8.1. (*a*) Based upon the following records, determine the value of the inventory to be recorded.

Goods on hand (paid)	$ 59,000
Goods on hand (owed)	42,000
Goods on hand (consignment)	15,000
Goods ordered but not received (FOB sh. pt.)	24,000
Goods ordered but not received (FOB dest.)	12,000
	$152,000

(*b*) How is this value treated?

SOLUTION

(*a*) The inventory is valued as follows:

Goods on hand (paid)	$ 59,000
Goods on hand (owed)	42,000
Goods ordered (FOB shipping point)	24,000
Total inventory on hand	$125,000

(*b*) Balance Sheet
Current Assets
Merchandise Inventory $125,000

8.2. In Prob. 8.1, if $25,000 of inventory had been sold but, at the time of the accounting valuation, had not been shipped, what would the value of the inventory then be?

SOLUTION

$$\$125,000 - \$25,000 = \underline{\$100,000}$$

Under the periodic system, no adjustment to the Inventory account is made until the end of the period, when a new count is made.

8.3. The inventory information for a product is given below:

Jan. 1	Inventory	12 units	$15
Feb. 16	Purchase	8 units	16
Mar. 4	Purchase	15 units	18
Oct. 15	Purchase	10 units	20

After taking a physical count, we find that we have 14 units on hand. Determine the ending inventory cost by the FIFO method.

SOLUTION

Most recent purchase	(Oct. 15)	10 units @ $20 =	$200
Next most recent purchase	(Mar. 4)	4 units @ 18 =	72
Ending inventory		14	$272

Remember that values are assigned to the inventory based on the latest cost (the most recent purchases).

8.4. Assign a value to the ending inventory under FIFO using the following cost data:

Beginning inventory	200 units @ $10 = $2,000
First purchase	300 units @ 12 = 3,600
Second purchase	300 units @ 11 = 3,300
Available for sale	800 $8,900

An inventory count at the end of the period reveals that 450 units are still on hand.

SOLUTION

Second purchase	300 units @ $11 = $3,300
First purchase	150 units @ 12 = 1,800
Beginning inventory	450 $5,100

8.5. Based upon the information in Prob. 8.4, determine the cost of goods sold for the period.

SOLUTION

There are two methods to determine the cost of those goods sold.

(a) Total goods available $8,900
     Ending inventory   5,100
     Cost of goods sold $3,800

Alternative Method

(b) Beginning inventory   200 units @ $10 = $2,000
     First purchase   150 units @ 12 = 1,800
     Cost of goods sold   350 units $3,800

Since there were a total of 800 units available and 450 were on hand at the end of the period, 350 units were sold (800 − 450 = 350).

8.6. Product information for item 204 is as follows:

Jan. 1	Inventory	50 units @ $10 = $ 500
Apr. 24	Purchase	30 units @ 8 = 240
July 10	Purchase	40 units @ 7 = 280
Nov. 15	Purchase	35 units @ 8 = 280
	Units available	155 Total cost $1,300

By a physical count, it is estimated that 95 units are left in the ending inventory. (a) What is the value of the ending inventory under FIFO valuation? (b) Determine the cost of goods sold.

SOLUTION

(a) Nov. 15   35   units @ $8 = $280
     July 10   40   units @ 7 = 280
     Apr. 24   20* units @ 8 = 160
     Ending inventory 95   units $720

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*A total of 95 units are on hand. Since you have 75 units (35 + 40) from the two most recent purchases, only 20 of 30 units of the April 24 purchase are needed.

(b) $1,300   Total amount of goods
      −720   Ending inventory
     $ 580   Cost of goods sold

Alternative Method

Jan. 1	50 units @ $10 = $500
Apr. 24	10 units @ 8 = 80
Cost of goods sold	60 units $580

Note that since there were 155 units available and 95 units were on hand, 60 units (155 − 95) were used to determine the cost of goods sold.

8.7. Based upon the following information, determine under LIFO valuation (*a*) ending inventory of 120 units and (*b*) its cost of goods sold.

Beginning inventory	100 units @ $15 =	$1,500
Apr. 30	100 units @ 17 =	1,700
Sept. 30	100 units @ 18 =	1,800
Dec. 30	100 units @ 21 =	2,100
Available for sale	400 units	$7,100

SOLUTION

(*a*)
Beginning inventory	100 units @ $15 =	$1,500
Apr. 30	20 units @ 17 =	340
Ending inventory	120 units	$1,840

(*b*)
Dec. 30	100 units @ $21 =	$2,100
Sept. 30	100 units @ 18 =	1,800
Apr. 30	80 units @ 17 =	1,360
Cost of goods sold	280 units	$5,260

Proof:
$7,100	Available units
−1,840	Ending inventory
$5,260	Cost of goods sold

8.8. Based upon the following information in a rising price market, determine (*a*) ending inventory of 260 units under LIFO and (*b*) the cost of goods sold.

Beginning inventory	100 units @ $ 5 =	$ 500
Mar. 30 purchase	100 units @ 6 =	600
Sept. 30 purchase	100 units @ 8 =	800
Nov. 30 purchase	100 units @ 9 =	900
Dec. 30 purchase	100 units @ 12 =	1,200
	500 units	$4,000

SOLUTION

(*a*)
Beginning inventory	100 units @ $5 =	$ 500
Mar. 30 purchase	100 units @ 6 =	600
Sept. 30 purchase	60 units @ 8 =	480
Ending inventory	260 units	$1,580

(*b*) The ending inventory is $1,580 and the cost of goods sold is ($4,000 − $1,580 = $2,420) or computed as

Dec. 30	100	units @ $12 =	$1,200
Nov. 30	100	units @ 9 =	900
Sept. 30	40	units @ 8 =	320
Cost of goods sold	240*		$2,420

*Since there were 500 units in the total inventory, and 260 remained, 240 units had been sold.

8.9. If in Prob. 8.8 the management had decided to delay the Dec. 30 purchase until the following year (in order to show a higher profit based on a lower cost) what would be the cost of goods sold without the last December purchase?

SOLUTION

Four hundred units (the December purchase of 100 units is eliminated) were available to be sold and 260 units remained on hand. Thus the 140 units sold will be costed as follows:

Nov. 30*	100 units @ $9 =	$ 900
Sept. 30	40 units @ 8 =	320
Cost of goods sold	140	$1,220

*No December purchase is considered.

Therefore, management now has a cost of $1,220 rather than $2,420 (Prob. 8.8), thus meeting its objective of higher profits. This lower cost will then yield a higher profit, yet it keeps the ending inventory at the same figure.

8.10. The beginning inventory and various purchases of product Y were as follows:

Jan. 1	Beginning inventory	8 units @ $10 =	$ 80
Apr. 4	First purchase	12 units @ 11 =	132
July 16	Second purchase	16 units @ 12 =	192
Aug. 25	Third purchase	15 units @ 13 =	195
Dec. 24	Fourth purchase	18 units @ 14 =	252
	Available for sale	69 units	$851

An inventory count disclosed that 30 units of product Y were on hand. (a) Determine the ending inventory under the Weighted Average method. (b) Determine the cost of goods sold.

SOLUTION

(a) (1) $851 ÷ 69 = $12.33 per unit
(2) $12.33 × 30 = $370 Ending inventory*

*Rounded off to the nearest dollar.

(b) Since 69 units were available for sale and 30 of those units were on hand, 69 − 30 = 39 units were sold. To determine the total cost of goods sold, multiply the units sold by the average cost of each unit. Therefore:

$$39 \text{ units} \times \$12.33 \text{ per unit} = \underline{\$481}$$

Alternative Method

Total value of goods	$851
Ending inventory	−370
Cost of goods sold	$481

8.11. In an inflationary market, Essex Corp. bought the following items:

Jan. 1	Beginning inventory	150 units @ $2.00 =	$ 300
May 14	First purchase	300 units @ 4.00 =	1,200
Oct. 6	Second purchase	300 units @ 5.00 =	1,500
Nov. 14	Third purchase	250 units @ 6.00 =	1,500
Dec. 19	Fourth purchase	200 units @ 7.50 =	1,500
	Available for sale	1,200 units	$6,000

If 225 units are left on hand, determine (*a*) the ending inventory in this inflationary period under the average cost method and (*b*) the cost of goods sold.

SOLUTION

(*a*) $6,000 ÷ 1,200 units = $5 per unit
 225 units on hand × $5 per unit = $1,125 Ending inventory

(*b*) 1,200 units − 225 units on hand = 975 units sold
 975 × $5 per unit = $4,875 Cost of goods sold

To prove that both items (*a*) and (*b*) are correct:

$1,125	Ending inventory
+4,875	Cost of goods sold
$6,000	Goods available for sale

8.12. In a deflationary market, Robert Kincaid bought the following items:

Jan. 1	Beginning inventory	200 units @ $7.50 =	$1,500
May 14	First purchase	250 units @ 6.00 =	1,500
Oct. 6	Second purchase	300 units @ 5.00 =	1,500
Nov. 14	Third purchase	300 units @ 4.00 =	1,200
Dec. 19	Fourth purchase	150 units @ 2.00 =	300
	Available for sale	1,200 units	$6,000

If 225 units are left on hand, determine (*a*) the ending inventory in this deflationary period under the average cost method and (*b*) the cost of goods sold.

SOLUTION

(*a*) $6,000 ÷ 1,200 units = $5 per unit
 225 units on hand × $5 per unit = $1,125 Ending inventory

(*b*) 1,200 units − 225 units on hand = 975 units sold
 975 units × $5 per unit = $4,875 Cost of goods sold

Proof: $1,125 + $4,875 = $6,000 Goods available for sale

 Note that in both this problem (8.12) and Prob. 8.11, the ending inventory value is the same regardless of inflation (rising prices) or deflation (falling prices). This occurs because you are averaging the entire accounting period. In the next problem, different values do occur, because the inventory will be valued under FIFO and LIFO as well as average cost.

8.13. The beginning inventory and various purchases of product B were as follows:

Jan. 1	Balance	8 units @ $10.00	
Mar. 5	Purchase	12 units @ 11.00	
June 9	Purchase	16 units @ 12.00	
Aug. 20	Purchase	15 units @ 13.00	
Nov. 1	Purchase	18 units @ 14.00	

An inventory count under the periodic system disclosed that 30 units of product B were on hand. Determine the ending inventory cost by (*a*) first-in–first out; (*b*) last-in–first-out; (*c*) weighted average.

SOLUTION

(*a*) Most recent purchase (Nov. 1)   18 units @ $14 = $252
      Next most recent (Aug. 20)   12 units @ 13 = 156
            Total units   30 Total cost $408

(*b*) Earliest cost (Jan. 1)   8 units @ $10 = $ 80
      Next earliest (Mar. 5)   12 units @ 11 = 132
      Next earliest (June 9)   10 units @ 12 = 120
            Total units   30 Total cost $332

(*c*)   8 units @ $10 = $ 80
      12 units @ 11 = 132
      16 units @ 12 = 192
      15 units @ 13 = 195
      18 units @ 14 = 252
      69 Total cost $851
      Total units   30 Total cost $370[*]

The weighted average cost per unit is $851 ÷ 69 = $12.33. The cost of 30 units on hand is calculated as $12.33 × 30 = $370*.

———————————
*Rounded to the nearest dollar.

8.14. From the following information, determine the cost of inventory by the first-in–first-out (FIFO), the last-in–first out (LIFO), and the weighted average cost method.

Unit Number	Inventory January 1, 19X8	March Purchases	June Purchases	September Purchases	Number of Units in Inventory December 31, 19X8
101	3 @ $480	5 @ $490	6 @ $500	5 @ $510	6
103	6 @ 208	10 @ 210	11 @ 220	7 @ 222	7
105	4 @ 200	5 @ 200	4 @ 210	2 @ 215	3
107	3 @ 225	9 @ 240	7 @ 245	4 @ 250	5
109	1 @ 295	1 @ 300	3 @ 315	—	2

8.15. Determine the gross profit under the (*a*) FIFO and (*b*) LIFO assumptions, given the following information:

Sales	$40,000
Goods available for sale	12,000
Ending inventory (under FIFO)	3,500
Ending inventory (under LIFO)	6,500

SOLUTION

	FIFO		LIFO	
Sales		$40,000		$40,000
Cost of Goods Sold:				
Goods Available for Sale	$12,000		$12,000	
Less End. Inventory	3,500		6,500	
Cost of Goods Sold		8,500		5,500
Gross Profit		$31,500		$34,500

Since FIFO produced a lower ending inventory, the corresponding profit was lower. Also, as a proof, FIFO produced a higher cost of goods sold, therefore yielding a lower gross profit.