Chapter 2. Cost Behavior and Cost-Volume-Profit Relationships

1. Relay Corp. manufactures batons. Relay can manufacture 300,000 batons a year at a variable cost of $750,000 and a fixed cost of $450,000. Based on Relay's predictions, 240,000 batons will be sold at the regular price of $5.00 each. In addition, a special order was placed for 60,000 batons to be sold at a 20% discount off the regular price. By what amount would income before income taxes be increased or decreased as a result of the special order?

a. $60,000 decrease b. $30,000 increase c. $90,000 increase d. $180,000increase

2. When fixed cost is $10,000, variable cost is $6 per unit, and selling price is $10 per unit, the break-even point is

a. 1,000 units. b. 2,500 units c. 5,000 units. d. 10,000 units.

3. The following information pertains to Nova Co.'s cost-volume-profit relationships:

Break-even point in units sold	500
Variable costs per unit	$ 500
Total fixed costs	$150,000

How much will be contributed to profit before income taxes by the 501st unit sold?

a. $650 b. $300 c. $150 d. $0

4. Sticky Glue sells for $2.00 per tube and has related variable expenses of $1.50 per tube. Fixed expenses of producing Sticky Glue are $100,000 per month. Sticky Glue is in the 40% income tax bracket. How many tubes of Sticky Glue must be sold each month for the Sticky Glue Company to have a monthly income (after income taxes) of $60,000?

a. 400,000 b. 300,000 c. 200,000 d. 135,000 e. 450,000

5. Dancer, Inc. sells product A for $5 per unit. Fixed costs are $210,000 and variable costs are 60% of the selling price. What would be the amount of sales if Dancer is to realize a profit of 10% of sales?

a. $700,000 b. $525,000 c. $472,500 d. $420,000

6. Zarlin Co. is considering an expansion program based on the following data:

Expected sales	$1,000,000
Variable costs	700,000
Fixed expenses	120,000

What is the amount of break-even sales?

a. $400,000 b. $420,000 c. $390,000 d. $300,000

7. The following information pertains to Sisk Co.:

Sales (25,000 units)	$500,000
Direct materials and direct labor	150,000
Factory overhead:	

Variable	20,000
Fixed	35,000
Selling and administrative expenses:	
Variable	5,000
Fixed	30,000

Your computation should include materials costs, labor costs, overhead and selling and administration expenses. Sisk's break-even point in number of units is

a. 4,924 b. 5,000 c. 6,250 d. 9,286

Use the following data for the next three questions:

Unit selling price	$50
Variable costs per unit	
Direct materials	12
Direct labor	5
Variable manufacturing overhead	4
Variable selling and administrative expense	5
Total fixed costs per year	$240,000
Estimated sales volume for the year	12,000 units
(All production is sold i.e. no ending inventories.)	

8. The break-even volume in units is:

a. 6,000 b. 7,500 c. 10,000 d. 12,000 e. none of the above.

9. If the estimated sales volume is achieved, the net income to be realized will be

a. $48,000 b. $240,000 c. $150,000 d. $120,000 e. none of these.

10. The volume in terms of sales dollars needed to yield a net income of $120,000 is:

a. $750,000 b. $625,000 c. $500,000 d. $480,000. e. none of these.

11. On January 1, 2004, Lake Co. increased its direct labor wage rates. All other budgeted costs and revenues were unchanged. How did this increase affect Lake's budgeted break-even point and budgeted margin of safety?

	Budgeted break-even point	*Budgeted margin of safety*
a.	Increase	Decrease
b.	Decrease	Decrease
c.	Decrease	Increase
d.	Increase	Increase

12. A club will budget its costs for a dance.

- The admission price will be set based on the plan for 100 persons to attend.
- Band cost is fixed and expected to be $500.
- They plan a flexible menu that will result in food cost which is variable at $10 per person.
- They set the ticket price for admission equal to expected cost.
- One hundred and eighteen people actually attend.
- The predictions of fixed and variable costs shown above were accurate.

What is the overall profit for the dance?

a. $0 b. $40 c. $50 d. $90

13. General Electric has determined that its fixed costs for a light bulb plant is $100,000 per month when production is between 40,000 and 85,000 cases of light bulbs per month. If production falls below 40,000 cases, they will reduce salaries and related personnel costs causing fixed costs to be only $60,000. If operations rise above 85,000 cases, they will need to increase personnel and salaries causing fixed costs to rise to $115,000. The relevant range for its fixed costs is:

a. Below 40,000 cases
b. Between 40,000 cases and 85,000 cases
c. Above 85,000 cases

14. Jan has an opportunity to operate a hotdog stand at the World's Fair. She can rent the booth for $1,000 per month, which includes all necessary equipment and electricity. The booth is located next to an area with vending machines for soft drinks, so she will not sell drinks – only hotdogs. She will sell premium hotdogs for $5 each. She checked prices for hotdogs, buns, ketchup, mustard, napkins, etc. and found that she will incur costs of $3 per hotdog for these items of food and supplies. She will operate the stand by herself – she will not have employees. What is the contribution margin per hotdog (unit contribution margin)?

a. $5.00 b. $3.00 c. $2.00 d. None of these

15. Repeat preceding question. How many hotdogs will she need to sell each month to break-even?

a. 500
b. 1,000
c. 1,500
d. 2,000

16. How many hotdogs will she need to sell to earn a profit of $2,000 per month? (ignore income taxes)

a. 500
b. 1,000
c. 1,500
d. 2,000

Snow Geese Inn

Phil and Carol eloped (at 59 and 46) to New Mexico and then told the kids they were moving there permanently. After 5 years in downtown Albuquerque, Carol made one of her frequent flights east to visit family. She returned to find that Phil had rented out a bedroom, declaring they were in the "Bed and Breakfast" business. In a year, they expanded to a pricy suburb by buying/renovating a larger estate with 6 rooms or apartments.

Phil cooked breakfast; Carol bought; they lived in a separate suite and frequently hosted guests for cocktail hour. The average life-span for B&B owners is about 4 years. After about 3 years, Phil was tired of doing breakfasts. He and Carol build their own home next door, hired Maggie to run the B&B, and pitched in when needed.

You have been asked to help them see where this business is financially. Use the following information to prepare a two-page analysis.

Room prices range, but average $85 per night. Last year without Maggie, they generated about $30,000 in revenue. Expenses this year (e.g., advertising, telephone, mortgage, repairs/maintenance, utilities, Maggie's base salary) are generally fixed ($34,739) except for breakfast which is variable (last year = $3,729).

Maggie's salary consists of a base of $7500 plus a commission of 35% of revenue over $25.000, and a free room (the separate suite).

Questions:

1) Last year (before Maggie) what was breakeven? Did they make a profit? What was the maximum profit that could be made?

2) With Maggie, what is the new breakeven? Is this a realistic possibility? What should they do?