

## EXERCISES SECTION 3

- 1 Beacon Corporation manufactures and sells coffee makers. The following unit cost information is based on a production and sales volume of 12,000 units:

Direct materials: \$12

Direct labor: \$8

Variable overhead: \$3

Fixed overhead: \$5

Variable selling and administrative expenses: \$2

Fixed selling and administrative expenses: \$6

**Required:**

- 1) Determine the budgeted selling price per unit assuming that Beacon Corporation applies a cost-plus pricing strategy with a markup of 60% on the production cost.
  - 2) Calculate the company's total fixed costs.
  - 3) Calculate the contribution margin per unit based on the selling price determined in Requirement 1.
  - 4) Compute the break-even point in units and in dollars, using the selling price determined in Requirement 1.
  - 5) Using the unit contribution margin, estimate the company's profit if 16,000 units are sold.
- 2 Carson Corporation expects to sell 18,000 units of its new product at a selling price of \$130 per unit. The unit production cost is \$85. The company's target profit is 35% of sales revenue. Recently, the Vice President of Marketing discovered that a competitor plans to launch a similar product priced at \$118. The Vice President has suggested matching the competitor's price, believing that the lower price would lead to a 25% increase in sales volume.

**Required:**

- 1) Calculate the company's net income assuming the product is sold at \$130 and the unit cost remains at \$85. Assume no additional costs are incurred.
  - 2) Determine the product's target cost if it is sold at a \$130 price point.
  - 3) Calculate the company's net income if the target cost computed in Requirement 2 is achieved.
  - 4) Calculate the change in income from Requirement 1 if the product is sold for \$118, the cost remains at \$85, and sales volume increases by 25%.
- 3 Benson Corporation manufactures and sells electric scooters at a price of \$450 per unit. The variable costs per unit are \$270 plus a sales commission of 12% of the selling price. Total fixed costs include \$20,000 in fixed manufacturing overhead and \$12,000 in fixed selling and administrative expenses.

**Required:**

- 1) Calculate the contribution margin per unit.
- 2) Determine the break-even point in units and in dollars.
- 3) Compute the number of units that must be sold to achieve a profit of \$25,000.

4) What would be the break-even point in units if the sales commission is reduced to \$30 per unit sold?

4 Monroe Corporation reports sales of \$680,000. The company incurs variable costs equal to 45% of sales and has total fixed costs of \$180,000.

**Required:**

- 1) Calculate the company's break-even point in sales dollars.
- 2) Compute the company's operating leverage at its current level of sales.
- 3) Determine the percentage change in net income that would result from a 10% increase in sales.
- 4) Calculate the company's net income and operating leverage (rounded to one decimal place) if sales increase by 10%.
- 5) Explain the effect on operating leverage as a company's sales grow and move further beyond the break-even point.

5 The Campus Store sells merchandise at university events for \$30 each. The merchandise costs \$20 per unit. The store is currently negotiating with university management for permission to operate a booth in the student center. Three rental options are under consideration:

**Option 1:** Pay a fixed rent of \$2,400.

**Option 2:** Pay a fixed rent of \$1,500 plus 12% of revenue.

**Option 3:** Pay the university 30% of revenue with no fixed rent.

The store estimates that it can sell 350 merchandise items during the period.

**Required:**

- 1) Calculate the break-even point in units for each of the three options.
- 2) Assuming the store meets its sales target, which rental option should be selected?

6 Green Garden, Inc. manufactures and sells electric hedge trimmers for \$140 each. The variable costs per unit amount to \$90, while total monthly fixed costs are \$7,500. Current monthly sales revenue is \$56,000. The company is evaluating a proposal that would reduce the selling price by 12%, increase monthly fixed costs by 40%, and raise unit sales to 500 units per month.

**Required:**

- 1) Calculate the company's current break-even point in units and in dollars.
- 2) Determine the company's current margin of safety in units, dollars, and as a percentage.
- 3) Compute the company's margin of safety in units if the proposal is accepted.
- 4) Calculate the increase or decrease in profit if the proposal is accepted.

7 Summit Company manufactures and sells garden furniture. Its current sales revenue is \$600,000. The company's accountant provided the following cost information:

**Manufacturing costs:** \$120,000 + 35% of sales

**Selling costs:** \$40,000 + 8% of sales

**Administrative costs:** \$50,000 + 12% of sales

**Required:**

- 1) Calculate the product's contribution margin ratio.
- 2) Compute the company's current net income.
- 3) Determine the product's break-even point in dollars.
- 4) Calculate the amount of revenue necessary to achieve a profit of \$75,000.
- 5) Compute the company's current margin of safety ratio.
- 6) Should the company accept a proposal that would increase sales by 15% and total fixed costs by 20%?

- 8** Lopez Company manufactures and sells a product with variable costs of \$60 and a selling price of \$100. Current monthly sales total \$320,000. Fixed manufacturing costs are \$50,000 per month and fixed selling and administrative costs are \$40,000 per month. The company is evaluating a proposal to increase the selling price by 8%, raise fixed manufacturing costs by 12%, and increase fixed selling and administrative costs by \$2,000.

**Required:**

- 1) Compute the company's current break-even point in units.
- 2) Compute the company's current net income and margin of safety in dollars.
- 3) Compute the break-even point in units assuming the proposal is accepted.
- 4) Compute the company's net income assuming the proposal is accepted and sales total 3,400 units. Should the proposal be accepted?

- 9** Denver Company incurs annual fixed costs of \$90,000. Variable costs are \$4.00 per unit, and the selling price is \$12 per unit. Denver aims to achieve an annual profit of \$75,000.

**Required:**

Use the contribution margin ratio approach to determine the required sales volume in both dollars and units to earn the desired profit.

- 10** Broadway Fashion Company manufactures and sells two lines of business jackets: the *Urban* and the *Executive*. The following monthly data are provided:

	<b>Urban</b>	<b>Executive</b>
Estimated unit sales per month	600 units	900 units
Selling price	\$220	\$190
Variable manufacturing costs	\$120	\$110
Variable selling and administrative costs	\$15	\$12

Budgeted net income is **\$55,000** per month.

**Required:**

- 1) Calculate the company's total fixed costs, the weighted-average contribution margin, and the break-even point in units and dollars for each product.
- 2) Determine the margin of safety in dollars.
- 3) Calculate the company's total contribution margin and budgeted net income if monthly sales are 800 Urban units and 800 Executive units.
- 4) Evaluate the effect on net income if 300 additional Urban jackets are sold instead of 300 Executive jackets.