CHAPTER 2

AN INTRODUCTION TO COST TERMS AND PURPOSES

The Short-Answer Questions, Exercises, and Problems marked with MyLabQ_rev can be found on MyLab: Accounting. Students can practise them as often as they want, and most feature step-by-step guided instructions to help find the right answer. Items marked with \\Mac\Home\Downloads\rewordreadyversionofexceltemplateicon\excel_icon.png have Excel templates available on MyLab for students to use.

**SHORT-ANSWER QUESTIONS**

**MyLabQ_rev 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.

**MyLabQ_rev 2-2** Direct costs of a cost object are related directly to the particular cost object and can be traced to it in an economically feasible way. Indirect costs of a cost object are costs that arise from common costs shared among distinct types of cost objects and cannot be traced to each type of cost object in an economically feasible way.

**MyLabQ_rev 2-3** When direct costs are traced to a particular cost object, the resources used are unique to the distinct type of cost object and can be accurately assigned to it. When costs of resources shared unequally among distinct types of cost objects are allocated, managers are less certain whether the cost allocation base, a measure of direct resources consumed, accurately measures the benefit or value added to the distinct type of cost object from its share of common resources consumed. Managers prefer to use more accurate costs in their decisions.

**MyLabQ_rev 2-4** 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
4. the type of costing system in use.

**MyLabQ_rev 2-5** A cost driver is a variable that causes a change in total cost, measured throughout a specific time. A change in the quantity of a cost driver used results in a change in the level of total costs. For example, the number of tires per vehicle is a driver of the total cost of tires for each vehicle.

**MyLabQ_rev 2-6** The relevant rangeis the range over which the changes in the quantity of the cost driver used have a causal relationship with changes in total cost. Relevant range is important to accurately defining cost behaviour as a linear cost function. Linear cost functions are applied when examining cost–volume–profit (CVP) relationships as long as the volume levels are within the relevant range.

**MyLabQ_rev 2-7** The usefulness of a unit cost or rate per unit of resource used depends on whether the causal relationship is true, for example, with fully variable costs. The rate per unit for variable costs is computed by dividing some total cost of the resource used (the numerator) by a corresponding quantity of units of a resource used (the denominator). But when total cost is fully or partially fixed it is wrong to use a constant rate per unit. There is no direct causal relationship between a fixed cost, which is constant, and any quantity of any cost object, either input or output. The fixed cost in the numerator is unchanged but the fixed cost rate will vary as the denominator quantity changes.

**MyLabQ_rev 2-8** Manufacturing companies purchase materials and components and convert them into various finished goods; pharmaceutical, automotive, and textile companies are examples.

Merchandising-sector companies purchase and then sell tangible products without changing their basic form; retailing or distribution companies are examples.

Service-sector companies produce and provide services or intangible products to their customers; for example, service-sector companies provide engineering design, legal advice, and audits.

**MyLabQ_rev 2-9** Manufacturing companies typically have one or more of the following three types of inventory:

1. Direct materials inventory. Direct materials on site and awaiting use in the production process.
2. Work-in-process inventory. Goods partially converted from direct materials to goods available for sale, but not yet finished. This is also called work in progress (WIP)**.**
3. Finished goods inventory. Goods completed and available for sale but not yet sold.

**MyLabQ_rev 2-10** No. Service sector companies have no inventories and, hence, no inventoriable costs.

**MyLabQ_rev 2-11** Overtime premium is the wage rate paid to workers (for both direct labour and indirect labour) in excess of their straight-time wage rates.

Idle time is a sub-classification of indirect labour that represents wages paid for unproductive time caused by lack of orders, machine breakdowns, material shortages, poor scheduling, and the like.

**MyLabQ_rev 2-12** Either a product or a service cost is the sum of the costs assigned to it for a specific purpose. Purposes for computing a product cost include:

* Pricing and product mix decisions, which should include the costs of all value-chain functions
* Contracting with government agencies, which will be defined by a contract and may include only total costs of the production business function in the value chain
* Preparing GAAP-compliant financial statements for external reporting

**MyLabQ_rev 2-13** Financial accountants classify the actual or historical costs of business transactions during a specific time period in a standardized way. The costs are accumulated for only transactions in a specific classification in general ledger accounts. Management accountants are free to reclassify the reliable costs in general ledger accounts by distinguishing and including only those costs that are relevant to identifying and solving a specific cost-management problem.

EXERCISES

**2-14** (10 min.) **Terminology.**

1. Conversion costs
2. fixed cost
3. Inventoriable costs
4. Prime costs
5. Period costs
6. variable cost
7. Indirect
8. Relevant cost

MyLabQ_rev 2-15 (15 min.) Inventoriable costs versus period costs.

1. Spring water purchased for resale by Sobeys—inventoriable cost of a merchandising company. It becomes part of cost of goods sold when the mineral water is sold.

2. Electricity used at a Toyota assembly plant—inventoriable cost of a manufacturing company. It is part of the manufacturing overhead that is included in the manufacturing cost of a truck finished good.

3. Depreciation on Google’s computer equipment—period cost of a service company. Google has no inventory of goods for sale and, hence, no inventoriable cost.

4. Electricity for Sobeys 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.

5. Depreciation on Toyota’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 truck finished good.

6. Salaries of Sobeys 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).

7. Water consumed by Google’s engineers—period cost of a service company. Google has no inventory of goods for sale and, hence, no inventoriable cost.

8. Salaries of Google’s marketing personnel—period cost of a service company. Google has no inventory of goods for sale and, hence, no inventoriable cost.

**MyLabQ_rev 2-16** (15–20 min.) **Classification of costs, service sector.**

Cost object: Each individual focus group

Cost variability: With respect to the number of focus groups

There may be some debate over classifications of individual items, especially with regard to cost variability.

|  |  |  |
| --- | --- | --- |
| **Cost Item** | **D or I** | **V or F** |
| A | D | V |
| B | I | F |
| C | I | Va |
| D | I | F |
| E | D | V |
| F | I | F |
| G | D | V |
| H | I | Vb |

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

b Gasoline 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.

MyLabQ_rev 2-17 (15–20 min.) Classification of costs, merchandising sector.

Cost object: DVD section of store

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

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

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

MyLabQ_rev 2-18 (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 about cost variability is more likely.

|  |  |  |
| --- | --- | --- |
| **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 or F |
| G | D | V |
| H | I | F |

**MyLabQ_rev 2-19** (10 min.) **Variable costs, fixed costs, total costs.**

Plan A: 100 minutes × $0.10 = $10.00

300 minutes × $0.10 = $30.00

500 minutes × $0.10 = $50.00

Plan B: 100 minutes = $16.00

300 minutes = $16.00

500 minutes = $16.00 + $10.00 (200 minutes × $0.05) = $26.00

Plan C: 100 minutes = $20.00

300 minutes = $20.00

500 minutes = $20.00 + $0.80 (20 minutes × $0.04) = $20.80

If Compo plans to make 100 minutes of long-distance calls each month, she should choose Plan A; for 300 minutes, choose Plan B; for 500 minutes, choose Plan C.

MyLabQ_rev 2-20 (10 min.) Total costs and unit costs.

1. Total cost, $4,800. Unit cost per person, $4,800 ÷ 400 = $120

2. Total cost, $4,800. Unit cost per person, $4,800 ÷ 4,000 = $1.20

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 $1.20 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.

MyLabQ_rev 2-21 (15 min.) Total and unit costs, decision making.

1.

The variable cost is $1 per flange for materials, and $2 per flange ($20 per hour divided by 10 flanges per hour) for direct manufacturing labour.

The inventoriable (manufacturing) cost per unit for 5,000 flanges is

$3 × 5,000 + $20,000 = $35,000.

Average (unit) cost = $35,000 ÷ 5,000 units = $7 per unit.

This is below Fred’s selling price of $8.25 per flange. However, in order to make a profit, Graham’s Glassworks also needs to cover the period (non-manufacturing) costs of $10,000, or $10,000 ÷ 5,000 = $2 per unit.

Thus, total costs, both inventoriable (manufacturing) and period (non-manufacturing), for the flanges is $7 + $2 = $9. Graham’s Glassworks cannot sell below Fred’s price of $8.25 and still make a profit on the flanges.

Alternatively,

At Fred’s price of $8.25 per flange:

Revenue $8.25 × 5,000 = $41,250

Variable costs $3.00 × 5,000 = 15,000

Fixed costs    30,000

Operating loss $(3,750)

Graham’s Glassworks cannot sell below $8.25 per flange and make a profit. At Fred’s price of $8.25 per flange, the company has an operating loss of $3,750.

2. If Graham’s Glassworks produces 10,000 units, the total inventoriable cost will be:   
$3 × 10,000 + $20,000 = $50,000.

Average (unit) inventoriable (manufacturing) cost will be $50,000 ÷ 10,000 units

= $5 per flange

Unit total cost including both inventoriable and period costs will be ($50,000 + $10,000) ÷ 10,000 = $6 per flange, and Graham’s Glassworks will be able to sell the flanges for less than Fred and still make a profit.

Alternatively,

At Fred’s price of $8.25 per flange:

Revenue $8.25 × 10,000 = $82,500

Variable costs $3.00 × 10,000 = 30,000

Fixed costs   30,000

Operating income $22,500

Graham’s Glassworks can sell at a price below $8.25 per flange and still make a profit. The company earns operating income of $22,500 at a price of $8.25 per flange. The company will earn operating income as long as the price exceeds $6.00 per flange.

The reason the unit cost decreases significantly is that inventoriable (manufacturing) fixed costs and fixed period (nonmanufacturing) costs remain the same regardless of the number of units produced. So, as Graham’s Glassworks produces more units, fixed costs are spread over more units, and cost per unit decreases. This means that if you use unit costs to make decisions about pricing, and which product to produce, you must be aware that the unit cost only applies to a particular level of output.

**MyLabQ_rev 2-22** (20 min.) **Computing and interpreting manufacturing unit costs.**

1. (in millions)

# Supreme Deluxe Regular Total

Direct materials cost $ 84.00 $ 54.00 $ 62.00 $200.00

Direct manuf. labour costs 14.00 28.00 8.00 50.00

Indirect manuf. costs 42.00 84.00 24.00 150.00

Total manuf. costs $140.00 $166.00 $ 94.00 $400.00

Fixed costs allocated at a rate

of $20M$50M (direct mfg.

labour) equal to $0.40 per

dir. manuf. labour dollar

(0.40  $14; 28; 8) 5.60 11.20 3.20 20.00

Variable costs $134.40 $154.80 $ 90.80 $380.00

Kilograms produced (millions) 90 120 100

Cost per kg (Total manuf.

costs ÷ kilograms produced) $1.5556 $1.3833 $0.9400

Variable manuf. cost per kilogram:

(Variable manuf. costs

 kilograms produced) $1.4933 $1.2900 $0.9080

2. (in millions)

# Supreme Deluxe Regular Total

Based on total manuf. cost

per kilogram ($1.5556 120;

$1.3833 160; $0.94 180) $186.67 $221.33 $169.20 $577.20

Correct total manuf. costs based

on variable manuf. costs plus

fixed costs equal

Variable costs ($1.4933 120; $179.20 $206.40 $163.44 $549.04

$1.29 160; $0.908 180)

Fixed costs 20.00

Total costs $569.04

The total manufacturing cost per unit in requirement 1 includes $20 million of indirect manufacturing costs that are fixed irrespective of changes in the volume of output per month, while the remaining variable indirect manufacturing costs change with the production volume. Given the kilogram volume changes for June 2015, the use of total manufacturing cost per kilogram from the past month at a different kilogram volume level (both in aggregate and at the individual product level) will yield incorrect estimates of total costs of $600.53 million in June 2015 relative to the correct total manufacturing costs of $591.44 million calculated using variable manufacturing cost per kilogram times units produced plus the fixed costs of $20 million.

**MyLabQ_rev 2-23** (15–20 min.) **Variable costs and fixed costs.**

1. Variable cost per tonne of beach sand mined

Subcontractor $ 80 per tonne

Government tax   50 per tonne

Total $130 per tonne

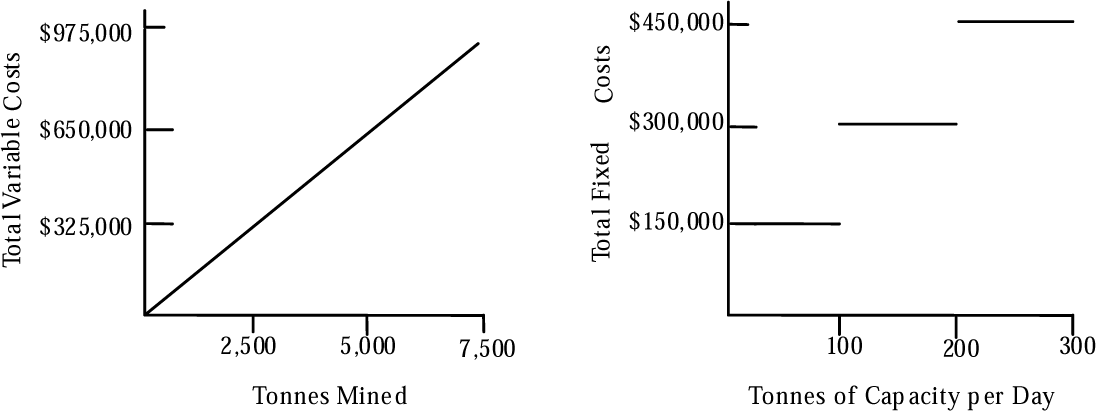
Fixed costs per month

0 to 100 tonnes of capacity per day = $150,000

101 to 200 tonnes of capacity per day = $300,000

201 to 300 tonnes of capacity per day = $450,000

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** | **Tonnes Mined**  **per Month** | **Fixed Unit**  **Cost per Tonne** | **Variable Unit**  **Cost per Tonne** | **Total Unit**  **Cost per Tonne** |
| **(1)** | **(2) = (1) × 25** | **(3) = FC ÷ (2)** | **(4)** | **(5) = (3) + (4)** |
| (a) 180 | 4,500 | $300,000 ÷ 4,500 = $66.67 | $130 | $196.67 |
|  |  |  |  |  |
| (b) 220 | 5,500 | $450,000 ÷ 5,500 = $81.82 | $130 | $211.82 |

The unit cost for 220 tonnes mined per day is $211.82, while for 180 tonnes it is only $196.67. 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 over an increment of only 20 tonnes.

**MyLabQ_rev 2-24** (20 min.) **Variable costs, fixed costs, relevant range.**

1. Since the production capacity is 5,000 jaw breakers per month, the current annual relevant range of output is 0 to 60,000 jaw breakers (5,000 jaw breakers × 12 months).

2. Current annual fixed manufacturing costs within the relevant range are $1,000 × 12 = $12,000 for rent and other overhead costs, plus $6,000 ÷ 10 = $600 for depreciation, totaling $12,600.

The variable costs, the materials, are 10 cents per jaw breaker, or $3,600 (= $0.10 per jaw breaker × 3,000 jaw breakers per month × 12 months) for the year.

3. If demand changes from 3,000 to 6,000, Yumball will need a second machine. Assuming the company buys a second machine identical to the first machine, it will increase capacity from 5,000 jaw breakers per month to 10,000. The annual relevant range will be between 0 and 120,000 jaw breakers (10,000 jaw breakers × 12 months).

Assume the second machine costs $6,000 and is depreciated using straight-line depreciation over 10 years and zero residual value, just like the first machine. This will add $600 of depreciation per year.

Fixed costs for next year will increase to $13,200. Total fixed costs for next year equal $600 (depreciation on first machine) + $600 (depreciation on second machine) + $12,000 (rent and other fixed overhead costs).

The variable cost per jaw breaker next year will be 90% × $0.10 = $0.09. Total variable costs equal $0.09 per jaw breaker × 72,000 jaw breakers = $6,480.

**MyLabQ_rev 2-25** (20 min.) **Using unit costs for making decisions.**

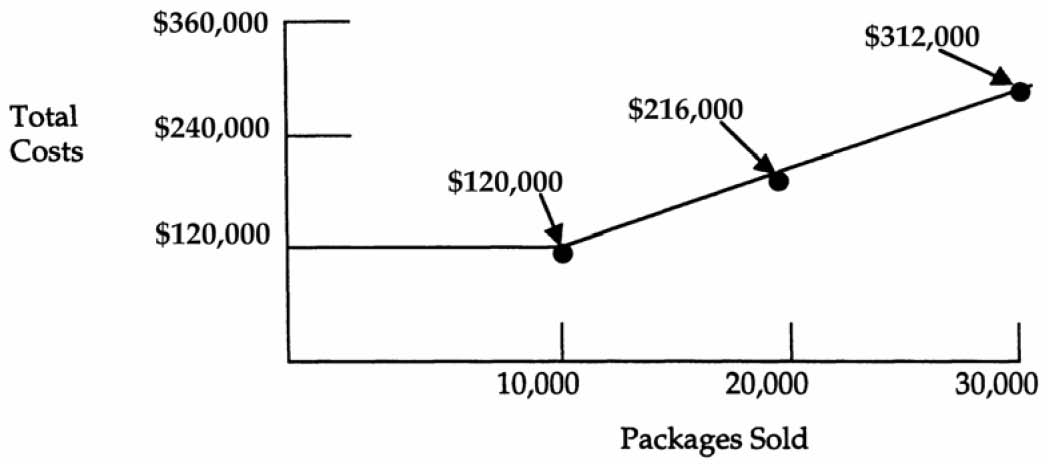
1. (a) $120,000 ÷ 2,000 = $60.00 per package

(b) $120,000 ÷ 6,000 = $20.00 per package

(c) $120,000 ÷ 10,000 = $12.00 per package

(d) [$120,000 + (10,000 × $9.60)] ÷ 20,000 = $216,000 ÷ 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:



1. 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.

\\Mac\Home\Downloads\rewordreadyversionofexceltemplateicon\excel_icon.png **MyLabQ_rev 2-26** (20 min.) **Computing cost of goods manufactured and cost of goods sold.**

**Schedules: Cost of Goods Manufactured and Cost of Goods Sold**

Schedule of Cost of Goods Manufactured

For the Year Ended December 31, 2019

(in thousands)

Direct materials used $104,400

Direct manufacturing labour costs 40,800

Indirect manufacturing costs:

Property tax on plant building $ 3,800

Plant utilities 20,400

Depreciation of plant building 10,800

Depreciation 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 5,800 114,000

Manufacturing costs incurred during 2019 259,200

Add beginning work in process inventory, Jan. 1, 2019 24,000

Total manufacturing costs to account for 283,200

Deduct ending work in process inventory, Dec. 31, 2019 31,200

Cost of goods manufactured $252,000

Schedule of Cost of Goods Sold

For the Year Ended December 31, 2019

(in thousands)

Beginning finished goods, Jan. 1, 2019 $ 32,400

Cost of goods manufactured (above) 250,800

Cost of goods available for sale 283,200

Ending finished goods, Dec. 31, 2019 40,800

Cost of goods sold $242,400

**2-27** (20 min.) **Statement of comprehensive income and schedule of cost of goods manufactured**

|  |  |  |
| --- | --- | --- |
| Howell Corporation | | |
| Statement of Comprehensive Income | | |
| For the Year Ended December 31, 2019 | | |
| (in millions) | | |
| Revenue | . | $1,140 |
| Cost of goods sold: |  |  |
| Beginning finished goods, Jan. 1, 2019 | $ 84 |  |
| Cost of goods manufactured (below) | 774 |  |
| Cost of goods available for sale | 858 |  |
| Ending finished goods, Dec. 31, 2019 | 66 | 792 |
| Gross margin |  | 348 |
| Marketing, distribution, and customer-service costs |  | 288 |
| Operating income |  | $ 60 |
| Howell Corporation | | |
| Schedule of Cost of Goods Manufactured | | |
| For the Year Ended December 31, 2019  (in millions) | | |
| Direct materials costs: |  |  |
| Beginning inventory, Jan. 1, 2019 | $ 18 |  |
| Purchases of direct materials | 390 |  |
| Cost of direct materials available for use | 408 |  |
| Ending inventory, Dec. 31, 2019 | 24 |  |
| Direct materials used |  | $384 |
| Direct manufacturing labour costs |  | 120 |
| Indirect manufacturing costs: |  |  |
| Indirect manufacturing labour | 72 |  |
| Plant supplies used | 12 |  |
| Plant utilities | 36 |  |
| Depreciation—plant, building, and equipment | 96 |  |
| Plant supervisory salaries | 6 |  |
| Miscellaneous plant overhead | 42 | 264 |
| Manufacturing costs incurred during 2019 |  | 768 |
| Add beginning work in process inventory, Jan. 1, 2019 |  | 12 |
| Total manufacturing costs to account for |  | 780 |
| Deduct ending work in process, Dec. 31, 2019 |  | 6 |
| Cost of goods manufactured |  | $774 |

MyLabQ_rev 2-28 (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, 2019

(in thousands)

Direct materials used $ 106,800

Direct manufacturing labour costs 38,400

Indirect manufacturing costs:

Property tax on plant building $ 4,200

Plant utilities 20,400

Depreciation of plant building 14,700

Depreciation of plant equipment 14,700

Plant repairs and maintenance 19,200

Indirect manufacturing labour costs 27,600

Indirect materials used 14,200

Miscellaneous plant overhead 5,200 120,200

Manufacturing costs incurred during 2019 265,400

Add beginning work-in-process inventory, Jan. 1, 2019 25,000

Total manufacturing costs to account for 290,400

Deduct ending work-in-process inventory, Dec. 31, 2019 32,200

Cost of goods manufactured $258,200

Schedule of Cost of Goods Sold

For the Year Ended December 31, 2019

(in thousands)

Beginning finished goods, Jan. 1, 2019 $ 37,400

Cost of goods manufactured (above) 258,200

Cost of goods available for sale 295,600

Ending finished goods, Dec. 31, 2019 44,800

Cost of goods sold $250,800

MyLabQ_rev 2-29 (20 min.) Computing cost of goods purchased and cost of sales.

Marvin Department Store

Schedule of Cost of Goods Purchased

For the Year Ended December 31, 2019

(in thousands)

Purchases $155,000

Add transportation-in 7,000

162,000

Deduct:

Purchase return and allowances $4,000

Purchase discounts 6,000 10,000

Cost of goods purchased $152,000



Marvin Department Store

Schedule of Cost Sales

For the Year Ended December 31, 2019

(in thousands)

Beginning merchandise inventory, Jan. 1, 2019 $ 27,000

Cost of goods purchased (above) 152,000

Cost of goods available for sale 179,000

Ending merchandise inventory, Dec. 31, 2019 34,000

Cost of sales $145,000

**MyLabQ_rev 2-30** (10–15 min.) **Cost drivers and functions.**

1.

|  |  |
| --- | --- |
| Function | Representative Cost Driver |

1. Accounting Number of transactions processed

2. Human resources Number of employees

3. Data processing Hours of computer processing unit (CPU)

4. Research and development Number of research scientists

5. Purchasing Number of purchase orders

6. Distribution Number of deliveries made

7. Billing Number of invoices sent

2.

|  |  |
| --- | --- |
| Function | Representative Cost Driver |

1. Accounting Number of journal entries made

2. Human resources Salaries and wages of employees

3. Data processing Number of computer transactions

4. Research and development Number of new products being developed

5. Purchasing Number of different types of materials purchased

6. Distribution Distance traveled to make deliveries

7. Billing Number of credit sales transactions

PROBLEMS

MyLabQ_rev 2-31 (20 min.) Labour cost, overtime, and idle time.

|  |  |  |
| --- | --- | --- |
| 1. (a) Total cost of hours worked at regular rates | | |
| 42 hours × 12 per hour | $   504.00 |
| 42 hours × 12 per hour | 504.00 |
| 43 hours × 12 per hour | 516.00 |
| 40 hours × 12 per hour | 480.00 |
|  | 2,004.00 |
| Minus idle time (5.2 hours × $12 per hour) | 62.40 |
| Direct manufacturing labour costs | $1,941.60 |
|  |  |
| (b) Idle time = 5.2 hours × 12 per hour =  (c) Overtime and holiday premium. | | $62.40 |
| Week 1: Overtime (42–40) hours × Premium, $6 per hour | $  12.00 |
| Week 2: Overtime (42–40) hours × Premium, $6 per hour | 12.00 |
| Week 3: Overtime (43–40) hours × Premium, $6 per hour | 18.00 |
| Week 4: Holiday 8 hours × Premium, $12 per hour | 96.00 |
| Total overtime and holiday premium | $138.00 |
|  |  |
| (d) Total earnings in May | |  |
| Direct manufacturing labour costs | $1,941.60 |
| Idle time | 62.40 |
| Overtime and holiday premium | 138.00 |
| Total earnings | $2,142.00 |

2. Idle time caused by equipment breakdowns and scheduling mix-ups is an indirect cost of the jobs because it is not related to a specific job.

Overtime premium caused by the heavy overall volume of work is also an indirect cost because it is not related to a particular job that happened to be worked on during the overtime hours. If, however, the overtime is the result of a demanding “rush job,” the overtime premium is a direct cost of that job.

**2-32** (30 min.) **Direct costs versus indirect costs**

1.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Westec** | **La Electricidad** | **BBC** |
| Revenue | $514 | $982 | $580 |
| Direct materials | 300 | 492 | 324 |
| Direct manuf. labour | 48 | 120 | 72 |
| Indirect manufacturing | 96 | 240 | 144 |
| Total manuf. costs | 444 | 852 | 540 |
| Gross margin | $ 70 | $130 | $ 40 |
| Gross margin percentage | 13.6% | 13.2% | 6.9% |

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** |
| Revenue | $ 580 |
| Direct materials | 324 |
| Direct manuf, labour | 48 |
| Indirect manufacturing | 96 |
| Total manuf, costs | 468 |
| Gross margin | $ 112 |
| Gross margin percentage | 19.3% |

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.

4. The incentive payments would be:

|  |  |  |
| --- | --- | --- |
|  | **5%**  **of Revenue** | **Incentive** |
| Westec | 0.05 × $504 | $  25.20 |
| La Electricidad | 0.05 × 984 | 49.20 |
| BBC | 0.05 × 580 | 29.00 |
|  |  | $103.40 |

|  |  |  |
| --- | --- | --- |
|  | **20%**  **of Gross Margin** | **Incentive** |
| Westec | 0.20 × $60 | $12.00 |
| La Electricidad | 0.20 × 132 | 26.40 |
| BBC | 0.20 × 112\* | 22.40 |
|  |  | $60.80 |

\*Assumes that OT is not material, so the 200% indirect cost allocation rate will remain. Alternatively, calculate BBC (0.20 × $36 = $7.20).

DMI prefers jobs that produce high gross margins rather than high gross revenue. The 20% incentive better aligns the sales representative’s incentive with that of DMI.

DMI should define how revenue 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 revenue, 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 deficiencies in the other groups.

MyLabQ_rev 2-33 (30 min.) Comprehensive problem on unit costs, product costs.

1. If 2 kilograms of direct materials are used to make each unit of finished product, 100,000 units × 2 kg, or 200,000 kg, were used at $0.70 per kilogram of direct materials ($140,000 ÷ 200,000 kg). (The direct materials costs of $140,000 are direct materials used, not purchased.) Therefore, the ending inventory of direct materials is 2,000 kg × $0.70 = $1,400

2. Manufacturing Costs for 100,000 units

Variable Fixed Total

Direct materials costs $140,000 $        – $140,000

Direct manufacturing labour costs 30,000 – 30,000

Plant energy costs 5,000 – 5,000

Indirect manufacturing labour costs 10,000 16,000 26,000

Other indirect manufacturing costs      8,000  24,000    32,000

Cost of goods manufactured $193,000 $40,000 $233,000

Average unit manufacturing cost: $233,000 ÷ 100,000 units = $2.33 per unit

Finished goods inventory in units: $20,970 (given) ÷ $2.33 per unit = 9,000 units

3. Units sold in 2019 = Beginning inventory + Production – Ending inventory

= 0 + 100,000 – 9,000 = 91,000 units

Selling price per unit in 2019: $436,800 ÷ 91,000 = $4.80 per unit

4.

Revenue (91,000 units sold × $4.80) $436,800

Cost of units sold:

Beginning finished goods, Jan. 1, 2019 $          0

Cost of goods manufactured 233,000

Cost of goods available for sale 233,000

Ending finished goods, Dec. 31, 2019    20,970  212,030

Gross margin 224,770

Operating costs:

Marketing, distribution, and customer-service costs 162,850

Administrative costs 50,000  212,850

Operating income $  11,920

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direct materials costs | $1.40 |  |  | |
| Direct manufacturing labour costs | 0.30 |  | |
| Plant energy costs | 0.05 | = $1.93 per unit manuf’d (100,000) | |
| Indirect manufacturing labour costs | 0.10 |  | |
| Other indirect manufacturing costs | 0.08 |  | |
| Marketing, distribution, and customer-service costs | 1.35 | } | per unit sold (91,000) |

MyLabQ_rev 2-34 (30 min.) Budgeted income statement of comprehensive income (continuation of 2-33).

1. Target ending finished goods, Dec. 31, 2020 12,000 units

Forecasted sales for 2020 122,000 units

Total finished goods required in 2020 134,000 units

Beginning finished goods, Jan. 1, 2020 9,000 units

Finished goods production required in 2020 125,000 units

2. Revenue (122,000 units sold × $4.80) $585,600

Cost of units sold:

Beginning finished goods, Jan. 1, 2020 $ 20,970b

Cost of goods manufactured 281,250a

Cost of goods available for sale 302,220b

Ending finished goods, Dec. 31, 2020 27,000c 275,220b

Gross margin 310,380b

Operating costs:

Marketing, distn., and customer-service costs 204,700b

Administrative costs 50,000b 254,700d

Operating income $ 55,680b

Supporting Computations

a) Manufacturing Costs for 125,000 Units

Variable Fixed Total

Direct materials costs $175,000b $      – $175,000

Direct manufacturing labour costs 37,500b – 37,500

Plant energy costs 6,250 – 6,250

Indirect manufacturing labour costs 12,500b 16,000 28,500

Other indirect manufacturing costs 10,000b  24,000    34,000

Cost of goods manufactured $241,250b $40,000 $281,250

b) Direct materials costs = 250,000 kg × $0.70/kg = $175,000.

c) The average unit manufacturing costs in 2019 is $281,250 ÷ 125,000 units = $2.25. Finished goods, December 31, 2019 = 12,000 × $2.25 = $27,000.

d) Variable mktg., distn., and customer-service costs, 122,000 × $1.35 $164,700

Fixed marketing, distribution., and customer-service costs 40,000

Fixed administrative costs 50,000

$254,700w

\\Mac\Home\Downloads\rewordreadyversionofexceltemplateicon\excel_icon.pngMyLabQ_rev **2-35** (30–40 min.) **Cost of goods manufactured.**

1. Canseco Company

Statement of Comprehensive Income

For the Year Ended December 31, 2019

(in thousands)

Direct materials costs:

Beginning inventory, Jan. 1, 2019 $22,000

Purchases of direct materials 75,000

Cost of direct materials available for use 97,000

Ending inventory, Dec. 31, 2019 26,000

Direct materials used $ 71,000

Direct manufacturing labour costs 25,000

Indirect manufacturing costs:

Indirect manufacturing labour costs $15,000

Plant insurance 9,000

Depreciation—plant building and equipment 11,000

Repairs and maintenance—plant 4,000    39,000

Manufacturing costs incurred during 2019 135,000

Add beginning work in process inventory, Jan. 1, 2019    21,000

Total manufacturing costs to account for 156,000

Deduct ending work in process inventory, Dec. 31, 2019    20,000

Cost of goods manufactured $136,000

1. Canseco Company

Income Statement

For the Year Ended December 31, 2019

(in thousands)

Revenue $300,000

Cost of goods sold:

Beginning finished goods, Jan. 1, 2019 $ 18,000

Cost of goods manufactured (Requirement 1) 136,000

Cost of goods available for sale 154,000

Ending finished goods, Dec. 31, 2019 23,000 131,000

Gross margin $169,000

Operating costs:

Marketing, distribution, and customer-service $ 93,000

General and administrative 29,000 122,000

Operating income $ 47,000

\\Mac\Home\Downloads\rewordreadyversionofexceltemplateicon\excel_icon.pngMyLabQ_rev 2-36 (30 min.) Flow of inventoriable costs.

(in millions)

1. Direct materials inventory, Aug. 1, 2019 $ 90

Direct materials purchased 360

Direct materials available 450

Deduct direct materials used 375

Direct materials inventory, Aug. 31, 2019 $ 75

2. Total manufacturing overhead costs $480

Subtract: Variable manufacturing overhead costs 250

Fixed manufacturing overhead costs $230

3. Total manufacturing costs $1,600

Deduct:

Direct materials used $375

Manufacturing overhead  480   855

Direct manufacturing labour costs $ 745

4. Work-in-process inventory, Aug. 1, 2019 $   200

Total manufacturing costs   1,600

1,800

Deduct cost of goods manufactured (moved into FG)   1,650

Work-in-process inventory Aug. 31, 2019 $   150

5. Finished goods inventory Aug. 1, 2019 $ 200

Cost of goods manufactured (moved from WIP) 1,650

Goods available for sale $1,850

6. Goods available for sale in August (from req. 5) $1,850

Deduct cost of goods sold 1,700

Finished goods inventory, Aug. 31, 2019 $ 150

**MyLabQ_rev 2-37** (25–30 min.) **Statement of comprehensive income and schedule of cost of goods manufactured..**

Powell Corporation

Income Statement

For the Year Ended December 31, 2019

(in millions)

Revenue $1,140

Cost of goods sold:

Beginning finished goods, Jan. 1, 2019 $ 70

Cost of goods manufactured (below) 762

Cost of goods available for sale 832

Ending finished goods, Dec. 31, 2019 55 777

Gross margin 363

Marketing, distribution, and customer-service costs 288

Operating income $ 75

Powell Corporation

Schedule of Cost of Goods Manufactured

For the Year Ended December 31, 2019

(in millions)

Direct materials costs:

Beginning inventory, Jan. 1, 2019 $ 15

Purchases of direct materials 390

Cost of direct materials available for use 405

Ending inventory, Dec. 31, 2019 20

Direct materials used $385

Direct manufacturing labour costs 120

Indirect manufacturing costs:

Indirect manufacturing labour 60

Plant supplies used 12

Plant utilities 36

Depreciation—plant, building, and equipment 96

Plant supervisory salaries 6

Miscellaneous plant overhead 42 252

Manufacturing costs incurred during 2019 757

Add beginning work in process inventory, Jan. 1, 2019 10

Total manufacturing costs to account for 767

Deduct ending work in process, Dec. 31, 2019 5

Cost of goods manufactured $762

MyLabQ_rev 2-38 (15–20 min.) Interpretation of statements (continuation of 2-37).

1. The schedule of costs of goods manufactured in 2-37 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 *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 2019.
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 = $385,000,000 ÷ 1,000,000 units = $385 per unit

Depreciation = $ 96,000,000 ÷ 1,000,000 units = $96 per unit

1. Direct materials unit cost would be unchanged at $385. Depreciation unit cost would be $96,000,000 ÷ 1,200,000 = $80 per unit. Total direct materials costs would rise by 20% to $462,000,000 (= $385 per unit × 1,200,000 units), whereas total depreciation would be unaffected at $96,000,000.
2. Unit costs are averages, and they must be interpreted with caution. The $385 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.

MyLabQ_rev 2-39 (30 min.) Prime costs version conversion costs.

1. Prime costs are: purchases of direct materials; direct manufacturing labour.

Conversion costs are: plant utilities; indirect manufacturing labour; depreciation—plant, building, and equipment; miscellaneous manufacturing overhead; marketing, distribution, and customer service costs; plant supplies used; property taxes on plant

2.

Chan Corporation

Statement of Comprehensive Income

For the Year Ended December 31, 2019

(in millions)

Revenue $420.00

Cost of goods sold:

Beginning finished goods, Jan. 1, 2019 $ 48.00

Cost of goods manufactured (below) 244.80

Cost of goods available for sale 292.80

Ending finished goods, Dec. 31, 2019 14.40 278.40

Gross margin 141.60

Marketing, distribution, and customer-service costs 108.00

Operating income $ 33.60

Chan Corporation

Schedule of Cost of Goods Manufactured

For the Year Ended December 31, 2019

(in millions)

Direct material costs:

Beginning inventory, Jan. 1, 2019 $ 36.00

Direct materials purchased 96.00

Cost of direct materials available for use 132.00

Ending inventory, Dec. 31, 2019 6.00

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

Depreciation—plant, building, and equipment 10.80

Miscellaneous manufacturing overhead costs 12.00 61.20

Manufacturing costs incurred during 2019 235.20

Add beginning work in process inventory, Jan. 1, 2019 12.00

Total manufacturing costs to account for 247.20

Deduct ending work in process inventory, Dec. 31, 2019 2.40

Cost of goods manufactured (to income statement) $244.80

**2-40 Statement of comprehensive income.**

1. Beagle-grove Company

Statement of Comprehensive Income

For the Year Ended December 31, 2019

Revenue $1,360,000

Cost of goods sold:

Beginning finished goods, Jan. 1, 2019 $ 100,000

Cost of goods manufactured (see below) 960,000

Cost of goods available for sale 1,060,000

Ending finished goods, Dec. 31, 2019 150,000 910,000

Gross margin $ 450,000

Operating costs:

Marketing and promotion $ 60,000

Marketing salaries 100,000

Shipping costs 70,000

Customer-service costs 100,000 330,000

Operating income $ 120,000

Foxwood Company

Schedule of Cost of Goods Manufactured

For the Year Ended December 31, 2019

Direct material costs:

Beginning inventory, Jan. 1, 2019 $ 40,000

Direct materials purchased during 2019 460,000

Cost of direct materials available for use 500,000

Ending inventory, Dec. 31, 2019 50,000

Direct materials used $450,000 (V)

Direct manufacturing labour costs 300,000 (V)

Indirect manufacturing costs:

Sandpaper 2,000 (V)

Materials–handling costs 70,000 (V)

Lubricants and coolants 5,000 (V)

Miscellaneous indirect manufacturing labour 40,000 (V)

Plant leasing costs 54,000 (F)

Depreciation—plant equipment 36,000 (F)

Property taxes on plant equipment 4,000 (F)

Fire and casualty insurance on plant equipment 3,000 (F) 214,000

Manufacturing costs incurred during 2019 964,000

Add beginning work in process inventory, Jan. 1, 2019 10,000

Total manufacturing costs to account for 974,000

Deduct ending work in process inventory, Dec. 31, 2019 14,000

Cost of goods manufactured (to income statement) $960,000

2. Direct materials unit cost = Direct materials used ÷ Units produced

= $450,000 ÷ 900,000 = $0.50

Plant leasing unit cost = Plant leasing costs ÷ Units produced

= $54,000 ÷ 900,000 = $0.06

3. The direct materials costs are variable, so they would increase in total from $450,000   
to $500,000 (= 1,000,000 × $0.50). However, their unit costs would be unaffected: $500,000 ÷ 1,000,000 units = $0.50.

In contrast, the plant leasing costs of $54,000 are fixed, so they would not increase in total. However, if the plant leasing costs were assigned to units produced, the unit costs would decline from $0.060 to $0.054: $54,000 ÷ 1,000,000 = $0.054.

4. The explanation would begin with the answer to requirement 3. As a consultant, you should stress that unitizing (averaging) of costs that have different behaviour patterns can be misleading. A common error is to assume that a total unit cost, which is often a sum of variable unit costs and fixed unit costs, is an indicator that total costs change in a wholly variable way as the level of production output changes. You must be especially wary about unit fixed costs. Too often, unit fixed costs are erroneously regarded as being indistinguishable from unit variable costs.

5. DML is 33% (= $300,000 ÷ $910,000) of total COGS. This is a material amount based on the normal financial accounting guideline that suggests materiality thresholds of 5% to 10%. Because DML is material it should be classified as a prime rather than a conversion cost. Total conversion costs are $214,000; this is less than the DML. To include DML in the conversion cost would distort the relationship between the contribution to costs made by direct and those made by indirect costs. This would misrepresent the material and efficient causes of the cost of each output unit.

MyLabQ_rev 2-41 (10 min.) Inventory decision, opportunity costs.

1. Unit cost, orders of 20,000 $9.00

Unit cost, order of 240,000 (0.96 × $9.00) $8.64

Alternatives under consideration:

(a) Buy 240,000 units at start of year.

(b) Buy 20,000 units at start of each month.

Average investment in inventory:

(a) (240,000 × $8.64) ÷ 2 $1,036,800

(b) (20,000 × $9.00) ÷ 2        90,000

Difference in average investment $   946,800

Opportunity cost of interest forgone from 240,000-unit purchase at start of year

= $946,800 × 0.10 = $94,680

2. No. The $94,680 is an opportunity cost rather than an incremental or outlay cost. No actual transaction records the $94,680 as an entry in the accounting system.

3. The following table presents the two alternatives:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Alternative A:**  **Purchase 240,000**  **spark plugs at beginning of year**  **(1)** | **Alternative B:**  **Purchase**  **20,000**  **spark plugs**  **at beginning of each month**  **(2)** | **Difference**  **(3) = (1) – (2)** |
| Annual purchase-order costs  (1 × $200; 12 × $200)  Annual purchase (incremental) costs  (240,000 × $8.64; 240,000 × $9)  Annual interest income that could be earned if investment in inventory were invested (opportunity cost)  (10% × $1,036,800; 10% × $90,000)  Relevant costs | $        200  2,073,600      103,680  $2,177,480 | $      2,400  2,160,000         9,000  $2,171,400 | $ (2,200)  (86,400)    94,680  $   6,080 |

Column (3) indicates that purchasing 20,000 spark plugs at the beginning of each month is preferred relative to purchasing 240,000 spark plugs at the beginning of the year because the opportunity cost of holding larger inventory exceeds the lower purchasing and ordering costs. If other incremental benefits of holding lower inventory such as lower insurance, materials handling, storage, obsolescence, and breakage costs were considered, the costs under Alternative A would have been higher, and Alternative B would be preferred even more.

COLLABORATIVE LEARNING CASES

2-42 (20–25 min.) Finding unknown balances.

Let G = given, I = inferred

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **CASE 1** | | **CASE 2** | |
| Step 1: | Use gross margin formula |  |  |  |  |
|  | Revenue | $32,000 | G | $31,800 | G |
|  | Cost of goods sold | **A**20,700 | I | 20,000 | G |
|  | Gross margin | $11,300 | G | **C**$11,800 | I |
|  |  |  |  |  |  |
| Step 2: | Use schedule of cost of goods manufactured formula | |  |  |  |
|  | Direct materials used | $ 8,000 | G | $12,000 | G |
|  | Direct manufacturing labour costs | 3,000 | G | 5,000 | G |
|  | Indirect manufacturing costs | 7,000 | G | **D** 6,500 | I |
|  | Manufacturing costs incurred | 18,000 | I | 23,500 | I |
|  | Add beginning work in process, Jan. 1, 2018 | 0 | G | 800 | G |
|  | Total manufacturing costs to account for | 18,000 | I | 24,300 | I |
|  | Deduct ending work in process, Dec. 31, 2018 | 0 | G | 3,000 | G |
|  | Cost of goods manufactured | $18,000 | I | $21,300 | I |
|  |  |  |  |  |  |
| Step 3: | Use cost of goods sold formula |  |  |  |  |
|  | Beginning finished goods inventory, Jan. 1, 2018 | $ 4,000 | G | 4,000 | G |
|  | Cost of goods manufactured | 18,000 | I | 21,300 | I |
|  | Cost of goods available for sale | 22,000 | I | 25,300 | I |
|  | Ending finished goods inventory, Dec. 31, 2018 | **B** 1,300 | I | 5,300 | G |
|  | Cost of goods sold | $20,700 | I | $20,000 | G |

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

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

2-43 (20–25 min.) Labour-cost ethics, governance.

1. No. The direct manufacturing labour costs are not 20% or greater of total manufacturing costs. Direct manufacturing labour costs are $410,000 which are 16.4% of total manufacturing costs, $410,000 ÷ $2,500,000 = 16.4%.
2. Buyoung Kim can ask the controller to reclassify at least two of the costs that are currently reported as indirect manufacturing costs to direct manufacturing labour costs. The most logical are the fringe benefits and some of the overtime costs, particularly if it can be argued that some of the overtime was directly caused by jobs. The fringe benefits are logical because they are not only the largest, but can be argued to be a part of normal cost of manufacturing labour. Fringe benefits related to direct manufacturing labour costs together with some of the overtime premium could bring the total direct manufacturing labour cost over the minimum $500,000.

Justification for reclassifying vacation and sick time is similar to that of fringe benefits—that it is a normal cost of labour since it is part of and can be traced to the direct manufacturing labourer’s payment. It is harder to justify reclassifying idle time, since it is difficult to identify a specific job that the idle time relates to. Idle time is also the smallest cost item.

1. The controller should not reclassify overhead costs as direct manufacturing labour costs just so the firm can reap tax benefits, particularly if the changes would violate the company’s policy of computing direct manufacturing labour costs. The idea of cost classification is to allow internal (and external) decision making by clarifying what each cost item represents. Also, if costs in only the Costa Melon plant are reclassified, it will be harder for XKY to evaluate the Costa Melon plant, when compared to XKY’s other plants. Nevertheless, some of the arguments presented in requirement 2 can be justified and could prompt a reevaluation of XKY’s direct manufacturing labour classifications.

2-44 (30 min.) Classifying costs for managerial decisions.

1. The three factors that Diamond should consider in pricing decisions are:

Customers. The major customers (“guests” to Diamond) of the Galaxy are business travellers who predominantly stay on a Sunday-through-Thursday basis. Diamond should consider these issues:

(a) Will some of the $180/$216-a-night customers staying Sunday through Thursday transfer their business to Friday or Saturday for reduced rates? If a sizable number of these customers can transfer their business to Friday or Saturday nights, Diamond should be reluctant to make sizable weekend price discounts.

(b) Will a new set of customers be attracted to the Galaxy with a reduced weekend rate, people who would not be attracted at the $180/$216-a-night rates?

(c) How will seasonality affect the business? Will there be more tourists, and therefore less need for a discount, at certain times of the year?

The business customers of Galaxy likely will understand cost–volume–profit relationships for hotels and not be offended at different rates for different days of the week. “Off-peak” pricing is an accepted convention in many industries (such as in telecommunications and airlines).

Competitors. Many prestige hotels already offer sizable price discounts on weekends. Moreover, cuts of up to 50% are the nominal price discounts. The additional items included in weekend packages (such as breakfast or a bottle of champagne) add to the effective price discount.

Costs. The variable costs of servicing each room are only $24 a night per single occupancy and $26.40 a night per double occupancy. Any room rate above these amounts will make a positive contribution to Galaxy’s operating income.

It is an accepted convention that weekend rates at Vancouver’s prestige hotels will be lowered on Friday and Saturday nights. Diamond may want to offer moderate price reductions and add other discounted items in the weekend package. The approach may help maintain the policy of treating guests as “royalty.”

A Finnish student commented that hotels in Finland provide customers who have a high volume of business in peak periods with complimentary rooms in the off-peak period.

1. The customers, competitors, and cost factors that apply to setting the rates for Grey Cup weekend include:

Customers. The likely customers can be classified as:

(a) long-term Galaxy hotel customers, and

(b) other customers.

Charging the market rate (even if it is $360 a night) is not likely to alienate other customers. Diamond’s problem lies with long-term customers. He may want to offer preferred reservations or “normal” weekday ($180/$216-a-night) rates to his regular customers on Grey Cup weekend.

Competitors. Several four-star prestige hotels are already advertising $360 a night rates. Thus, Galaxy will not be viewed as the first to adopt an “aggressive price-gouging” approach.

Hotels often increase their rates because of increased demand even when costs do not increase. It is unlikely that the Galaxy chain would be singled out for negative publicity from such a policy, especially if it made an effort to give preferential bookings and rates to its regular customers.

Costs. The variable costs of servicing each room are the same as in the answer to requirement 1.

2-45 (30 min.) Cost analysis, litigation risk, governance.

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 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 litigation

Unit cost to FY $144.00 $276.00

Physician price 172.80 331.20

Patient’s price 432.00 432.00

FY’s margin 28.80 55.20

Physician’s margin 259.20 100.80

The selling price would be $828 (= $276 × 3) to maintain the triple-the-cost target.

The percentage decrease is: 61.11% [= (259.20 – 100.80) / 259.20].

Since each treatment is planned to cost patients $432, the new selling price of $331.20 will drop the doctors’ margin to only $100.80 from the planned margin of $259.20. 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 not to 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.

(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.