Management Accounting Information for Decision Making 7th edition Atkinson Test Bank

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Chapter 2

Using Costs in Decision Making

Learning Objectives—Coverage by question type

LO1 – Understand and be able to explain the important cost-related concepts in management accounting.

True / False	Multiple Choice	Exercises, Problems & Short Answer
1-12	1-10	1

LO2 – Understand how cost information supports important management activities, such as product pricing, product planning, budgeting, and performance evaluation.

True / False	Multiple Choice	Exercises, Problems & Short Answer
13	11	2, 3

LO3 – Be able to model, interpret, and evaluate the effect of volume changes on costs and profit in simple organizations.

True / False	Multiple Choice	Exercises, Problems & Short Answer
14-19	12-40	4-11

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Chapter 2: Using Costs in Decision Making

True / False

LO1
Terms: Target costing
Difficulty: 2
1. In markets where the organization faces a market-determined price, the organization can set its price using cost plus pricing.

Answer: FALSE
Explanation: In markets where the organization faces a market-determined price, the organization sets its price using target costing.

LO1
Terms: Budgeting
Difficulty: 1
2. The most widespread use of cost information is in budgeting.

Answer: TRUE

LO1
Terms: Cost reimbursement contracts
Difficulty: 1
3. Governments are frequent users of cost reimbursement contracts.

Answer: TRUE

LO1
Terms: Fixed cost
Difficulty: 1
4. The salary of the company president is a fixed manufacturing cost.

Answer: FALSE
Explanation: The salary of the company president is a fixed administrative cost.

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LO1
Terms: Fixed cost, variable cost
Difficulty: 1
5. For external reporting, generally accepted accounting principles require that costs be classified as either variable or fixed costs.

Answer: FALSE
Explanation: GAAP external reporting does not require costs to be classified as variable or fixed.

LO1
Terms: Variable cost
Difficulty: 1
6. Variable costs vary with the level of production or sales volume.

Answer: TRUE

LO1
Terms: Fixed cost
Difficulty: 1
7. Currently, most personnel costs are classified as fixed costs.

Answer: TRUE

LO1
Terms: Fixed cost
Difficulty: 2
8. Fixed costs depend on the resources acquired, not the resources used.

Answer: TRUE

LO1
Terms: Capacity-related cost
Difficulty: 1
9. The time over which a decision maker can adjust capacity is referred to as the short run.

Answer: FALSE
Explanation: The time over which a decision maker can adjust capacity is referred to as the long run.

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LO1
Terms: Capacity related cost, fixed cost
Difficulty: 2

10. Fixed cost behavior over the long run likely looks like a step variable cost

Answer: TRUE
Explanation: In the long run as capacity is added the fixed cost graph will be a horizontal line over the capacity range.

LO1
Terms: Capacity-related cost
Difficulty: 2

11. For general customers, the price charged for a product must cover its long-run cost to the organization.

Answer: FALSE
Explanation: For general customers, the price charged for a product must cover its short-run cost in the organization.

LO1
Terms: Fixed cost
Difficulty: 1

12. In recent years, fixed costs have decreased as a proportion of total manufacturing costs.

Answer: FALSE
Explanation: In recent years fixed costs have increased as a proportion of total manufacturing costs.

LO2
Terms: Pricing, costs
Difficulty: 1

13. An important role for cost information is to help managers develop a price for a product or service, or even decide whether to produce a product or service.

Answer: TRUE
Explanation: When the market price is set by competition (usually a commodity product), cost information will help managers determine whether the product will be profitable given the computed market price. When an organization has a differentiated product and can set a market price, cost information can be used along with a markup to choose a product price.

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LO3
Terms: Break-even point
Difficulty: 1

14. Break-even point is *not* an important concept since the goal of business is to make a profit.

Answer: FALSE
Explanation: Break-even point is an important concept since the goal of business is to make a profit, so it is important to know at which point the business will begin making a profit.

LO3
Terms: Cost-volume-profit analysis
Difficulty: 1

15. To perform cost-volume-profit analysis, a company must be able to separate costs into fixed and variable components.

Answer: TRUE

LO3
Terms: Cost-volume-profit analysis
Difficulty: 1

16. Cost-volume-profit analysis may be used for single-product and multiproduct analysis but not in a service environment.

Answer: FALSE
Explanation: Cost-volume-profit analysis may be used for single-product and multiproduct analysis and in a service environment.

LO3
Terms: Break-even point
Difficulty: 2

17. Selling price per unit is $60, variable cost per unit is $30, and fixed cost per unit is $20. When this company operates above the break-even point, the sale of one more unit will increase net income by $10.

Answer: FALSE
Explanation: When this company operates above the break-even point, the sale of one more unit will increase net income by $30.

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LO3
Terms: Break-even point
Difficulty: 3

18. A company with sales of $100,000, variable costs of $70,000, and fixed costs of $50,000 will reach its break-even point if sales are increased by $20,000.

Answer: FALSE
Explanation: $30,000/$100,000 = 30% CM Ratio. $50,000/30%= $116,667 break-even.

LO3
Terms: Break-even point
Difficulty: 2

19. In multiproduct situations when the sales mix shifts toward the product with the lowest contribution margin per unit, the break-even quantity will decrease.

Answer: FALSE
Explanation: In multiproduct situations when the sales mix shifts toward the product with the lowest contribution margin per unit, the break-even quantity will increase.

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Multiple Choice

LO1
Terms: Cost object
Difficulty: 1

1. Which of the following could be considered a cost object?
A) A product
B) A product line
C) A department
D) All the above

Answer: D

LO1
Terms: Direct cost
Difficulty: 1

2. Which of the following is an example of a direct cost?
A) Labor
B) Depreciation of general-purpose production equipment
C) Supervisor salaries
D) Factory rent

Answer: A

LO1
Terms: Variable cost
Difficulty: 1

3. A total cost that increases at a constant rate as production is increased is called:
A) Fixed cost
B) Variable cost
C) Step variable cost
D) None of the above

Answer: B

LO1
Terms: Fixed cost
Difficulty: 1

4. Which of the following is most likely an example of a fixed cost?
A) The cost of materials.
B) The cost of electricity used in a factory.
C) The cost of taxes paid on income.
D) The cost of rent paid to rent a warehouse.

Answer: D

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LO1
Terms: Cost Behavior
Difficulty: 2

5. Which of the following is likely to be an example of a mixed cost?

A) The cost of steel used to make automobiles.
B) The total cost, including transportation, admission, and food of going to a movie.
C) The cost of paying workers based on what they produce.
D) None of the above.

Answer: B

LO1
Terms: Cost Behavior
Difficulty: 2

6. Which of the following is likely an example of a step variable cost?

A) The cost of diesel fuel consumed by a truck travelling from Toronto to Vancouver.
B) The cost of supervisory labour in a factory.
C) The salary paid to a company's chief executive.
D) None of the above

Answer: B

LO1
Terms: Fixed cost
Difficulty: 2

7. Fixed costs:

A) may be either direct or indirect costs.
B) vary with production or sales volume.
C) include parts and materials used to manufacture a product.
D) can be adjusted in the short run to meet actual demands.

Answer: A

LO1
Terms: Fixed cost
Difficulty: 2

8. Fixed costs depend on:

A) the amount of resources used.
B) the amount of resources acquired.
C) the volume of production.
D) the volume of sales.

Answer: B

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LO1
Terms: Fixed cost
Difficulty: 2

9. Currently, most companies consider annual salary costs as:

A) a fixed cost.
B) a variable cost.
C) an opportunity cost.
D) a period cost.

Answer: A

LO1
Terms: Variable cost
Difficulty: 2

10. Which of the following describes a variable cost?

A) Variable cost are always indirect costs.
B) Variable costs increase in total when the actual level of activity increases.
C) Variable costs include most personnel costs and depreciation on machinery.
D) Variable costs can always be traced directly to the cost object.

Answer: B

LO2
Terms: Direct cost
Difficulty: 2

11. Which of the following statements is true?

A) Depreciation on production equipment is always an indirect cost
B) Depreciation on production equipment is always a direct cost
C) Depreciation on production equipment is usually an indirect cost but can sometimes be a direct cost
D) Depreciation on production equipment is usually a direct cost but can sometimes be an indirect cost

Answer: C

LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

12. Cost-volume-profit analysis is used PRIMARILY by management:

A) as a planning tool.
B) for control purposes.
C) to establish a target net income for next year.
D) to attain extremely accurate financial results.

Answer: A

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LO3
Terms: Contribution margin
Difficulty: 1

13. Contribution margin equals revenues minus:
A) product costs.
B) period costs.
C) variable costs.
D) fixed costs.

Answer: C

LO3
Terms: Break-even point
Difficulty: 2

14. The break-even point is the level at which revenues:
A) equal fixed costs.
B) equal variable costs.
C) equal fixed costs minus flexible costs.
D) equal variable costs plus capacity-related costs.

Answer: D

LO3
Terms: Break-even point
Difficulty: 2

15. The break-even point in units is:
A) total costs divided by variable costs per unit.
B) contribution margin per unit divided by revenue per unit.
C) fixed costs divided by contribution margin per unit.
D) (fixed costs plus variable costs) divided by contribution margin per unit.

Answer: C

LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

16. Cost-volume-profit analysis assumes all of the following *except*:
A) all costs are purely variable or fixed.
B) units manufactured equal units sold.
C) total variable costs remain the same over the relevant range.
D) total fixed costs remain the same over the relevant range.

Answer: C

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LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

17. All the following are assumed in a cost-volume-profit analysis EXCEPT:
A) a constant product mix.
B) fixed costs increase when activity increases.
C) revenue per unit does not change as volume changes.
D) all costs can be classified as either fixed or variable.

Answer: B

LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

18. In multiproduct situations, when the sales mix shifts toward the product with the highest contribution margin per unit, then:
A) total revenues will decrease.
B) breakeven quantity will increase.
C) total contribution margin will decrease.
D) operating income will increase.

Answer: D

LO3
Terms: Cost-volume-profit analysis
Difficulty: 1

19. Which of the following is not an assumption underlying single product cost volume profit analysis as described in the course text?
A) All costs can be classified as either fixed or variable.
B) There are no inventories.
C) The sales of any other products the company produces remains constant.
D) Total variable costs must be constant.

Answer: D

LO3
Terms: Target profit
Difficulty: 1

20. If a product's variable cost increases, the number of units needed to be sold to earn a target profit will:
A) Increase
B) Decrease
C) Not change
D) Cannot be determined since predicting the effect requires more information.

Answer: A

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LO3
Terms: Management Accounting
Difficulty: 1

21. Ajax Company produces a single product with a selling price of $15. The product has a contribution margin ratio of 0.4. Ajax Company has fixed costs of $900,000. The breakeven number of unit sales is:

A) 150,000
B) 225,000
C) 360,000
D) Cannot be determined from the information provided.

Answer: A
Explanation: 900000/.4/15

LO3
Terms: Target profit
Difficulty: 2

22. Event Company produces a single product with the following characteristics: price per unit $24.00, variable materials cost per unit $8.60, variable labour cost per unit $3.60, variable overhead cost per unit $1.80, and fixed overhead cost per unit $2.00. Event Company's manufacturing fixed costs are $5,000,000 and selling, general and administration fixed costs are $2,500,000.

Which of the following numbers is the dollar sales required for Event Company to earn a target profit of $500,000?

A) $12,500,000
B) $18,000,000
C) $19,200,000
D) $24,000,000

Answer: C
Explanation: (5000000+2500000+500000)/(24-8.6-3.6-1.8)/24

LO3
Terms: Breakeven
Difficulty: 2

23. Constant Company produces a single product with the following characteristics: Price per unit $14.00, variable materials cost per unit $2.00, variable labour cost per unit, $1.50, variable overhead cost per unit, $0.50, variable selling cost per unit $1.00. Total fixed costs at Constant Company are $2,250,000 per year.

Which of the following is the required unit sales for Constant Company to break even?

A) 214,286
B) 225,000
C) 250,000
D) 275,000

Answer: B
Explanation: 2,250,000/(14-2-1.5-.5-1)

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LO3
Terms: Target profit
Difficulty: 2

24. Rattle Company produces a single product. The product is sold for $12.00 per unit and has total variable costs of $4.00 per unit. Total fixed costs are $4,800,000 and the company faces a tax rate of 25%.

What unit sales are required for Rattle Company to earn an after tax profit of $900,000?

A) 500,000
B) 600,000
C) 750,000
D) None of the above

Answer: C
Explanation: (900000/.75)+4,800,000}/(12-4)

LO3
Terms: Cost volume profit analysis
Difficulty: 2

25. Which of the following is an assumption of multiproduct cost volume profit analysis?

A) That variable cost per unit remains constant for all products.
B) If the sales of one product increases by 10%, sales of all the other products must increase by 10%
C) Total fixed costs remain constant in the relevant range
D) All of the above

Answer: D

LO3
Terms: Cost volume profit analysis
Difficulty: 2

26. In multiple product cost volume profit analysis if the variable cost of one product increases then:

A) The production of that product will increase.
B) The total units required to breakeven will increase.
C) Fixed costs will fall to accommodate the increase in the product's increased variable cost.
D) All of the above are true.

Answer: B

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Use the following information to answer Questions 27 & 28.

Wren Company produces three products with the following characteristics:

	Regular	Custom	Deluxe
Planned unit sales	18,000	12,000	10,000
Price per unit	16	20	24
Variable cost per unit	3	6	8

Total fixed costs at Wren Company are $421,500 per year.

LO3
Terms: Multi-product cost volume profit analysis
Difficulty: 2

27. Which of the following is the required total unit sales of the three products for Wren Company to break even?

A) 25,000
B) 30,000
C) 34,000
D) 31,000

Answer: B
Explanation: WACM $14.05 421,500/14.05

LO3
Terms: Multi-product cost volume profit analysis with taxes
Difficulty: 3

28. If Wren Company faces a tax rate of 20% and has a target after tax income of $281,000 which of the following is the required unit sales?

A) Regular – 12,250; Custom – 9,000; Deluxe – 6,500
B) Regular – 13,500; Custom – 9,000; Deluxe – 7,500
C) Regular – 22,500; Custom – 15,000; Deluxe – 12,500
D) Regular – 24,750; Custom – 16,500; Deluxe – 13,750

Answer: D
Explanation: WACM $14.05 Regular sales (281,000/.8+421,500)/14.05*.45

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Use the following information to answer Questions 29-32.

Young and Martin, Inc., sells a single product. This year, 20,000 units were sold resulting in $130,000 of sales revenue, $60,000 of variable costs, and $17,500 of fixed costs.

LO3
Terms: Contribution margin
Difficulty: 2

29. The contribution margin per unit is:

A) $6.50.
B) $3.50.
C) $3.00.
D) $1.75.

Answer: B
Explanation: ($130,000 / 20,000 units) - ($60,000 / 20,000 units) = $6.5 - $3 = $3.50

LO3
Terms: Break-even point
Difficulty: 2

30. The break-even point in units for a year is:

A) 2,000 units.
B) 3,000 units.
C) 5,000 units.
D) 10,000 units.

Answer: C
Explanation: $17,500/ $3.50 = 5,000 units

LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

31. The number of units that must be sold annually to achieve $52,500 of profits is:

A) 20,000 units.
B) 15,000 units.
C) 10,000 units.
D) 5,000 units.

Answer: A
Explanation: ($17,500 + $52,500)/ $3.50 = 20,000 units

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LO3
Terms: Cost-volume-profit analysis
Difficulty: 3

32. If sales increase by $19,500 in a year, profits will increase by:

A) $10,500.
B) $17,500.
C) $19,500.
D) $35,000.

Answer: A
Explanation: $19,500/ $6.50 = 3,000 units $3.50 = $10,500

Use the following information to answer Questions 33-35.

Susan's Trinkets (ST) sells several products for an average price of $17 per unit. Average variable costs per unit are as follows:

Direct material	$5.00
Direct labor	$1.00
Indirect manufacturing costs	$0.50
Selling commissions	$3.00

ST's annual fixed costs total $82,500.

LO3
Terms: Contribution margin
Difficulty: 2

33. The contribution margin per unit is:

A) $ 7.50.
B) $10.50.
C) $12.00.
D) $14.00.

Answer: A
Explanation: A) $17.00 - ($5.00 + $1.00 + $0.50 + $3.00) = $7.50

LO3
Terms: Break-even point
Difficulty: 2

34. The number of units that ST must sell each year to break even is:

A) 4,853 units.
B) 7,857 units.
C) 11,000 units.
D) 13,000 units.

Answer: C
Explanation: $82,500/ $7.50 = 11,000 units

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LO3
Terms: Cost-volume-profit
Difficulty: 2

35. The number of units that ST must sell annually to make a profit of $75,000 is:

A) 7,500 units.
B) 18,000 units.
C) 21,000 units.
D) 30,000 units.

Answer: C
Explanation: ($75,000 + $82,500)/ $7.50 = 21,000 units

Use the following information to answer Questions 36-40.

The following annual information is for Bendix Corporation:

	Product X	Product Y
Revenue per unit:	$10.00	$15.00
Variable cost per unit:	$ 2.50	$ 5.00

Total fixed costs: $100,000

LO3
Terms: Sales mix
Difficulty: 3

36. If the sales mix consists of two units of Product X and one unit of Product Y, what is the weighted revenue per unit of composite product?

A) $10.00
B) $11.66
C) $13.33
D) $15.00

Answer: B
Explanation: [$10 (2) + $15 (1)] / 3 = $11.66

LO3
Terms: Sales mix, break-even point
Difficulty: 3

37. If the sales mix consists of two units of Product X and one unit of Product Y, what is the break-even point in units for a year?

A) 2,000 units of Y and 4,000 units of X
B) 2,025 units of Y and 4,050 units of X
C) 4,025 units of Y and 8,050 units of X
D) 4,000 units of Y and 8,000 units of X

Answer: D
Explanation: Variable cost per average unit [$2.5 (2) + $5 (1)] / 3 = $3.33
$11.66(C) - $3.33(C) - $100,000 = 0; C = 12,000 total units, which are 4,000 of Y and 8,000 of X

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LO3
Terms: Sales mix, cost-volume-profit analysis
Difficulty: 3

38. What is the operating income for a year, assuming actual sales total 150,000 units, and the sales mix is two units of Product X and one unit of Product Y?

A) $1,150,000
B) $1,250,000
C) $1,750,000
D) None of the above are correct.

Answer: A
Explanation: ($10 - $2.50) (150,000 × 2/3) + ($15 - $5) (150,000 × 1/3) - 100,000 = $1,150,000

LO3
Terms: Sales mix, contribution margin
Difficulty: 3

39. If the sales mix shifts to one unit of Product X and two units of Product Y, then the contribution margin per unit of composite product will:

A) increase per unit.
B) stay the same.
C) decrease per unit.
D) be undeterminable.

Answer: A

LO3
Terms: Sales mix, break-even point
Difficulty: 3

40. If the sales mix shifts to one unit of Product X and two units of Product Y, then the break-even point in units for a year will:

A) increase.
B) stay the same.
C) decrease.
D) be undeterminable.

Answer: C

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Exercises, Problems & Short Answer

LO1
Terms: Variable cost, Fixed cost
Difficulty: 2

1. Describe a variable cost. Describe a fixed cost. Explain why the distinction between variable and fixed costs is important in management accounting.

Answer:
Variable costs vary with production or sales volume.
Fixed costs are not influenced by fluctuations in production or sales volumes.
Without the knowledge of cost behaviors, budgets and other forecasting tools can be inaccurate and unreliable. Understanding whether a cost behaves as a variable or a fixed cost is essential to estimating and planning for business success. Understanding cost behavior is also important for control and evaluation.

LO2
Terms: Budgets, cost behavior, cost
Difficulty: 2

2. Describe how cost information informs the budgeting process.

Answer:
All organizations use budgets in some form to evaluate organization performance and develop expectations for future performance. As part of a performance evaluation exercise, managers can compare realized costs with budgeted costs to determine whether performance was in line with expectations. When developing estimates of future financial performance, cost information, particularly an understanding of how costs change as volume changes, is a crucial element in developing useful budget estimates.

LO2
Terms: Cost plus pricing, insurance, predatory pricing
Difficulty: 3

3. Give some examples of cost information playing an important part in contract situations.

Answer:
In cost-plus pricing contracts the price is determined by applying an agreed markup to computed cost. In insurance situations the insured is usually reimbursed for the cost of damaged or lost products. When attempting to establish that a price was predatory decision makers will rely both on the cost of the product and the organization's pricing intent.

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LO3
Terms: Contribution margin, gross margin, operating income
Difficulty: 2

4. George's Variety reported the following for last year.

Revenues	$16,000
Variable manufacturing costs	$8,000
Variable nonmanufacturing costs	$2,000
Fixed manufacturing costs	$4,000
Fixed nonmanufacturing costs	$1,200

Required:

a. Compute the contribution margin.
b. Compute the gross margin.
c. Compute the operating income.

Answer:

a. Contribution margin $16,000

b. Gross margin $16,000-($8,000 + $4,000) = $4,000

c. Operating income $6,000- ($4,000 + $1200) = $800

LO3
Terms: Contribution margin, break-even point
Difficulty: 2

5. In 2020, Maria Company has sales of 8,000 units at $10 each, variable costs totaling $20,000, and fixed costs of $30,000. In 2021, the company expects annual insurance costs to increase by $4,000 to $9,000.

Required:

a. Calculate operating income and the breakeven point in units for 2020.
b. Calculate the breakeven point in units for 2021.

Answer:

a. In 2020, operating income equals $30,000 = $80,000 sales revenue - $20,000 flexible costs - $30,000 fixed costs.

   The breakeven point for 2020 is 4,000 units: $30,000/ $7.5 CM

b. The breakeven point for 2021 is 4,667 units: ($30,000 + 5,000)/ $7.5 CM

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LO3
Terms: Contribution margin, break-even point, cost-volume-profit analysis
Difficulty: 2

6. Designs by Susan (DS) sells a single product. The company's most recent income statement is given below.

Sales (4,000 units)	$120,000
Less variable expenses	(68,000)
Contribution margin	52,000
Less fixed expenses	(40,000)
Net income	$ 12,000

Required:

a. Contribution margin per unit is: _____

b. If sales are doubled to $240,000, total variable costs will equal: _____

c. If sales are doubled to $240,000, total fixed costs will equal _____

d. If DS is past the breakeven point and 10 more units are sold, profits will increase by: _____

e. Compute how many units must be sold to break even. _____

f. Compute how many units must be sold to achieve a profit of $20,000. _____

Answer:

a. Contribution margin per unit is $13 = (120,000/4,000) - (68,000/4,000) = $30 - $17

b. $136,000 = $68,000 × 2

c. $40,000 (remain unchanged)

d. $130 = Contribution margin $13 × 10 units

e. 3,077 units = fixed costs $40,000 / Contribution margin per unit $13

f. 4,616 units = (fixed costs $40,000 + $20,000 Profit) / CM per unit $13

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LO3
Terms: Contribution margin, break-even point, cost-volume-profit analysis
Difficulty: 2

7. Karla's Inc., sells a single product. The company's most recent income statement is given below.

Sales	$200,000
Less variable expenses	(120,000)
Contribution margin	80,000
Less fixed expenses	(50,000)
Net income	$ 30,000

Required:

a. Contribution margin ratio is: _____

b. Break-even point in total sales dollars is: _____

c. To achieve $40,000 in net income, sales must total: _____

d. If sales increase by $50,000 from a $200,000 level, net income will increase by: _____

Answer:

a. Contribution margin ratio is 40% = $80,000 / $200,000

b. $125,000 in sales = Fixed costs $50,000 / 0.40 CM%

c. $225,000 in sales = [Fixed costs $50,000 + $40,000 Net income] / 0.40 CM%

d. Net income will increase by $20,000 = $50,000 × 0.40 CM%

LO3
Terms: **Break-even point**
Difficulty: 2

8. What is meant by the term *break-even point*? Why should a manager be concerned about the *break-even point*?

Answer:
The break-even point is the level of production and sales at which total revenues equal total costs. Managers should be concerned about the break-even point because it helps determine when a business venture will be profitable. The break-even point shows a company how far sales can decline before a net loss will be incurred. It helps to assess the risk of loss.

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LO3
Terms: Cost-volume-profit analysis
Difficulty: 2

9. Explain when a manager would use cost-volume-profit analysis.

Answer:
Cost-volume-profit analysis is helpful for evaluating the profit impact of management decisions that affect production and sales volume. Also use for planning purposes to determine effects on costs and profits if change costs or selling price.

LO3
Terms: Contribution margin, break-even point
Difficulty: 3

10. Outwest Manufacturing produces two products, X and Y. The following information is presented for both products:

	X	Y
Selling price per unit	$36	$24
Variable cost per unit	28	1

Total fixed costs $234,000

Required:
Assume the sales mix is 3 units of X for every unit of Y:

a. What is the weighted revenue per unit of composite average product, the weighted average variable cost, and the weighted contribution margin per unit of composite average product?

b. What is the break-even point in units of both X and Y?

Answer:

a. $36 (0.75) + $24(0.25) = $33 weighted revenue per unit of composite product
$28 (0.75) + $12(0.25) = $24 weighted average variable cost
$ 9 contribution margin per unit of composite product

b. $234,000/$9 = 26,000 units
X: 26,000 units × 0.75 = 19,500 units
Y: 26,000 units × 0.25 = 6,500 units

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LO3
Terms: Weighted average revenue, weighted average variable cost, weighed average contribution margin, sales mix, breakeven point
Difficulty: 2

11. East Textile Company sells shirts for men and boys. The average selling price and variable cost for each product are as follows:

	Men's	Boys
Selling price	$28.80	$24.00
Variable cost	$20.42	$16.80

Total fixed costs: $38,400

Required:
Assume the sales mix is 2 men's shirts for each boy's shirt:

a. What is the weighted revenue per unit of composite average product, the weighted average variable cost, and the weighted contribution margin per unit of average product?
b. What is the break-even point in units for each type of shirt?
c. What is the operating income, assuming sales total 9,000 shirts?

Answer:

a. $28.80 (2/3) + $24.00(1/3) = $27.22 revenue per unit of average product
$20.42 (0.67) + $16.80(0.33) = $19.22 weighted flexible cost
$ 8.00 CM per unit of average product

b. $38,400/$8 = 4,800 units
Men's: 4,800 shirts × 2/3 = 3,216 shirts
Boy's: 4,800 shirts × 1/3 = 1,584 shirts

c.

	Men's	Boy's	Total
Sales in units	6,000	3,000	9,000
Revenue	$172,800	$72,000	$244,800
Variable costs	122,520	50,400	172,920
Contribution margin	$ 50,280	$21,600	$ 71,880
Fixed costs			38,400
Operating income			$ 33,480

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