

9. In applying the high-low method of cost estimation, how is the total fixed cost estimated?
10. If fixed costs increase, what would be the impact on the (a) contribution margin? (b) income from operations?
11. An examination of the accounting records of Mulgrew Company disclosed a high contribution margin ratio and production at a level below maximum capacity. Based on this information, suggest a likely means of improving income from operations. Explain.
12. If the unit cost of direct materials is decreased, what effect will this change have on the break-even point?
13. If insurance rates are increased, what effect will this change in fixed costs have on the break-even point?
14. Both Stratton Company and Callahan Company had the same sales, total costs, and income from operations for the current fiscal year; yet Stratton Company had a lower break-even point than Callahan Company. Explain the reason for this difference in break-even points.
15. The reliability of cost-volume-profit (CVP) analysis depends on several key assumptions. What are those primary assumptions?
16. How does the sales mix affect the calculation of the break-even point?
17. What does operating leverage measure, and how is it computed?

Practice Exercises

PE 21-1A
High-low method
obj. 1

The manufacturing costs of Jake Industries for the first three months of the year are provided below.

	Total Costs	Production
January	\$180,000	2,500 units
February	250,000	5,000
March	145,000	3,200

Using the high-low method, determine (a) the variable cost per unit and (b) the total fixed cost.

PE 21-1B
High-low method
obj. 1

The manufacturing costs of Big T Enterprises for the first three months of the year are provided below.

	Total Costs	Production
January	\$ 80,000	800 units
February	140,000	1,600
March	105,000	1,100

Using the high-low method, determine (a) the variable cost per unit and (b) the total fixed cost.

PE 21-2A
Contribution margin ratio
obj. 2

Skinny Company sells 15,000 units at \$20 per unit. Variable costs are \$18 per unit, and fixed costs are \$10,000. Determine (a) the contribution margin ratio, (b) the unit contribution margin, and (c) income from operations.

PE 21-2B
Contribution margin ratio
obj. 2

Thorup Company sells 5,000 units at \$40 per unit. Variable costs are \$34 per unit, and fixed costs are \$10,000. Determine (a) the contribution margin ratio, (b) the unit contribution margin, and (c) income from operations.

PE 21-3A
Break-even sales
obj. 3

Frankel Enterprises sells a product for \$25 per unit. The variable cost is \$20 per unit, while fixed costs are \$25,000. Determine (a) the break-even point in sales units and (b) the break-even point if the selling price were increased to \$28 per unit.

PE 21-3B*Break-even sales*

obj. 3

Barts Inc. sells a product for \$120 per unit. The variable cost is \$100 per unit, while fixed costs are \$40,000. Determine (a) the break-even point in sales units and (b) the break-even point if the selling price were decreased to \$110 per unit.

PE 21-4A*Break-even sales and sales to realize target profit*

obj. 3

Melka Inc. sells a product for \$80 per unit. The variable cost is \$70 per unit, and fixed costs are \$25,000. Determine (a) the break-even point in sales units and (b) the break-even point in sales units if the company desires a target profit of \$25,000.

PE 21-4B*Break-even sales and sales to realize target profit*

obj. 3

Averill Company sells a product for \$100 per unit. The variable cost is \$80 per unit, and fixed costs are \$140,000. Determine (a) the break-even point in sales units and (b) the break-even point in sales units if the company desires a target profit of \$30,000.

PE 21-5A*Sales mix and break-even sales*

obj. 5

Simon Inc. has fixed costs of \$150,000. The unit selling price, variable cost per unit, and contribution margin per unit for the company's two products are provided below.

Product	Selling Price	Variable Cost per Unit	Contribution Margin per Unit
X	\$100	\$ 60	\$40
Y	140	125	15

The sales mix for products X and Y is 60% and 40%, respectively. Determine the break-even point in units of X and Y.

PE 21-5B*Sales mix and break-even sales*

obj. 5

Brubaker Company has fixed costs of \$120,000. The unit selling price, variable cost per unit, and contribution margin per unit for the company's two products are provided below.

Product	Selling Price	Variable Cost per Unit	Contribution Margin per Unit
Q	\$90	\$70	\$20
Z	75	65	10

The sales mix for products Q and Z is 20% and 80%, respectively. Determine the break-even point in units of Q and Z.

PE 21-6A*Operating leverage*

obj. 5

Ross Enterprises reports the following data:

Sales	\$600,000
Variable costs	250,000
Fixed costs	100,000

Determine Ross Enterprises's operating leverage.

PE 21-6B*Operating leverage*

obj. 5

EmilyCo reports the following data:

Sales	\$900,000
Variable costs	400,000
Fixed costs	250,000

Determine EmilyCo's operating leverage.

PE 21-7A*Margin of safety*

obj. 5

Miller Inc. has sales of \$1,000,000, and the break-even point in sales dollars is \$800,000. Determine the company's margin of safety.