1. What is the break-even point for the Falcon Corporation?

\[ \text{V/unit} = \frac{1,000,000}{400,000} = 2.50 \text{ per unit} \]

\[ \text{cm} \times X - F = \pi \]

\[ ($5 - 2.5) \times X - 500,000 = 0 \]

\[ X = 200,000 \text{ units} \]

2. At 300,000 bird houses, what is the projected profit? Prepare an income statement to prove your answer.

\[ 2.5 \times 300,000 - 500,000 = 250,000 \]

| Sales Revenue | $1,500,000 | 300,000*5 |
| Variable costs | $750,000 | 300,000*2.5 |
| Contribution margin | $750,000 | |
| Fixed cost | $500,000 | |
| Profit | $250,000 | |

A customer is interested in placing a special order for 60,000 bird houses at a price 40 percent below the usual price.

3. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if Falcon accepts the special order. Prepare an income statement to prove your answer.

**Incremental benefits**
- Additional contributions margins or revenues
  - 60,000*($3 - $2.5) = +$30,000

Cost savings
- +$0

**Incremental costs**
- Additional costs
- -$0

Lost contribution margins or revenues
- -$0

Change in profit
- +$30,000
Sales Revenue $1,680,000
Variable costs – $900,000
Contribution margin $780,000
Fixed cost – $500,000
Profit $280,000

Problem #43
Special order with cutback on regular sales

The ABC Block Company produces sets of alphabet blocks. For one particular style, variable production costs are $1.50 and variable selling costs are $2.00. There are identifiable fixed production costs of $35,000 and fixed selling costs of $25,000. At a selling price of $10 per set, ABC has been able to sell the entire 20,000 sets it can produce with available capacity.

1. What is the total cost (manufacturing & sales) per unit?
   Variable production $1.50 per unit
   Variable selling $2.00 per unit
   Fixed production $1.75 per unit ($35,000 ÷ 20,000 units)
   Fixed selling $1.25 per unit ($25,000 ÷ 20,000 units)
   $6.50 per unit

2. What is the quantity of sets of alphabet blocks that must be sold to break even?
   
   \[(10 - 1.5 - 2.00)X - 60,000 = 0\]
   \[X = 9,231 \text{ units}\]

3. What is the projected profit at 20,000 units? Prepare an income statement to prove your answer.
   
   \[\text{Profit} = \text{cm} \times X - \text{F} = \pi\]
   \[$6.50 \times 20,000 - 60,000 = +70,000\]

ABC has been requested to supply a one-time only order of 10,000 sets of alphabet blocks to the XYZ School of Letters at a price of $4.50 per set. Management estimates that the variable costs of selling these 10,000 sets will be cut to $.75 per set and that the fixed identifiable selling costs will be $20,000 instead of $25,000.
4. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if ABC accepts the special order. Prepare an income statement to prove your answer.

**Incremental benefits**

- Additional contributions margins or revenues
  \[10,000 \times ($4.5 - $1.50 - $0.75)\]  
  \[+$22,500\]

- Cost savings
  \[\text{Fixed selling ($25,000 - 20,000)}\]
  \[+$5,000\]

**Incremental costs**

- Additional costs
  \[-$0\]

**Lost contribution margins or revenues**

\[10,000 \times ($10 - 1.5 - 2.00)\]  
\[-$65,000\]

**Change in profit**

\[-$37,500\]

Sales Revenue  
[145,000]  
10,000*10+10,000*4.5

Variable costs  
[- $57,500]  
10,000*3.5+10,000*2.25

Contribution margin  
[$87,500]  
35,000+20,000

Fixed cost  
[- $55,000]  
35,000+20,000

Profit  
[$32,500]  
$70,000 - $37,500 = +$32,500

5. Assume that fashions have changed to the point where one set of blocks, currently produced and in the inventory, is no longer marketable. Given the costs above, what is the least amount management should ask for these 3,000 sets of alphabet blocks.

At this time, given that production has already taken place, the company should be willing to sell all of the blocks for $0.01 more than any additional selling and/or shipping costs.
Problem #44
Special order with cutback on regular sales or outsourcing

The Health Products Company makes a hot water bottle in one factory. Budgeted revenue and cost data relating to operations for the coming year are:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (230,000 bottles)</td>
<td>$4,600,000</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>2,760,000</td>
</tr>
<tr>
<td>Gross profit</td>
<td>1,840,000</td>
</tr>
<tr>
<td>Selling &amp; administrative expenses</td>
<td>1,150,000</td>
</tr>
<tr>
<td>Income</td>
<td>690,000</td>
</tr>
</tbody>
</table>

The factory has capacity to make 250,000 bottles per year. The fixed production costs (included in cost of goods sold) are $920,000. The variable selling, and administrative costs are a 10% sales commission and a $1.00 per bottle licensing fee paid to the designer.

SP $20.00 per bottle
VCGS $8.00 per bottle ($2,760,000 - 900,000) / 230,000
VS&A $3.00 per bottle ($20*.1 + 1.00)
FCGS $920,000
FS&A $460,000

A chain style manager has approached the sales manager of Health Products offering to buy 10,000 bottles at $12 per bottle. He feels that even though sales commissions would not be paid on the order, a loss would still result.

1. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 10,000 bottles. Prepare an income statement to prove your answer.

**Incremental benefits**
- Additional contributions margins or revenues: 10,000 * ($12 - $8 - $1) = +$30,000
- Cost savings: +$0

**Incremental costs**
- Additional costs: - $0
- Lost contribution margins or revenues: - $0

**Change in profit**
- +$30,000

**Income Statement**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Revenue</td>
<td>$4,720,000</td>
</tr>
<tr>
<td>Variable costs</td>
<td>- $2,620,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>$2,100,000</td>
</tr>
<tr>
<td>Fixed cost</td>
<td>- $1,380,000</td>
</tr>
<tr>
<td>Profit</td>
<td>$720,000</td>
</tr>
</tbody>
</table>

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2. What is the lowest price that the firm could accept and still earn $690,000 overall?

\[
(SP - 9) \times 10,000 = 0
\]

\[
SP = 10
\]

3. Now, suppose that the order is for 40,000 bottles instead of 10,000. If this special order is accepted, 20,000 units of sales through regular channels would be sacrificed. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 40,000 bottles. Prepare an income statement to prove your answer.

**Incremental benefits**

**Additional contributions margins or revenues**

\[
40,000 \times (12 - 8 - 1) = \$120,000
\]

Cost savings

\[
+ \$0
\]

**Incremental costs**

**Additional costs**

\[
- \$0
\]

**Lost contribution margins or revenues**

\[
20,000 \times (20 - 8 - 2 - 1) = -\$180,000
\]

**Change in profit**

\[
-\$60,000
\]

**Sales Revenue**

\[
\$4,680,000
\]

**Variable costs**

\[
- \$2,670,000
\]

**Contribution margin**

\[
\$2,010,000
\]

**Fixed cost**

\[
- \$1,380,000
\]

**Profit**

\[
\$630,000
\]

\[
\$690,000 - \$60,000 = +\$630,000
\]

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4. The sales manager is dissatisfied with your answer from #3. He has a back-up arrangement with Hot Water Overflow, Inc., down the street that they will back us up and produce any hot water bottles that we don’t want to produce. Accordingly, the 20,000 units of sales through regular channels would not be sacrificed for the special order. Hot Water Overflow, Inc., will charge us $13 per bottle for the additional 20,000 we need. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 40,000 bottles. Prepare an income statement to prove your answer.

**Incremental benefits**

**Additional contributions margins or revenues**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,000*($12 – $8 – $1)</td>
<td>+$60,000</td>
</tr>
<tr>
<td>20,000*($12 – $13)</td>
<td>–$20,000</td>
</tr>
</tbody>
</table>

**Cost savings**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>+$0</td>
</tr>
</tbody>
</table>

**Incremental costs**

**Additional costs**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>–$0</td>
</tr>
</tbody>
</table>

**Lost contribution margins or revenues**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0</td>
</tr>
</tbody>
</table>

**Change in profit**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+$40,000</td>
</tr>
</tbody>
</table>

**Income statement**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Revenue</td>
<td>$5,080,000</td>
</tr>
<tr>
<td>Variable costs</td>
<td>– $2,970,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>$2,110,000</td>
</tr>
<tr>
<td>Fixed cost</td>
<td>– $1,380,000</td>
</tr>
<tr>
<td>Profit</td>
<td>$730,000</td>
</tr>
</tbody>
</table>

Sales Revenue = 230,000*20 + 40,000*12
Variable costs = 230,000*11 + 20,000*9 + 20,000*13
Profit = $690,000 + $40,000 = +$730,000
The Health Products Company makes a hot water bottle in one factory. Budgeted revenue and cost data relating to operations for the coming year are:

- Sales (500,000 bottles) $5,000,000
- Cost of sales $3,300,000
- Gross profit $1,700,000
- Selling & administrative expenses $1,250,000
- Income $450,000

The factory has capacity to make 550,000 bottles per year. The fixed production costs (included in cost of goods sold) are $1,300,000. The variable selling, and administrative costs are a 5% sales commission and a $1.00 per bottle licensing fee paid to the designer.

SP $10.00 per bottle
VCGS $4.00 per bottle ($3,300,000 - 1,300,000) / 500,000
VS&A $1.50 per bottle ($10 * .05 + 1.00)
FCGS $1300,000
FS&A $500,000

1. What is the break-even point in units.

\[ \text{cm} \times X - F = \text{income} \]
\[ 4.5 \times X - 1,800,000 = 0 \]
\[ X = 400,000 \text{ units} \]

A chain style manager has approached the sales manager of Health Products offering to buy 50,000 bottles at $8 per bottle. The sales manager believes that accepting the offer would result in a loss because the average cost of a bottle is $9.00. He feels that even though sales commissions would not be paid on the order, a loss would still result.
2. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 50,000 bottles. Prepare an income statement to prove your answer.

**Incremental benefits**

- **Additional contributions margins or revenues**
  
  \[
  50,000 \times (\$8 - \$4 - \$1) + \$150,000
  \]

- **Cost savings**
  
  \[
  +\$0
  \]

**Incremental costs**

- **Additional costs**
  
  \[
  - \$0
  \]

- **Lost contribution margins or revenues**
  
  \[
  - \$0
  \]

**Change in profit**

\[
+\$150,000
\]

**Sales Revenue**

\[
500,000 \times 10 + 50,000 \times 8
\]

**Variable costs**

\[
500,000 \times 5.5 + 50,000 \times 5
\]

**Contribution margin**

\[
+\$2,400,000
\]

**Fixed cost**

\[
- \$1,800,000
\]

**Profit**

\[
+\$600,000
\]

\[
+\$450,000 + \$150,000 \text{ increase} = +\$600,000
\]

3. Now, suppose that the order is for 200,000 bottles instead of 50,000. If this special order is accepted, 150,000 units of sales through regular channels would be sacrificed. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 200,000 bottles.

**Incremental benefits**

- **Additional contributions margins or revenues**
  
  \[
  200,000 \times (\$8 - \$4 - \$1) + \$600,000
  \]

- **Cost savings**
  
  \[
  +\$0
  \]

**Incremental costs**

- **Additional costs**
  
  \[
  - \$0
  \]

- **Lost contribution margins or revenues**
  
  \[
  150,000 \times (\$10 - \$4 - \$0.5 - \$1) - \$675,000
  \]

**Change in profit**

\[
-\$75,000
\]
4. Assume a special order for 200,000 bottles at $8. 20,000 will be made in-house, 180,000 will outsourced at $9. Shipping will be $35,000. Is the special order now acceptable?

**Incremental benefits**
Additional contributions margins or revenues
- $20,000*(8 - 4 - 1) = +$60,000
- $180,000*(8 - 9) = -$180,000
Cost savings
- $0

**Incremental costs**
Additional costs
- Shipping = -$35,000
Lost contribution margins or revenues
- 150,000*(10 - 4 - 0.5 - 1) = -$675,000
Change in profit
- -$110,000

5. Now, assume a different special order for 200,000 bottles at $8. 50,000 will be made with available capacity with normal costs. 150,000 will be made with all variable production costs increasing 30% per unit. Is the special order now acceptable?

**Incremental benefits**
Additional contributions margins or revenues
- 50,000*(8 - 4 - 1) = +$150,000
- 150,000*(8 - 4 - 1.2 - 1) = +$270,000
Cost savings
- $0

**Incremental costs**
Additional costs
- $0
Lost contribution margins or revenues
- $0
Change in profit
- + $420,000
Problem #46
Drop a store location

The most recent monthly income statement for Smith & Jones Stores is given below:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Store A</th>
<th>Store B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,500,000</td>
<td>$900,000</td>
<td>$600,000</td>
</tr>
<tr>
<td>Less variable expenses</td>
<td>720,000</td>
<td>300,000</td>
<td>420,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>780,000</td>
<td>600,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Less traceable fixed expenses</td>
<td>300,000</td>
<td>100,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Store segment margin</td>
<td>480,000</td>
<td>500,000</td>
<td>(20,000)</td>
</tr>
<tr>
<td>Less allocated common fixed expenses</td>
<td>50,000</td>
<td>20,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Operating income</td>
<td>$430,000</td>
<td>$480,000</td>
<td>$(50,000)</td>
</tr>
</tbody>
</table>

Due to its poor showing, consideration is being given to closing Store B. Studies show that if Store B is closed, one-fourth of its traceable fixed expenses will continue unchanged, the rest is avoidable. In addition, sales revenue for Store A will increase by 10%. Smith & Jones allocates common fixed expenses to the stores on the basis of sales dollars.

**Required:** Compute the total amount of operating income if Store B is closed.  Show all work:

**Incremental benefits**

- **Additional contributions margins or revenues**
  - A cm increase $600,000*1 + $60,000
  - Cost savings
    - B 75% savings $200,000*0.75 + $150,000

**Incremental costs**

- Additional costs
  - $0

**Lost contribution margins or revenues**

- B $180,000

**Change in profit**

- $30,000
Problem 47

The Lissey Company makes mid-priced dining tables for sale to various retail companies. Normal production ranges have been 50,000 to 100,000 tables. If production was to be higher than that, costs would increase substantially.

The planned income statement for the year without this order is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (90,000 tables @ $200)</td>
<td>$18,000,000</td>
</tr>
<tr>
<td>Cost of goods sold:</td>
<td></td>
</tr>
<tr>
<td>Fixed overhead ($60 per unit)</td>
<td>$5,400,000</td>
</tr>
<tr>
<td>Direct labor ($15 per unit)</td>
<td>1,350,000</td>
</tr>
<tr>
<td>Variable overhead ($30 per unit)</td>
<td>2,700,000</td>
</tr>
<tr>
<td>Direct materials ($40 per unit)</td>
<td>3,600,000</td>
</tr>
<tr>
<td></td>
<td>13,050,000</td>
</tr>
<tr>
<td>Gross profit ($55 per unit)</td>
<td>4,950,000</td>
</tr>
<tr>
<td>Selling, general, and administrative expenses</td>
<td></td>
</tr>
<tr>
<td>Commissions ($20 per unit)</td>
<td>$1,800,000</td>
</tr>
<tr>
<td>Committed fixed costs ($25 per unit)</td>
<td>2,250,000</td>
</tr>
<tr>
<td>Income</td>
<td>$900,000</td>
</tr>
</tbody>
</table>

The president of Lissey Company has received an order for 20,000 of the tables made by his firm. The offer is to be filled any time during the coming year, and the offer price per table is $150.

**Alternative 1**

Lissey plans on outsourcing 15,000 units of the special order, at $160 per table. The remaining 5,000 units will be made in house with available capacity.

No sales commission would be paid on the order. The production manager is to receive a $35,000 bonus. Additional transportation costs are $10,000.

**By how much will Lissey’s income change (+ or –) if the order is accepted?**

<table>
<thead>
<tr>
<th>Incremental benefits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional contributions margins or revenues</td>
<td>+$325,000</td>
</tr>
<tr>
<td>5,000*($150 – $15 – $30 – $40)</td>
<td>+$325,000</td>
</tr>
<tr>
<td>15,000*($150 – $160)</td>
<td>–$150,000</td>
</tr>
<tr>
<td>Cost savings</td>
<td>+$0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incremental costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional costs</td>
<td>–$35,000</td>
</tr>
<tr>
<td>Additional costs</td>
<td>–$10,000</td>
</tr>
<tr>
<td>Lost contribution margins or revenues</td>
<td>$0</td>
</tr>
</tbody>
</table>

| Change in profit     | +$130,000            |

**Alternative 2**
Lissey plans on making all 20,000 units of the special order in-house. It will need to cut back on regular sales by 10,000 in order to do so.

**By how much will Lissey’s income change (+ or –) if the order is accepted?**

<table>
<thead>
<tr>
<th>Incremental benefits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional contributions margins or revenues</td>
<td>[20,000 \times ($150 - $15 - $30 - $40)] = $1,300,000</td>
</tr>
<tr>
<td>Cost savings</td>
<td>$0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incremental costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional costs</td>
<td>(-$0)</td>
</tr>
<tr>
<td>Lost contribution margins or revenues</td>
<td>[10,000 \times ($200 - 15 - 30 - 40 - 20)] = (-$950,000)</td>
</tr>
</tbody>
</table>

**Change in profit** = \$350,000
**Answer to #48**

Guggenbiller Corporation currently makes 200,000 units per year of a gasket for use in one of its products. The production manager says that the part costs $3.20 per unit to make. This figure comes from:

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials</td>
<td>$0.55</td>
</tr>
<tr>
<td>Direct labor</td>
<td>0.20</td>
</tr>
<tr>
<td>Variable manufacturing overhead</td>
<td>0.30</td>
</tr>
<tr>
<td>Fixed manufacturing overhead</td>
<td>2.15</td>
</tr>
<tr>
<td><strong>Total manufacturing cost per unit</strong></td>
<td><strong>3.20</strong></td>
</tr>
</tbody>
</table>

An outside supplier has offered to sell Guggenbiller Corporation all 200,000 gaskets for $1.40 per unit. If Guggenbiller decides to discontinue making the gaskets and start purchasing them, $100,000 of the total fixed manufacturing overhead costs could be avoided. However, shipping (not included in the purchase cost, would be $50,000. An additional profit of $30,000 could be earned through use of the released facilities.

**Required:** By how much does Guggenbiller’s income change if the outside supplier’s offer is accepted? Fully support and justify your answer.

Incremental benefits
- Additional profit: $30,000
- Cost savings variable (200,000*1.05): $210,000
- Cost savings fixed: $100,000

Incremental costs
- Additional costs shipping: $50,000
- Additional cost to purchase (200,000*1.40): $280,000
- Lost contribution margins

Net change in income: $10,000
Problem #49
Special order with insufficient capacity

The Health Products Company makes a hot water bottle in one factory. Budgeted revenue and cost data relating to operations for the coming year are:

<table>
<thead>
<tr>
<th>Sales (700,000 bottles)</th>
<th>$28,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of sales</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Gross profit</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Selling &amp; administrative expenses</td>
<td>12,000,000</td>
</tr>
<tr>
<td>Income</td>
<td>8,000,000</td>
</tr>
</tbody>
</table>

The factory has capacity to make 750,000 bottles per year. The variable production costs (included in cost of goods sold) are $4,900,000. The fixed selling, and administrative costs are $2,000,000.

A chain style manager has approached the sales manager of Health Products offering to buy 50,000 bottles at $28 per bottle. Variable selling & administrative costs decline by $5 per unit for all units in the special order.

<table>
<thead>
<tr>
<th>SP</th>
<th>$40.00 per bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCGS</td>
<td>$7.00 per bottle</td>
</tr>
<tr>
<td>VS&amp;A</td>
<td>$14.29 per bottle</td>
</tr>
<tr>
<td>FCGS</td>
<td>$3,100,000</td>
</tr>
<tr>
<td>FS&amp;A</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

1. What is the break-even point in units.
   \[ \text{cm} \times X - F = \text{income} \]
   \[ 18.71 \times X - 5,100,000 = 0 \]
   \[ X = 272,582 \] units

2. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 50,000 bottles.
   There is additional capacity for this special order

   **Incremental benefits**
   - Additional contributions margins or revenues
     \[ 50,000 \times (28 - 7 - 9.29) \]
     \[ +$585,500 \]
   - Cost savings
     \[ +$0 \]
   **Incremental costs**
   - Additional costs
     \[ -$0 \]
   - Lost contribution margins or revenues
     \[ -$0 \]
   **Change in profit**
     \[ +$585,500 \]
3. Now, suppose that the order is for 250,000 bottles instead of 50,000. If this special order is accepted, 200,000 units of sales through regular channels would be sacrificed. Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the offer for 250,000 bottles.

<table>
<thead>
<tr>
<th>Incremental benefits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional contributions margins or revenues</strong></td>
<td></td>
</tr>
<tr>
<td>$250,000*($28 – $7 – $9.29)</td>
<td>+$2,927,500</td>
</tr>
<tr>
<td><strong>Cost savings</strong></td>
<td>+$0</td>
</tr>
<tr>
<td><strong>Incremental costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Additional costs</strong></td>
<td>–$0</td>
</tr>
<tr>
<td><strong>Lost contribution margins or revenues</strong></td>
<td></td>
</tr>
<tr>
<td>$200,000*($40 – 7 – 14.29)</td>
<td>–$3,742,000</td>
</tr>
<tr>
<td><strong>Change in profit</strong></td>
<td>–$814,500</td>
</tr>
</tbody>
</table>

4. Assume the special order for 250,000 bottles (at $28). 40,000 will be made in-house, 180,000 will be outsourced at $29, and 30,000 will be outsourced at $27. Shipping will be $40,000. Is the special order now acceptable?

<table>
<thead>
<tr>
<th>Incremental benefits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional contributions margins or revenues</strong></td>
<td></td>
</tr>
<tr>
<td>$40,000*($28 – $7 – $9.29)</td>
<td>+$468,400</td>
</tr>
<tr>
<td>$180,000*($28 – $29)</td>
<td>–$180,000</td>
</tr>
<tr>
<td>$30,000*($28 – $27)</td>
<td>+$30,000</td>
</tr>
<tr>
<td><strong>Cost savings</strong></td>
<td>+$0</td>
</tr>
<tr>
<td><strong>Incremental costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Additional costs</strong></td>
<td>–$40,000</td>
</tr>
<tr>
<td><strong>Lost contribution margins or revenues</strong></td>
<td>–0</td>
</tr>
<tr>
<td><strong>Change in profit</strong></td>
<td>–$278,400</td>
</tr>
</tbody>
</table>
5. Now, assume a different special order for 250,000 bottles at $28. 50,000 will be made with available capacity with normal costs. 200,000 will be made with all variable production costs increasing 75% per unit. Is the special order now acceptable?

Incremental benefits

Additional contributions margins or revenues

50,000*(28 - 7 - 9.29) +$585,500
200,000*(28 - 12.25 - 9.29) +$1,292,000

Cost savings

+$0

Incremental costs

Additional costs

-$0

Lost contribution margins or revenues

-$0

Change in profit

-$278,400
Problem #50
Drop a store location

The most recent monthly income statement for Smith&Jones Stores is given below:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Store A</th>
<th>Store B</th>
<th>Store C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,900,000</td>
<td>$1,000,000</td>
<td>$600,000</td>
<td>$300,000</td>
</tr>
<tr>
<td>Less variable expenses</td>
<td>$1,170,000</td>
<td>$600,000</td>
<td>$240,000</td>
<td>$90,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>730,000</td>
<td>400,000</td>
<td>200,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Less traceable fixed expenses</td>
<td>400,000</td>
<td>100,000</td>
<td>200,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Store segment margin</td>
<td>330,000</td>
<td>300,000</td>
<td>40,000</td>
<td>(10,000)</td>
</tr>
<tr>
<td>Less allocated common fixed expenses</td>
<td>95,000</td>
<td>50,000</td>
<td>30,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Operating income</td>
<td>$235,000</td>
<td>$250,000</td>
<td>$10,000</td>
<td>(25,000)</td>
</tr>
</tbody>
</table>

Due to its poor showing, consideration is being given to closing Store C. Studies show that if Store C is closed, one-fifth of its traceable fixed expenses will continue unchanged, the rest is avoidable. In addition, sales revenue for Store A will increase by 10%, and sales revenue for Store B will increase by 20%. Traceable fixed costs for Store B will increase by $20,000. Smith&Jones allocates common fixed expenses to the stores on the basis of sales dollars.

**Required:** Compute the total amount of operating income if Store C is closed. Show all work:

<table>
<thead>
<tr>
<th>Incremental benefits</th>
<th>Additional contributions margins or revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A cm increase 400,000*.1</td>
</tr>
<tr>
<td></td>
<td>B cm increase 240,000*.2</td>
</tr>
<tr>
<td></td>
<td>Cost savings</td>
</tr>
<tr>
<td></td>
<td>C 80% savings</td>
</tr>
<tr>
<td><strong>Incremental costs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional costs</td>
</tr>
<tr>
<td></td>
<td>Lost contribution margins or revenues</td>
</tr>
<tr>
<td></td>
<td>Change in profit</td>
</tr>
</tbody>
</table>

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Problem #51
Drop a store location

The most recent monthly income statement for Smith&Jones Stores is given below:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Store A</th>
<th>Store B</th>
<th>Store C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,950,000</td>
<td>$950,000</td>
<td>$600,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>Less variable expenses</td>
<td>1,080,000</td>
<td>450,000</td>
<td>330,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>870,000</td>
<td>500,000</td>
<td>270,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Less traceable fixed expenses</td>
<td>600,000</td>
<td>250,000</td>
<td>200,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Store segment margin</td>
<td>270,000</td>
<td>250,000</td>
<td>70,000</td>
<td>(50,000)</td>
</tr>
<tr>
<td>Less allocated common fixed expenses</td>
<td>150,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Operating income</td>
<td>$120,000</td>
<td>$200,000</td>
<td>$20,000</td>
<td>(100,000)</td>
</tr>
</tbody>
</table>

Due to its poor showing, consideration is being given to closing Store C. Studies show that if Store C is closed, one-fifth of its traceable fixed expenses will continue unchanged, the rest is avoidable. In addition, sales revenue for Store A will increase by 20%, and sales revenue for Store B will decrease by 5%. Traceable fixed costs for Store A will increase by $15,000.

**Required:** Compute the total amount of operating income if Store C is closed. Show all work:

**Incremental benefits**
- Additional contributions margins or revenues
  - A cm increase 500,000*.2 +$100,000
- Cost savings
  - C 80% savings 150,000*.80 +$120,000

**Incremental costs**
- Additional costs
  - ~$15,000

**Lost contribution margins or revenues**
- B cm decrease 270,000*.05 ~$13,500
- C ~$100,000

**Change in profit**
- +$91,500
Problem 52

Guggenbiller Corporation currently makes 100,000 units per year of a gasket for use in one of its products. The production manager says that the part costs $7.00 per unit to make. This figure comes from:

- Direct materials $1.15
- Direct labor 0.80
- Variable manufacturing overhead 2.05
- Fixed manufacturing overhead 3.00
- Total manufacturing cost per unit 7.00

An outside supplier has offered to sell Guggenbiller Corporation all 100,000 gaskets for $5.00 per unit. If Guggenbiller decides to discontinue making the gaskets and start purchasing them, $150,000 of the total fixed manufacturing overhead costs could be avoided. However, shipping (not included in the purchase cost, would be $40,000. An additional profit of $10,000 could be earned through use of the released facilities.

Required: By how much does Guggenbiller’s income change if the outside supplier’s offer is accepted? Fully support and justify your answer.

Incremental benefits

+ Additional profit +10,000
+ Cost savings variable (100,000*4.00) +400,000
+ Cost savings fixed +150,000

Incremental costs

– Additional costs shipping –40,000
– Additional cost to purchase (100,000*5.00) –500,000
– Lost contribution margins

Net change in income +20,000