202. The following monthly data in contribution format are available for the MN Company and its only product, Product SD:

	Total	Per Unit
Sales	$83,700	$279
Variable expenses	32,700	109
Contribution margin	51,000	$170
Fixed expenses	40,000	
Net operating income	$11,000	

The company produced and sold 300 units during the month and had no beginning or ending inventories.

Required:

a. Without resorting to calculations, what is the total contribution margin at the break-even point?

b. Management is contemplating the use of plastic gearing rather than metal gearing in Product SD. This change would reduce variable expenses by $18 per unit. The company's sales manager predicts that this would reduce the overall quality of the product and thus would result in a decline in sales to a level of 250 units per month. Should this change be made?

c. Assume that MN Company is currently selling 300 units of Product SD per month. Management wants to increase sales and feels this can be done by cutting the selling price by $22 per unit and increasing the advertising budget by $20,000 per month. Management believes that these actions will increase unit sales by 50 percent. Should these changes be made?

d. Assume that MN Company is currently selling 300 units of Product SD. Management wants to automate a portion of the production process for Product SD. The new equipment would reduce direct labor costs by $20 per unit but would result in a monthly rental cost for the new robotic equipment of $10,000. Management believes that the new equipment will increase the reliability of Product SD thus resulting in an increase in monthly sales of 12%. Should these changes be made?

207. Iron Decor manufactures decorative iron railings. In preparing for next year's operations, management has developed the following estimates:

	Total	Per Unit
Sales (20,000 units).....	$1,000,000	$50.00
Direct materials.....	$200,000	$10.00
Direct labor (variable)	$50,000	$2.50
Manufacturing overhead:		
Variable.....	$70,000	$3.50
Fixed.....	$80,000	$4.00
Selling & administrative:		
Variable.....	$100,000	$5.00
Fixed.....	$30,000	$1.50

Required:

Compute the following items:
a. Unit contribution margin.
b. Contribution margin ratio.
c. Break-even in dollar sales.
d. Margin of safety percentage.
e. If the sales volume increases by 20% with no change in total fixed expenses, what will be the change in net operating income?
f. If the per unit variable production costs increase by 15%, and if fixed selling and administrative expenses increase by 12%, what will be the new break-even point in dollar sales?

211. Parkins Company produces and sells a single product. The company's income statement for the most recent month is given below:

Sales (6,000 units at $40 per unit)		**$240,000**
Less manufacturing costs:		
Direct materials	**$48,000**	
Direct labor (variable)	**60,000**	
Variable factory overhead	**12,000**	
Fixed factory overhead	**30,000**	**150,000**
Gross margin		**90,000**
Less selling and other expenses:		
Variable selling and other expenses	**24,000**	
Fixed selling and other expenses	**42,000**	**66,000**
Net operating income		**$ 24,000**

There are no beginning or ending inventories.

Required:

a. Compute the company's monthly break-even point in units of product.

b. What would the company's monthly net operating income be if sales increased by 25% and there is no change in total fixed expenses?

c. What dollar sales must the company achieve in order to earn a net operating income of $50,000 per month?

d. The company has decided to automate a portion of its operations. The change will reduce direct labor costs per unit by 40 percent, but it will double the costs for fixed factory overhead. Compute the new break-even point in units.

212. Almo company manufactures and sells adjustable canopies that attach to motor homes and trailers. Almo developed its budget for the current year assuming that the canopies would sell at a price of $400 each. The variable expenses for each canopy were forecasted to be $200 and the annual fixed expenses were forecasted to be $100,000. Almo had targeted a profit of $400,000.
While Almo's sales usually rise during the second quarter, the May financial statements reported that sales were not meeting expectations. For the first five months of the year, only 350 units had been sold at the established price, with variable expense as planned, and it was clear that the target profit for the year would not be reached unless some actions were taken. Almo's president assigned a management committee to analyze the situation and develop several alternative courses of action. The following three alternatives were presented to the president, only one of which can be selected.

1. Reduce the selling price by $40. The marketing department forecasts that with the lower price, 2,700 units could be sold during the remainder of the year.

2. Lower variable expenses per unit by $25 through the use of less expensive materials. Because of the difference in materials, the selling price would have to be lowered by $30 and sales of 2,200 units for the remainder of the year are forecast.

3. Cut fixed expenses by $10,000 and lower the selling price by 5 percent. Sales of 2,000 units would be expected for the remainder of the year.

Required:

a. If no changes are made to the selling price or cost structure, estimate the number of units that must be sold during the year to break even.

b. If no changes are made to the selling price or cost structure, estimate the number of units that must be sold during the year to attain the target profit of $400,000.

c. Determine which of the alternatives Almo's president should select to maximize profit.

227. Penury Company offers two products. At present, the following represents the usual results of a month's operations:

	Product K		Product L		
		Per Unit		Per Unit	Combined
Sales revenue	$120,000	$1.20	$80,000	$0.80	$200,000
Variable expenses	60,000	0.60	60,000	0.60	120,000
Contribution margin	$ 60,000	$0.60	$20,000	$0.20	80,000
Fixed expenses					50,000
Net operating income					$ 30,000

Required:

a. Find the break-even point in dollars.

b. Find the margin of safety in dollars.

c. The company is considering decreasing product K's unit sales to 80,000 and increasing product L's unit sales to 180,000, leaving unchanged the selling price per unit, variable expense per unit, and total fixed expenses. Would you advise adopting this plan?

d. Refer to (c) above. Under the new plan, find the break-even point in dollars.

e. Under the new plan in (c) above, find the margin of safety in dollars.