

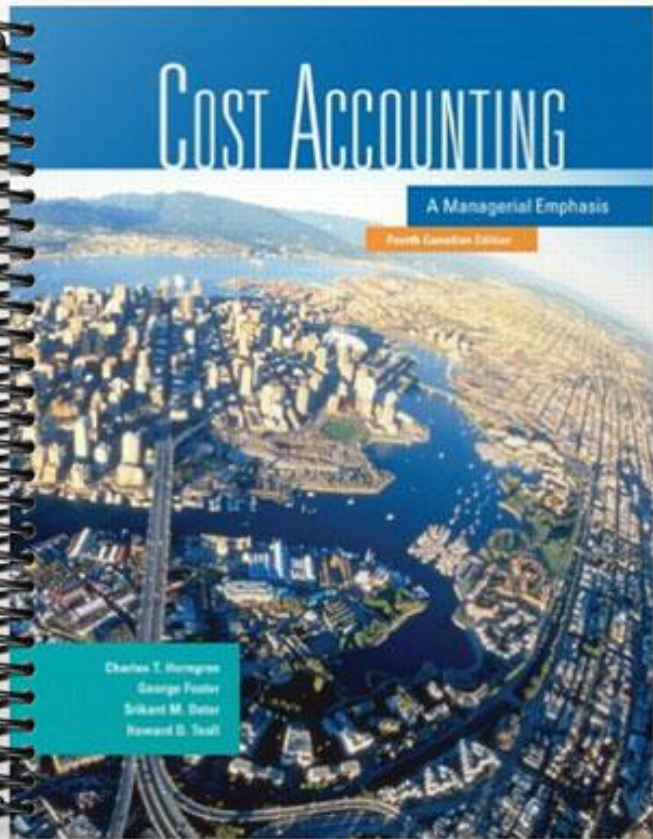
SOLUTIONS MANUAL

COST ACCOUNTING

A Managerial Emphasis

Fourth Canadian Edition

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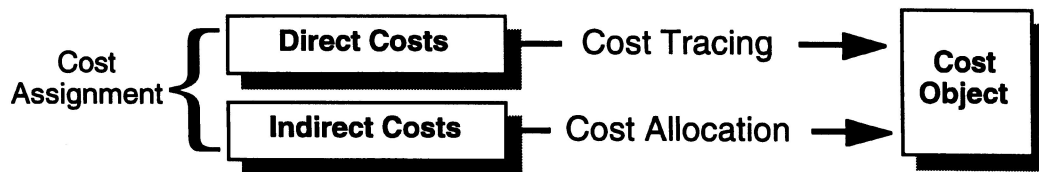
CHAPTER 2

AN INTRODUCTION TO COST TERMS AND PURPOSES

2-1 A **cost object** is anything for which a separate measurement of costs is desired. Examples include a product, a service, a project, a customer, a brand category, an activity, a department, and a program.

2-2 **Cost assignment** is a general term that encompasses both (1) tracing accumulated costs to a cost object, and (2) allocating accumulated costs to a cost object. **Cost tracing** is the assigning of direct costs to a chosen cost object. **Cost allocation** is the assigning of indirect costs to a chosen cost object.

The relationship between these terms is as follows:



2-3 Direct costs of a cost object are costs that are related to the particular cost object and that can be traced to it in an economically feasible way. Indirect costs of a cost object are costs that are related to the particular cost object but cannot be traced to it in an economically feasible way.

2-4 Managers believe that costs that are traced to a particular cost object are more accurately assigned to that cost object than are allocated costs. Managers prefer to use more accurate costs in their decisions.

2-5 Factors affecting the classification of a cost as direct or indirect include:

1. the materiality of the cost in question
2. available information-gathering technology
3. design of operations

2-6 Cost reduction efforts frequently focus on:

1. doing only value-added activities, and
2. efficiently managing the use of the cost drivers in those value-added activities.

2-7 A cost driver is any factor that affects total costs. Examples include:

<u>Business Function</u>	<u>Example of Cost Driver</u>
Research and development	Number of research projects
Design	Number of products in design
Production	Number of units produced
Marketing	Number of advertisements run
Distribution	Number of items distributed
Customer service	Number of service calls

2-8 A **variable cost** is a cost that changes in total in proportion to changes in the quantity of a cost driver.

A **fixed cost** is a cost that does not change in total despite changes in the quantity of a cost driver.

Suppose the cost object is a Ford motor vehicle. A dashboard is a variable cost of the motor vehicle. The annual lease of the plant in which the vehicle is assembled illustrates a fixed cost for that year.

2-9 The **relevant range** is the range of the cost driver in which a specific relationship between cost and driver is valid. This concept enables the use of linear cost functions when examining cost-volume-profit (CVP) relationships as long as the volume levels are within that relevant range.

2-10 A unit cost is computed by dividing some total cost (the numerator) by some number of units (the denominator). In many cases the numerator will include a fixed cost that will not change despite changes in the number of units to be assembled. It is erroneous in those cases to multiply the unit cost by volume changes to predict changes in total costs at different volume levels.

2-11 Descriptions of the three sectors are:

- **Service-sector companies** provide services or intangible products to their customers—for example, legal advice or an audit. These companies do not have any inventory of intangible products at the end of an accounting period.
- **Merchandising-sector companies** provide tangible products they have previously purchased in the same basic form from suppliers. Merchandise purchased from suppliers but not sold at the end of an accounting period is held as inventory.
- **Manufacturing-sector companies** provide tangible products that have been converted to a different form from the products purchased from suppliers. At the end of an accounting period, inventory of a manufacturer can include direct materials, work in process, and finished goods.

Thus, manufacturing and merchandising companies have inventory while service companies do not. Manufacturing companies have direct materials, work in process, and finished goods inventories whereas merchandising companies have only goods purchased for resale inventory (merchandise inventory).

2-12 No. Service sector companies have no inventories and, hence, no inventoriable costs.

2-13 The three major categories of the inventoriable costs of a manufactured product are:

1. direct materials costs
2. direct manufacturing labour costs
3. indirect manufacturing costs.

2-14 **Direct materials costs:** The acquisition costs of all materials that eventually become part of the cost object (say, units finished or in process) and that can be traced to that cost object in an economically feasible way. Acquisition costs of direct materials include freight-in (inward delivery) charges, sales taxes, and custom duties.

Direct manufacturing labour costs: The compensation of all manufacturing labour that is specifically identified with the cost object (say, units finished or in process) and that can be traced to the cost object in an economically feasible way. Examples include wages and fringe benefits paid to machine operators and assembly-line workers.

Indirect manufacturing costs: All manufacturing costs considered to be part of the cost object (say, units finished or in process) but that cannot be individually traced to that cost object in an economically feasible way. Examples include power, supplies, indirect materials, indirect manufacturing labour, plant rent, plant insurance, property taxes on plants, plant amortization, and the compensation of plant managers.

Prime costs: All direct manufacturing costs. In the two-part classification of manufacturing costs, prime costs would comprise direct materials costs. In the three-part classification, prime costs would comprise direct materials costs and direct manufacturing labour costs.

Conversion costs: All manufacturing costs other than direct materials costs.

2-15 A **product cost** is the sum of the costs assigned to a product for a specific purpose. Purposes for computing a product cost include:

- Product pricing and product emphasis.
- Contracting with government agencies.
- Financial statements.

2-16 (10 min.) Total costs and unit costs.

1. Total cost, \$4,800. Unit cost per person, $\$4,800 \div 500 = \9.60
2. Total cost, \$4,800. Unit cost per person, $\$4,800 \div 2,000 = \2.40
3. The main lesson of this problem is to alert the student early in the course to the desirability of thinking in terms of total costs rather than unit costs wherever feasible. Changes in the number of cost driver units will affect total variable costs but not total fixed costs. In our example, it would be perilous to use either the \$9.60 or the \$2.40 unit cost to predict the total cost because the total costs are not affected by the attendance. Instead, the student association should use the \$4,800 total cost. Obviously, if the musical group agreed to work for, say \$4.80 per person, such a unit variable cost could be used to predict the total cost.

2-17 (15 min.) Cost drivers and the value chain.

1.

<u>Business Function Area</u>	<u>Representative Cost Driver</u>
A. Research and development	Number of research scientists
B. Design of products/processes	Hours of computer-aided design (CAD) work
C. Production	Number of machine assembly hours
D. Marketing	Number of sales personnel
E. Distribution	Weight of cars shipped
F. Customer service	Number of cars recalled for defective parts

2.

<u>Business Function Area</u>	<u>Representative Cost Driver</u>
A. Research and development	– Square feet of R&D laboratory space – Number of new models being developed
B. Design of products/processes	– Number of focus groups on alternative colour combinations – Hours of process engineering time on retooling assembly equipment
C. Production	– Direct manufacturing labour hours – Kilowatt hours of energy consumed
D. Marketing	– Number of advertisements on television – Number of total mailings to existing customers about new model
E. Distribution	– Number of vehicles shipped – Number of distributors in sales area
F. Customer service	– Number of personnel on toll-free customer phone lines – Number of packages mailed about safety complaints with existing model

2-18 (15 min.) Computing and interpreting unit manufacturing costs.

1.

	Supreme	Deluxe	Regular
Direct materials costs	\$100.80	\$ 64.80	\$ 74.40
Direct manuf. labour costs	16.80	33.60	9.60
Indirect manuf. costs	<u>50.40</u>	<u>100.80</u>	<u>28.80</u>
Total manuf. costs	<u>\$168.00</u>	<u>\$199.20</u>	<u>\$112.80</u>
Kilograms produced	80	120	100
Cost per kilogram	\$2.100	\$1.660	\$1.128

2. Given the unit volume changes for August 2007, the use of unit costs from the past month at a different unit volume level (both in aggregate and at the individual product level) will yield incorrect estimates of total costs in August 2007.

2-19 (20 min.) Direct and indirect costs, effect of changing the classification of a cost item.

1. *Direct costs* are costs that are related to the particular paper products (Supreme, Deluxe, or Regular) and can be traced to each one in an economically feasible (cost-effective) way.

Indirect costs are costs that are related to the particular paper products (Supreme, Deluxe, or Regular) but cannot be traced to each one in an economically feasible (cost-effective) way.

2. Energy costs of \$108 million can be traced to each individual production line. This tracing will result in a more accurate assignment of costs to products than when the \$180 million of indirect manufacturing costs (\$24 million of which is fixed) is allocated using direct manufacturing labour costs at each line. The \$108 million in energy costs does not have an identical relationship to direct manufacturing labour costs for each product line as is assumed when the direct manufacturing labour cost allocation base is used in Question 2-18:

	Supreme	Deluxe	Regular	Total
1. Direct energy costs	\$47.76	\$24.84	\$35.40	\$108.00
2. Direct manuf. labour cost	16.80	33.60	9.60	60.00
3. Ratio of 1 to 2	2.843	0.739	3.688	1.80

The Supreme and the Regular product line present energy-intensive usage vis-à-vis their direct manufacturing labour cost content. The result is that these product lines will be undercosted when the Exercise 2-18 unit cost numbers are used. (The Deluxe product line will be overcosted.)

2-19 (cont'd)

3.

	Supreme	Deluxe	Regular
Direct materials costs	\$ 100.80	\$ 64.80	\$ 74.40
Direct manuf. labour costs	16.80	33.60	9.60
Direct energy costs	47.76	24.84	35.40
Indirect manuf. costs	<u>20.16</u>	<u>40.32</u>	<u>11.52</u>
Total manuf. costs	<u>\$185.52</u>	<u>\$163.56</u>	<u>\$130.92</u>
Kilograms produced	80	120	100
Cost per kilogram	\$2.3190	\$1.3630	\$1.3092

The unit cost amounts are:

	Supreme	Deluxe	Regular
1. Exercise 2-19	\$2.3190	\$1.3630	\$1.3092
2. Exercise 2-18	2.1000	1.6600	1.1280
Ratio of 1 to 2	1.1043	0.8211	1.1606

As predicted in requirement 2, the tracing of the higher than average energy costs to Supreme and Regular results in an increase in reported unit costs for these product lines.

2-20 (15 min.) Cost drivers and the value chain.

1.

Business Function Area	Representative Cost Driver
A. Research and development	– Number of patents filed with government agency
B. Design of products/processes	– Hours spent designing tamper-proof bottles
C. Production	– Hours Tylenol packing line in operation
D. Marketing	– Minutes of television advertising time
E. Distribution	– Number of packages shipped
F. Customer service	– Number of calls to toll-free customer phone line

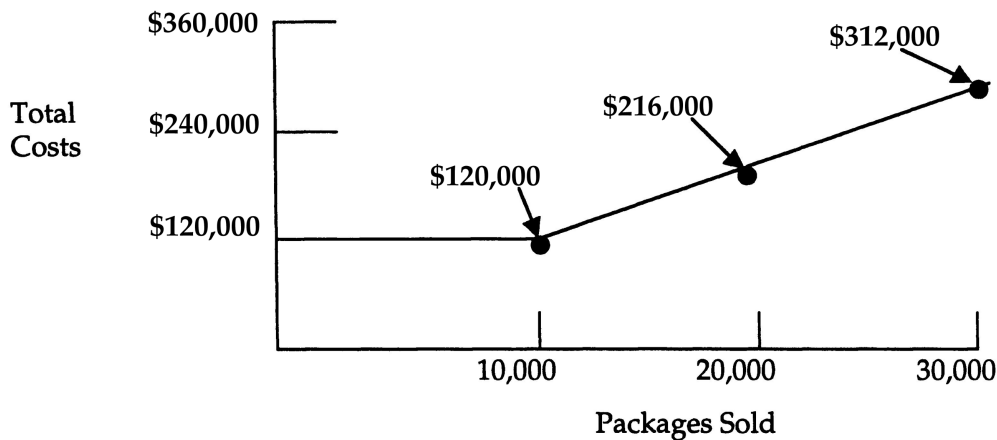
2.

Business Function Area	Representative Cost Driver
A. Research and development	– Hours of laboratory work – Number of new drugs in development
B. Design of products/processes	– Number of focus groups on alternative package designs – Hours of process engineering work
C. Production	– Number of units packaged – Number of tablets manufactured
D. Marketing	– Number of promotion packages mailed – Number of sales personnel
E. Distribution	– Weight of packages shipped – Number of supermarkets on delivery route
F. Customer service	– Number of units of a product recalled – Number of personnel on toll-free customer phone lines

2-21 (15 min.) Total costs and unit costs.

1. (a) $\$120,000 \div 2,000 = \60.00 per package
- (b) $\$120,000 \div 6,000 = \20.00 per package
- (c) $\$120,000 \div 10,000 = \12.00 per package
- (d) $[\$120,000 + (10,000 \times \$9.60)] \div 20,000$
 $= \$216,000 \div 20,000 = \10.80 per package

The unit cost to ECG decreases on a per-unit basis due to the first \$120,000 payment being a fixed cost. The \$9.60 amount per package beyond 10,000 units is a variable cost. The cost function is:



2. ECG should not use any of the unit costs in requirement 1 when predicting total costs. Up to 10,000 units, the total cost is a fixed amount. Beyond 10,000 units, the total cost is a combination of a fixed amount plus a per-unit (beyond 10,000 unit) variable amount. The total costs at different volume levels cannot be predicted by using the unit cost at a specific volume level. The total cost should be predicted by combining the total fixed costs and total variable costs rather than by multiplying a unit cost amount by the predicted number of packages sold.

2-22 (15-20 min.) Variable costs and fixed costs.

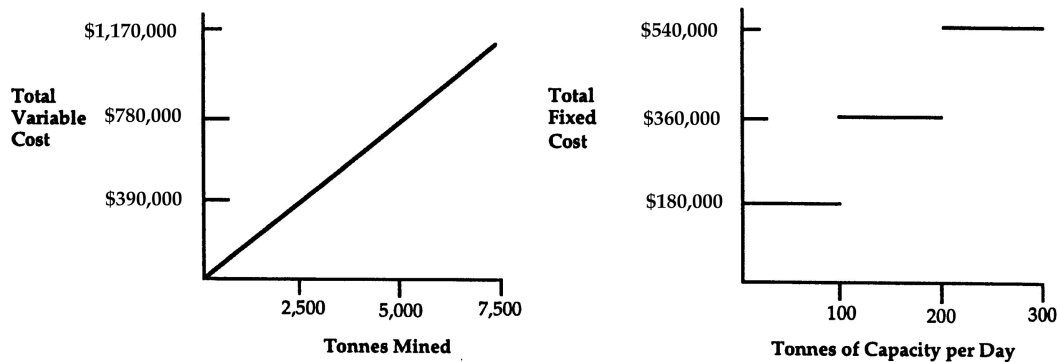
1. Variable cost per tonne of beach sand mined:

Subcontractor	\$96 per tonne
Government tax	<u>60</u> per tonne
Total	<u>\$156</u> per tonne

Fixed costs per month:

0 to 100 tonnes of capacity per day	= \$180,000
101 to 200 tonnes of capacity per day	= \$360,000
201 to 300 tonnes of capacity per day	= \$540,000

- 2.



The concept of relevant range is potentially relevant for both graphs. However, the question does not place restrictions on the unit variable costs. The relevant range for the total fixed costs is from 0 to 100 tonnes; 101 to 200 tonnes; 201 to 300 tonnes, and so on. Within these ranges, the total fixed costs do not change in total.

- 3.

Tonnes Mined per Day (1)	Tonnes Mined per Month (2) = (1) × 25	Fixed Unit Cost per Tonne (3) = FC ÷ (2)	Variable Unit Cost per Tonne (4)	Total Unit Cost per Tonne (5) = (3) + (4)
(a) 180	4,500	\$360,000 ÷ 4,500 = \$80.00	\$156	\$236.00
(b) 220	5,500	\$540,000 ÷ 5,500 = \$98.18	\$156	\$254.18

The unit cost for 220 tonnes mined per day is \$254.18, while for 180 tonnes it is only \$236.00. This difference is caused by the fixed cost increment from 101 to 200 tonnes being spread over an increment of 80 tonnes, while the fixed cost increment from 201 to 300 tonnes is spread only over an increment of 20 tonnes.

2-23 (15-20 min.) Classification of costs, manufacturing sector.

Cost object: Type of car assembled (Corolla or Geo Prism)

Cost variability: With respect to changes in the number of cars assembled

There may be some debate over classifications of individual items. Debate is more likely as regards cost variability.

Cost Item	D or I	V or F
A	D	V
B	I	F
C	D	F
D	D	F
E	D	V
F	I	V
G	D	V
H	I	F

2-24 (20-30 min.) Inventoriable costs vs. period costs.

1. *Manufacturing-sector companies* purchase materials and components and convert them into different finished goods.

Merchandising-sector companies purchase and then sell tangible products without changing their basic form.

Service-sector companies provide services or intangible products to their customers—for example, legal advice or audits.

Only manufacturing and merchandising companies have inventories of goods for sale.

2. *Inventoriable costs* are all costs of a product that are regarded as an asset when they are incurred and then become cost of goods sold when the product is sold. These costs for a manufacturing company are included in work-in-process and finished goods inventory (they are “inventoried”) to build up the costs of creating these assets.

Period costs are all costs in the income statement other than cost of goods sold. These costs are treated as expenses of the period in which they are incurred because they are presumed not to benefit future periods (or because there is not sufficient evidence to conclude that such benefit exists). Expensing these costs immediately best matches expenses to revenues.

3. (a) Mineral water purchased for resale by Loblaw—inventoriable cost of a merchandising company. It becomes part of cost of goods sold when the mineral water is sold.

(b) Electricity used at a GE assembly plant—inventoriable cost of a manufacturing company. It is part of the manufacturing overhead that is included in the manufacturing cost of a refrigerator finished good.

2-24 (cont'd)

(c) Amortization on Excite's computer equipment—period cost of a service company. Excite has no inventory of goods for sale and, hence, no inventoriable cost.

(d) Electricity for Loblaw's store aisles—period cost of a merchandising company. It is a cost that benefits the current period and is not traceable to goods purchased for resale.

(e) Amortization on GE's assembly testing equipment—inventoriable cost of a manufacturing company. It is part of the manufacturing overhead that is included in the manufacturing cost of a refrigerator finished good.

(f) Salaries of Loblaw's marketing personnel—period cost of a merchandising company. It is a cost that is not traceable to goods purchased for resale. It is presumed not to benefit future periods (or at least not to have sufficiently reliable evidence to estimate such future benefits).

(g) Water consumed by Excite's engineers—period cost of a service company. Excite has no inventory of goods for sale and, hence, no inventoriable cost.

(h) Salaries of Excite's marketing personnel—period cost of a service company. Excite has no inventory of goods for sale and, hence, no inventoriable cost.

2-25 (15-20 min.) Classification of costs, service sector.

Cost object: Each individual focus group

Cost variability: With respect to changes in the number of focus groups

There may be some debate over classifications of individual items. Debate is more likely as regards cost variability.

Cost Item	D or I	V or F
A	D	V
B	I	F
C	I	V ^a
D	D	F
E	D	V
F	I	F
G	D	V
H	I	V ^b

^aSome students will note that phone call costs are variable when each call has a separate charge. It may be a fixed cost if Consumer Focus has a flat monthly charge for a line, irrespective of the amount of usage.

^bGasoline costs are likely to vary with the number of focus groups. However, vehicles likely serve multiple purposes and detailed records may be required to examine how costs vary with changes in one of the many purposes served.

2-26 (15-20 min.) Classification of costs, merchandising sector.

Cost object: Video section of store

Cost variability: With respect to changes in the number of videos sold

There may be some debate over classifications of individual items. Debate is more likely as regards cost variability.

Cost Item	D or I	V or F
A	D	F
B	I	V
C	D	V
D	D	F
E	I	F
F	I	V
G	I	F
H	D	V

2-27 (20-25 min.) Computing cost of goods manufactured and cost of goods sold.

Schedule of Cost of Goods Manufactured
for the Year Ended December 31, 2007
(in thousands)

Direct materials used		\$ 104,400
Direct manufacturing labour costs		40,800
Indirect manufacturing costs:		
Property tax on plant building	\$ 3,600	
Plant utilities	20,400	
Amortization of plant building	10,800	
Amortization of plant equipment	13,200	
Plant repairs and maintenance	19,200	
Indirect manufacturing labour costs	27,600	
Indirect materials used	13,200	
Miscellaneous plant overhead	<u>4,800</u>	<u>112,800</u>
Manufacturing costs incurred during 2007		258,000
Add beginning work in process inventory, Jan. 1, 2007		<u>24,000</u>
Total manufacturing costs to account for		282,000
Deduct ending work in process inventory, Dec. 31, 2007		<u>31,200</u>
Cost of goods manufactured		<u>\$250,800</u>

2-27 (cont'd)

Schedule of Cost of Goods Sold
for the Year Ended December 31, 2007
(in thousands)

Beginning finished goods, Jan. 1, 2007	\$ 32,400
Cost of goods manufactured (above)	<u>250,800</u>
Cost of goods available for sale	283,200
Ending finished goods, Dec. 31, 2007	<u>40,800</u>
Cost of goods sold	<u>\$242,400</u>

2-28 (20 min.) Computing cost of goods purchased and cost of goods sold.

(a) Marvin Department Store
 Schedule of Cost of Goods Purchased
 for the Year Ended December 31, 2007
 (in thousands)

Purchases		\$186,000
Add transportation-in		<u>8,400</u>
		194,400
Deduct:		
Purchase return and allowances	\$4,800	
Purchase discounts	<u>7,200</u>	<u>12,000</u>
Cost of goods purchased		<u>\$182,400</u>

(b) Marvin Department Store
 Schedule of Cost of Goods Sold
 for the Year Ended December 31, 2007
 (in thousands)

Beginning merchandise inventory 1/1/2007		\$ 32,400
Cost of goods purchased (above)		<u>182,400</u>
Cost of goods available for sale		214,800
Ending merchandise inventory 12/31/2007		<u>40,800</u>
Cost of goods sold		<u>\$174,000</u>

2-29 (30-40 min.) Cost of goods manufactured.

Canseco Company
 Schedule of Cost of Goods Manufactured for the Year Ended December 31, 2007
 (in thousands)

Direct materials costs:		
Beginning inventory, Jan. 1, 2007	\$26,400	
Purchases of direct materials	<u>90,000</u>	
Cost of direct materials available for use	116,400	
Ending inventory, Dec. 31, 2007	<u>31,200</u>	
Direct materials used		\$85,200
Direct manufacturing labour costs		30,000
Indirect manufacturing costs:		
Indirect manufacturing labour costs	\$18,000	
Plant insurance	10,800	
Amortization—plant building and equipment	13,200	
Repairs and maintenance—plant	<u>4,800</u>	<u>46,800</u>
Manufacturing costs incurred during 2007		162,000
Add beginning work in process inventory, Jan. 1, 2007		<u>25,200</u>
Total manufacturing costs to account for		187,200
Deduct ending work in process inventory, Dec. 31, 2007		<u>24,000</u>
Cost of goods manufactured		<u>\$163,200</u>

2. Canseco Company
 Income Statement for the Year Ended December 31, 2007
 (in thousands)

Revenues		\$360,000
Cost of goods sold:		
Beginning finished goods, Jan. 1, 2007	\$ 21,600	
Cost of goods manufactured (Requirement 1)	<u>163,200</u>	
Cost of goods available for sale	184,800	
Ending finished goods, Dec. 31, 2007	<u>27,600</u>	<u>157,200</u>
Gross margin		202,800
Operating costs:		
Marketing, distribution, and customer-service	\$ 111,600	
General and administrative	<u>34,800</u>	<u>146,400</u>
Operating income		<u>\$ 56,400</u>

2-30 (25-30 min.) Income statement and schedule of cost of goods manufactured.

Howell Corporation
Income Statement for the Year Ended December 31, 2007
(in millions)

Revenues		\$1,140
Cost of goods sold:		
Beginning finished goods, Jan. 1, 2007	\$ 84	
Cost of goods manufactured (below)	<u>774</u>	
Cost of goods available for sale	858	
Ending finished goods, Dec. 31, 2007	<u>66</u>	<u>792</u>
Gross margin		348
Marketing, distribution, and customer-service costs		<u>288</u>
Operating income		<u>\$ 60</u>

Howell Corporation
Schedule of Cost of Goods Manufactured
for the Year Ended December 31, 2007
(in millions)

Direct materials costs:		
Beginning inventory, Jan. 1, 2007	\$ 18	
Purchases of direct materials	<u>390</u>	
Cost of direct materials available for use	408	
Ending inventory, Dec. 31, 2007	<u>24</u>	
Direct materials used		\$384
Direct manufacturing labour costs		120
Indirect manufacturing costs:		
Indirect manufacturing labour	72	
Plant supplies used	12	
Plant utilities	36	
Amortization—plant, building, and equipment	96	
Plant supervisory salaries	6	
Miscellaneous plant overhead	<u>42</u>	<u>264</u>
Manufacturing costs incurred during 2007		768
Add beginning work in process inventory, Jan. 1, 2007		<u>12</u>
Total manufacturing costs to account for		780
Deduct ending work in process, Dec. 31, 2007		<u>6</u>
Cost of goods manufactured		<u>\$774</u>

2-31 (15-20 min.) Interpretation of statements.

1. The schedule of costs of goods manufactured in 2-30 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 2007.
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 defence 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	=	\$384,000,000 ÷ 1,000,000 units	=	\$384 per unit
Amortization	=	\$ 96,000,000 ÷ 1,000,000 units	=	\$ 96 per unit
5. Direct materials unit cost would be unchanged at \$384. Amortization unit cost would be $\$96,000,000 \div 1,200,000 = \80.00 per unit. Total direct materials costs would rise by 20% to \$460,800,000, whereas total amortization would be unaffected at \$96,000,000.
6. Unit costs are averages, and they must be interpreted with caution. The \$384 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 amortization 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.

2-32 (25-30 min.) Income statement and schedule of cost of goods manufactured.

Chan Corporation
Income Statement
for the Year Ended December 31, 2007
(in millions)

Revenues		\$420.00
Cost of goods sold:		
Beginning finished goods, Jan. 1, 2007	\$ 48.00	
Cost of goods manufactured (below)	<u>244.80</u>	
Cost of goods available for sale	292.80	
Ending finished goods, Dec. 31, 2007	<u>14.40</u>	<u>278.40</u>
Gross margin		141.60
Marketing, distribution, and customer service costs		<u>108.00</u>
Operating income		<u>\$ 33.60</u>

Chan Corporation
Schedule of Cost of Goods Manufactured
for the Year Ended December 31, 2007
(in millions)

Direct material costs:		
Beginning inventory, Jan. 1, 2007	\$ 36.00	
Direct materials purchased	<u>96.00</u>	
Cost of direct materials available for use	132.00	
Ending inventory, Dec. 31, 2007	<u>6.00</u>	
Direct materials used		\$126.00
Direct manufacturing labour costs		48.00
Indirect manufacturing costs:		
Plant supplies used	7.20	
Property taxes on plant	1.20	
Plant utilities	6.00	
Indirect manufacturing labour costs	24.00	
Amortization—plant, building, and equipment	10.80	
Miscellaneous manufacturing overhead costs	<u>12.00</u>	<u>61.20</u>
Manufacturing costs incurred during 2007		235.20
Add beginning work in process inventory, Jan. 1, 2007		<u>12.00</u>
Total manufacturing costs to account for		247.20
Deduct ending work in process inventory, Dec. 31, 2007		<u>2.40</u>
Cost of goods manufactured (to income statement)		<u>\$244.80</u>

2-33 (15-20 min.) Interpretation of statements.

1. The schedule of costs of goods manufactured in 2-32 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 2007.
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 defence 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 = \$126,000,000 ÷ 1,000,000 units = \$126.00 per unit
 Amortization = \$ 10,800,000 ÷ 1,000,000 units = \$ 10.80 per unit
5. Direct materials unit cost would be unchanged at \$126. Amortization unit cost would be \$10,800,000 ÷ 1,500,000 = \$7.20 per unit. Total direct materials costs would rise by 50% to \$189,000,000 (\$126 × 1,500,000). Total amortization cost of \$10,800,000 would remain unchanged.
6. Unit costs are averages, and they must be interpreted with caution. The \$126 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 amortization 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.

2-34 (20-30 min.) Overtime premium, defining accounting terms.

	La Electricidad		
	Westec		BBC
Revenues	<u>\$504</u>	<u>\$984</u>	<u>\$576</u>
Direct materials	300	492	324
Direct manuf. labour	48	120	72
Indirect manufacturing	<u>96</u>	<u>240</u>	<u>144</u>
Total manuf. costs	<u>444</u>	<u>852</u>	<u>540</u>
Gross margin	<u>\$ 60</u>	<u>\$132</u>	<u>\$ 36</u>
Gross margin percentage	11.9%	13.4%	6.2%

2. The BBC job is the only one with overtime charges. The charge is \$24 (2 hours × \$12 per hour overtime rate). The exclusion of this \$24 from direct manufacturing labour costs will also affect indirect manufacturing labour costs allocated (at the 200% rate) to the BBC job. The revised gross margin is:

	BBC
Revenues	<u>\$ 576</u>
Direct materials	324
Direct manuf, labour	48
Indirect manufacturing	<u>96</u>
Total manuf, costs	<u>468</u>
Gross margin	<u>\$ 108</u>
Gross margin percentage	18.7%

The sizable increase in gross margin for BBC is due to \$72 of costs being excluded—the \$24 of overtime premium plus the \$48 of indirect manufacturing costs allocated using the 200% rate.

3. The main pro of charging BBC the \$36 per hour labour rate is that this is the actual labour cost. The BBC job was, in fact, done in overtime hours.

The main con is that it penalizes the BBC job for a factor unrelated to its manufacture. The job was brought in one week ago, and there was much flexibility when it could be scheduled. It was done in overtime due to the Westec job being a rushed one.

A preferable approach is to assign all jobs with no special “rush” requirements the same labour cost per hour. This means that differences in job scheduling will not affect job profitability. Jobs that have a “rush” requirement (“hot-hot”) are given an extra expediting cost to reflect any additional costs the expedition requires.

2-34 (cont'd)

4. The incentive payments would be:

	5% of Revenues	Incentive
Westec	$0.05 \times \$504$	\$ 25.20
La Electricidad	0.05×984	49.20
BBC	0.05×576	<u>28.80</u>
		<u><u>\$103.20</u></u>

	20% of Gross Margin	Incentive
Westec	$0.20 \times \$ 60$	\$12.00
La Electricidad	0.20×132	26.40
BBC	0.20×108	<u>21.60</u>
		<u><u>\$60.00</u></u>

EMI prefers jobs that produce high gross margins rather than high gross revenues. The 20% incentive better aligns the sales representative's incentive with that of EMI.

EMI should define how revenues and costs are to be measured so that ambiguities are reduced. The revenue and cost rules should be known in advance. If a rushed job is requested by a customer, the salesperson should know the rush-job charge so that he or she knows the consequences of accepting the request.

A fairer incentive for the salespeople would be 5% of revenues, minus a penalty for any discounts given to the customer in order to gain or win the contract. Too large a percentage of the Gross Margin is attributed in measurement to the performance of the manufacturing and purchasing groups. The salespeople should not be penalized for deficiency in the other groups.

2-35 (20-25 min.) Finding unknown balances.

Let G = given, I = inferred

	<u>CASE 1</u>	<u>CASE 2</u>
Step 1: Use gross margin formula		
Revenues	\$38,400 G	\$38,160 G
Cost of goods sold	<u>A24,840</u> I	<u>24,000</u> G
Gross margin	<u>\$13,560</u> G	<u>C\$14,160</u> I
Step 2: Use schedule of cost of goods manufactured formula		
Direct materials used	\$ 9,600 G	\$14,400 G
Direct manufacturing labour costs	3,600 G	6,000 G
Indirect manufacturing costs	<u>8,400</u> G	<u>D 7,800</u> I
Manufacturing costs incurred	21,600 I	28,200 I
Add beginning work in process, Jan. 1, 2007	<u>0</u> G	<u>960</u> G
Total manufacturing costs to account for	21,600 I	29,160 I
Deduct ending work in process, Dec. 31, 2007	<u>0</u> G	<u>3,600</u> G
Cost of goods manufactured	<u>\$21,600</u> I	<u>\$25,560</u> I
Step 3: Use cost of goods sold formula		
Beginning finished goods inventory, Jan. 1, 2007	\$ 4,800 G	4,800 G
Cost of goods manufactured	<u>21,600</u> I	<u>25,560</u> I
Cost of goods available for sale	26,400 I	30,360 I
Ending finished goods inventory, Dec. 31, 2007	<u>B 1,560</u> I	<u>6,360</u> G
Cost of goods sold	<u>\$24,840</u> I	<u>\$24,000</u> G

For case 1, do steps 1, 2 and 3 in order.

For case 2, do steps 1, 3 and then 2.

2-36 (30-40 min.) Fire loss, computing inventory costs.

1. = \$60,000

2. = \$33,600

3. = \$74,400

This problem is not as easy as it first appears. These answers are obtained by working from the known figures to the unknowns in the schedule below. The basic relationships between categories of costs are:

Prime costs (given)		= \$352,800
Direct materials used	= \$352,800 – Direct manufacturing labour costs	
	= \$352,800 – \$216,000	= \$136,800
Conversion costs	= Direct manufacturing labour costs ÷ 0.6	
	= \$216,000 ÷ 0.6	= \$360,000
Indirect manuf. costs	= \$360,000 – \$216,000	= \$144,000
	(or 0.40 × \$360,000)	

Schedule of Computations

Direct materials, Jan. 1, 2007				\$ 19,200
Direct materials purchased				<u>192,000</u>
Direct materials available for use				211,200
Direct materials, Feb. 26, 2007	3.	=		<u>74,400</u>
Direct materials used (\$352,800 – \$216,000)				136,800
Direct manufacturing labour costs				<u>216,000</u>
Prime costs				352,800
Indirect manufacturing costs				<u>144,000</u>
Manufacturing costs incurred during the current period				496,800
Add work in process, Jan. 1, 2007				<u>40,800</u>
Manufacturing costs to account for				537,600
Deduct work in process, Feb. 26, 2007	2.	=		<u>33,600</u>
Cost of goods manufactured				504,000
Add finished goods, Jan. 1, 2007				<u>36,000</u>
Cost of goods available for sale (given)				540,000
Deduct finished goods, Feb. 26, 2007	1.	=		<u>60,000</u>
Cost of goods sold (80% of \$600,000)				<u>\$480,000</u>

2-36 (cont'd)

Some instructors may wish to place the key amounts in a Work in Process T-account. This problem can be used to *introduce* students to the flow of costs through the general ledger (amounts in thousands):

Work in Process			Finished Goods			Cost of Goods Sold	
BI	40.8		BI	36			
DM used	136.8	COGM 504.0		→ <u>504</u>	COGS 480	→ 480	
DL	216.0						
OH	<u>144.0</u>		Available				
To account for	537.6		for sale	540			
EI	33.6		EI	60			

2-37 (30 min.) Comprehensive problem on unit costs, product costs.

- If 2 kilograms of direct materials are used to make each unit of finished product, 100,000 units \times 2 kg, or 200,000 kg, were used at \$0.84 per kilogram of direct materials (\$168,000 \div 200,000 kg). Therefore, the ending inventory of direct materials is

$$2,000 \text{ kg} \times \$0.84 = \$1,680$$

- | | Manufacturing Costs for 100,000 units | | |
|-------------------------------------|---------------------------------------|-----------------|------------------|
| | Variable | Fixed | Total |
| Direct materials costs | \$168,000 | \$ - | \$168,000 |
| Direct manufacturing labour costs | 36,000 | - | 36,000 |
| Plant energy costs | 6,000 | - | 6,000 |
| Indirect manufacturing labour costs | 12,000 | 19,200 | 31,200 |
| Other indirect manufacturing costs | <u>9,600</u> | <u>28,800</u> | <u>38,400</u> |
| Cost of goods manufactured | <u>\$231,600</u> | <u>\$48,000</u> | <u>\$279,600</u> |

Average unit manufacturing cost: $\$279,600 \div 100,000 \text{ units}$
 $= \$2.796 \text{ per unit}$

Finished goods inventory in units: $= \frac{\$25,164 \text{ (given)}}{\$2.796 \text{ per unit}}$
 $= 9,000 \text{ units}$

- Units sold in 2007 = Beginning inventory + Production – Ending inventory
 $= 0 + 100,000 - 9,000 = 91,000$

Selling price per unit in 2007 = $\$524,160 \div 91,000$
 $= \$5.76 \text{ per unit}$

2-37 (cont'd)

4.

Revenues (91,000 units sold × \$5.76)		\$524,160
Cost of units sold:		
Beginning finished goods, Jan. 1, 2007	\$ 0	
Cost of goods manufactured	<u>279,600</u>	
Cost of goods available for sale	279,600	
Ending finished goods, Dec. 31, 2007	<u>25,164</u>	<u>254,436</u>
Gross margin		269,724
Operating costs:		
Marketing, distribution, and customer-service costs	195,420	
Administrative costs	<u>60,000</u>	<u>255,420</u>
Operating income		<u>\$ 14,304</u>

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

Direct materials costs	\$1.68	}	per unit manufactured (100,000)
Direct manufacturing labour costs	0.36		
Plant energy costs	0.06		
Indirect manufacturing labour costs	0.12		
Other indirect manufacturing costs	0.096		
Marketing, distribution, and customer-service costs	1.62	}	per unit sold (91,000)

2-38 (30 min.) Budgeted income statement.

1.	Target ending finished goods, Dec. 31, 2008		12,000 units
	Forecasted sales for 2008		<u>122,000</u> units
	Total finished goods required in 2008		134,000 units
	Beginning finished goods, Jan. 1, 2008		<u>9,000</u> units
	Finished goods production required in 2008		<u>125,000</u> units
2.	Revenues (122,000 units sold × \$5.76)		\$702,720
	Cost of units sold:		
	Beginning finished goods, Jan. 1, 2008	\$ 25,164	
	Cost of goods manufactured	<u>337,500^a</u>	
	Cost of goods available for sale	362,664	
	Ending finished goods, Dec. 31, 2008	<u>32,400^c</u>	<u>330,264</u>
	Gross margin		372,456
	Operating costs:		
	Marketing, distn., and customer-service costs	245,640	
	Administrative costs	<u>60,000</u>	<u>305,640^d</u>
	Operating income		<u>\$ 66,816</u>

Supporting Computations

a.	<u>Manufacturing Costs for 125,000 Units</u>			
	<u>Variable</u>	<u>Fixed</u>	<u>Total</u>	
	Direct materials costs	\$210,000 ^b	\$ –	\$210,000
	Direct manufacturing labour costs	45,000	–	45,000
	Plant energy costs	7,500	–	7,500
	Indirect manufacturing labour costs	15,000	19,200	34,200
	Other indirect manufacturing costs	<u>12,000</u>	<u>28,800</u>	<u>40,800</u>
	Cost of goods manufactured	<u>\$289,500</u>	<u>\$48,000</u>	<u>\$337,500</u>
b.	Direct materials costs = 250,000 kg × \$0.84 per kg = \$210,000.			
c.	The average unit manufacturing costs in 2005 is \$337,500 ÷ 125,000 units = \$2.70. Finished goods, December 31, 2008 = 12,000 × \$2.70 = \$32,400.			
d.	Variable mktg., distn., and customer-service costs, 122,000 × \$1.62		\$197,640	
	Fixed marketing, distn., and customer-service costs		48,000	
	Fixed administrative costs		<u>60,000</u>	
			<u>\$305,640</u>	

2-39 (25-30 min.) Revenue and cost recording and classifications, ethics.

1. Concerns include:

- (a) Total payments made by Canadian Outfitters do not "appear" to be adequately described. Elements of "total compensation" appear to be:
- \$14.4 million payment to Jeans West in Caribe
 - \$5.76 million payment to Jeans West subsidiary in Switzerland
 - Assistance with life insurance plans for "Jeans West executives at rates much more favourable than those available in Caribe"

One possible motivation for restricting the payment in the Caribe to \$14.4 million is to avoid showing higher profits in Caribe. A second motivation could be that the Swiss subsidiary is siphoning to Jeans West senior executives revenues that should be paid to Jeans West. This could arise if the Jeans West Swiss subsidiary is "owned" by the senior executives of Jeans West rather than being a 100% subsidiary of Jeans West.

The Conference Board in *Corporate Ethics Practices* (1992) has a discussion case where several Latin American distributors ask a U.S. company for some payments to be made to a Swiss bank account because "local taxes are confiscatory and the local exchange rates make it very difficult to achieve profitable results." A survey of over 200 executives recommended:

- Deny the request because what is unethical in one country cannot be ethical in another 90%
- Accede to the request because it does not violate the local distributors' standard business practices 10%

Those in the 10% included comments such as "we must play by the local rules," "it is arrogant to suggest home ethics are superior to local ethics," and "I'm not sure we can force our view of right and wrong on the whole world." Canadian Outfitters could have faced an ultimatum from Jeans West that part of the payment be sent to Switzerland and have been told "that everybody does it in Caribe."

The assistance with the insurance plans is in the grey area. If Jeans West is willing to accept a lower price in return for C.O. assisting with the insurance plans, it may be a judicious economic decision by C.O. C.O. is not hurt economically in this scenario. The concern is whether C.O. is assisting the senior executives in diverting "de facto payments" to themselves.

- (b) Product design costs of C.O. include \$5.76 million for "own product design." It is stated that the Director of Product Design views it "as an 'off-statement' item that historically he has no responsibility for nor any say about" and that "to his knowledge, Jeans West uses only C.O. designs with either zero or minimal changes." It may be that the \$5.76 million payment is a hidden payment made to avoid Caribe taxation. However, the result is incorrect classification of product design costs at C.O.

2-39 (cont'd)

(c) Jeans West receives from C.O. the margin between \$20.16 million (\$14.4 million + \$5.76 million) and the \$3.6 million payment for denim—i.e., \$16.56 million. Note that C.O. can assist Jeans West to meet the 25% ratio of “domestic labour costs to total costs.” Charging \$7.2 million for denim and receiving \$23.76 million for jeans will result in the same \$16.56 million margin, but will mean Jeans West will not meet the 25% test as total costs will now be \$15.60 million instead of \$12 million. C.O. has to ensure it takes an arm’s length approach to supply contracts and purchase contracts or else it may be accused by the Caribe government of assisting Jeans West to avoid local taxes.

Note: Some students will ask whether Jeans West should be able to classify employee fringe benefits as domestic labour costs. This is not Roberts’ domain since she is Controller of C.O. Her concern with the Caribe tax rebate is whether C.O. is being “pressured” to adjust its billing amounts to facilitate Jeans West having a ratio of “domestic labour costs to total costs” exceeding 25%. If you want to discuss this issue, point out that labour fringe benefits are typically an integral part of labour costs. Hence, if they can be traced, Jeans West is justified by including them in domestic labour costs.

2. There are a variety of ethical issues relating primarily to competence and integrity that Roberts faces:

- (a) Is C.O. assisting Jeans West to avoid income taxes in Caribe either
 - by funnelling \$5.76 million to a Swiss company rather than to Jeans West in Caribe, or
 - by understating both the \$3.6 million denim supply cost and the \$20.16 total revenue amount?
- (b) Is C.O. assisting senior executives of Jeans West to enrich themselves at the expense of the shareholders of Jeans West?
- (c) Are the accounting records of C.O. properly reflecting the underlying activities?

3. Steps Roberts could take include:

- (a) Seeking further information on why the \$5.76 million payment is being made to the Swiss subsidiary. This should be done first internally and then by speaking to Jeans West executives.
- (b) Ensure product design costs at C.O. reflect actual product design work. So-called “off-statement” items should be eliminated if no adequate explanation can be given for them.
- (c) Ensure C.O. personnel follow any company guidelines about supplier relations or customer relations. There is nothing inherently wrong with assisting Jeans West to negotiate a better insurance package for its executives. The concern is whether developing a “too cozy” relationship will lead to more questionable practices being overlooked.

2-40 (30 min.) Missing data.

	(in millions)
1. Direct materials inventory, Aug. 1, 2008	\$ 108
Direct materials purchased	<u>432</u>
Direct materials available	540
Deduct direct materials used	<u>450</u>
Direct materials inventory, Aug. 31, 2008	<u>\$ 90</u>
2. Total manufacturing overhead costs	\$ 576
Variable manufacturing overhead costs	<u>300</u>
Fixed manufacturing overhead costs	<u>\$ 276</u>
3. Total manufacturing costs	\$1,920
Deduct:	
Direct materials used	\$450
Manufacturing overhead	<u>576</u>
Direct manufacturing labour costs	<u>\$ 894</u>
4. Work-in-Process inventory, Aug. 1, 2008	\$ 240
Total manufacturing costs	<u>1,920</u>
	2,160
Deduct cost of goods manufactured	<u>1,980</u>
Work-in-Process inventory Aug. 31, 2008	<u>\$ 180</u>
5. Finished goods inventory Aug. 1, 2008	\$ 150
Cost of goods manufactured	<u>1,980</u>
Goods available for sale	<u>\$2,130</u>
6. Goods available for sale	\$2,130
Deduct cost of goods sold	<u>2,040</u>
Finished goods inventory, Aug. 31, 2008	<u>\$ 90</u>

2-41 (30 min.) Cost analysis, litigation risk, ethics.

1. Reasons for Savage not wanting Nash to include the potential litigation costs include:

- (a) Genuine belief that the product has no risk of future litigation. Note that she asserts “she has total confidence in her medical research team.”
- (b) Concern that the uncertainties about litigation are sufficiently high to make any numerical estimate “meaningless.”
- (c) Concern that inclusion of future litigation costs would cause the board of directors to vote against the project. Savage may be “overly committed” to the project and wants to avoid showing information that prompts questions she prefers not to be raised.
- (d) Avoid “smoking gun” memos being included in the project evaluation file. Savage may believe that if subsequent litigation occurs, the plaintiffs will “inappropriately” use a litigation cost line item as “proof” FY “knew the product had health problems” that were known to management at the outset.

2.	No litigation	With litigator
Unit cost to FY	\$144.00	\$276.00
Physician price	172.80	331.20
Patient’s price	518.40	518.40
FY’s margin	28.80	55.20
Physician’s margin	345.60	187.20

The percentage decrease is: 45.83%

Since each treatment is planned to cost patients \$360, the new selling price of \$302 will drop the doctors’ margin to only \$58 from the planned margin of \$216 based on the planned selling price of \$144. This would probably result in the doctors not having much incentive to promote the product. In fact, it may be quite possible that the doctors may not attempt to prescribe the treatment at such low margin because of their own exposure to liability.

3. Nash has already registered his concern to Savage. The difficulty is that Savage asked Nash to not include the possible litigation in his presentation. If there is no record of this presentation, then Nash may have several concerns.

- (a) He may be accused at a later stage of not anticipating the costs of litigation. If litigation does occur, some people will try to distance themselves from the problems. It may be to Nash’s advantage to have a record of his early concerns. (Although plaintiffs may make Nash’s life very difficult if they get access to Nash’s files.) Nash may want to keep some record of his presentation to Savage.

2-41 (cont'd)

- (b) He may be portrayed as not being a "team player" if he continues his objections. Savage may have to silence his concerns if he decides to stay at FY.
- (c) He may have difficult ethical objections with Savage's behaviour. If he thinks she is acting unethically, his main options are to speak to her first (at least one time), speak to her supervisor (probably chairman of the company), or, as a final resort, resign.

2-42 (40 min.) **Movie profit sharing, defining terms.**

- a. The G.V. Distribution Statement has multiple weaknesses for an author:
 - (i) It is based on the bottom line, which means the author lines up last in the distribution. The best approach is to have a percentage of the top line (gross receipts), other things being equal.
 - (ii) The definition of revenues is "overly narrow." Only North American theatre and television revenues are given 100% of their amounts. Non-North American revenues get only 50% recognition while only 20% of home video revenues are included. The aim should be to have all "revenues" given 100% recognition. Items excluded include many potentially large amounts—e.g., cross-promotions for clothes, toys, licensing of characters in theme parks, and restaurants. Also excluded are revenues from airline screenings and revenues from use of film clips in other movies, advertisements, executive presentations, and so on.
 - (iii) The deductions made by other parties (from Golden Ventures as well as gross participation fees) appear extremely large. An author will likely have no ability to audit the magnitude of these deductions.
 - (iv) Many key terms appear to be ambiguous, giving Golden Venture much discretion to allocate an excessive amount of costs to the movie. For example, "negative cost is the cost of producing everything that is seen on screen, from film, sets, and up front fees paid to the cast and crew." There appears to be no limit to what could be included here. For example, some screen stars have outlandish parties and fly in friends to a movie set. Should these costs be included in "negative costs"? Without well-defined guidelines on admissible costs, "negative costs" could include costs related to other films, as well as costs arising from film studio inefficiencies.
- b. Key guidelines can be developed, but it is questionable whether any film studios would be willing to be restricted by them:
 - (i) Define revenues to be "all-encompassing," both domestically and internationally.
 - (ii) Base the compensation on numbers as close to the gross-revenue line as possible. The more cost items included as deductions, the higher the likelihood of a loss being reported.
 - (iii) Define all terms so that revenue and cost inclusions and exclusions are relatively unambiguous and auditable.

2-42 (cont'd)

- (iv) Transfer to other parties the risks associated with management inefficiencies, e.g., cost overruns. This could be done via allowable cost items having upper limits (say, film star non-salary expenses being no more than 2% of revenues).
- (v) Ensure that your percentage take is similar to that of participants with large amounts of bargaining power. If Fittler agrees to take 5% of the amount paid to the “major talent,” the agents of these participants will be bargaining for his interests at the time they are crafting the participants’ agreements for major talent.

Note: This Collaborative Learning Problem generates much interest from students. Useful background is in B. Daniels, D. Leedy, and S. Sills, *Movie Money* (Silman-James Press, Los Angeles, 1998).

2-43 (20-30 min.) Defining cost terms.

The Irish law aims to encourage companies setting up manufacturing facilities in Ireland. The key ratio for calculating the rebate is

$$\frac{\text{Employment Costs of Irish Citizens}}{\text{Total Manufacturing Costs in Ireland}}$$

Heinz’s incentive is to maximize the numerator and minimize the denominator.

Maximize the Numerator

1. Include as broad a set of employment costs as possible. Items such as
 - hiring costs
 - health benefits
 - life insurance
 - overtime premiums

should be included in employment costs rather than as indirect manufacturing costs.

2. Structure Irish supplier agreements so that as many costs as possible can be labeled as Irish employment costs. Subcontracting work (such as potato cleaning) to third parties can cause labour costs to become materials costs now. Outsourcing of labour-intensive areas should take into account the tax rebate consequences of such a decision.

2-43 (cont'd)

3. Ensure accurate records of Irish citizenship. Some countries allow dual citizenship and you may want to promote non-Irish citizen workers to apply for Irish citizenship.

Minimize the Denominator

1. Transfer as many non-labour costs as possible to the nonmanufacturing areas of the Irish operations or to non-Irish segments of the overall corporation. Thus, any non-labour costs in value-chain areas upstream to manufacturing (such as R&D, product design, or process design) or downstream to manufacturing (such as distribution) should be excluded from the denominator where there is a grey area.
2. Avoid over-allocating corporate overhead costs into the Irish manufacturing cost pools.
3. Avoid overcharging the Irish manufacturing subsidiary for work on technology done in other parts of Heinz, e.g., potato cutting technology jointly developed by the Irish and Canadian subsidiaries should not all be allocated to the Irish subsidiary.