Problem 6-18A: Part 1

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales price</td>
<td>$20</td>
<td>100%</td>
</tr>
<tr>
<td>Less variable expenses</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>$12</td>
<td>60%</td>
</tr>
</tbody>
</table>

Part 2

Break-even point in sales = Fixed expenses ÷ Contribution margin ratio
Break-even point in sales = $180,000 ÷ .60 = $300,000 in sales to break even

Part 3

$75,000 increased sales x 60% contribution margin ratio = $45,000 increase in contribution margin.
The contribution margin first covers fixed costs, and then contributes to profit or net income.
Since fixed costs will not change, net income should increase by $45,000.
Part 4

a) Degree of operating leverage = Contribution margin ÷ Net income
   = $240,000 ÷ $60,000 = 4
a) 4 x 20% = 80% increase in net income

Part 5

Last year’s sales = 18,000
Projected increase in sales = 1/3, or 6,000 (1/3 x 18,000)
Sales Price Reduction = 10% ➔ new sales price
   = $18 (90% x $20)
Increase in advertising = $30,000 (fixed expense)
   ➔ New fixed expense = $180,000 + $30,000 = $210,000

Part 5

<table>
<thead>
<tr>
<th>Last Year</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,000 units</td>
<td>24,000 units*</td>
</tr>
<tr>
<td>Amount</td>
<td>Per unit</td>
</tr>
<tr>
<td>Sales</td>
<td>$360,000</td>
</tr>
<tr>
<td>Variable expenses</td>
<td>144,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>$216,000</td>
</tr>
<tr>
<td>Less fixed expenses</td>
<td>180,000</td>
</tr>
<tr>
<td>Net income</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

Do not make the changes!

*1/3 x 18,000 = 6,000 additional units: 18,000 + 6,000 = 24,000
**100% - 10% = 90%; 90% x $20 = $18 x 24,000 = $432,000
Part 6

Last year’s sales = 18,000

Increase in sales commissions = $1 (variable expense) ➔ variable expenses = ($8+$1) =$9

Projected increase in sales = 25% ➔ 25% x 18,000 = 4,500 increase in units sold;

projected sales = 18,000 + 4,500 = 22,500

Sales – variable expenses = contribution margin = $20 - $9 = $11 new contribution margin

Expected total contribution margin:

22,500 x $11/unit* $247,500

Present total contribution margin:

18,000 units x $12/unit 216,000

Incremental contribution margin, and the amount by which advertising can be increased with net income staying the same $31,500

*Units sold would increase by 25% or 4,500 to 22,500; Variable costs would increase to $9 ($8 + $1)

$20.00 – 9.00 = $11.00 new contribution margin.