Goods Sold (Cost of Revenue)	NT$316,057.8	NT$262,583.1

2013 cost of goods sold as a percent of sales (net revenue):

NT$316,057.8 ÷ NT$597,024.2 = 52.9%

BYP 6-2 COMPARATIVE ANALYSIS PROBLEM

(a) (1) Inventory turnover:

$$\text{Nestlé:} \quad \text{CHF48,111} \div \frac{\text{CHF8,939} + \text{CHF8,382}}{2} = 5.6 \text{ times}$$

$$\text{Petra Foods:} \quad \text{US\$345,954} \div \frac{\text{US\$61,393} + \text{US\$65,506}}{2} = 5.5 \text{ times}$$

(2) Days in inventory:

Nestlé: 365 ÷ 5.6 = 65 days
Petra Foods: 365 ÷ 5.5 = 66 days

(b) Nestlé's inventory control is slightly more effective.

BYP 6-3 REAL-WORLD FOCUS

The following responses are based on the 2014 annual report:

(a) $1,591,000,000, as of July 26, 2014.

(b) $1,591,000,000 – $1,476,000,000 = $115,000,000 increase.

(c) 7.8 percent ($115 ÷ $1,476).

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

BYP 6-4 DECISION-MAKING ACROSS THE ORGANIZATION

(a)	(1)	Sales January 1–March 31		£180,000
		Cash sales 4/1–4/10 (£20,500 X 40%)		8,200
		Acknowledged credit sales 4/1–4/10		37,000
		Sales made but unacknowledged		5,600
		Sales as of April 10		£230,800
	(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	1,900	10,500
		Purchases as of April 10		£108,700

		2016	2015
*(b)	Net sales	£600,000	£480,000
	Cost of goods sold		
	Inventory, January 1	60,000	40,000
	Cost of goods purchased	404,000	346,400
	Cost of goods available for sale	464,000	386,400
	Inventory, December 31	80,000	60,000
	Cost of goods sold	384,000	326,400
	Gross profit	£216,000	£153,600
	Gross profit rate	36%	32%
	Average gross profit rate	34%	

*(c)	Sales (from (a) (1))		£230,800
	Less: Gross profit (£230,800 X 34%)		78,472
	Cost of goods sold		£152,328
	Inventory, January 1		£ 80,000
	Purchases (from (a) (2))		108,700
	Cost of goods available for sale		188,700
	Cost of goods sold		152,328
	Estimated inventory at time of fire		36,372
	Less: Inventory salvaged		17,000
	Estimated inventory loss		£ 19,372

BYP 6-5 COMMUNICATION ACTIVITY

MEMO

To: Kathy McDonnell, President
From: Student

Re: 2016 ending inventory error

As you know, 2016 ending inventory was overstated by €1 million. Of course, this error will cause 2016 net income to be incorrect because the ending inventory is used to compute 2016 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 2017 net income. The 2016 ending inventory is also the 2017 beginning inventory. Therefore, 2017 beginning inventory is also overstated, which causes an overstatement of cost of goods sold and an understatement of 2017 net income.

BYP 6-6 ETHICS CASE

(a) The higher cost of the items ordered, received, and on hand at year-end will increase the weighted average cost per unit used to calculate 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.

GAAP EXERCISES

GAAP6-1

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.**

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) IFRS requires pre-harvest inventories of agricultural products to be reported at fair value less cost of disposal. GAAP requires these items to be recorded at cost; (5) 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.**

GAAP6-2

Under IFRS, LaTour's inventory turnover ratio 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 (assumes more recently purchased items are sold first). Thus, the U.S. GAAP company will report higher inventory turnover ratios. The LIFO reserve can be used to adjust the reported LIFO numbers to FIFO and to permit an "apples to apples" comparison.

GAAP6-3

Item No.	Cost	Market	LCM
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

GAAP FINANCIAL REPORTING PROBLEM

GAAP6-4

(a)

	September 28, 2013	September 29, 2012
Inventories	$1,764 million	$791 million

(b) Dollar change in inventories between 2012 and 2013:

$1,764 – $791 = $973 million increase

Percentage change in inventories between 2012 and 2013:

$973 ÷ $791 = 123% increase

2013 inventory as a percent of current assets:

$1,764 ÷ $73,286 = 2.4%

(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)	2013	2012	2011
Cost of Goods Sold	$106,606	$87,846	$64,431

2013 cost of goods sold as a percent of sales:

$106,606 ÷ $170,910 = 62.4%