Financial & Managerial Accounting for Decision Makers, 3rd Edition by Dyckman, Hanlon, Magee, Pfeiffer, Hartgraves, and Morse

Chapter 15—Cost-Volume-Profit Analysis and Planning

Solutions to Practice Quiz

1.   With fixed costs of $10,000/month and variable costs of $2/unit, Blake reported a monthly profit of $4,000 at a volume of 8,000 units. The unit selling price was:

a. $2.00
b. $1.75
c. $3.75
d. $5.75

Answer: *c*
Rationale: The profit equation: $4,000 = (p x 8,000) − ($10,000 + ($2 x 8,000))
Solve for price: P = ($4,000 + $10,000 + ($2 x 8,000))/8,000 = $3.75

2.   Presented is information from Wanda's contribution income statement:

Sales		$85,000
Less variable costs:		
Manufacturing	$30,000	
Selling and administrative	10,000	
(40,000)		
Contribution margin		45,000
Less fixed costs:		
Manufacturing	12,000	
Selling and administrative	9,000	(21,000)
Profit		$24,000

With a functional income statement Wanda would have reported a gross margin of:

a. $24,000
b. $43,000
c. $66,000
d. $45,000

Answer: *b*
Rationale: $85,000 Sales less ($30,000 variable + $12,000 fixed) manufacturing
  = $43,000

3. Based on the information in Question 2, if Wanda had a $10,000 increase in sales, profits would increase by:

a. $5,789
b. $4,118
c. $5,290
d. $10,000

Answer: *c*
Rationale: Contribution margin ratio = $45,000 / $85,000 = 0.529
Increase in profit = $10,000 x 0.529 = $5,290

4. Regal Inc. produces a product sold for $52 per unit. Variable and fixed cost information is presented below:

Variable costs per unit		Fixed costs per month	
Manufacturing	$10	Manufacturing	$33,000
Selling and administrative	2	Selling and administrative	19,000
Total	$12	Total	$52,000

The sales volume required for a monthly profit of $48,000 is:

a. 1,000 units
b. 1,923 units
c. 1,300 units
d. 2,500 units

Answer: *d*
Rationale: Unit contribution margin = $40 ($52 − $12)
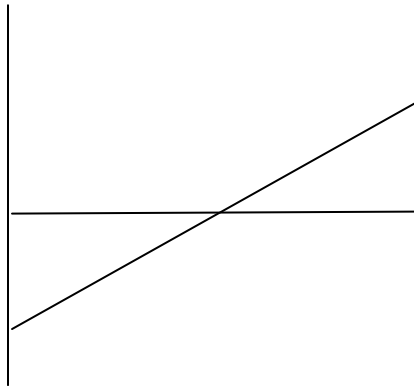Required unit sales = ($52,000 + $48,000)/$40 = 2,500 units

5. Based on the information in question 4, with an income tax rate of 40 percent the sales volume required for a monthly after-tax profit of $48,000 is:

a. 2,000 units
b. 3,300 units
c. 2,538 units
d. 4,300 units

Answer: *b*
Rationale: Required before tax profit = ($48,000 / (1 − 0.40)) = $80,000
Required unit sales = ($52,000 + $80,000)/$40 = 3,300 units

6. Consider the following profit-volume graph where profits/losses are plotted on the vertical axis and volume is plotted on the horizontal axis.

An increase in fixed costs accompanied by a decrease in variable costs will have the following impact on the total profit or loss line:

a. Lower the vertical axis intercept and reduce the slope
b. Increase the vertical axis intercept and reduce the slope
c. Lower the vertical axis intercept and increase the slope
d. Increase the vertical axis intercept and increase the slope

Answer: *c*
Rationale: In this case, amounts below the horizontal axis intercept are negative. Hence, an increase in fixed costs increases the loss at a volume of zero and lowers the vertical axis intercept of the total profit or loss line with the vertical axis. A reduction in variable costs will increase the unit contribution (unit selling price minus unit variable cost) and the slope of the total profit or loss line.

7. Alan sells two products: Y has a contribution margin ratio of 0.40 and Z has a contribution margin ratio of 0.60. A shift in the sales mix to more Product Y and less Product Z will:

a. Reduce the break-even point and increase the slope of the profit or loss line
b. Increase the break-even point and reduce the slope of the profit or loss line
c. Increase the break-even point and increase the slope of the profit or loss line
d. Increase the vertical axis intercept and reduce the slope of the profit or loss line with no change in the break-even point

Answer: *b*
Rationale: The shift to a product with a lower contribution margin ratio will reduce the slope of the profit or loss line, thereby increasing the break-even point.

8. James Company reported the following for November: Sales $80,000, variable costs $20,000, and fixed costs $40,000. If monthly sales increase 20 percent, profits should increase by:

a. 20 percent
b. 40 percent
c. 60 percent
d. 80 percent

Answer: *c*
Rationale: Contribution margin = $80,000 – $20,000 = $60,000
Profit = $60,000 – $40,000 = $20,000
Operating leverage ratio = $60,000 / $20,000 = 3
Increase in profits = 20% x 3 = 60%