EXERCISE 2–10 Cost Behavior; **Contribution Format Income Statement**

Guided Example 2-10

Harris Company manufactures and sells a single product. A partially completed schedule of the company's total and per unit costs over the relevant range of 30,000 to 50,000 units produced and sold annually is given below:

	Units Produced and Sold		
	30,000	40,000	50,000
Total costs:			
Variable costs	$180,000	?	?
Fixed costs	300,000	?	?
Total costs	$480,000	?	?
Cost per unit:			
Variable cost	?	?	?
Fixed cost	?	?	?
Total cost per unit	?	?	?

Assume that the company produces and sells 45,000 units during the year at a selling price of $16 per unit. Prepare a contribution format income statement for the year.

EXERCISE 5–1Preparing a Contribution Format Income Statement [LO5–1]

Whirly Corporation's most recent income statement is shown below:

	Total	Per Unit	
Sales (10,000 units)	$350,000	$35.00	100%
Variable expenses	200,000	20.00	≈57,14
Contribution margin	150,000	$15.00	≈48,85
Fixed expenses	135,000		
Net operating income	$ 15,000		

Prepare a new contribution format income statement under each of the following conditions (consider each case independently):

1. The sales volume increases by 100 units.
2. The sales volume decreases by 100 units.
3. The sales volume is 9,000 units.

EXERCISE 5–18 Break-Even

Menlo Company distributes a single product. The company's sales and expenses for last month follow:

	Total	Per Unit
Sales	$450,000	$30
Variable expenses	180,000	12
Contribution margin	270,000	$18
Fixed expenses	216,000	
Net operating income	$ 54,000	

Required:

1. What is the monthly break-even point in unit sales and in dollar sales?
2. Without resorting to computations, what is the total contribution margin at the break-even point?

EXERCISE 5–4 Computing and Using the CM Ratio

Last month when Holiday Creations, Inc., sold 50,000 units, total sales were $200,000, total variable expenses were $120,000, and fixed expenses were $65,000.

Required:

1. What is the company's contribution margin (CM) ratio?
2. Estimate the change in the company's net operating income if it were to increase its total sales by $1,000.

EXERCISE 5–5 Changes in Variable Costs, Fixed Costs, Selling Price, and Volume

Data for Hermann Corporation are shown below:

	Per Unit	Percent of Sales
Selling price	$90	100%
Variable expenses	63	70
Contribution margin	$27	30%

Fixed expenses are $30,000 per month and the company is selling 2,000 units per month.

Required:

1. The marketing manager argues that a $5,000 increase in the monthly advertising budget would increase monthly sales by $9,000. Should the advertising budget be increased?

EXERCISE 5–5 Changes in Variable Costs, Fixed Costs, Selling Price, and Volume

Data for Hermann Corporation are shown below:

	Per Unit	Percent of Sales
Selling price	$90	100%
Variable expenses	63	70
Contribution margin	$27	30%

Fixed expenses are $30,000 per month and the company is selling 2,000 units per month.

Management is considering using higher-quality components that would increase the variable expense by $2 per unit. The marketing manager believes that the higher-quality product would increase sales by 10% per month. Should the higher-quality components be used?

EXERCISE 5–18 Break-Even and Target Profit Analysis; Margin of Safety; CM Ratio

Menlo Company distributes a single product. The company's sales and expenses for last month follow:

	Total	Per Unit
Sales	$450,000	$30
Variable expenses	180,000	12
Contribution margin	270,000	$18
Fixed expenses	216,000	
Net operating income	$ 54,000	

Required:

1. How many units would have to be sold each month to earn a target profit of $90,000? Use the formula method. Verify your answer by preparing a contribution format income statement at the target sales level.

EXERCISE 5–18 Break-Even and Target Profit Analysis; Margin of Safety; CM Ratio

Menlo Company distributes a single product. The company's sales and expenses for last month follow:

	Total	Per Unit
Sales	$450,000	$30
Variable expenses	180,000	12
Contribution margin	270,000	$18
Fixed expenses	216,000	
Net operating income	$ 54,000	

Required:

1. Compute the company's margin of safety in both dollar and percentage terms.
2. What is the company's CM ratio? If sales increase by $50,000 per month and there is no change in fixed expenses, by how much would you expect monthly net operating income to increase?

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In Class Assignments

EXERCISE 5–13 Using a Contribution Format Income Statement

Miller Company's most recent contribution format income statement is shown below:

	Total	Per Unit
Sales (20,000 units)	$300,000	$15.00
Variable expenses	180,000	9.00
Contribution margin	120,000	$ 6.00
Fixed expenses	70,000	
Net operating income	$ 50,000	

Required:

Prepare a new contribution format income statement under each of the following conditions (consider each case independently):

1. The number of units sold increases by 15%.
2. The selling price decreases by $1.50 per unit, and the number of units sold increases by 25%.
3. The selling price increases by $1.50 per unit, fixed expenses increase by $20,000, and the number of units sold decreases by 5%.
4. The selling price increases by 12%, variable expenses increase by 60 cents per unit, and the number of units sold decreases by 10%.

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Oslo Company prepared the following contribution format income statement based on a sales volume of 1,000 units (the relevant range of production is 500 units to 1,500 units):

Sales	$20,000
Variable expenses	12,000
Contribution margin	8,000
Fixed expenses	6,000
Net operating income	$ 2,000

Required:

(Answer each question independently and always refer to the original data unless instructed otherwise.)

1. What is the contribution margin per unit?
2. What is the contribution margin ratio?
3. What is the variable expense ratio?
4. If sales increase to 1,001 units, what would be the increase in net operating income?
5. If sales decline to 900 units, what would be the net operating income?

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