SOLUTIONS TO EXERCISES

EXERCISE 2-1 (15 minutes)


EXERCISE 2-2 (15 minutes)

EXERCISE 2-8 (20 minutes)

1. | Product A | Product B | Differential Cost and Revenues |
   | Selling price | $24 | $30 |  
   | Units sold | x500 | x600 |  
   | Sales | $12,000 | $18,000 | $6,000 |

Cost of goods sold (V):
- $16 x 500, $20 x 600
  - 8,000 |
  - 12,000 |
  - 4,000 |
Gross margin
- 4,000 |
- 6,000 |
- 2,000 |
Operating expenses:
- Rent (F) -- | 700 | 700 |
- Repair service fee (F) 500 | -- | (500) |
- Advertising (F) 300 | 1,000 | 700 |
- Total expenses 800 | 1,700 | 900 |
Net income $3,200 | $4,300 | $1,100 |

2. Yes. The opportunity cost would be $3,200 per year, the net benefits foregone if Product A is eliminated. However, the opportunity cost is less than the potential profit from Product B. John would benefit by replacing Product A with Product B.

EXERCISE 2-10 (10 minutes)

1. Step
2. True
3. Semi
4. Semi
5. Step
6. Semi
7. Semi
8. True
9. Step
10. Semi
11. Semi
12. Step
### PROBLEM 2-12 (20 minutes)

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Cost Behavior</th>
<th>Selling &amp; Admin.</th>
<th>Product Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variable</td>
<td>Fixed</td>
<td>Direct</td>
</tr>
<tr>
<td>1.</td>
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<td>2.</td>
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<td>3.</td>
<td>X</td>
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<td>4.</td>
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<td>6.</td>
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<td>8.</td>
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<td>9.</td>
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<td>11.</td>
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<td>12.</td>
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<td>13.</td>
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<td>14.</td>
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<td>15.</td>
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<tr>
<td>16.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>17.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PROBLEM 2-16 (45 minutes)

1. Hampton Company
Schedule of Cost of Goods Manufactured
for 19x1

Direct materials:
Beginning raw materials ....................... $ 2,000
Raw material purchases ..................... 10,000
Raw materials available for use .......... 12,000
Ending raw materials ...................... (3,000)
Raw materials used in production ....... $ 9,000
Direct labor cost ......................... 18,000

Manufacturing overhead:
Factory depreciation ......................... $ 27,000
Factory utilities ......................... 3,000
Factory maintenance ......................... 2,000
Factory repairs ......................... 2,000
Factory insurance ......................... 1,500
Indirect labor ................................ 5,500
Total overhead costs ..................... 41,000

Total manufacturing costs .............. 68,000

Beginning work in process inventory .... 12,000
Ending work in process inventory ....... (9,000)

Cost of goods manufactured .............. $71,000

2. Hampton Company
Income Statement (Cost of Goods Sold Section)
for 19x1

Cost of goods sold:
Beginning finished goods inventory ............... $10,000
Cost of goods manufactured ..................... 71,000
Finished goods available for sale ............. 81,000
Ending finished goods inventory ............... (9,000)
Cost of goods sold ................................ $72,000
3. Raw materials used in production ................................ $ 9,000
   Number of units produced ........................................... \( \div 1,000 \) units
   Per-unit cost of raw materials ................................. $ 9

   If 1,500 units are produced, total cost of raw materials will be:
   \( 9 \times 1,500 \) units = $13,500

4. Factory depreciation, which represents the periodic cost of the existing production capacity, is a good example to use to illustrate an economy of scale.

   Unit cost if 1,000 units are produced:
   Factory depreciation ................................................. $ 27,000
   Number of units produced ........................................... \( \div 1,000 \) units
   Per-unit cost of depreciation ................................. $ 27

   Unit cost if 1,500 units are produced:
   Factory depreciation ................................................. $ 27,000
   Number of units produced ........................................... \( \div 1,500 \) units
   Per-unit cost of depreciation ................................. $ 18

   Unit cost of depreciation drops from $27 to $18 as the level of production increases. Since fixed costs do not change in total as the activity level changes, they will decrease on a per-unit basis as the activity level goes up, and will increase on a unit basis as the activity level goes down. There is no difference in unit cost of direct materials because direct materials are variable costs; they change in total as the activity level changes.
PROBLEM 2-19 (50 minutes)

1. a. Units of finished goods sold:
   - Sales in dollars .................................................. $ 990,000
   - Selling price per unit ........................................... $ 45
     - Number of units sold ......................................... 22,000

b. Cost of goods sold:
   - Sales ............................................................... $ 990,000
   - Gross margin ..................................................... 440,000
   - Cost of goods sold ................................................ $ 550,000

c. Per-unit cost of goods manufactured = Per-unit cost of goods sold:
   - Cost of goods sold ................................................ $550,000
     - Number of units sold ......................................... ÷ 22,000
     - Per-unit cost .................................................. $ 25

d. 19x7 ending finished goods inventory:
   - Units of 19x7 ending finished goods ...................... 2,760
     - Per-unit cost of goods manufactured ..................... x $25
     - 19x7 ending finished goods .................................. $ 69,000

e. 19x7 beginning finished goods inventory:
   - Units of 19x7 beginning finished goods ................... 1,760
     - Per-unit cost of goods manufactured .................... x $25
     - 19x7 beginning finished goods .............................. $44,000

f. Cost of goods manufactured:
   - Cost of goods sold .............................................. $ 550,000
     - 19x7 ending finished goods inventory .................. 69,000
     - Goods available for sale .................................. 619,000
     - 19x7 beginning finished goods ......................... (44,000)
   - Cost of goods manufactured ................................ $575,000

g. Number of units produced:
   - Cost of goods manufactured ................................ $575,000
     - Per-unit cost of goods manufactured ................... ÷ $ 25
Number of units produced ........................................... 23,000

h. Manufacturing overhead cost:
   Indirect labor .................................................. $40,000
   Rent on the building (60% manufacturing) ............... 30,000
   Utilities .......................................................... 85,000
   Repairs and maintenance .................................. 65,000
   Total manufacturing overhead ............................. $220,000

i. Direct materials used:
   Total current manufacturing costs ....................... $570,000
   Direct labor .................................................... (150,000)
   Manufacturing overhead ................................ (220,000)
   Direct materials used ....................................... $200,000

j. 19x7 ending work in process inventory:
   Total current manufacturing costs ....................... $570,000
   Beginning work in process inventory ................... 35,000
   Cost of goods manufactured .............................. (575,000)
   Ending work in process ................................... $30,000

k. 19x7 ending raw materials inventory:
   19x7 beginning raw materials .............................. $23,000
   Purchases ...................................................... 190,000
   Available for use ............................................. 213,000
   Raw materials used .......................................... (200,000)
   19x7 ending raw materials ................................. $13,000
2. FutureTerm, Inc.
Schedule of Cost of Goods Manufactured
For the Year Ended December 31, 19x7

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>Direct materials:</td>
<td></td>
</tr>
<tr>
<td>Beginning raw materials</td>
<td>$23,000</td>
</tr>
<tr>
<td>Raw material purchases</td>
<td>190,000</td>
</tr>
<tr>
<td>Raw materials available for use</td>
<td>213,000</td>
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<tr>
<td>Ending raw materials</td>
<td>(13,000)</td>
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<tr>
<td>Raw materials used in production</td>
<td>$200,000</td>
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<tr>
<td>Direct labor cost</td>
<td>150,000</td>
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<tr>
<td>Manufacturing overhead:</td>
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<tr>
<td>Indirect labor</td>
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<td>Rent on the building</td>
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<td>Utilities</td>
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<td>Repairs and maintenance</td>
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<tr>
<td>Total overhead costs</td>
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<td>Total manufacturing costs</td>
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<tr>
<td>Beginning work in process inventory</td>
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<td>Ending work in process inventory</td>
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<tr>
<td>Cost of goods manufactured</td>
<td>$575,000</td>
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</tbody>
</table>

3. The cost of goods sold section of the income Statement:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of goods sold:</td>
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<tr>
<td>Finished goods inventory, January 1, 19x7</td>
<td>$44,000</td>
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<tr>
<td>Cost of goods manufactured</td>
<td>575,000</td>
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<tr>
<td>Goods available for sale</td>
<td>619,000</td>
</tr>
<tr>
<td>Finished goods inventory, December 31, 19x7</td>
<td>(69,000)</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>$550,000</td>
</tr>
</tbody>
</table>