

CHAPTER 9

Inventories: Additional Valuation Issues

ANSWERS TO QUESTIONS

1. Where there is evidence that the utility of goods to be disposed of in the ordinary course of business will be less than cost, the difference should be recognized as a loss in the current period, and the inventory should be stated at net realizable value in the financial statements.

LO: 1, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

2. The usual basis for carrying forward the inventory to the next period is cost. Departure from cost is required; however, when the utility of the goods included in the inventory is less than their cost, this loss in utility should be recognized as a loss of the current period, the period in which it occurred. Furthermore, the subsequent period should be charged for goods at an amount that measures their expected contribution to that period. In other words, the subsequent period should be charged for inventory at prices no higher than those which would have been paid if the inventory had been obtained at the beginning of that period. (Historically, the lower-of-cost-or-net realizable value rule arose from the accounting convention of providing for all losses and anticipating no profits.)

In accordance with the foregoing reasoning, the rule of “cost or net realizable value, whichever is lower” may be applied to each item in the inventory, to the total of the components of each major category, or to the total of the inventory, whichever most clearly reflects operations. The rule is usually applied to each item, but if individual inventory items enter into the same category or categories of finished product, alternative procedures are suitable.

The arguments against the use of the lower-of-cost-or-net realizable value method of valuing inventories include the following:

- (a) The method requires the reporting of estimated losses (all or a portion of the excess of actual cost over net realizable value) as definite income charges even though the losses have not been sustained to date and may never be sustained. Under a consistent criterion of realization, a drop in net realizable value below original cost is no more a sustained loss than a rise above cost is a realized gain.
- (b) A price shrinkage is brought into the income statement before the loss has been sustained through sale. Furthermore, if the charge for the inventory write-downs is not made to a special loss account, the cost figure for goods actually sold is inflated by the amount of the estimated shrinkage in the price of the unsold goods. The title “Cost of Goods Sold” therefore becomes a misnomer.
- (c) The method is inconsistent in application in a given year because it recognizes the propriety of implied price reductions but gives no recognition in the accounts or financial statements to the effect of the price increases.
- (d) The method is also inconsistent in application in one year as opposed to another because the inventory of a company may be valued at cost in one year and at net realizable value in the next year.
- (e) The lower-of-cost-or-net realizable value method values the inventory in the balance sheet conservatively. Its effect on the income statement, however, may be the opposite. Although the income statement for the year in which the unsustained loss is taken is stated conservatively, the net income on the income statement of the subsequent period may be distorted if the expected reductions in sales prices do not materialize.

LO: 1, Bloom: C, Difficulty: Simple, Time: 5-7, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

Questions Chapter 9 (Continued)

3. The lower-of-cost-or-net realizable value rule may be applied directly to each item or to the total of the inventory (or in some cases, to the total of the components of each major category). The method should be the one that most clearly reflects income. The most common practice is to price the inventory on an item-by-item basis. Companies favor the individual item approach because tax requirements in some countries require that an individual item basis be used unless it involves practical difficulties. In addition, the individual item approach gives the most conservative valuation on the statement of financial position.

LO: 1, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

4. (1) \$12.80.
(2) \$16.10.
(3) \$13.00.
(4) \$9.20.
(5) \$15.90.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

5. One approach is to record the inventory at cost and then reduce it to net realizable value, thereby reflecting a loss in the current period (often referred to as the loss method). The loss would then be shown as a separate item in the income statement and the cost of goods sold for the year would not be distorted by its inclusion. An objection to this method of valuation is that an inconsistency is created between the income statement and the statement of financial position. Companies may record the adjustment either directly to the Inventory account or use the Allowance to Reduce Inventory to Net Realizable Value which is a contra account against inventory on the statement of financial position.

Another approach is merely to substitute market for cost when pricing the new inventory (often referred to as the cost-of-goods-sold method). Such a procedure increases Cost of Goods Sold by the amount of the loss and fails to reflect this loss separately. For this reason, many theoretical objections can be raised against this procedure.

LO: 1, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

6. The upper (ceiling) and lower (floor) limits for the value of the inventory are intended to prevent the inventory from being reported at an amount in excess of the net realizable value or at an amount less than the net realizable value less a normal profit margin. The maximum limitation, not to exceed the net realizable value (ceiling) covers obsolete, damaged, or shopworn material and prevents overstatement of inventories and understatement of the loss in the current period. The minimum limitation deters understatement of inventory and overstatement of the loss in the current period.

LO: 2, Bloom: C, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Measurement, AICPA PC: Communication

7. (1) \$14.50.
(2) \$16.10.
(3) \$13.75.
(4) \$9.70.
(5) \$15.90.

LO: 2, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

8. An exception to the normal recognition rule occurs where (1) there is a controlled market with a quoted price applicable to specific commodities and (2) no significant costs of disposal are involved. Certain agricultural products and precious metals which are immediately marketable at quoted prices are often valued at net realizable value (market price).

LO: 3, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Measurement, AICPA PC: Communication

Questions Chapter 9 (Continued)

9. Relative sales value is an appropriate basis for pricing inventory when a group of varying units is purchased at a single lump-sum price (basket purchase). The purchase price must be allocated in some manner or on some basis among the various units. When the units vary in size, character, and attractiveness, the basis for allocation must reflect both quantitative and qualitative aspects. A suitable basis then is the relative sales value of the units that comprise the inventory.

LO: 3, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Measurement, AICPA PC: Communication

10. The drop in the market price of the commitment should be charged to operations in the current year if it is material in amount. The following entry would be made $[(\$6.20 - \$5.90) \times 150,000] = \$45,000$:

Unrealized Holding Gain or Loss—Income (Purchase Commitments)	45,000	
Estimated Liability on Purchase Commitments.....		45,000

The entry is made because a loss in utility has occurred during the period in which the market decline took place. The account credited in the above entry should be included among the current liabilities on the balance sheet with an appropriate note indicating the nature and extent of the commitment. This liability indicates the minimum obligation on the commitment contract at the present time—the amount that would have to be forfeited in case of breach of contract.

LO: 3, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Measurement, Reporting, AICPA PC: Communication

11. The major uses of the gross profit method are: (1) it provides an approximation of the ending inventory which the auditor might use for testing validity of physical inventory count; (2) it means that a physical count need not be taken every month or quarter; and (3) it helps in determining damages caused by casualty when inventory cannot be counted.

LO: 4, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Measurement, Reporting, AICPA PC: Communication

12. Gross profit as a percentage of sales indicates that the markup is based on selling price rather than cost; for this reason the gross profit as a percentage of selling price will always be lower than if based on cost. Conversions are as follows:

25% on cost =		20% on selling price
33 1/3% on cost =		25% on selling price
33 1/3% on selling price =		50% on cost
60% on selling price =		150% on cost

LO: 4, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

13. A markup of 25% on cost equals a 20% markup on selling price; therefore, gross profit equals \$1,000,000 (\$5 million X 20%) and net income equals \$250,000 $[\$1,000,000 - (15\% \times \$5 \text{ million})]$.

The following formula was used to compute the 20% markup on selling price:

$$\text{Gross profit on selling price} = \frac{\text{Percentage markup on cost}}{100\% + \text{Percentage markup on cost}} = \frac{.25}{1 + .25} = 20\%$$

LO: 4, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

Questions Chapter 9 (Continued)

14. Inventory, January 1, 2020		\$ 400,000
Purchases to February 10, 2020	\$1,140,000	
Freight-in to February 10, 2020	<u>60,000</u>	<u>1,200,000</u>
Merchandise available		1,600,000
Sales revenue to February 10, 2020	1,950,000	
Less gross profit at 40%	<u>780,000</u>	
Sales at cost		<u>1,170,000</u>
Inventory (approximately) at February 10, 2020		<u>\$ 430,000</u>

LO: 4, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Measurement, Reporting, AICPA PC: AICPA BB: None

- 15.** The validity of the retail inventory method is dependent upon (1) the composition of the inventory remaining approximately the same at the end of the period as it was during the period, and (2) there being approximately the same rate of markup at the end of the year as was used throughout the period.

The retail method, though ordinarily applied on a departmental basis, may be appropriate for the business as a unit if the above conditions are met.

LO: 5, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

- 16.** The conventional retail method is a statistical procedure based on averages whereby inventory figures at retail are reduced to an inventory valuation figure by multiplying the retail figures by a percentage which is the complement of the markup percent.

To determine the markup percent, original markups and additional net markups are related to the original cost. The complement of the markup percent so determined is then applied to the inventory at retail after the latter has been reduced by net markdowns, thus in effect achieving a lower-of-cost-or-market valuation.

An example of reduction to market follows:

Assume purchase of 100 items at \$1 each, marked to sell at \$1.50 each, at which price 80 were sold. The remaining 20 are marked down to \$1.15 each.

The inventory at \$15.33 is \$4.67 below original cost and is valued at an amount which will produce the "normal" 33 1/3% gross profit if sold at the present retail price of \$23.00.

Computation of Inventory

	Cost	Retail	Ratio
Purchases	<u>\$100</u>	\$150	66 2/3%
Sales revenue		(120)	
Markdowns (20 X \$.35)		<u>(7)</u>	
Inventory at retail		<u>\$ 23</u>	
Inventory at lower-of-cost-or-market $\$23 \times 66 \frac{2}{3}\% =$			<u>\$15.33</u>

LO: 5, Bloom: C, Difficulty: Moderate, Time: 5-7, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

Questions Chapter 9 (Continued)

17. (a) Ending inventory:

	Cost	Retail
Beginning inventory	\$ 149,000	\$ 283,500
Purchases.....	1,400,000	2,160,000
Freight-in	<u>70,000</u>	
Totals.....	1,619,000	2,443,500
Add net markups.....		<u>92,000</u>
	<u>\$1,619,000</u>	2,535,500
Deduct net markdowns		<u>48,000</u>
		2,487,500
Deduct sales revenue		<u>2,175,000</u>
Ending inventory, at retail		<u>\$ 312,500</u>

$$\text{Ratio of cost to selling price} = \frac{\$1,619,000}{\$2,535,500} = 63.85\%$$

Ending inventory estimated at cost = 63.85% X \$312,500 = \$199,531.

(b) The retail method, above, showed an ending inventory at retail of \$312,500; therefore, merchandise not accounted for amounts to \$17,500 (\$312,500 – \$295,000) at retail and \$11,174 (\$17,500 X .6385) at cost.

LO: 5, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

18. Information relative to the composition of the inventory (i.e., raw material, work-in-process, and finished goods); the inventory financing where significant or unusual (transactions with related parties, product financing arrangements, firm purchase commitments, involuntary liquidations of LIFO inventories, pledging inventories as collateral); and the inventory costing methods employed (lower-of-cost-or-market, FIFO, LIFO, average cost) should be disclosed. If Deere and Company uses LIFO, it should also report the LIFO reserve.

LO: 6, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

19. Inventory turnover measures how quickly inventory is sold. Generally, the higher the inventory turnover, the better the enterprise is performing. The more times the inventory turns over, the smaller the net margin can be to earn an appropriate total profit and return on assets. For example, a company can price its goods lower if it has a high inventory turnover. A company with a low profit margin, such as 2%, can earn as much as a company with a high net profit margin, such as 40% if its inventory turnover is often enough. To illustrate, a grocery store with a 2% profit margin can earn as much as a jewelry store with a 40% profit margin and an inventory turnover of 1 if its turnover is more than 20 times.

LO: 6, Bloom: K, Difficulty: Simple, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

*20. Two major modifications are necessary. First, the beginning inventory should be excluded from the numerator and denominator of the cost-to-retail percentage and second, markdowns should be included in the denominator of the cost-to-retail percentage.

LO: 7, Bloom: C, Difficulty: Moderate, Time: 3-5, AACSB: Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 9.1

Item	Cost	NRV	LCNRV
Skis	\$190.00	\$161.00	\$161.00
Boots	106.00	108.00	106.00
Parkas	53.00	50.00	50.00

LO: 1, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.2

(a)	Item	Cost	NRV	LCNRV
	Item-by-item			
	Jokers	\$ 2,000	\$ 2,100	\$ 2,000
	Penguins	5,000	4,950	4,950
	Riddlers	4,400	4,625	4,400
	Scarecrows	<u>3,200</u>	<u>3,830</u>	<u>3,200</u>
	Total	<u>\$14,600</u>	<u>\$15,505</u>	<u>\$14,550</u>

- (b) 1. Penguins only: \$50
 2. None on a whole group: \$15,505 > \$14,600.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.3

(a) Cost-of-goods-sold-method

Cost of Goods Sold	21,000,000	
Allowance to Reduce Inventory to NRV		21,000,000

(b) Loss method

Loss Due to Decline of Inventory to NRV	21,000,000	
Allowance to Reduce Inventory to NRV		21,000,000

LO: 1, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.4

(a) Ceiling \$193.00 (\$212 – \$19)
 Floor \$161.00 (\$212 – \$19 – \$32)

(b) \$106.00

(c) \$51.00

LO: 2, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.5

(a) Cost-of-goods-sold method
 Cost of Goods Sold..... 21,000
 Allowance to Reduce Inventory to Market 21,000*
 *(\$286,000 – \$265,000)

(b) Loss method
 Loss Due to Market Decline of Inventory 21,000
 Allowance to Reduce Inventory to Market 21,000

LO: 2, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.6

Group	Number of CDs	Sales Price per CD	Total Sales Price	Relative Sales Price	Total Cost	Cost Allocated to CDs	Cost per CD
1	100	\$ 5	\$ 500	5/100*	X \$8,000 =	\$ 400	\$ 4**
2	800	\$10	8,000	80/100	X \$8,000 =	6,400	\$ 8
3	100	\$15	1,500	15/100	X \$8,000 =	1,200	\$12
			<u>\$10,000</u>			<u>\$8,000</u>	

*\$500/\$10,000 = 5/100

**\$400/100 = \$4

LO: 3, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.7

Unrealized Holding Loss—Income (Purchase Commitments) 50,000
 Estimated Liability on Purchase Commitments (\$1,000,000 – \$950,000) 50,000

LO: 3, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.8

Purchases (Inventory).....	950,000	
Estimated Liability on Purchase Commitments	50,000	
Cash		1,000,000

LO: 3, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.9

Beginning inventory		\$150,000
Purchases		<u>500,000</u>
Cost of goods available		650,000
Sales revenue	\$700,000	
Less gross profit (35% X 700,000).....	<u>245,000</u>	
Estimated cost of goods sold.....		<u>455,000</u>
Estimated ending inventory destroyed in fire		<u>\$195,000</u>

LO: 4, Bloom: AP, Difficulty: Simple, Time: 3-5, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.10

	<u>Cost</u>	<u>Retail</u>
Beginning inventory.....	\$ 12,000	\$ 20,000
Net purchases.....	120,000	170,000
Net markups.....		<u>10,000</u>
Totals.....	<u>\$132,000</u>	200,000
Deduct:		
Net markdowns.....		7,000
Sales revenue		<u>147,000</u>
Ending inventory at retail.....		<u>\$ 46,000</u>

Cost-to-retail ratio: $\$132,000 \div \$200,000 = \underline{66\%}$

Ending inventory at lower-of cost-or-market (66% X \$46,000) = \$30,360

LO: 5, Bloom: AP, Difficulty: Moderate, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

BRIEF EXERCISE 9.11

Inventory turnover:

$$\frac{\$9,789}{\frac{\$1,997 + \$1,830}{2}} = 5.12 \text{ times}$$

Average days to sell inventory:

$$365 \div 5.12 = 71.3 \text{ days}$$

LO: 6, Bloom: AP, Difficulty: Simple, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

*BRIEF EXERCISE 9.12

	<u>Cost</u>	<u>Retail</u>
Beginning inventory.....	<u>\$ 12,000</u>	<u>\$ 20,000</u>
Net purchases	120,000	170,000
Net markups		10,000
Net markdowns		<u>(7,000)</u>
Total (excluding beginning inventory).....	<u>120,000</u>	<u>173,000</u>
Total (including beginning inventory).....	<u><u>\$132,000</u></u>	193,000
Deduct: Sales revenue.....		<u>147,000</u>
Ending inventory at retail		<u><u>\$ 46,000</u></u>

Cost-to-retail ratio: $\$120,000 \div \$173,000 = \underline{69.4\%}$

Ending inventory at cost

$$\begin{array}{r} \$20,000 \times 60\% (\$12,000/\$20,000) = \$12,000 \\ \underline{26,000} \times 69.4\% \qquad \qquad \qquad = \underline{18,044} \\ \underline{\underline{\$46,000}} \qquad \qquad \qquad \qquad \qquad \underline{\underline{\$30,044}} \end{array}$$

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***BRIEF EXERCISE 9.13**

	<u>Cost</u>	<u>Retail</u>
Beginning inventory.....	<u>\$ 12,000</u>	<u>\$ 20,000</u>
Net purchases.....	120,000	170,000
Net markups.....		10,000
Net markdowns.....		<u>(7,000)</u>
Total (excluding beginning inventory).....	<u>120,000</u>	<u>173,000</u>
Total (including beginning inventory).....	<u>\$132,000</u>	193,000
Deduct: Sales revenue.....		147,000
Ending inventory at retail.....		<u>\$ 46,000</u>

Cost-to-retail ratio: \$120,000 ÷ \$173,000 = 69.4%

Ending inventory at retail deflated to base year prices

$$\mathbf{\$46,000 \div 1.15 = \underline{\underline{\$40,000}}}$$

Ending inventory at cost

$$\begin{aligned} \mathbf{\$20,000 \times 100\% \times 60\%} &= \mathbf{\$12,000} \\ \mathbf{20,000 \times 115\% \times 69.4\%} &= \mathbf{\underline{\underline{15,962}}} \\ &= \mathbf{\underline{\underline{\$27,962}}} \end{aligned}$$

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 5-7, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

SOLUTIONS TO EXERCISES

EXERCISE 9.1 (15–20 minutes)

Part No.	Quantity	Per Unit		Total Cost	Total NRV	Lower-of-Cost-or-NRV
		Cost	NRV			
110	600	\$ 95	\$100	\$ 57,000	\$ 60,000	\$ 57,000
111	1,000	60	52	60,000	52,000	52,000
112	500	80	76	40,000	38,000	38,000
113	200	170	180	34,000	36,000	34,000
120	400	205	208	82,000	83,200	82,000
121	1,600	16	1	25,600	1,600	1,600
122	300	240	235	72,000	70,500	70,500
Totals				<u>\$370,600</u>	<u>\$341,300</u>	<u>\$335,100</u>

(a) \$335,100.

(b) \$341,300.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.2 (10–15 minutes)

Item	Net Realizable Value	Cost	LCNRV
D	\$80*	\$75	\$75
E	62	80	62
F	60	80	60
G	35	80	35
H	70	50	50
I	40	36	36

*Estimated selling price – Estimated selling costs and cost to complete = \$120 – \$30 – \$10 = \$80.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.3 (15–20 minutes)

Item No.	Cost per Unit	Net Realizable Value	LCNRV	Quantity	Final Inventory Value
1320	\$3.20	\$2.90*	\$2.90	1,200	\$ 3,480
1333	2.70	2.40	2.40	900	2,160
1426	4.50	3.60	3.60	800	2,880
1437	3.60	1.85	1.85	1,000	1,850
1510	2.25	1.85	1.85	700	1,295
1522	3.00	3.10	3.00	500	1,500
1573	1.80	1.30	1.30	3,000	3,900
1626	4.70	4.50	4.50	1,000	4,500
					<u>\$21,565</u>

*\$4.50 – \$1.60 = \$2.90.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.4 (10–15 minutes)

December 31, 2020

(a)	Cost of Goods Sold (\$346,000 – \$322,000)	24,000	
	Allowance to Reduce Inventory to NRV.....		24,000

December 31, 2021

	Allowance to Reduce Inventory to NRV.....	4,000	
	Cost of Goods Sold.....		4,000

December 31, 2020

(b)	Loss Due to Decline of Inventory to NRV	24,000	
	Allowance to Reduce Inventory to NRV.....		24,000

December 31, 2021

	Allowance to Reduce Inventory to NRV.....	4,000*	
	Recovery of Inventory Loss		4,000

EXERCISE 9.4 (Continued)

*Cost of inventory at 12/31/20	\$346,000
LCNRV at 12/31/20	<u>(322,000)</u>
Allowance amount needed to reduce inventory to NRV (a)	<u>\$ 24,000</u>
Cost of inventory at 12/31/21	\$410,000
LCNRV at 12/31/21	<u>(390,000)</u>
Allowance amount needed to reduce inventory to NRV (b)	<u>\$ 20,000</u>

$$\begin{aligned}
 \text{Recovery of previously recognized loss} &= (a) - (b) \\
 &= \$24,000 - \$20,000 \\
 &= \$4,000.
 \end{aligned}$$

- (c) Both methods of recording lower-of-cost-or-NRV adjustments have the same effect on net income.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.5 (20–25 minutes)

(a)	February	March	April
Sales	<u>\$29,000</u>	<u>\$35,000</u>	<u>\$40,000</u>
Cost of goods sold			
Inventory, beginning	15,000	15,100	17,000
Purchases	<u>17,000</u>	<u>24,000</u>	<u>26,500</u>
Cost of goods available	32,000	39,100	43,500
Inventory, ending	<u>15,100</u>	<u>17,000</u>	<u>14,000</u>
Cost of goods sold	<u>16,900</u>	<u>22,100</u>	<u>29,500</u>
Gross profit	12,100	12,900	10,500
Gain (loss) due to market fluctuations of inventory*	<u>(2,000)</u>	<u>1,100</u>	<u>700</u>
	<u>\$10,100</u>	<u>\$14,000</u>	<u>\$11,200</u>

EXERCISE 9.5 (Continued)

*	Jan. 31	Feb. 28	Mar. 31	Apr. 30
Inventory at cost	\$15,000	\$15,100	\$17,000	\$14,000
Inventory at LCNRV	<u>(14,500)</u>	<u>(12,600)</u>	<u>(15,600)</u>	<u>(13,300)</u>
Allowance amount needed to reduce inventory to NRV	<u>\$ 500</u>	<u>\$ 2,500</u>	<u>\$ 1,400</u>	<u>\$ 700</u>
Gain (loss) due to market fluctuations of inventory**		<u>\$ (2,000)</u>	<u>\$ 1,100</u>	<u>\$ 700</u>

**\$500 – \$2,500 = \$(2,000)

\$2,500 – \$1,400 = \$1,100

\$1,400 – \$700 = \$700

	January 31		
(b)	Loss Due to Decline of Inventory to NRV	500	
	Allowance to Reduce Inventory to NRV.....		500
	February 28		
	Loss Due to Decline of Inventory to NRV	2,000	
	Allowance to Reduce Inventory to NRV.....		2,000
	March 31		
	Allowance to Reduce Inventory to NRV.....	1,100	
	Recovery of Inventory Loss		1,100
	April 30		
	Allowance to Reduce Inventory to NRV.....	700	
	Recovery of Inventory Loss		700

LO: 1, Bloom: AP, Difficulty: Moderate, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.6 (10–15 minutes)

Net realizable value	$\$50 - \$14 = \$36$
Cost	\$40
Lower-of-cost-or-NRV	\$36

$\$38$ figure used – $\$36$ correct value per unit = $\$2$ per unit.

$\$2 \times 1,000$ units = $\$2,000$.

If ending inventory is overstated, net income will be overstated.

If beginning inventory is overstated, net income will be understated.

Therefore, net income for 2020 was overstated by $\$2,000$ and net income for 2021 was understated by $\$2,000$.

LO: 1, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.7 (15–20 minutes)

Item No.	Cost per Unit	Replacement Cost	Net Realizable Value	Net Real. Value Less Normal Profit	Designated Market Value	Quantity	Final Inventory Value
1320	\$3.20	\$3.00	\$4.15*	\$2.90**	\$3.00	1,200	\$ 3,600
1333	2.70	2.30	3.00	2.50	2.50	900	2,250
1426	4.50	3.70	4.60	3.60	3.70	800	2,960
1437	3.60	3.10	2.95	2.05	2.95	1,000	2,950
1510	2.25	2.00	2.45	1.85	2.00	700	1,400
1522	3.00	2.70	3.40	2.90	2.90	500	1,450
1573	1.80	1.60	1.75	1.25	1.60	3,000	4,800
1626	4.70	5.20	5.50	4.50	5.20	1,000	<u>4,700***</u>
							<u>\$24,110</u>

* $\$4.50 - \$0.35 = \$4.15$.

** $\$4.15 - \$1.25 = \$2.90$.

***Cost is used because it is lower than designated market value.

LO: 2, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.8 (10–15 minutes)

(a)	12/31/19	Cost of Goods Sold.....	29,000	
		Allowance to Reduce Inventory to Market.....		29,000
	12/31/20	Allowance to Reduce Inventory to Market.....	4,000*	
		Cost of Goods Sold.....		4,000
(b)	12/31/19	Loss Due to Market Decline of Inventory.....	29,000	
		Allowance to Reduce Inventory to Market.....		29,000
	12/31/20	Allowance to Reduce Inventory to Market.....	4,000	
		Recovery of Loss Due to Impairment.....		4,000

*Cost of inventory at 12/31/19	\$356,000
Lower of cost or market at 12/31/19	<u>(327,000)</u>
Allowance amount needed to reduce inventory to market (a)	<u>\$ 29,000</u>
Cost of inventory at 12/31/20	\$420,000
Lower of cost or market at 12/31/20	<u>(395,000)</u>
Allowance amount needed to reduce inventory to market (b)	<u>\$ 25,000</u>

Adjustment in Allowance (reduction)	= (b) – (a)
	= \$29,000 – \$25,000
	= \$4,000

(c) Both methods of recording lower-of-cost-or-market adjustments have the same effect on net income.

LO: 2, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.9 (15–20 minutes)

	No. of Lots	Sales Price Per Lot	Total Sales Price	Relative Sales Price	Total Cost	Cost Allocated to Lots	Cost Per Lot (Cost Allocated/ No. of Lots)
Group 1	9	\$3,000	\$ 27,000	\$27,000/\$127,800 X	\$89,460	\$18,900	\$2,100
Group 2	15	4,000	60,000	\$60,000/\$127,800 X	89,460	42,000	2,800
Group 3	17	2,400	<u>40,800</u>	\$40,800/\$127,800 X	89,460	<u>28,560</u>	1,680
			<u>\$127,800</u>			<u>\$89,460</u>	

Sales revenue (see schedule) **\$80,000**

Cost of goods sold (see schedule) **56,000**

Gross profit **24,000**

Operating expenses **18,200**

Net income **\$ 5,800**

	Number of Lots Sold*	Cost Per Lot	Cost of Lots Sold	Sales	Gross Profit
Group 1	4	\$2,100	\$ 8,400	\$12,000	\$ 3,600
Group 2	8	2,800	22,400	32,000	9,600
Group 3	<u>15</u>	1,680	<u>25,200</u>	<u>36,000</u>	<u>10,800</u>
Total	<u>27</u>		<u>\$56,000</u>	<u>\$80,000</u>	<u>\$24,000</u>

* 9 – 5 = 4

15 – 7 = 8

17 – 2 = 15

EXERCISE 9.10 (12–17 minutes)

Chairs	No. of Chairs	Sales Price per Chair	Total Sales Price	Relative Sales Price	Total Cost	Cost Allocated to Chairs	Cost per Chair
Lounge chairs	400	\$90	\$36,000	\$36,000/\$95,000	\$59,850	\$22,680	\$56.70
Armchairs	300	80	24,000	\$24,000/\$95,000	59,850	15,120	50.40
Straight chairs	700	50	<u>35,000</u>	\$35,000/\$95,000	59,850	<u>22,050</u>	31.50
			<u>\$95,000</u>			<u>\$59,850</u>	

Chairs	Number of Chairs Sold	Cost per Chair	Cost of Chairs Sold	Sales	Gross Profit
Lounge chairs	200	\$56.70	\$11,340	\$18,000	\$ 6,660
Armchairs	100	50.40	5,040	8,000	2,960
Straight chairs	120	31.50	<u>3,780</u>	<u>6,000</u>	<u>2,220</u>
			<u>\$20,160</u>	<u>\$32,000</u>	<u>\$11,840</u>

Inventory of straight chairs

$(700 - 120) \times \$31.50 = \$18,270$

EXERCISE 9.11 (5–10 minutes)

Unrealized Holding Gain or Loss—Income (Purchase Commitments)	35,000	
Estimated Liability on Purchase Commitments (\$400,000 – \$365,000)		35,000

LO: 3, Bloom: AP, Difficulty: Simple, Time: 05-10, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.12 (15–20 minutes)

- (a) If the commitment is material in amount, there should be a footnote in the balance sheet stating the nature and extent of the commitment. The footnote may also disclose the market price of the materials. The excess of market price over contracted price is a gain contingency which per GAAP cannot be recognized in the accounts until it is realized.
- (b) The drop in the market price of the commitment should be charged to operations in the current year if it is material in amount. The following entry would be made:

Unrealized Holding Gain or Loss—Income (Purchase Commitments).....	10,800	
Estimated Liability on Purchase Commitments [36,000 X (\$3.00 – \$2.70)]		10,800

The entry is made because a loss in utility has occurred during the period in which the market decline took place. The account credited in the above entry should be included among the current liabilities on the balance sheet, with an appropriate footnote indicating the nature and extent of the commitment. This liability indicates the minimum obligation on the commitment contract at the present time—the amount that would have to be forfeited in case of breach of contract.

- (c) Assuming the \$10,800 market decline entry was made on December 31, 2020, as indicated in (b), the entry when the materials are received in January 2020 would be:

Raw Materials	97,200	
Estimated Liability on Purchase Commitments	10,800	
Accounts Payable		108,000

EXERCISE 9.12 (Continued)

This entry records the raw materials at the actual cost, eliminates the \$10,800 liability set up at December 31, 2020, and records the contractual liability for the purchase. This permits operations to be charged this year with the \$97,200, the other \$10,800 of the cost having been charged to operations in 2020.

LO: 3, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

EXERCISE 9.13 (8–13 minutes)

1.
$$\frac{20\%}{100\% + 20\%} = 16.67\% \text{ OR } 16 \frac{2}{3}\%.$$

2.
$$\frac{25\%}{100\% + 25\%} = 20\%.$$

3.
$$\frac{33 \frac{1}{3}\%}{100\% + 33 \frac{1}{3}\%} = 25\%.$$

4.
$$\frac{50\%}{100\% + 50\%} = 33.33\% \text{ OR } 33 \frac{1}{3}\%.$$

LO: 4, Bloom: AP, Difficulty: Simple, Time: 08-13, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.14 (10–15 minutes)

(a) Inventory, May 1 (at cost)		\$160,000
Purchases (at cost)		640,000
Purchase discounts		(12,000)
Freight-in		<u>30,000</u>
Goods available (at cost)		818,000
Sales revenue (at selling price)	\$1,000,000	
Sales returns (at selling price)	<u>(70,000)</u>	
Net sales (at selling price)	930,000	
Less: Gross profit (30% of \$930,000)	<u>279,000</u>	
Net sales (at cost)		<u>651,000</u>
Approximate inventory, May 31 (at cost)		<u>\$167,000</u>

EXERCISE 9.14 (Continued)

(b) Gross profit as a percent of sales must be computed:

$$\frac{30\%}{100\% + 30\%} = 23.08\% \text{ of sales.}$$

Inventory, May 1 (at cost)		\$160,000
Purchases (at cost)		640,000
Purchase discounts		(12,000)
Freight-in		<u>30,000</u>
Goods available (at cost)		818,000
Sales revenue (at selling price)	\$1,000,000	
Sales returns (at selling price)	<u>(70,000)</u>	
Net sales (at selling price)	930,000	
Less: Gross profit (23.08% of \$930,000)	<u>214,644</u>	
Net sales (at cost)		<u>715,356</u>
Approximate inventory, May 31 (at cost)		<u><u>\$102,644</u></u>

LO: 4, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.15 (15–20 minutes)

(a) Merchandise on hand, January 1	\$ 38,000
Purchases	72,000
Less: Purchase returns and allowances	(2,400)
Freight-in	<u>3,400</u>
Total merchandise available (at cost)	111,000
Cost of goods sold*	<u>75,000</u>
Ending inventory	36,000
Less: Undamaged goods	<u>10,900</u>
Estimated fire loss	<u><u>\$ 25,100</u></u>

$$*\text{Gross profit} = \frac{33 \frac{1}{3}\%}{100\% + 33 \frac{1}{3}\%} = 25\% \text{ of sales.}$$

Cost of goods sold = 75% of sales of \$100,000 = \$75,000.

EXERCISE 9.15 (Continued)

(b) Cost of goods sold = 66 2/3% of sales of \$100,000 = \$66,667	
Total merchandise available (at cost)	
[\$111,000 (as computed above) – \$66,667]	\$44,333
Less: Undamaged goods	<u>10,900</u>
Estimated fire loss	<u>\$33,433</u>

LO: 4, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.16

Beginning inventory		\$170,000
Purchases		<u>390,000</u>
		560,000
Purchase returns		<u>(30,000)</u>
Goods available (at cost)		530,000
Sales revenue	\$650,000	
Sales returns	<u>(24,000)</u>	
Net sales	626,000	
Less: Gross profit (40% X \$626,000)	<u>(250,400)</u>	<u>375,600</u>
Estimated ending inventory (unadjusted for damage)		154,400
Less: Goods on hand—undamaged (at cost)		
\$21,000 X (1 – 40%)		(12,600)
Less: Goods on hand—damaged (at net realizable value)		<u>(5,300)</u>
Fire loss on inventory		<u>\$136,500</u>

LO: 4, Bloom: AP, Difficulty: Moderate, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.17 (10–17 minutes)

Beginning inventory (at cost)		\$ 38,000
Purchases (at cost)		<u>85,000</u>
Goods available (at cost)		123,000
Sales revenue (at selling price)	\$116,000	
Less sales returns	<u>4,000</u>	
Net sales	112,000	
Less: Gross profit* (2/7 of \$112,000)	<u>32,000</u>	
Net sales (at cost)		<u>80,000</u>
Estimated inventory (at cost)		43,000
Less: Goods on hand (\$30,500 – \$6,000)		<u>24,500</u>
Claim against insurance company		<u>\$ 18,500</u>

*Computation of gross profit: $\frac{40\%}{100\% + 40\%} = 2/7$ of selling price

Note: Depending on details of the consignment agreement and Duncan's insurance policy, the consigned goods might be considered owned for insurance purposes.

LO: 4, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.18 (15–20 minutes)

	<u>Lumber</u>	<u>Millwork</u>	<u>Hardware</u>
Inventory 1/1/20 (cost)	\$ 250,000	\$ 90,000	\$ 45,000
Purchases to 8/18/20 (cost)	<u>1,500,000</u>	<u>375,000</u>	<u>160,000</u>
Cost of goods available	1,750,000	465,000	205,000
Deduct cost of goods sold*	<u>1,664,000</u>	<u>410,000</u>	<u>150,000</u>
Inventory 8/18/20	<u>\$ 86,000</u>	<u>\$ 55,000</u>	<u>\$ 55,000</u>

*(See computations on next page)

EXERCISE 9.18 (Continued)

Computation for cost of goods sold:*

$$\text{Lumber: } \frac{\$2,080,000}{1.25} = \$1,664,000$$

$$\text{Millwork: } \frac{\$533,000}{1.30} = \$410,000$$

$$\text{Hardware: } \frac{\$210,000}{1.40} = \$150,000$$

*Alternative computation for cost of goods sold:

Markup on selling price:

Cost of goods sold:

$$\text{Lumber: } \frac{25\%}{100\% + 25\%} = 20\% \text{ or } 1/5 \quad \$2,080,000 \times 80\% = \$1,664,000$$

$$\text{Millwork: } \frac{30\%}{100\% + 30\%} = 3/13 \quad \$533,000 \times 10/13 = \$410,000$$

$$\text{Hardware: } \frac{40\%}{100\% + 40\%} = 2/7 \quad \$210,000 \times 5/7 = \$150,000$$

LO: 4, Bloom: AP, Difficulty: Simple, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.19 (20–25 minutes)

Ending inventory:

(a) Gross profit is 45% of sales

Total goods available for sale (at cost)		\$2,100,000
Sales (at selling price)	\$2,500,000	
Less: Gross profit (45% of sales)	<u>1,125,000</u>	
Sales (at cost)		<u>1,375,000</u>
Ending inventory (at cost)		<u>\$ 725,000</u>

(b) Gross profit is 60% of cost

$$\frac{60\%}{100\% + 60\%} = 37.5\% \text{ markup on selling price}$$

Total goods available for sale (at cost)		\$2,100,000
Sales (at selling price)	\$2,500,000	
Less: Gross profit (37.5% of sales)	<u>937,500</u>	
Sales (at cost)		<u>1,562,500</u>
Ending inventory (at cost)		<u>\$ 537,500</u>

(c) Gross profit is 35% of sales

Total goods available for sale (at cost)		\$2,100,000
Sales (at selling price)	\$2,500,000	
Less: Gross profit (35% of sales)	<u>875,000</u>	
Sales (at cost)		<u>1,625,000</u>
Ending inventory (at cost)		<u>\$ 475,000</u>

EXERCISE 9.19 (Continued)

(d) Gross profit is 25% of cost

$$\frac{25\%}{100\% + 25\%} = 20\% \text{ markup on selling price}$$

Total goods available for sale (at cost)		\$2,100,000
Sales (at selling price)	\$2,500,000	
Less: Gross profit (20% of sales)	<u>500,000</u>	
Sales (at cost)		<u>2,000,000</u>
Ending inventory (at cost)		<u>\$ 100,000</u>

LO: 4, Bloom: AP, Difficulty: Moderate, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.20 (20–25 minutes)

(a)	<u>Cost</u>	<u>Retail</u>
Beginning inventory	\$ 58,000	\$100,000
Purchases	122,000	200,000
Net markups		<u>10,345</u>
Totals	<u>\$180,000</u>	310,345
Net markdowns		<u>(26,135)</u>
Sales price of goods available		284,210
Deduct: Sales revenue		<u>186,000</u>
Ending inventory at retail		<u>\$ 98,210</u>

- (b)
1. $\$180,000 \div \$300,000 = \underline{60\%}$
 2. $\$180,000 \div \$273,865 = \underline{65.73\%}$
 3. $\$180,000 \div \$310,345 = \underline{58\%}$
 4. $\$180,000 \div \$284,210 = \underline{63.33\%}$

EXERCISE 9.20 (Continued)

- (c) 1. Method 3.
2. Method 3.
3. Method 3.

(d) $58\% \times \$98,210 = \underline{\$56,962}$

(e) $\$180,000 - \$56,962 = \underline{\$123,038}$

(f) $\$186,000 - \$123,038 = \underline{\$62,962}$

LO: 5, Bloom: AP, Difficulty: Moderate, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.21 (12–17 minutes)

	<u>Cost</u>	<u>Retail</u>
Beginning inventory	\$ 200,000	\$ 280,000
Purchases	<u>1,375,000</u>	<u>2,140,000</u>
Totals	1,575,000	2,420,000
Add: Net markups		
Markups		\$95,000
Markup cancellations		<u>(15,000)</u>
Totals	<u>\$1,575,000</u>	<u>80,000</u>
		2,500,000
Deduct: Net markdowns		
Markdowns		35,000
Markdowns cancellations		<u>(5,000)</u>
Totals		<u>30,000</u>
Sales price of goods available		2,470,000
Deduct: Sales revenue		<u>2,200,000</u>
Ending inventory at retail		<u>\$ 270,000</u>

$$\text{Cost-to-retail ratio} = \frac{\$1,575,000}{\$2,500,000} = 63\%$$

Ending inventory at cost = $63\% \times \$270,000 = \underline{\$170,100}$

LO: 5, Bloom: AP, Difficulty: Simple, Time: 12-17, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.22 (20–25 minutes)

	Cost	Retail	
Beginning inventory	\$30,000	\$ 46,500	
Purchases	48,000	88,000	
Purchase returns	(2,000)	(3,000)	
Freight on purchases	2,400		
Totals	78,400	131,500	
Add: Net markups			
Markups		\$10,000	
Markup cancellations		(1,500)	
Net markups		8,500	
Totals	\$78,400	140,000	
Deduct: Net markdowns			
Markdowns		9,300	
Markdowns cancellations		(2,800)	
Net markdowns		6,500	
Sales price of goods available		133,500	
Deduct: Net sales (\$99,000 – \$2,000)		97,000	
Ending inventory, at retail		\$ 36,500	

$$\text{Cost-to-retail ratio} = \frac{\$78,400}{\$140,000} = 56\%$$

$$\text{Ending inventory at cost} = 56\% \times \$36,500 = \underline{\underline{\$20,440}}$$

LO: 5, Bloom: AP, Difficulty: Simple, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

EXERCISE 9.23 (10–15 minutes)

<p>(a) Inventory turnover:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">2017</td> <td style="width: 20%;"></td> <td style="text-align: center; border-bottom: 1px solid black;">2016</td> </tr> <tr> <td style="text-align: center;">\$5,854.8</td> <td></td> <td style="text-align: center;">\$6,234.9</td> </tr> <tr> <td style="text-align: center; border-bottom: 1px solid black;">\$934.2 + \$1,044.1</td> <td style="text-align: center;">= 5.9 times</td> <td style="text-align: center; border-bottom: 1px solid black;">\$1,044.1 + \$1,642.6</td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td style="text-align: center;">2</td> </tr> </table>	2017		2016	\$5,854.8		\$6,234.9	\$934.2 + \$1,044.1	= 5.9 times	\$1,044.1 + \$1,642.6	2		2	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">2016</td> </tr> <tr> <td style="text-align: center;">365 ÷ 4.6 = 79 days</td> </tr> </table>	2016	365 ÷ 4.6 = 79 days
2017		2016													
\$5,854.8		\$6,234.9													
\$934.2 + \$1,044.1	= 5.9 times	\$1,044.1 + \$1,642.6													
2		2													
2016															
365 ÷ 4.6 = 79 days															

<p>(b) Average days to sell inventory:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">2017</td> </tr> <tr> <td style="text-align: center;">365 ÷ 5.9 = 62 days</td> </tr> </table>	2017	365 ÷ 5.9 = 62 days	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">2016</td> </tr> <tr> <td style="text-align: center;">365 ÷ 4.6 = 79 days</td> </tr> </table>	2016	365 ÷ 4.6 = 79 days
2017					
365 ÷ 5.9 = 62 days					
2016					
365 ÷ 4.6 = 79 days					

LO: 6, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.24 (25–35 minutes)**

(a) Conventional Retail Method

	<u>Cost</u>	<u>Retail</u>
Inventory, January 1, 2020	\$ 38,100	\$ 60,000
Purchases (net)	<u>130,900</u>	<u>178,000</u>
	169,000	238,000
Add: Net markups		<u>22,000</u>
Totals	<u>\$169,000</u>	260,000
Deduct: Net markdowns		<u>13,000</u>
Sales price of goods available		247,000
Deduct: Sales (net)		<u>167,000</u>
Ending inventory at retail		<u>\$ 80,000</u>

$$\text{Cost-to-retail ratio} = \frac{\$169,000}{\$260,000} = 65\%$$

$$\text{Ending inventory at cost} = 65\% \times \$80,000 = \underline{\underline{\$52,000}}$$

(b) LIFO Retail Method

	<u>Cost</u>	<u>Retail</u>
Inventory, January 1, 2020	\$ 38,100	\$ 60,000
Net purchases	130,900	178,000
Net markups		22,000
Net markdowns		<u>(13,000)</u>
Total (excluding beginning inventory)	<u>130,900</u>	<u>187,000</u>
Total (including beginning inventory)	<u>\$169,000</u>	247,000
Deduct sales (net)		<u>167,000</u>
Ending inventory at retail		<u>\$ 80,000</u>

$$\text{Cost-to-retail ratio} = \frac{\$130,900}{\$187,000} = 70\%$$

***EXERCISE 9.24 (Continued)**

Computation of ending inventory at LIFO cost, 2020:

Ending Inventory at Retail Prices	Layers at Retail Prices	Cost to Retail (Percentage)	Ending Inventory at LIFO Cost
\$80,000	2019 \$60,000 X	63.5%*	\$38,100
	2020 20,000 X	70.0%	<u>14,000</u>
			<u>\$52,100</u>
*\$38,100	(prior years cost to retail)		
<u>\$60,000</u>			

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 25-35, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.25 (15–20 minutes)**

(a)	Cost	Retail
Inventory, January 1, 2020	\$14,000	\$ 20,000
Net purchases	58,800	81,000
Freight-in	7,500	
Net markups		<u>9,000</u>
Totals	<u>\$80,300</u>	110,000
Sales revenue		(80,000)
Net markdowns		(1,600)
Estimated theft		<u>(2,000)</u>
Ending inventory at retail		<u>\$ 26,400</u>

Cost-to-retail ratio: $\frac{\$80,300}{\$110,000} = 73\%$

Ending inventory at lower-of-average-cost-or-market = \$26,400 X 73%
= \$19,272

***EXERCISE 9.25 (Continued)**

(b)	Cost	Retail
Purchases	\$58,800	\$81,000
Freight-in	7,500	
Net markups		9,000
Net markdowns		<u>(1,600)</u>
Totals	<u>\$66,300</u>	<u>\$88,400</u>

Cost-to-retail ratio: $\frac{\$66,300}{\$88,400} = 75\%$

The increment at retail is $\$26,400 - \$20,000 = \$6,400$.

The increment is costed at $75\% \times \$6,400 = \$4,800$.

Ending inventory at LIFO retail:

	Cost	Retail
Beginning inventory, 2020	\$14,000	\$20,000
Increment	<u>4,800</u>	<u>6,400</u>
Ending inventory, 2020	<u>\$18,800</u>	<u>\$26,400</u>

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 15-20, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.26 (10–15 minutes)**

(a) Cost-to-retail ratio—beginning inventory: $\frac{\$216,000}{\$300,000} = 72\%$

$\ast(\$294,300 \div 1.09) \times 72\% = \$194,400$

***Since the above computation reveals that the inventory quantity has declined below the beginning level, it is necessary to convert the ending inventory to beginning-of-the-year prices (by dividing by 1.09) and then multiply it by the beginning cost-to-retail ratio (72%).**

***EXERCISE 9.26 (Continued)**

(b) Ending inventory at retail prices deflated $\\$365,150 \div 1.09$	\$335,000
Beginning inventory at beginning-of-year prices	<u>300,000</u>
Inventory increase in terms of beginning-of-year dollars	<u>\$ 35,000</u>
Beginning inventory (at cost)	\$216,000
Additional layer, $\\$35,000 \times 1.09 \times 76\%$*	<u>28,994</u>
	<u>\$244,994</u>

***(\$364,800 \div \$480,000)**

LO: 7, Bloom: AP, Difficulty: Simple, Time: 20-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.27 (5–10 minutes)**

Ending inventory at retail (deflated) $\\$100,100 \div 1.10$	\$91,000
Beginning inventory at retail	<u>74,500</u>
Increment at retail	<u>\$16,500</u>

Ending inventory on LIFO basis	Cost
	<hr/>
First layer	\$36,000
Second layer ($\\$16,500 \times 1.10 \times 60\%$)	<u>10,890</u>
	<u>\$46,890</u>

LO: 7, Bloom: AP, Difficulty: Simple, Time: 05-10, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.28 (20–25 minutes)**

(a)	Cost	Retail
Beginning inventory	\$ 30,100	\$ 50,000
Net purchases	108,500	150,000
Net markups		<u>10,000</u>
Totals	<u>\$138,600</u>	<u>210,000</u>
Net markdowns		(5,000)
Sales revenue		<u>(126,900)</u>
Ending inventory at retail		<u>\$ 78,100</u>

Cost-retail ratio = 66% (\$138,600/\$210,000)

Ending inventory at cost (\$78,100 X 66%) **\$ 51,546**

(b)	Cost	Retail
Beginning inventory	\$ 30,100	\$ 50,000
Net purchases	108,500	150,000
Net markups		10,000
Net markdowns		<u>(5,000)</u>
Total (excluding beginning inventory)	<u>108,500</u>	<u>155,000</u>
Total (including beginning inventory)	<u>\$138,600</u>	<u>205,000</u>
Sales revenue		<u>(126,900)</u>
Ending inventory at retail (current)		<u>78,100</u>
Ending inventory at retail (base year) (\$78,100 ÷ 1.10)		<u>\$ 71,000</u>
Cost-to-retail ratio for new layer: \$108,500/\$155,000 = <u>70%</u>		
Layers:		
Base layer		
\$50,000 X 1.00 X 60.2%* =		\$ 30,100
New layer		
(\$71,000 – \$50,000) X 1.10 X 70% =		<u>16,170</u>
		<u>\$ 46,270</u>

*(\$30,100/\$50,000)

(c) Cost of goods available for sale	\$138,600
Ending inventory at cost, from (b)	<u>46,270</u>
Cost of goods sold	<u>\$ 92,330</u>

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.29 (20–25 minutes)**

2019	Restate to base-year retail ($\\$118,720 \div 1.06$)	<u><u>\$112,000</u></u>
	Layers: 1. $\$100,000 \times 1.00 \times 54\% =$	\$ 54,000
	2. $\$ 12,000 \times 1.06 \times 57\% =$	7,250
	Ending inventory	<u><u>\$ 61,250</u></u>
	*$\\$54,000 \div \\$100,000$	
2020	Restate to base-year retail ($\\$138,750 \div 1.11$)	<u><u>\$125,000</u></u>
	Layers: 1. $\$100,000 \times 1.00 \times 54\% =$	\$ 54,000
	2. $\$ 12,000 \times 1.06 \times 57\% =$	7,250
	3. $\$ 13,000 \times 1.11 \times 60\% =$	8,658
	Ending inventory	<u><u>\$ 69,908</u></u>
2021	Restate to base-year retail ($\\$125,350 \div 1.15$)	<u><u>\$109,000</u></u>
	Layers: 1. $\$100,000 \times 1.00 \times 54\% =$	\$ 54,000
	2. $\$ 9,000 \times 1.06 \times 57\% =$	5,438
	Ending inventory	<u><u>\$ 59,438</u></u>
2022	Restate to base-year retail ($\\$162,500 \div 1.25$)	<u><u>\$130,000</u></u>
	Layers: 1. $\$100,000 \times 1.00 \times 54\% =$	\$ 54,000
	2. $\$ 9,000 \times 1.06 \times 57\% =$	5,438
	3. $\$ 21,000 \times 1.25 \times 58\% =$	15,225
	Ending inventory	<u><u>\$ 74,663</u></u>

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 20-25, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

***EXERCISE 9.30 (5–10 minutes)**

Inventory (beginning).....	7,600	
Adjustment to Record Inventory at Cost*.....		7,600
($\\$212,600 - \\$205,000$)		

***Note:** This account is an income statement account showing the effect of changing from a lower-of-cost-or-market approach to a straight cost basis.

LO: 7, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

TIME AND PURPOSE OF PROBLEMS

Problem 9.1 (Time 10–15 minutes)

Purpose—to provide the student with an understanding of the lower-of-cost-or NRV approach to inventory valuation, similar to Problem 9.2. The major difference between these problems is that Problem 9.1 provides some ambiguity to the situation by changing the catalog prices near the end of the year.

Problem 9.2 (Time 25–30 minutes)

Purpose—to provide the student with an understanding of the lower-of-cost-or NRV approach to inventory valuation. The student is required to examine a number of individual items and apply the lower-of-cost-or NRV rule and to also explain the use and value of the lower-of-cost- and NRV rule.

Problem 9.3 (Time 30–35 minutes)

Purpose—to provide a problem that requires entries for reducing inventory to lower-of-cost-or NRV under the perpetual inventory system using both the cost-of-goods-sold and the loss methods.

Problem 9.4 (Time 25–30 minutes)

Purpose—to provide the student with an understanding of the lower-of-cost-or-market approach to inventory valuation. The student is required to examine a number of individual items and apply the lower-of-cost-or-market rule and to also explain the use and value of the lower-of-cost-or-market rule.

Problem 9.5 (Time 30–40 minutes)

Purpose—to provide the student with an opportunity to write a memo explaining designated market value and how it is computed. As part of this memo, the student is required to compute inventory on the lower-of-cost-or-market basis using the individual item approach.

Problem 9.6 (Time 20–30 minutes)

Purpose—to provide another problem where a fire loss must be computed using the gross profit method. Certain goods remained undamaged and therefore an adjustment is necessary. In addition, the inventory was subject to an obsolescence factor which must be considered.

Problem 9.7 (Time 40–45 minutes)

Purpose—to provide the student with a complex problem involving a fire loss where the gross profit method must be employed. The problem is complicated because a number of adjustments must be made to the purchases account related to merchandise returned, unrecorded purchases, and shipments in transit. In addition, some cash to accrual computations are necessary.

Problem 9.8 (Time 20–30 minutes)

Purpose—to provide the student with a problem on the retail inventory method. The problem is relatively straightforward although transfers-in from other departments as well as the proper treatment for normal spoilage complicate the problem. A good problem that summarizes the essentials of the retail inventory method.

Problem 9.9 (Time 20–30 minutes)

Purpose—to provide the student with a problem on the retail inventory method. This problem is similar to Problem 9-6, except that a few different items must be evaluated in finding ending inventory at retail and cost. Unusual items in this problem are employee discounts and loss from breakage. A good problem that summarizes the essentials of the retail inventory method.

Problem 9.10 (Time 20–30 minutes)

Purpose—to provide the student with a problem on the retail inventory method. This problem is similar to Problems 9.6 and 9.7, except that the student is asked to list the factors that may have caused the difference between the computed inventory and the physical count.

Time and Purpose of Problems (Continued)

Problem 9.11 (Time 30–40 minutes)

Purpose—to provide the student with a problem requiring financial statement and note disclosure of inventories, the income statement disclosure of an inventory market decline, and the treatment of purchase commitments.

***Problem 9.12** (Time 30–35 minutes)

Purpose—to provide the student with a retail inventory problem where both the conventional retail and dollar-value LIFO method must be computed. An excellent problem for highlighting the difference between these two approaches to inventory valuation. It should be noted that the cost-to-retail percentage is given for LIFO so less computation is necessary.

***Problem 9.13** (Time 30–40 minutes)

Purpose—to provide the student with a comprehensive problem covering the retail and LIFO retail inventory methods, the computation of an inventory shortage, and the treatment of four special items relative to the retail inventory method.

***Problem 9.14** (Time 30–40 minutes)

Purpose—to provide the student with a basic problem illustrating the change from conventional retail to LIFO retail. This problem emphasizes many of the same issues as Problem 9.11, except that a dollar-value LIFO computation is not needed. A good problem for providing the essential issues related to a change to LIFO retail.

***Problem 9.15** (Time 40–50 minutes)

Purpose—to provide the student with a retail inventory problem where both the conventional retail and dollar-value LIFO method must be computed. The problem is similar to Problem 9.10, except that the problem involves a three-year period which adds complexity to the problem. This problem provides an excellent summary of the essential elements related to the change of the retail inventory method from conventional retail to LIFO retail and dollar-value LIFO retail.

SOLUTIONS TO PROBLEMS

PROBLEM 9.1

Item	Cost	Net Realizable Value*	Lower-of- Cost-or-NRV
A	\$470	\$ 450	\$450
B	450	430	430
C	830	640	640
D	960	1,000	960

***Net Realizable Value = 2021 catalog selling price less estimated costs to complete and sell. (2021 catalog prices are in effect as of 12/01/20.)**

LO: 1, Bloom: AP, Difficulty: Simple, Time: 10-15, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.2

- (a) The balance in the Allowance to Reduce Inventory to NRV at May 31, 2020, should be \$15,200, as calculated in Exhibit 1 below.

	<u>Cost</u>	<u>NRV</u>	<u>LCNRV</u>
Aluminum siding	\$ 70,000	\$ 56,000	\$ 56,000
Cedar shake siding	86,000	84,800	84,800
Louvered glass doors	112,000	168,300	112,000
Thermal windows	<u>140,000</u>	<u>140,000</u>	<u>140,000</u>
Totals	<u>\$408,000</u>	<u>\$449,100</u>	<u>\$392,800</u>

Inventory cost	\$408,000
Less: LCNRV valuation	<u>392,800</u>
Allowance at May 31, 2020	<u>\$ 15,200</u>

- (b) For the fiscal year ended May 31, 2020, the gain that would be recorded due to the change in the Allowance to Reduce Inventory to Net Realizable Value would be \$12,300, as calculated below.

Balance prior to adjustment.....	\$27,500
Required balance	<u>(15,200)</u>
Gain to be recorded	<u>\$12,300</u>

PROBLEM 9.2 (Continued)

- (c) The use of the lower-of-cost-or-net realizable value (LCNRV) rule is based on both the expense recognition principle and the concept of conservatism. The expense recognition principle applies because the application of the LCNRV rule allows for the recognition of a decline in the utility (value) of inventory as a loss in the period in which the decline takes place.**

The departure from the historical cost principle for inventory valuation is permitted on the basis of conservatism. The general rule is that the historical cost principle is abandoned when the future utility of an asset is no longer as great as its original cost.

LO: 1, 3, Bloom: AP, Difficulty: Moderate, Time: 25-30, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.3

(a) Cost-of-Goods-Sold Method

December 31, 2021

Cost of Goods Sold	68,000	
Allowance to Reduce Inventory to NRV.....		68,000
(\$780,000 – \$712,000)		

December 31, 2022

Cost of Goods Sold	7,000	
Allowance to Reduce Inventory to NRV		
[(\$905,000 – \$830,000) – \$68,000]		7,000

(b) Loss Method

December 31, 2021

Loss Due to Decline of Inventory to NRV	68,000	
Allowance to Reduce Inventory to NRV.....		68,000
(\$780,000 – \$712,000)		

December 31, 2022

Loss Due to Decline of Inventory to NRV	7,000	
Allowance to Reduce Inventory to NRV		
[(\$905,000 – \$830,000) – \$68,000]		7,000

LO: 1, Bloom: AP, Difficulty: Moderate, Time: 30-35, AACSB: Analytic, AICPA BB: None, AICPA FC: Measurement, Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.4

- (a) (1) The balance in the Allowance to Reduce Inventory to Market at May 31, 2020, should be \$34,600, as calculated in Exhibit 1 below.

Exhibit 1

**CALCULATIONS OF PROPER BALANCE
in the Allowance to Reduce Inventory to Market
At May 31, 2020**

	<u>Cost</u>	<u>Replace- ment Cost</u>	<u>NRV (Ceiling)</u>	<u>NRV less normal profit (Floor)</u>	<u>LCM</u>
Aluminum siding	\$ 70,000	\$ 62,500	\$ 56,000	\$ 50,900	\$ 56,000
Cedar shake siding	86,000	79,400	84,800	77,400	79,400
Louvered glass doors	112,000	124,000	168,300	149,800	112,000
Thermal windows	<u>140,000</u>	<u>126,000</u>	<u>140,000</u>	<u>124,600</u>	<u>126,000</u>
Totals	<u>\$408,000</u>	<u>\$391,900</u>	<u>\$449,100</u>	<u>\$402,700</u>	<u>\$373,400</u>
				Inventory cost	\$408,000
				Less: LCM valuation	<u>373,400</u>
				Allowance at May 31, 2020	<u>\$ 34,600</u>

- (2) For the fiscal year ended May 31, 2020, the loss that would be recorded due to the change in the Allowance to Reduce Inventory to Market would be \$7,100, as calculated below.

Balance prior to adjustment.....	\$27,500
Required balance.....	<u>(34,600)</u>
Loss to be recorded.....	<u>\$(7,100)</u>

PROBLEM 9.4 (Continued)

- (b) The use of the lower-of-cost-or-market (LCM) rule is based on both the expense recognition principle and the concept of conservatism. The expense recognition principle applies because the application of the LCM rule allows for the recognition of a decline in the utility (value) of inventory as a loss in the period in which the decline takes place.

The departure from the historical cost principle for inventory valuation is permitted on the basis of conservatism. The general rule is that the historical cost principle is abandoned when the future utility of an asset is no longer as great as its original cost.

LO: 2, Bloom: AP, Difficulty: Moderate, Time: 25-30, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

PROBLEM 9.5

(a)

Schedule A

Item	On Hand Quantity	Replacement Cost/Unit	NRV (Ceiling)	NRV— Normal Profit (Floor)	Designated Market	Cost	Lower-of- Cost-or- Market
A	1,100	\$8.40	\$9.00	\$7.20	\$8.40	\$7.50	\$7.50
B	800	7.90	8.50	7.30	7.90	8.20	7.90
C	1,000	5.40	6.05	5.45	5.45	5.60	5.45
D	1,000	4.20	5.50	4.00	4.20	3.80	3.80
E	1,400	6.30	6.00	5.00	6.00	6.40	6.00

***\$10.50-\$1.50**

Schedule B

Item	Cost	Lower-of-Cost-or-Market	Difference
A	1,100 X \$7.50 = \$8,250	1,100 X \$7.50 = \$8,250	None
B	800 X \$8.20 = \$6,560	800 X \$7.90 = \$6,320	\$240
C	1,000 X \$5.60 = \$5,600	1,000 X \$5.45 = \$5,450	\$150
D	1,000 X \$3.80 = \$3,800	1,000 X \$3.80 = \$3,800	None
E	1,400 X \$6.40 = \$8,960	1,400 X \$6.00 = \$8,400	\$560
			<u>\$950</u>

(b)	Cost of Goods Sold.....	950	
	Allowance to Reduce Inventory to Market		950

or

	Loss Due to Market Decline of Inventory	950	
	Allowance to Reduce Inventory to Market		950

PROBLEM 9.5 (Continued)

(c)

To: Greg Forda, Clerk

From: Accounting Manager

Date: January 14, 2021

Subject: Instructions on determining lower-of-cost-or-market for inventory valuation

This memo responds to your questions regarding our use of lower-of-cost-or-market for inventory valuation. Simply put, inventory should be valued at whichever is the lower: the actual cost or the market value of the inventory at the time of valuation.

The term cost is relatively simple. It refers to the amount our company paid for our inventory including costs associated with preparing the inventory for sale.

The term market, on the other hand, is more complicated. As you have already noticed, this value could be the inventory's replacement cost, its net realizable value (selling price minus any estimated costs to complete and sell), or its net realizable value less a normal profit margin. The profession requires that the middle value of the three above costs be chosen as the "designated market value." This designated market value is then compared to the actual cost in determining the lower-of-cost-or-market.

Refer to Item A on the attached schedule. The values for the replacement cost, net realizable value, and net realizable value less a normal profit margin are \$8.40, \$9.00 (\$10.50 – \$1.50), and \$7.20 (\$9.00 – \$1.80) respectively. The middle value is the replacement cost, \$8.40, which becomes the designated market value for Item A. Compare it with the actual cost, \$7.50, choosing the lower to value Item A in inventory. In this case, \$7.50 is the value chosen to value inventory. Thus, inventory for Item A amounts to \$8,250. (See Schedule B, Item A.)

PROBLEM 9.5 (Continued)

Proceed in the same way, always choosing the middle value among replacement cost, net realizable value, and net realizable value less a normal profit, and compare that middle value to the actual cost. The lower of these will always be the amount at which you value the particular item.

After you have aggregated the total lower-of-cost-or-market for all items, you will be likely to have a loss on inventory which must be accounted for. In our example, the loss is \$950. You can journalize this loss in one of two ways:

Cost of Goods Sold.....	950	
Allowance to Reduce Inventory to Market.....		950

or

Loss Due to Market Decline of Inventory	950	
Allowance to Reduce Inventory to Market.....		950

This memo should answer your questions about which value to choose when valuing inventory at lower-of-cost-or-market.

Schedule A

Item	On Hand Quantity	Replacement Cost/Unit	NRV Ceiling	NRV—Normal Profit (Floor)	Designated Market	Cost	Lower-of-Cost-or-Market
A	1,100	\$8.40	\$9.00	\$7.20	\$8.40	\$7.50	\$7.50
B	800	7.90	8.50	7.30	7.90	8.20	7.90
C	1,000	5.40	6.05	5.45	5.45	5.60	5.45
D	1,000	4.20	5.50	4.00	4.20	3.80	3.80
E	1,400	6.30	6.00	5.00	6.00	6.40	6.00

Schedule B

Item	Cost	Lower-of-Cost-or-Market	Difference
A	1,100 X \$7.50 = \$8,250	1,100 X \$7.50 = \$8,250	None
B	800 X \$8.20 = \$6,560	800 X \$7.90 = \$6,320	\$240
C	1,000 X \$5.60 = \$5,600	1,000 X \$5.45 = \$5,450	\$150
D	1,000 X \$3.80 = \$3,800	1,000 X \$3.80 = \$3,800	None
E	1,400 X \$6.40 = \$8,960	1,400 X \$6.00 = \$8,400	\$560
			<u>\$950</u>

LO: 2, Bloom: AP, Difficulty: Moderate, Time: 30-40, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

PROBLEM 9.6

Beginning inventory		\$ 80,000
Purchases		<u>290,000</u>
		370,000
Purchase returns		<u>(28,000)</u>
Total goods available		342,000
Sales revenue	\$415,000	
Sales returns.....	<u>(21,000)</u>	
Net sales	394,000	
Less: Gross profit (35% of \$394,000)	<u>137,900</u>	<u>(256,100)</u>
Ending inventory (unadjusted for damage).....		85,900
Less: Goods on hand—undamaged (\$30,000 X [1 – 35%])		<u>19,500</u>
Inventory damaged.....		66,400
Less: Net realizable value of damaged inventory		<u>8,150</u>
Fire loss on inventory		<u><u>\$ 58,250</u></u>

LO: 4, Bloom: AP, Difficulty: Moderate, Time: 20-30, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.7

STANISLAW CORPORATION
Computation of Inventory Fire Loss
April 15, 2021

Inventory, 1/1/21		\$ 75,000
Purchases, 1/1/ – 3/31/21		52,000
April merchandise shipments paid		3,400
Unrecorded purchases on account		<u>15,600</u>
Total		146,000
Less: Shipments in transit.....	\$ 2,300	
Merchandise returned	<u>950</u>	<u>3,250</u>
Merchandise available for sale.....		142,750
Less estimated cost of sales:		
Sales revenue, 1/1/ – 3/31/21	135,000	
Sales revenue, 4/1/ – 4/15/21		
Receivables acknowledged		
at 4/15/21.....	\$46,000	
Estimated receivables not		
acknowledged	<u>8,000</u>	
Total	54,000	
Add collections, 4/1/ – 4/15/21		
(\$12,950 – \$950)	<u>12,000</u>	
Total	66,000	
Less receivables, 3/31/21	<u>40,000</u>	<u>26,000</u>
Total sales 1/1/ – 4/15/21	161,000	
Less gross profit (45%* X \$161,000)	<u>72,450</u>	<u>88,550</u>
Estimated merchandise inventory		54,200
Less: Sale of salvaged inventory		<u>3,500</u>
Inventory fire loss		<u><u>\$ 50,700</u></u>

PROBLEM 9.7 (Continued)

***Computation of Gross Profit Rate**

Net sales, 2019		\$390,000
Net sales, 2020		<u>530,000</u>
Total net sales		920,000
Beginning inventory	\$ 66,000	
Net purchases, 2019	235,000	
Net purchases, 2020	<u>280,000</u>	
Total	581,000	
Less: Ending inventory	<u>75,000</u>	<u>506,000</u>
Gross profit		<u>\$414,000</u>

Gross profit rate (\$414,000 ÷ \$920,000)..... **45%**

LO: 4, Bloom: AP, Difficulty: Complex, Time: 40-45, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.8

(a)	Cost	Retail
Beginning inventory.....	\$ 17,000	\$ 25,000
Purchases.....	82,500	137,000
Freight-in	7,000	
Purchase returns.....	(2,300)	(3,000)
Transfers in from suburban branch.....	9,200	13,000
Totals	\$113,400	172,000
Net markups		8,000
		180,000
Net markdowns		(4,000)
Sales revenue.....	\$(95,000)	
Sales returns	2,400	(92,600)
Inventory losses due to breakage.....		(400)
Ending inventory at retail		\$ 83,000

$$\text{Cost-to-retail ratio} = \frac{\$113,400}{\$180,000} = 63\%$$

(b) Ending inventory at lower-of-average-cost-or-market
 (63% of \$83,000) **\$ 52,290**

LO: 5, Bloom: AP, Difficulty: Moderate, Time: 20-30, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.9

	Cost	Retail
Beginning inventory	\$ 250,000	\$ 390,000
Purchases	914,500	1,460,000
Purchase returns	(60,000)	(80,000)
Purchase discounts	(18,000)	
Freight-in	42,000	
Markups	\$ 120,000	
Markup cancellations	<u>(40,000)</u>	<u>80,000</u>
Totals	<u>\$1,128,500</u>	1,850,000
Markdowns	(45,000)	
Markdown cancellations	<u>20,000</u>	(25,000)
Sales revenue	(1,410,000)	
Sales returns	<u>97,500</u>	(1,312,500)
Inventory losses due to breakage		(4,500)
Employee discounts		<u>(8,000)</u>
Ending inventory at retail		<u>\$ 500,000</u>

Cost-to-retail ratio = $\frac{\$1,128,500}{\$1,850,000} = 61\%$

Ending inventory at cost
(61% of \$500,000)..... **\$ 305,000**

LO: 5, Bloom: AP, Difficulty: Moderate, Time: 20-30, AACSB: Analytic, AICPA BB: None, AICPA FC: Reporting, AICPA PC: AICPA BB: None

PROBLEM 9.10

(a)	Cost	Retail
Inventory (beginning).....	\$ 52,000	\$ 78,000
Purchases.....	272,000	423,000
Purchase returns.....	(5,600)	(8,000)
Freight-in	16,600	
Totals	\$335,000	493,000
Markups		\$ 9,000
Markup cancellations.....		(2,000)
		7,000
		500,000
Net markdowns		(3,600)
Normal spoilage and breakage		(10,000)
Sales revenue.....		(390,000)
Ending inventory at retail		\$ 96,400

$$\text{Cost-to-retail ratio} = \frac{\$335,000}{\$500,000} = 67\%$$

Ending inventory at lower-of-cost-or-market (67% of \$96,400)	<u>\$ 64,588</u>
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- (b) The difference between the inventory estimate per retail method and the amount per physical count may be due to:
1. Theft losses (shoplifting or pilferage).
 2. Spoilage or breakage above normal.
 3. Differences in cost/retail ratio for purchases during the month, beginning inventory, and ending inventory.
 4. Markups on goods available for sale inconsistent between cost of goods sold and ending inventory.
 5. A wide variety of merchandise with varying cost/retail ratios.
 6. Incorrect reporting of markdowns, additional markups, or cancellations.

LO: 5, Bloom: AP, Difficulty: Moderate, Time: 20-30, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

PROBLEM 9.11

- (a) The inventory section of Maddox's balance sheet as of November 30, 2020, including required footnotes, is presented below. Also presented below are the inventory section supporting calculations.

Current assets

Inventory section (Note 1.)

Finished goods (Note 2.).....	\$643,000	
Work-in-process.....	108,700	
Raw materials.....	237,400	
Factory supplies.....	<u>64,800</u>	
Total inventories		<u>\$1,053,900</u>

Note 1. Lower-of-cost (first-in, first-out) or-NRV is applied on a major category basis for finished goods, and on a total inventory basis for work-in-process, raw materials, and factory supplies.

Note 2. Seventy-five percent of bar end shifters finished goods inventory in the amount of \$136,500 ($\$182,000 \times .75$) is pledged as collateral for a bank loan, and one-half of the head tube shifters finished goods is held by catalog outlets on consignment.

PROBLEM 9.11 (Continued)

Supporting Calculations

	<u>Finished Goods</u>	<u>Work-in- Process</u>	<u>Raw Materials</u>	<u>Factory Supplies</u>
Down tube shifters at NRV	\$266,000			
Bar end shifters at cost.....	182,000			
Head tube shifters at cost.....	195,000			
Work-in-process at NRV		\$108,700		
Deraileurs at market			\$110,000 ¹	
Remaining items at NRV			127,400	
Supplies at cost.....				<u>\$64,800²</u>
Totals	<u>\$643,000</u>	<u>\$108,700</u>	<u>\$237,400</u>	<u>\$64,800</u>

¹\$264,000 X 1/2 = \$132,000; \$132,000 ÷ 1.2 = \$110,000.

²\$69,000 – \$4,200 = \$64,800.

- (b) The decline in the NRV of inventory below cost may be reported using one or two alternate methods, the direct write-down of inventory (cost-of-goods-sold method) or the (loss method). An allowance may be used under either method to report inventory on the balance sheet at LCNRV. The decline in the market value of inventory may be reflected in Maddox's income statement as a separate loss item for the fiscal year ended November 30, 2020. The loss amount may also be written off directly, increasing the cost of goods sold on Maddox's income statement. The loss must be reported in continuing operations. The loss must be included in the income statement since it is material to Maddox's financial statements.
- (c) Purchase contracts for which a fixed price has been established should be disclosed on the financial statements of the buyer. If the contract price is greater than the current market price (a loss would occur if the purchase takes place). An unrealized holding loss amounting to the difference between the contracted price and the current market price should be recognized on the income statement in the period during which the price decline takes place. Also, an estimated liability on purchase commitments should be recognized on the balance sheet. The recognition of the loss is unnecessary if a firm sales commitment exists which precludes the loss.

LO: 1, 3, 6, Bloom: AP, Difficulty: Moderate, Time: 30-40, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

***PROBLEM 9.12**

	Cost	Retail
(a)		
Inventory, January 1	\$ 30,000	\$ 43,000
Purchases	104,800	155,000
Purchase returns.....	<u>(2,800)</u>	<u>(4,000)</u>
Totals	132,000	194,000
Add: Net markups		
Markups	\$ 9,200	
Markup cancellations.....	<u>(3,200)</u>	<u>6,000</u>
Totals	<u>\$132,000</u>	200,000
Deduct: Net markdowns		
Markdowns	10,500	
Markdown cancellations.....	<u>(6,500)</u>	<u>4,000</u>
Sales price of goods available		196,000
Sales revenue	154,000	
Sales returns and allowances	<u>(8,000)</u>	<u>(146,000)</u>
Ending inventory at retail		<u>\$ 50,000</u>

$$\text{Cost-to-retail ratio} = \frac{\$132,000}{\$200,000} = 66\%$$

Inventory at lower-of-cost-or-market (66% X \$50,000).....	<u>\$ 33,000</u>
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(b) Ending inventory at retail at January 1 price level (\$59,400 ÷ 1.08)	\$ 55,000
Less beginning inventory at retail	<u>43,000</u>
Inventory increment at retail, January 1 price level.....	<u>\$ 12,000</u>
Inventory increment at retail, June 30 price level (\$12,000 X 1.08).....	<u>\$ 12,960</u>
Beginning inventory at cost	\$ 30,000
Inventory increment at cost at June 30 price level (\$12,960 X 70%*)	<u>9,072</u>
Ending inventory at dollar-value LIFO cost.....	<u>\$ 39,072</u>

*70% = \$30,000/\$43,000

***PROBLEM 9.13**

- (a) The retail method is appropriate in businesses that sell many different items at relatively low unit costs and that have a large volume of transactions such as Home Depot or Wal-Mart. The advantages of the retail method in these circumstances include the following:
1. Interim physical inventories can be estimated.
 2. The retail method acts as a control as deviations from the physical count will have to be explained.
- (b) Becker Department Stores' ending inventory value, at cost, is \$83,000, calculated as follows:

	Cost	Retail
Beginning inventory	<u>\$ 68,000</u>	<u>\$100,000</u>
Purchases.....	\$255,000	\$400,000
Net markups		50,000
Net markdowns		<u>(110,000)</u>
Net purchases	<u>\$255,000</u>	<u>340,000</u>
Goods available		440,000
Sales revenue.....		<u>(320,000)</u>
Estimated ending inventory at retail.....		<u>\$120,000</u>

Cost-to-retail percentage: $\$255,000 \div \$340,000 = \underline{75\%}$.

Beginning inventory layer	\$ 68,000	\$100,000
Incremental increase		
At retail (\$120,000 – \$100,000).....		20,000
At cost (\$20,000 X 75%)	<u>15,000</u>	
Estimated ending inventory at LIFO cost...	<u>\$ 83,000</u>	<u>\$120,000</u>

***PROBLEM 9.13 (Continued)**

- (c) The estimated shortage amount, at retail, for Becker Department Stores is \$5,000 calculated as follows:

Estimated ending inventory at retail.....	\$120,000
Actual ending inventory at retail.....	<u>(115,000)</u>
Estimated inventory shortage.....	<u>\$ 5,000</u>

- (d) When using the retail inventory method, the four expenses and allowances noted are treated in the following manner:
1. Freight costs are added to the cost of purchases.
 2. Purchase returns are considered as reductions to both the cost price and the retail price. Purchase allowances are considered a reduction in cost price.
 3. Sales returns and allowances are subtracted as an adjustment to sales.
 4. Employee discounts are deducted from the retail column in a manner similar to sales. They are not considered in the cost-to-retail percentage because they do not reflect an overall change in the selling price.

LO: 7, Bloom: AP, Difficulty: Moderate, Time: 30-40, AACSB: Analytic, Communication, AICPA BB: None, AICPA FC: Reporting, AICPA PC: Communication

***PROBLEM 9.14**

(a)	Cost	Retail
Inventory (beginning).....	\$ 15,800	\$ 24,000
Purchases.....	116,200	184,000
Markups		<u>12,000</u>
Totals	<u>\$132,000</u>	220,000
Markdowns		(5,500)
Sales revenue.....		<u>(175,000)</u>
Ending inventory at retail		<u>\$ 39,500</u>

$$\text{Cost-to-retail ratio} = \frac{\$132,000}{\$220,000} = 60\%$$

Ending inventory at cost (60% X \$39,500)	<u>\$ 23,700</u>
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(b) Ending inventory for 2020 under the LIFO method:

The cost-to-retail ratio for 2020 can be computed as follows:

$$\frac{\text{Net purchases at cost}}{\text{Net purchases plus markups less markdowns at retail}} = \frac{\$116,200}{\$184,000 + \$12,000 - \$5,500} = 61\%$$

December 31, 2020, inventory at LIFO cost:

	Retail	Ratio	LIFO Cost
Beginning inventory.....	\$24,000		\$15,800
Increment in 2020.....	<u>15,500*</u>	61%	<u>9,455</u>
Ending inventory	<u>\$39,500</u>		<u>\$25,255</u>

*\$39,500 – \$24,000 = \$15,500

***PROBLEM 9.15**

**(a) DAVENPORT DEPARTMENT STORE
COMPUTATION OF COST
OF DECEMBER 31, 2019 INVENTORY
BASED ON THE CONVENTIONAL RETAIL METHOD**

	At Cost	At Retail
Beginning inventory, January 1, 2019	\$ 29,800	\$ 56,000
Add (deduct) transactions affecting cost ratio:		
Purchases.....	311,000	554,000
Purchase returns	(5,200)	(10,000)
Purchase discounts	(6,000)	
Freight-in	17,600	
Net markups		<u>20,000</u>
Totals	<u>\$347,200</u>	<u>620,000</u>
Add (deduct) other retail transactions not considered in computation of cost ratio:		
Gross sales		(551,000)
Sales returns		9,000
Net markdowns		(12,000)
Employee discounts		<u>(3,000)</u>
Totals		<u>(557,000)</u>
Inventory, December 31, 2019:		
At retail		<u>\$ 63,000</u>
At cost (\$63,000 X 56%*).....	<u>\$ 35,280</u>	

*Ratio of cost-to-retail = $\$347,200 \div \$620,000$
= 56%

***PROBLEM 9.15 (Continued)**

**(b) COMPUTATION OF COST
OF DECEMBER 31, 2019 INVENTORY
UNDER THE LIFO RETAIL METHOD**

	<u>Cost</u>	<u>Retail</u>
Totals used in computing cost ratio under conventional retail method (part a).....	\$347,200	\$620,000
Exclude beginning inventory	<u>29,800</u>	<u>56,000</u>
Net purchases	317,400	564,000
Deduct net markdowns.....	<u> </u>	<u>12,000</u>
Totals used in computing cost ratio under LIFO retail method.....	<u>\$317,400</u>	<u>\$552,000</u>
 Cost ratio under LIFO retail method (\$317,400 ÷ \$552,000)	 57.5%	
Inventory, December 31, 2019:		
At retail (Conventional)		<u>\$ 60,000</u>
At cost under LIFO retail method (\$60,000 X 57.5%).....	<u>\$ 34,500</u>	

***PROBLEM 9.15 (Continued)**

**(c) COMPUTATION OF 2020 AND 2021
YEAR-END INVENTORIES
UNDER THE DOLLAR-VALUE LIFO METHOD**

Computation of retail values on the basis of January 1, 2020, price levels		
	<u>Cost</u>	<u>Retail</u>
2020:		
Inventory at end of year (given)		<u>\$75,600</u>
Inventory at end of year stated in terms of January 1, 2020 prices (\$75,600 ÷ 105%)		\$72,000
January 1, 2020 inventory base (given) cost ratio of 55.5% (\$33,300 ÷ \$60,000)	\$33,300	<u>60,000</u>
Increment in inventory:		
In terms of January 1, 2020 prices.....		<u>\$12,000</u>
In terms of 2020 prices—\$12,000 X 105%....		<u>\$12,600</u>
At LIFO cost—61% (2020 cost ratio) X \$12,600.....	<u>7,686</u>	
December 31, 2020 inventory at LIFO cost.....	<u>\$40,986</u>	
2021:		
Inventory at end of year (given)		<u>\$62,640</u>
Inventory at end of year stated in terms of January 1, 2021 prices (\$62,640 ÷ 108%)		<u>\$58,000</u>
December 31, 2021 inventory at LIFO cost—55.5%* (January 1, 2020 cost ratio) X \$58,000.....	<u>\$32,190</u>	

*Based on the beginning inventory for 2020 of $\frac{\$33,300 \text{ Cost}}{\$60,000 \text{ Retail}} = 55.5\%$.

(Note to instructor: Because the retail inventory stated in terms of January 1, 2020 prices at December 31, 2021, \$58,000, has fallen below the January 1, 2021 inventory base at retail, \$60,000, under the LIFO theory the 2017 layer has been depleted and only a portion of the original inventory base remains. Hence the LIFO cost at December 31, 2021 is determined by applying the January 1, 2020 cost ratio of 55.5 percent to the retail inventory value of \$58,000).