The following information is available for ABC Manufacturing Company for 2017:

<table>
<thead>
<tr>
<th>Inventories</th>
<th>January 1</th>
<th>December 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>$85,000</td>
<td>$105,000</td>
</tr>
<tr>
<td>Work in process</td>
<td>120,000</td>
<td>105,000</td>
</tr>
<tr>
<td>Finished goods</td>
<td>125,000</td>
<td>110,000</td>
</tr>
<tr>
<td>Advertising expense</td>
<td></td>
<td>$75,000</td>
</tr>
<tr>
<td>Depreciation expense—Office equip</td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td>Depreciation expense—Factory equip</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>Direct labor</td>
<td></td>
<td>205,000</td>
</tr>
<tr>
<td>Heat, light, and power—Factory</td>
<td></td>
<td>6,500</td>
</tr>
<tr>
<td>Indirect labor</td>
<td></td>
<td>26,000</td>
</tr>
<tr>
<td>Materials purchased during 2008</td>
<td>135,000</td>
<td></td>
</tr>
<tr>
<td>Office salaries expense</td>
<td>85,000</td>
<td></td>
</tr>
<tr>
<td>Property taxes—Factory</td>
<td></td>
<td>4,500</td>
</tr>
<tr>
<td>Property taxes—Headquarters building</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Rent expense—Factory</td>
<td>7,500</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td></td>
<td>950,000</td>
</tr>
<tr>
<td>Sales salaries expense</td>
<td>150,000</td>
<td></td>
</tr>
<tr>
<td>Supplies—Factory</td>
<td>3,500</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous cost—Factory</td>
<td>4,500</td>
<td></td>
</tr>
</tbody>
</table>

**Required: (24%)**

Compute the following items for the year:
1. Cost of materials used in production. (4%)
2. Total manufacturing costs incurred during the year. (4%)
3. Cost of good manufactured. (4%)
4. Cost of goods sold. (4%)
5. Gross profit. (4%)
6. Net income. (4%)

The budget director of Soft Furniture Company requests estimates of sales, production, and other operating data from the various administrative units every month. Selected information concerning sales and production for May 2017 is summarized as follows:
a. Estimated sales of King and Prince chairs for May by sales territory:

Northern Domestic:
- King: 5,800 units at $650 per unit
- Prince: 6,700 units at $420 per unit

Southern Domestic:
- King: 3,500 units at $590 per unit
- Prince: 3,800 units at $480 per unit

International:
- King: 1,200 units at $700 per unit
- Prince: 1,000 units at $530 per unit

b. Estimated inventories at May 1:

Direct materials:
- Fabric: 5,000 sq. yds.
- Wood: 6,500 lineal ft.
- Filler: 3,000 cu. ft.
- Springs: 7,250 units

Finished products:
- King: 920 units
- Prince: 260 units

c. Desired inventories at May 31:

Direct materials:
- Fabric: 4,400 sq. yds.
- Wood: 5,800 lineal ft.
- Filler: 3,100 cu. ft.
- Springs: 7,500 units

Finished products:
- King: 800 units
- Prince: 400 units

d. Direct materials used in production:

In manufacture of King:
- Fabric: 4.6 sq. yds. per unit of product
- Wood: 35 lineal ft. per unit of product
- Filler: 3.8 cu. ft. per unit of product
- Springs: 14 units per unit of product

In manufacture of Prince:
- Fabric: 3 sq. yds. per unit of product
- Wood: 25 lineal ft. per unit of product
- Filler: 3.2 cu. ft. per unit of product
- Springs: 10 units per unit of product

e. Anticipated purchase price for direct materials:

- Fabric: $8.00 per square yard
- Wood: 7.00 per lineal foot
- Filler: $3.50 per cubic foot
- Springs: 4.50 per unit

f. Direct labor requirements:

King:
- Framing Department: 2.5 hours at $12 per hour
- Cutting Department: 1.5 hours at $9 per hour
- Upholstery Department: 2.0 hours at $15 per hour

Prince:
- Framing Department: 1.8 hours at $12 per hour
- Cutting Department: 0.5 hour at $9 per hour
- Upholstery Department: 2.3 hours at $15 per hour

Required: (24%)
Compute the following estimates in the company's budget for May 2017:
1. The sale revenues for King and Prince chairs and the total sale revenue for the company. (6%)
2. Total units to be produced for King and Prince chairs. (4%)
3. The costs of total direct materials to be purchased for Fabric, Wood, Filler, and Springs. (8%)
4. Total direct labor costs for Framing, Cutting, and Upholstery Department. (6%)
Chilczuk, S.A., of Gdansk, Poland, is a major producer of classic Polish sausage. The company uses a standard cost system to help control costs. Manufacturing overhead is applied to production on the basis of standard direct labor-hours. According to the company’s flexible budget, the following manufacturing overhead costs should be incurred at an activity level of 35,000 labor-hours (the denominator activity level):

- Variable manufacturing overhead cost: PZ 87,500
- Fixed manufacturing overhead cost: 210,000
- Total manufacturing overhead cost: PZ 297,500

The currency in Poland is the zloty, which is denoted here by PZ.

During the most recent year, the following operating results were recorded:

**Activity:**
- Actual labor-hours worked: 30,000
- Standard labor-hours allowed for output: 32,000

**Cost:**
- Actual variable manufacturing overhead cost incurred: PZ 78,000
- Actual fixed manufacturing overhead cost incurred: PZ 209,400

At the end of the year, the company’s Manufacturing Overhead account contained the following data:

<table>
<thead>
<tr>
<th>Manufacturing Overhead</th>
<th>Actual 287,400</th>
<th>Applied 272,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>(22%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Management would like to determine the cause of the PZ 15,400 underapplied overhead.

**Required:**

1. Compute the predetermined overhead rate. Break the rate down into variable and fixed cost elements. (6%)

2. Analyze the PZ 15,400 underapplied overhead figure in terms of the variable overhead rate and efficiency variances and the fixed overhead budget and volume variances. (16%)
Minden Company introduced a new product last year for which it is trying to find an optimal selling price. Marketing studies suggest that the company can increase sales by 5,000 units for each $2 reduction in the selling price. The company’s present selling price is $70 per unit, and variable expenses are $40 per unit. Fixed expenses are $540,000 per year. The present annual sales volume (at the $70 selling price) is 15,000 units.

(30%)

Required:
1. What is the present yearly net operating income or loss? (3%)
2. What is the present break-even point in unit sales and in dollar sales? (6%)
3. Assuming that the marketing studies are correct, what is the maximum annual profit that the company can earn? At how many units and at what selling price per unit would the company generate this profit? (12%)
4. What would be the break-even point in unit sales and in dollar sales using the selling price you determined in (3) above (e.g., the selling price at the level of maximum profits)? Why is this break-even point different from the break-even point you computed in (2) above? (9%)