CHAPTER 1

SOLUTIONS/ANSWERS TO PROBLEMS

1.1 Sales 100%  100%
Cost of manufacturing 60%  50%
Other costs 30%  90%  30%  80%
Profit (percent of Sales) 10%  20%
Therefore a 10% reduction in the cost of manufacturing would produce a 100% increase in profit.

1.2 Profit = Sales – (direct costs + overhead)
0.20 = Sales – (0.60 \times Sales + 0.30)
Sales = \frac{0.5}{0.4} = 1.25 = 125%

To increase profits from 10% to 20% takes a 25% increase in sales but only a 10% decrease in costs.

1.4 a. Weekly cost of goods sold = $40,000,000 = $800,000
Value of 12 weeks' WIP = 12 \times $800,000 = $9,600,000
b. Value of 5 weeks' WIP = 5 \times $800,000 = $4,000,000
Reduction in WIP = $5,600,000
Annual saving = 20% \times $5,600,000 = $1,120,000

1.5 Using $1 million as the units:

<table>
<thead>
<tr>
<th>Sales</th>
<th>As a % of sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$10</td>
</tr>
<tr>
<td>Direct material</td>
<td>$3.5</td>
</tr>
<tr>
<td>Direct labor</td>
<td>2.5</td>
</tr>
<tr>
<td>Overhead</td>
<td>3.5</td>
</tr>
<tr>
<td>Profit</td>
<td>$.5</td>
</tr>
</tbody>
</table>

a. From the above we can say:
Sales = direct material + direct labor + overhead + profit
= 0.35(sales) + 0.25(sales) + 3.5 + 1.0
0.4 (Sales) = 4.5
Sales = 11.25 \to 11.25 \times $1,000,000 = $11,250,000
Therefore there must be a $1.25 million increase in sales.

b. To increase profit by $500,000 there must be a $500,000 reduction in cost. Therefore, direct material must be reduced by $500,000.

c. As for b. Direct labor would have to be reduced by $500,000.