

2- 30 (15- 20 min.) Interpretation of statements.

1. The schedule in 2- 29 can become a Schedule of Cost of Goods Manufactured and Sold simply by including the beginning and ending finished goods inventory figures in the supporting schedule, rather than directly in the body of the income statement. Note that the term *cost of goods manufactured* refers to the cost of goods brought to completion (finished) during the accounting period, whether they were started before or during the current accounting period. Some of the manufacturing costs incurred are held back as costs of the ending work- in- process; similarly, the costs of the beginning work- in- process inventory become a part of the cost of goods manufactured for 2001.

2. The sales manager’s salary would be charged as a marketing cost as incurred by both manufacturing and merchandising companies. It is basically an operating cost that appears below the gross margin line on an income statement. In contrast, an assembler’s wages would be assigned to the products worked on. Thus, the wages cost would be charged to Work- in- process and would not be expensed until the product is transferred through Finished Goods Inventory to Cost of Goods Sold as the product is sold.

3. The direct- indirect distinction can be resolved only with respect to a particular cost object. For example, in defense contracting, the cost object may be defined as a contract. Then, a plant supervisor’s salary may be charged directly and wholly to that single contract.

4. Direct materials used = $\$320,000,000 \div 1,000,000 \text{ units} = \320 per unit
 Depreciation = $\$ 80,000,000 \div 1,000,000 \text{ units} = \$ 80 \text{ per unit}$

5. Direct materials unit cost would be unchanged at \$320. Depreciation unit cost would be $\$80,000,000 \div 1,200,000 = \66.67 per unit. Total direct materials costs would rise by 20% to \$384,000,000, whereas total depreciation would be unaffected at \$80,000,000.

6. Unit costs are averages, and they must be interpreted with caution. The \$320 direct materials unit cost is valid for predicting total costs because direct materials is a variable cost; total direct materials costs indeed change as output levels change. However, fixed costs like depreciation must be interpreted quite differently from variable costs. A common error in cost analysis is to regard all unit costs as one- as if all the total costs to which they are related are variable costs. Changes in output levels (the denominator) will affect *total variable costs*, but not *total fixed costs*. Graphs of the two costs may clarify this point; it is safer to think in terms of total costs rather than in terms of unit costs.

2- 36 (30 min.) Comprehensive problem on unit costs, product costs.

1. If 2 pounds of direct materials are used to make each unit of finished product, 100,000 units \times 2 lbs., or 200,000 lbs. were used at \$0.70 per pound of direct materials ($\$140,000 \div 200,000 \text{ lbs.}$). Therefore, the ending inventory of direct materials is 2,000 lbs. \times \$0.70 = \$1,400.

2.

	<u>Manufacturing Costs for 100,000 units</u>		
	<u>Variable</u>	<u>Fixed</u>	<u>Total</u>
Direct materials costs	\$140,000	\$ –	\$140,000

Direct manufacturing labor costs	30,000	–	30,000
Plant energy costs	5,000	–	5,000
Indirect manufacturing labor costs	10,000	16,000	26,000
Other indirect manufacturing costs	<u>8,000</u>	<u>24,000</u>	<u>32,000</u>
Cost of goods manufactured	<u>\$193,000</u>	<u>\$40,000</u>	<u>\$233,000</u>
Average unit manufacturing cost:	$\$233,000 \div 100,000 \text{ units}$		
	= \$2.33 per unit		

Finished goods inventory in units: $= \frac{\$20,970 \text{ (given)}}{\$2.33 \text{ per unit}}$
= 9,000 units

3. Units sold in 2001 = Beginning inventory + Production – Ending inventory
= 0 + 100,000 – 9,000 = 91,000 units
Selling price per unit in 2001 = $\$436,800 \div 91,000$
= \$4.80 per unit

4.

Revenues (91,000 units sold × \$4.80)		\$436,800
Cost of units sold:		
Beginning finished goods, Jan. 1, 2001	\$ 0	
Cost of goods manufactured	<u>233,000</u>	
Cost of goods available for sale	233,000	
Ending finished goods, Dec. 31, 2001	<u>20,970</u>	<u>212,030</u>
Gross margin		224,770
Operating costs:		
Marketing, distribution, and customer- service costs	162,850	
Administrative costs	<u>50,000</u>	<u>212,850</u>
Operating income		<u>\$ 11,920</u>

Note: Although not required, the full set of unit variable costs is:

Direct materials costs	\$1.40	} per unit manufactured
Direct manufacturing labor costs	0.30	
Plant energy costs	0.05	
Indirect manufacturing labor costs	0.10	
Other indirect manufacturing costs	0.08	
Marketing, distribution, and customer- service costs	\$1.35	per unit sold