Module 20 Class Exercises

M20-18. Product Pricing: Single Product (LO2) Assume that you plan to open a soft ice cream franchise in a resort community during the summer months. Fixed operating costs for the three-month period are projected to be $5,650. Variable costs per serving include the cost of the ice cream and cone, $0.45, and a franchise fee payable to Austrian Ice, AG, $0.10. A market analysis prepared by Austrian Ice indicates that summer sales in the resort community should total 27,000 units.

Required

Determine the price you should charge for each ice cream cone to achieve a $20,000 profit for the three-month period

\[ \frac{20,000}{27,000} = \frac{\text{Price} \times 27,000}{20,500} = \frac{(5650 + (0.45 + 0.10) \times 27000)}{20,500} \]

\[ \text{Price} = \frac{20,000 + 20,500}{27,000} = 1.50 \]

\[ \text{BE} = \frac{5650}{150 - 55} = 39.98 \]

\[ = 74 + 21 + 55 \]

E20-23. Computing Markups (LO2) The predicted 2012 costs for Osaka Motors are as follows:

<table>
<thead>
<tr>
<th>Manufacturing Costs</th>
<th>Selling and Administrative Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable ...............</td>
<td>$100,000</td>
</tr>
<tr>
<td>Fixed ................</td>
<td>220,000</td>
</tr>
<tr>
<td>320,000</td>
<td>420,000</td>
</tr>
</tbody>
</table>

Average total assets for 2012 are predicted to be $6,000,000.

Required

a. If management desires a 12 percent rate of return on total assets, what are the markup percentages based on total variable costs and based on total manufacturing costs?

\[ \frac{420,000 + 320,000}{420,000} = 29.14 \% \text{ of Var. Costs} \]

\[ \text{MFC Cost} = \frac{320,000}{320,000} = 38.125 \% \text{ of MFC Cost} \]

b. If the company desires a 10 percent rate of return on total assets, what is the markup percentage on total manufacturing costs for (1) unassigned costs and (2) desired profit?

\[ \frac{500,000 + 600,000}{320,000} = 187.5 \% \text{ of MFC Costs} \]

\[ \frac{300}{320} = 93.75 \% \]

For highly specialized product, markup typical is 25% over MFC cost as 320 x 1.25 = 400 x 1.5 = $60,000 for profit.
E20-26. **Target Costing (LO3)** Oregon Equipment Company wants to develop a new log-splitting machine for rural homeowners. Market research has determined that the company could sell 5,000 log-splitting machines per year at a retail price of $600 each. An independent catalog company would handle sales for an annual fee of $2,000 plus $50 per unit sold. The cost of the raw materials required to produce the log-splitting machines amounts to $80 per unit. Conversion costs are typically 40% direct labor and 60% production overhead.

Required

a. If company management desires a return equal to 10 percent of the final selling price, what is the target unit cost?

\[
\text{Retail Price} = \text{COST} + \text{REVENUE} \times \text{POV}
\]

\[
\text{Retail Price} = 600 - 60 - 50 - \frac{2000}{500} = 489.6
\]

b. What is the allowable conversion cost per unit?

\[
489.6 - 80 = 409.6 \quad \text{MULT} \quad \text{80}
\]

\[
\text{Conversion} = \frac{409.6}{489.6}
\]

\[
\text{Conversion} = \frac{409.6}{489.6}
\]

Show the breakdown of allowable direct labor and production overhead per unit.

\[
\begin{align*}
\text{DL} & \quad \text{40\%} \quad 163.84 \\
\text{OH} & \quad \text{60\%} \quad 245.76
\end{align*}
\]

\[
\$409.60
\]

E20-26 (Cont.) **Continuous Improvement** The management of Oregon Equipment have implemented a continuous improvement program involving a 2% reduction in costs each year that is to be applied to conversion costs.

What would be the budgeted unit and total conversion costs for year 2?

\[
\$409.6 \times 1.98 = \$814.448 \quad \text{UNIT COST} \times \text{5000}
\]

\[
\$2,007,040
\]

What would be the budgeted unit and total direct labor for year 2?

\[
\$163.84 \times 1.98 = \$563.271 \quad \text{UNIT LABOR} \times \text{5000}
\]

\[
\$2,816,355
\]

What would be the budgeted unit and total production overhead for year 2?

\[
\$245.76 \times 1.98 = \$484.48 \quad \text{TOTAL PRODUCTION OH}
\]

\[
\$1,264,224
\]
Module 20 Review Questions

1. Which of the following actions is most likely to result from a company exploiting value-enhancing opportunities across the value chain?
   (A) Decreasing the number of suppliers relied upon for delivering input products and services
   (B) Increasing the number of processes involved in producing a product
   (C) Reducing the quality of the product or service provided
   (D) Increasing the amount of inventory carried during the fiscal period

2. From a value chain perspective, value is defined by which of the following?
   (A) Only the costs associated with producing a product
   (B) The amount of worth the final customer places on a product or service
   (C) All costs necessary to deliver a product or service to the end user.
   (D) All costs associated with the life of a product or service (including all upstream and downstream costs)

3. In a cost-based pricing approach, the last amount to be determined is:
   (A) Variable cost
   (B) Manufacturing cost
   (C) Sales price
   (D) Discretionary fixed cost

4. Which of the following statements describes a legitimate disadvantage of cost-based pricing?
   (A) Marginal costs and revenues are difficult to measure.
   (B) Determining the amount a customer is willing to pay may require estimation.
   (C) Customers may not be willing to pay the price determined by the procedure.
   (D) Most cost data are not readily available.

5. Twin Sales Co. has predicted the following costs for this year for 500,000 units:

<table>
<thead>
<tr>
<th></th>
<th>Manufacturing</th>
<th>Selling and Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>$ 800,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Fixed</td>
<td>$1,200,000</td>
<td>$300,000</td>
</tr>
<tr>
<td>Total</td>
<td>$2,000,000</td>
<td>$500,000</td>
</tr>
</tbody>
</table>

   What is the markup on variable manufacturing costs needed to break even?
   (A) 47 percent
   (B) 12.5 percent
   (C) 150 percent
   (D) 25 percent

6. Joan Company has predicted the following costs for this year for 50,000 units:

<table>
<thead>
<tr>
<th></th>
<th>Manufacturing</th>
<th>Selling and Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>$ 400,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Fixed</td>
<td>$ 600,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Total</td>
<td>$1,000,000</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

   What is the manufacturing cost markup needed to obtain a profit of $135,000?
   (A) 10.4 percent
   (B) 33.5 percent
   (C) 500.0 percent
   (D) 20.0 percent
7. A) Product life cycle  
B) Revenue producing life  
C) Consumable life  
D) Introduction stage

8. Busy Boots, Inc., is considering the production of a new line of boots. Based on preliminary market research, management has decided that each pair of boots should be priced at $250. Furthermore, management believes that the profit margin should be 40 percent of sales revenue. What is the target cost?

A) $150  
B) $200  
C) $260  
D) $175

Exercise: Oak Manufacturing Company has the following budgeted costs for 10,000 units:

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Variable Costs</th>
<th>Fixed Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>$100,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Selling &amp; Administrative</td>
<td>100,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Total</td>
<td>$200,000</td>
<td>$125,000</td>
</tr>
</tbody>
</table>

a. Calculate the markup rate on manufacturing costs needed to obtain a target profit of $200,000.

b. Calculate the markup rate on total variable costs needed to obtain a target profit of $100,000.

Exercise: Wisconsin Corporation sells a product for $400 per unit. Its market share is 25 percent of the units sold. The marketing manager believes that the market share can be increased to 26 percent of the units sold with a reduction in price to $370. The product is currently earning a profit of $60 per unit. The president of Wisconsin Corporation believes that his company needs to maintain the same profit level per unit. The total market for the product has annual sales of 12,500 units.

Required:

a. How many dollars does Wisconsin Corporation currently sell off the product each year?

b. What is the target price per unit?

c. What is the target cost per unit?

Short Answer

A. How is a target cost for a new product determined using the target costing approach?