Chapter 20(5)
Variable Costing For Management Analysis

OBJECTIVES

Obj1	Describe and illustrate income reporting under variable costing and absorption costing.
Obj 2	Describe and illustrate income analysis under variable costing and absorption costing.
Obj 3	Describe and illustrate management's use of variable costing and absorption costing for controlling costs, pricing products, planning production, analyzing contribution margins, and analyzing market segments.
Obj 4	Use variable costing for analyzing market segments including product, territories, and salespersons segments.
Obj 5	Use variable costing for analyzing and explaining changes in contribution margin as a result of quantity and price factors.
Obj 6	Describe and illustrate the use of variable costing for service firms.

TRUE/FALSE

1. In determining cost of goods sold, two alternate costing concepts can be used: absorption costing and variable costing.

ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

2. In determining cost of goods sold, two alternate costing concepts can be used: direct costing and variable costing.

ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

3. Fixed factory overhead costs are included as part of the cost of products manufactured under the absorption costing concept.

ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

4. Under absorption costing, the cost of finished goods includes direct materials, direct labor, and factory overhead.

ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

5. Under absorption costing, the cost of finished goods includes only direct materials, direct labor, and variable factory overhead.

ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

6. In variable costing, the cost of products manufactured is composed of only those manufacturing costs that increase or decrease as the volume of production rises or falls.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

7. In variable costing, fixed costs do not become part of the cost of goods manufactured, but are considered an expense of the period.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

8. Variable costing is also known as direct costing.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

9. Property taxes on a factory building would be included as part of the cost of products manufactured under the absorption costing concept.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

10. The factory superintendent's salary would be included as part of the cost of products manufactured under the variable costing concept.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

11. The factory superintendent's salary would be included as part of the cost of products manufactured under the absorption costing concept.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

12. Electricity purchased to operate factory machinery would be included as part of the cost of products manufactured under the absorption costing concept.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

13. The absorption costing income statement does **not** distinguish between variable and fixed costs.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

14. In the absorption costing income statement, deduction of the cost of goods sold from sales yields gross profit.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

15. In the absorption costing income statement, deduction of the cost of goods sold from sales yields contribution margin.
ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

16. In the absorption costing income statement, deduction of the cost of goods sold from sales yields manufacturing margin.
ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

17. On the variable costing income statement, deduction of the variable cost of goods sold from sales yields gross profit.
ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

18. On the variable costing income statement, deduction of the variable cost of goods sold from sales yields manufacturing margin.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

19. On the variable costing income statement, all of the fixed costs are deducted from the contribution margin.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

20. On the variable costing income statement, variable selling and administrative expenses are deducted from manufacturing margin to yield contribution margin.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

21. On the variable costing income statement, variable costs are deducted from contribution margin to yield manufacturing margin.
ANS: F DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

22. On the variable costing income statement, the figure representing the difference between the contribution margin and income from operations is the fixed manufacturing costs and fixed selling and administrative expenses.
ANS: T DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

23. The contribution margin and the manufacturing margin are usually equal.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

24. For a period during which the quantity of inventory at the end was larger than that at the beginning, income from operations reported under variable costing will be larger than income from operations reported under absorption costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

25. For a period during which the quantity of inventory at the end was larger than that at the beginning, income from operations reported under variable costing will be smaller than income from operations reported under absorption costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

26. For a period during which the quantity of inventory at the end was smaller than that at the beginning, income from operations reported under variable costing will be larger than income from operations reported under absorption costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

27. For a period during which the quantity of inventory at the end was smaller than that at the beginning, income from operations reported under variable costing will be smaller than income from operations reported under absorption costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

28. For a period during which the quantity of inventory at the end equals the inventory at the beginning, income from operations reported under variable costing will be smaller than income from operations reported under absorption costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

29. For a period during which the quantity of inventory at the end equals the inventory at the beginning, income from operations reported under variable costing will equal income from operations reported under absorption costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

30. For a period during which the quantity of product manufactured exceeded the quantity sold, income from operations reported under absorption costing will be smaller than income from operations reported under variable costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

31. For a period during which the quantity of product manufactured exceeded the quantity sold, income from operations reported under absorption costing will be larger than income from operations reported under variable costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

32. For a period during which the quantity of product manufactured was less than the quantity sold, income from operations reported under absorption costing will be larger than income from operations reported under variable costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

33. For a period during which the quantity of product manufactured was less than the quantity sold, income from operations reported under absorption costing will be smaller than income from operations reported under variable costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

34. For a period during which the quantity of product manufactured equals the quantity sold, income from operations reported under absorption costing will equal the income from operations reported under variable costing.
ANS: T DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

35. For a period during which the quantity of product manufactured equals the quantity sold, income from operations reported under absorption costing will be smaller than the income from operations reported under variable costing.
ANS: F DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

36. Changes in the quantity of finished goods inventory, caused by differences in the levels of sales and production, directly affects the amount of income from operations reported under absorption costing.
ANS: T DIF: Difficult OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

37. Under absorption costing, the amount of income reported from operations can be increased by producing more units than are sold.
ANS: T DIF: Difficult OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

38. Under absorption costing, increases or decreases in income from operations due to changes in inventory levels could be misinterpreted to be the result of operating efficiencies or inefficiencies.
ANS: T DIF: Difficult OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

39. Management may use both absorption and variable costing methods for analyzing a particular product.
ANS: T DIF: Difficult OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

40. Property tax expense is an example of a controllable cost for the supervisor of a manufacturing department.
ANS: F DIF: Difficult OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

41. Direct labor cost is an example of a controllable cost for the supervisor of a manufacturing department.
ANS: T DIF: Difficult OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

42. In the short run, the selling price of a product should normally not be less than the variable costs and expenses of making and selling it.
ANS: T DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

43. In the long run, for a business to remain in operation, the selling price of a product should normally cover all costs and expenses and provide a reasonable income.
ANS: T DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

44. For short-run production planning, information in the variable costing format is more useful to management than is information in the absorption costing concept format.
ANS: T DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

45. For short-run production planning, information in the absorption costing format is more useful to management than is information in the variable costing format.
ANS: F DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

46. Sales mix is generally defined as the relative distribution of sales among the various products sold.
ANS: T DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

47. If the ability to sell and the amount of production facilities devoted to each of two products is equal, it is profitable to increase the sales of that product with the lowest contribution margin.
ANS: F DIF: Difficult OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

48. If the ability to sell and the amount of production facilities devoted to each of two products is equal, it is profitable to increase the sales of that product with the highest contribution margin.
ANS: T DIF: Difficult OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

49. The contribution margin ratio is computed as contribution margin divided by sales.
ANS: T DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

50. In evaluating the performance of salespersons, the salesperson with the highest level of sales should be evaluated as the best performer.
ANS: F DIF: Difficult OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

51. Companies prepare contribution margin reports by market segments and product segments because products contribute to profitability in various ways.
ANS: T DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

52. Ford's Expedition sport utility vehicle is its most profitable model. Therefore Ford should increase production levels and promotional efforts on its other models to increase their sales.
ANS: F DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

53. The systematic examination of differences between planned and actual contribution margins is termed contribution margin analysis.
ANS: T DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

54. In contribution margin analysis, the effect of a difference in the number of units sold, assuming no change in unit sales price or cost, is termed the quantity factor.
ANS: T DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

55. In contribution margin analysis, the effect of a difference in the number of units sold, assuming no change in unit sales price or cost, is termed the unit price or unit cost factor.
ANS: F DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

56. In contribution margin analysis, the effect of a difference in unit sales price or unit cost on the number of units sold is termed the unit price or unit cost factor.
ANS: T DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

57. In contribution margin analysis, the effect of a difference in unit sales price or unit cost on the number of units sold is termed the quantity factor.
ANS: F DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

58. In contribution margin analysis, the quantity factor is computed as the difference between actual quantity sold and the planned quantity sold, multiplied by the planned unit sales price or unit cost.
ANS: T DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

59. In contribution margin analysis, the unit price or unit cost factor is computed as the difference between actual quantity sold and the planned quantity sold, multiplied by the planned unit sales price or unit cost.
ANS: F DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

60. In contribution margin analysis, the unit price or unit cost factor is computed as the difference between the actual unit price or unit cost and the planned unit price or unit cost, multiplied by the actual quantity sold.
ANS: T DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

61. A change in the amount of sales can be due to either a change in the units sold or a change in price or both.
ANS: T DIF: Difficult OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

62. Contribution margin reporting and analysis is appropriate only for manufacturing firms, not for service firms.
ANS: F DIF: Moderate OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

63. Service firms can only have one activity base for analyzing changes in costs.
ANS: F DIF: Moderate OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

64. In a service firm it may be necessary to have several activity bases to properly match the change in costs with the changes in various activities.
ANS: T DIF: Moderate OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

65. Service firms are unable to use contribution margin report and analysis in their company because these firms do not sell inventory.
ANS: F DIF: Easy OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

MULTIPLE CHOICE

1. What term is commonly used to describe the concept whereby the cost of manufactured products is composed of direct materials cost, direct labor cost, and factory overhead cost?
   a. Standard costing
   b. Variable costing
   c. Absorption costing
   d. Direct costing
ANS: C DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

2. What term is commonly used to describe the concept whereby the cost of manufactured products is composed of direct materials cost, direct labor cost, and variable factory overhead cost?
   a. Absorption costing
   b. Differential costing
   c. Standard costing
   d. Variable costing
ANS: D DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

3. Another name for variable costing is:
   a. indirect costing
   b. process costing
   c. direct costing
   d. differential costing
ANS: C DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

4. Under absorption costing, which of the following costs would **not** be included in finished goods inventory?
   a. Direct labor cost
   b. Direct materials cost
   c. Variable and fixed factory overhead cost
   d. Variable and fixed selling and administrative expenses

ANS: D DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

5. Under absorption costing, which of the following costs would **not** be included in finished goods inventory?
   a. Hourly wages of assembly worker
   b. Straight-line depreciation on factory equipment
   c. Overtime wages paid factory workers
   d. Advertising costs for a furniture manufacturer

ANS: D DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

6. Under variable costing, which of the following costs would **not** be included in finished goods inventory?
   a. Direct labor cost
   b. Direct materials cost
   c. Variable factory overhead cost
   d. Fixed factory overhead cost

ANS: D DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

7. Under variable costing, which of the following costs would be included in finished goods inventory?
   a. Selling costs
   b. Salary of vice-president of finance
   c. Variable factory overhead cost
   d. Fixed factory overhead cost

ANS: C DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

8. Under variable costing, which of the following costs would be included in finished goods inventory?
   a. Advertising costs
   b. Salary of vice-president of finance
   c. Wages of carpenters in a furniture factory
   d. Straight-line depreciation on factory equipment

ANS: C DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

9. Under variable costing, which of the following costs would **not** be included in finished goods inventory?
   a. Wages of machine operator
   b. Steel costs for a machine tool manufacturer
   c. Salary of factory supervisor
   d. Oil costs used to lubricate machinery

ANS: C DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

10. Which of the following would be included in the cost of a product manufactured according to absorption costing?
    a. Advertising expense
    b. Sales salaries
    c. double declining balance depreciation expense on factory building
    d. Office supplies costs

ANS: C DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

11. Which of the following would be included in the cost of a product manufactured according to variable costing?
    a. Sales commissions
    b. Property taxes on factory buildings
    c. Interest expense
    d. Direct materials

ANS: D DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

12. On the variable costing income statement, the figure representing the difference between manufacturing margin and contribution margin is the:
    a. fixed manufacturing costs
    b. variable cost of goods sold
    c. fixed selling and administrative expenses
    d. variable selling and administrative expenses

ANS: D DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

13. In the variable costing income statement, deduction of variable selling and administrative expenses from manufacturing margin yields:
    a. differential margin
    b. contribution margin
    c. gross profit
    d. marginal expenses

ANS: B DIF: Easy OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

14. The amount of income under absorption costing will equal the amount of income under variable costing when units manufactured:
    a. exceed units sold
    b. equal units sold
    c. are less than units sold
    d. are equal to or greater than units sold

ANS: B DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

15. The amount of income under absorption costing will be less than the amount of income under variable costing when units manufactured:
    a. exceed units sold
    b. equal units sold
    c. are less than units sold
    d. are equal to or greater than units sold

ANS: C DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

16. Which of the following statements is correct using the direct costing concept?
    a. All manufacturing costs are included in the calculation of cost of goods manufactured
    b. Only fixed costs are included in the calculation of cost of goods manufactured while variable costs are considered period costs.
    c. Only variable costs are included in the calculation of cost of goods manufactured while fixed costs are considered period costs.
    d. All manufacturing costs are considered period costs.

ANS: C DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

17. The amount of income under absorption costing will be more than the amount of income under variable costing when units manufactured:
    a. exceed units sold
    b. equal units sold
    c. are less than units sold
    d. are equal to or greater than units sold

ANS: A DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

18. The level of inventory of a manufactured product has increased by 8,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$12.00	$5.00
Unit operating expenses of the period	4.00	1.50

What would be the effect on income from operations if absorption costing is used rather than variable costing?
a. $40,000 decrease
b. $40,000 increase
c. $44,000 increase
d. $52,000 increase

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

19. The level of inventory of a manufactured product has increased by 8,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$24	$10
Unit operating expenses of the period	8	3

What would be the effect on income from operations if variable costing is used rather than absorption costing?
a. $80,000 decrease
b. $80,000 increase
c. $88,000 increase
d. $104,000 increase

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

20. The level of inventory of a manufactured product has increased by 8,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$12.00	$5.00
Unit operating expenses of the period	4.00	1.50

What would be the effect on income from operations if variable costing is used rather than absorption costing?
a. $40,000 decrease
b. $40,000 increase
c. $44,000 increase
d. $52,000 increase

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

21. The level of inventory of a manufactured product has increased by 8,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$24	$10
Unit operating expenses of the period	8	3

What would be the effect on income from operations if absorption costing is used rather than variable costing?
a. $80,000 decrease
b. $80,000 increase
c. $88,000 increase
d. $104,000 increase

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

22. The level of inventory of a manufactured product has increased by 5,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$24	$10
Unit operating expenses of the period	8	3

What would be the effect on income from operations if variable costing is used rather than absorption costing?
a. $50,000 decrease
b. $50,000 increase
c. $88,000 increase
d. $104,000 increase

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

23. The level of inventory of a manufactured product has increased by 5,000 units during a period. The following data are also available:

	Variable	Fixed
Unit manufacturing costs of the period	$24	$10
Unit operating expenses of the period	8	3

What would be the effect on income from operations if absorption costing is used rather than variable costing?
a. $50,000 decrease
b. $50,000 increase
c. $88,000 increase
d. $104,000 increase

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

24. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (20,000 units):		
Direct materials	$180,000	
Direct labor	240,000	
Variable factory overhead	280,000	
Fixed factory overhead	100,000	$800,000
Operating expenses:		
Variable operating expenses	$130,000	
Fixed operating expenses	50,000	180,000

If 1,600 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the variable costing balance sheet?

a. $64,000
b. $56,000
c. $66,400
d. $68,000

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

25. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (10,000 units):		
Direct materials	$ 90,000	
Direct labor	120,000	
Variable factory overhead	140,000	
Fixed factory overhead	50,000	$400,000
Operating expenses:		
Variable operating expenses	$ 65,000	
Fixed operating expenses	25,000	90,000

If 800 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the absorption costing balance sheet?

a. $32,000
b. $28,000
c. $33,200
d. $34,000

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

26. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (20,000 units):		
Direct materials	$180,000	
Direct labor	240,000	
Variable factory overhead	280,000	
Fixed factory overhead	100,000	$800,000
Operating expenses:		
Variable operating expenses	$130,000	
Fixed operating expenses	50,000	180,000

If 1,500 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the variable costing balance sheet?

a. $64,000
b. $56,000
c. $60,000
d. $52,500

ANS: D DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

27. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (10,000 units):		
Direct materials	$ 90,000	
Direct labor	120,000	
Variable factory overhead	140,000	
Fixed factory overhead	50,000	$400,000
Operating expenses:		
Variable operating expenses	$ 65,000	
Fixed operating expenses	25,000	90,000

If 700 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the absorption costing balance sheet?

a. $32,000
b. $28,000
c. $24,500
d. $34,000

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

28. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (2,500 units):		
Direct materials	$42,500	
Direct labor	85,000	
Variable factory overhead	47,500	
Fixed factory overhead	12,500	$187,500
Operating expenses:		
Variable operating expenses	$15,000	
Fixed operating expenses	4,500	19,500

If 75 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the absorption costing balance sheet?

a. $5,625
b. $5,250
c. $5,760
d. $6,075

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

29. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (10,000 units):		
Direct materials	$170,000	
Direct labor	340,000	
Variable factory overhead	190,000	
Fixed factory overhead	50,000	$750,000
Operating expenses:		
Variable operating expenses	$ 60,000	
Fixed operating expenses	18,000	78,000

If 300 units remain unsold at the end of the month, what is the amount of inventory that would be reported on the variable costing balance sheet?

a. $22,500
b. $21,000
c. $23,040
d. $24,300

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

30. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (10,000 units):		
Direct materials	$140,000	
Direct labor	40,000	
Variable factory overhead	20,000	
Fixed factory overhead	4,000	$204,000
Operating expenses:		
Variable operating expenses	$ 34,000	
Fixed operating expenses	2,000	36,000

If 2,000 units remain unsold at the end of the month and sales total $300,000 for the month, what would be the amount of income from operations reported on the variable costing income statement?

a. $108,000
b. $100,000
c. $114,800
d. $140,000

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

31. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (5,000 units):		
Direct materials	$70,000	
Direct labor	20,000	
Variable factory overhead	10,000	
Fixed factory overhead	2,000	$102,000
Operating expenses:		
Variable operating expenses	$17,000	
Fixed operating expenses	1,000	18,000

If 1,000 units remain unsold at the end of the month and sales total $150,000 for the month, what would be the amount of income from operations reported on the absorption costing income statement?

a. $50,400
b. $50,000
c. $52,000
d. $70,000

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

32. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (10,000 units):		
Direct materials	$140,000	
Direct labor	40,000	
Variable factory overhead	20,000	
Fixed factory overhead	4,000	$204,000
Operating expenses:		
Variable operating expenses	$ 34,000	
Fixed operating expenses	2,000	36,000

If 2,000 units remain unsold at the end of the month and sales total $300,000 for the month, what is the amount of the manufacturing margin that would be reported on the variable costing income statement?

a. $100,000
b. $108,000
c. $140,000
d. $114,800

ANS: C DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

33. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (5,000 units):		
Direct materials	$70,000	
Direct labor	20,000	
Variable factory overhead	10,000	
Fixed factory overhead	2,000	$102,000
Operating expenses:		
Variable operating expenses	$17,000	
Fixed operating expenses	1,000	18,000

If 1,000 units remain unsold at the end of the month and sales total $150,000 for the month, what is the amount of the manufacturing margin that would be reported on the absorption costing income statement?

a. $50,000
b. $54,000
c. not reported
d. $70,000

ANS: C DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

34. A business operated at 100% of capacity during its first month and incurred the following costs:

Production costs (5,000 units):		
Direct materials	$70,000	
Direct labor	20,000	
Variable factory overhead	10,000	
Fixed factory overhead	2,000	$102,000
Operating expenses:		
Variable operating expenses	$17,000	
Fixed operating expenses	1,000	18,000

If 1,000 units remain unsold at the end of the month and sales total $150,000 for the month, what is the amount of the contribution margin that would be reported on the variable costing income statement?

a. $51,400
b. $52,000
c. $54,000
d. $53,000

ANS: D DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

35. A business operated at 100% of capacity during its first month, with the following results:

Sales (160 units)		$160,000
Production costs (200 units):		
Direct materials	$100,000	
Direct labor	20,000	
Variable factory overhead	10,000	
Fixed factory overhead	4,000	134,000
Operating expenses:		
Variable operating expenses	$ 12,000	
Fixed operating expenses	2,000	14,000

What is the amount of the manufacturing margin that would be reported on the variable costing income statement?

a. $30,000
b. $38,800
c. $56,000
d. $44,000

ANS: C DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

A business operated at 100% of capacity during its first month, with the following results:

Sales (80 units)		$80,000
Production costs (100 units):		
Direct materials	$50,000	
Direct labor	10,000	
Variable factory overhead	5,000	
Fixed factory overhead	2,000	67,000
Operating expenses:		
Variable operating expenses	$ 6,000	
Fixed operating expenses	1,000	7,000

36. What is the amount of the contribution margin that would be reported on the variable costing income statement?
    a. $15,000
    b. $19,400
    c. $28,000
    d. $22,000

ANS: D DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

37. What is the amount of the income from operations that would be reported on the variable costing income statement?
    a. $19,400
    b. $19,000
    c. $22,000
    d. $28,000

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

38. What is the amount of the income from operations that would be reported on the absorption costing income statement?
    a. $21,000
    b. $19,400
    c. $22,000
    d. $28,000

ANS: B DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

39. What is the amount of the gross profit that would be reported on the absorption costing income statement?
    a. $19,400
    b. $21,000
    c. $26,400
    d. $22,000

ANS: C DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

40. Accountants prefer the variable costing method over absorption costing method for evaluating the performance of a company because
    a. by using the absorption costing method, income could appear to be higher by producing more inventory.
    b. by using the absorption method, more sales will be generated.
    c. by using the variable costing method, the cost of goods sold will be higher as more units are manufactured and sales remain the same.
    d. by using the variable costing method, all fixed and variable costs are included in the unit cost of the product manufactured.

ANS: A DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

41. Under which inventory costing method could increases or decreases in income from operations be misinterpreted to be the result of operating efficiencies or inefficiencies?
    a. Variable costing
    b. Absorption costing
    c. Incremental costing
    d. Differential costing

ANS: B DIF: Easy OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

42. It would be acceptable to have the selling price of a product just above the variable costs and expenses of making and selling it in:
    a. the long run
    b. the short run
    c. both the short run and long run
    d. monopoly situations

ANS: B DIF: Moderate OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

43. Costs that can be influenced by management at a specific level of management are called:
    a. direct costs.
    b. indirect costs.
    c. noncontrollable costs.
    d. controllable costs.

ANS: D DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

44. Under the variable costing method variable manufacturing costs are easier to identify and control because:
    a. Variable and fixed costs are reported separately.
    b. Variable costs can be controlled by the operating management.
    c. Fixed costs, such as property insurance, are normally the responsibility of higher management not the operating management.
    d. All of the above are true.

ANS: D DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

45. Which of the following is **not** true when determining the selling price for a product?
    a. Absorption costing should be used to determine routine pricing which include both fixed and variable costs.
    b. As long as the selling price is set above the variable costs, the company will make a profit.
    c. Variable costing is effective when determining short run decisions, but absorption costing is generally used for long-term pricing policies.
    d. Both variable and absorption pricing plans should be considered, to include several pricing alternatives.

ANS: C DIF: Moderate OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

46. Management will use both variable and absorption costing in the following activities except:
    a. Controlling Costs
    b. Product Pricing
    c. Planning of Production
    d. Controlling Inventory Levels

ANS: D DIF: Easy OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Cost Management

47. The relative distribution of sales among various products sold is referred to as the:
    a. by-product mix
    b. joint product mix
    c. profit mix
    d. sales mix

ANS: D DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

48. Management should concentrate its sales and production efforts on the product or products with:
    a. the highest sales
    b. the lowest costs
    c. the highest contribution margin
    d. the highest contribution margin per unit

ANS: D DIF: Difficult OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

49. The contribution margin ratio is computed as:
    a. sales divided by contribution margin
    b. contribution margin divided by sales
    c. contribution margin divided by cost of sales
    d. contribution margin divided by variable cost of sales

ANS: B DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

50. For a supervisor of a manufacturing department, which of the following costs are controllable?
    a. Direct materials
    b. Insurance on factory building
    c. Depreciation of factory building
    d. Rent on factory building

ANS: A DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

51. Sales territory profitability analysis can determine profit differences between territories due to
    a. Pricing, variable costs, and selling costs
    b. Variable costs, selling costs, and types of products sold
    c. Pricing, selling costs, and type of products sold
    d. Sales volumes, pricing, and variable costs.

ANS: C DIF: Moderate OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

52. Contribution margin reporting can be beneficial for analyzing the following:
    a. Sales personal
    b. Products
    c. Sales Territory
    d. All of the above.

ANS: D DIF: Easy OBJ: 20(5)-04
NAT: AACSB Analytic | IMA-Performance Measurement

53. If sales totaled $200,000 for the current year (10,000 units at $20 each) and planned sales totaled $150,000 (12,500 units at $12 each), the effect of the unit price factor on the change in sales is a:
    a. $80,000 increase
    b. $20,000 decrease
    c. $30,000 increase
    d. $30,000 decrease

ANS: A DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

54. In contribution margin analysis, the effect of a change in the number of units sold, assuming no change in unit sales price or unit cost, is referred to as the:
    a. sales factor
    b. cost of goods sold factor
    c. quantity factor
    d. price factor

ANS: C DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

55. In contribution margin analysis, the increase or decrease in unit sales price or unit cost on the number of units sold is referred to as the:
    a. sales factor
    b. cost of goods sold factor
    c. quantity factor
    d. unit price or unit cost factor

ANS: D DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

56. In contribution margin analysis, the quantity factor is computed as:
    a. the increase or decrease in the number of units sold multiplied by the planned unit sales price or unit cost
    b. the increase or decrease in unit sales price or unit cost multiplied by the planned number of units to be sold
    c. the increase or decrease in the number of units sold multiplied by the actual unit sales price or unit cost
    d. the increase or decrease in the unit sales price or unit cost multiplied by the actual number of units sold

ANS: A DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

57. In contribution margin analysis, the quantity factor is computed as:
    a. the difference between actual unit price or unit cost and the planned unit price or cost, multiplied by the planned quantity sold
    b. the difference between actual unit price or unit cost and the planned unit price or cost, multiplied by the actual quantity sold
    c. the difference between the actual quantity sold and the planned quantity sold, multiplied by the planned unit sales price or unit cost
    d. the difference between the actual quantity sold and the planned quantity sold, multiplied by the actual unit sales price or unit cost

ANS: C DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

58. In contribution margin analysis, the unit price or unit cost factor is computed as:
    a. the difference between the actual unit price or unit cost and the planned unit price or cost, multiplied by the planned quantity sold
    b. the difference between the actual unit price or unit cost and the planned unit price or cost, multiplied by the actual quantity sold
    c. the difference between the actual quantity sold and the planned quantity sold, multiplied by the planned unit sales price or unit cost
    d. the difference between the actual quantity sold and the planned quantity sold, multiplied by the actual unit sales price or unit cost

ANS: B DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

59. If variable cost of goods sold totaled $80,000 for the year (16,000 units at $5 each) and the planned variable cost of goods sold totaled $84,000 (15,000 units at $5.60 each), the effect of the quantity factor on the change in variable cost of goods sold is:
    a. $4,000 decrease
    b. $5,000 increase
    c. $5,600 increase
    d. $5,600 decrease

ANS: C DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

60. If variable cost of goods sold totaled $80,000 for the year (16,000 units at $5 each) and the planned variable cost of goods sold totaled $84,000 (15,000 units at $5.60 each), the effect of the unit cost factor on the change in variable cost of goods sold is:
    a. $4,000 decrease
    b. $5,000 increase
    c. $9,600 decrease
    d. $5,600 increase

ANS: C DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

61. If variable selling and administrative expenses totaled $120,000 for the year (80,000 units at $1.50 each) and the planned variable selling and administrative expenses totaled $120,900 (78,000 units at $1.55 each), the effect of the quantity factor on the change in variable selling and administrative expenses is:
    a. $900 decrease
    b. $3,100 decrease
    c. $4,000 decrease
    d. $3,100 increase

ANS: D DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

62. If variable selling and administrative expenses totaled $120,000 for the year (80,000 units at $1.50 each) and the planned variable selling and administrative expenses totaled $120,900 (78,000 units at $1.55 each), the effect of the unit cost factor on the change in variable selling and administrative expenses is:
    a. $900 decrease
    b. $3,100 decrease
    c. $4,000 decrease
    d. $3,100 increase

ANS: C DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

63. If sales totaled $800,000 for the year (80,000 units at $10 each) and the planned sales totaled $819,000 (78,000 units at $10.50 each), the effect of the unit price factor on the change in sales is:
    a. $19,000 decrease
    b. $21,000 increase
    c. $40,000 decrease
    d. $21,000 decrease

ANS: C DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

64. If sales totaled $800,000 for the year (80,000 units at $10 each) and the planned sales totaled $819,000 (78,000 units at $10.50 each), the effect of the quantity factor on the change in sales is:
    a. $21,000 increase
    b. $19,000 decrease
    c. $21,000 decrease
    d. $40,000 decrease

ANS: A DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

65. If variable cost of goods sold totaled $90,000 for the year (18,000 units at $5 each) and the planned variable cost of goods sold totaled $88,000 (16,000 units at $5.50 each), the effect of the quantity factor on the change in variable cost of goods sold is:
    a. $2,000 decrease
    b. $11,000 increase
    c. $9.000 increase
    d. $9,000 decrease

ANS: B DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

66. If variable cost of goods sold totaled $90,000 for the year (18,000 units at $5 each) and the planned variable cost of goods sold totaled $88,000 (16,000 units at $5.50 each), the effect of the unit cost factor on the change in variable cost of goods sold is:
    a. $2,000 decrease
    b. $2,000 increase
    c. $11,000 increase
    d. $9,000 decrease

ANS: D DIF: Moderate OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

67. The difference between the planned and actual contribution margin can be caused by:
    a. an increase or decrease in the amount of sales
    b. an increase in the amount of variable costs and expenses
    c. a decrease in the amount of variable costs and expenses
    d. A, B, or C

ANS: D DIF: Difficult OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

68. The systematic examination of the differences between planned and actual contribution margin is termed:
    a. gross profit analysis
    b. contribution margin analysis
    c. sales mix analysis
    d. volume variance analysis

ANS: B DIF: Easy OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

69. Mama's Chocolate had planned to sell their chocolate covered strawberries for $3.00 each. Due to various factors the actual price was $2.75. Mama's was able to sell 1,000 more strawberries than anticipated to 4,000. What is the a) quantity factor and b) the price factor for sales?
    a. a) $3,000, b) ($1,000)
    b. a) $3,000, b) $2,000
    c. a) $1,000 b) $2,000
    d. a) ($3,000) b) ($2,000)

ANS: A DIF: Moderate OBJ: 20(5)-05

NAT: AACSB Analytic | IMA-Performance Measurement

70. Contribution margin analysis focuses on the effects of:
    a. the quantity factor
    b. the unit cost factor
    c. the unit sales price factor
    d. A, B, and C

ANS: D DIF: Difficult OBJ: 20(5)-05
NAT: AACSB Analytic | IMA-Performance Measurement

71. In which of the following types of firms would it be appropriate to prepare contribution margin reporting and analysis?
    a. Boat manufacturing
    b. A chain of beauty salons.
    c. Home building
    d. A, B, and C

ANS: D DIF: Moderate OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

72. Which of the following would **not** be an appropriate activity base for cost analysis in a service firm?
    a. Lawns mowed.
    b. Inventory produced
    c. Customers served.
    d. Haircuts given

ANS: B DIF: Moderate OBJ: 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement

EXERCISE/OTHER

1. Stanton Company has the following information for March:

Sales	$470,000
Variable cost of goods sold	225,000
Fixed manufacturing costs	80,000
Variable selling and administrative expenses	52,000
Fixed selling and administrating expenses	35,000

Determine the March (a) manufacturing margin, (b) contribution margin, and (c) income from operations for Stanton Company.

ANS:
(a) $245,000 ($470,000 - $225,000)
(b) $193,000 ($245,000 - $52,000)
(c) $78,000 ($193,000 - $80,000 - $35,000)
DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-1

2. Telleron Company has the following information for March:

Sales	$510,000
Variable cost of goods sold	245,000

Fixed manufacturing costs	85,000
Variable selling and administrative expenses	56,000
Fixed selling and administrating expenses	40,000

Determine the March (a) manufacturing margin, (b) contribution margin, and (c) income from operations for Telleron Company.

ANS:
(a) $265,000 ($510,000 - $245,000)
(b) $209,000 ($265,000 - $56,000)
(c) $84,000 ($209,000 - $85,000 - $40,000)
DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-1

3. Fixed costs are $10 per unit and variable costs are $25 per unit. Production was 13,000 units, while sales were 12,000 units. Determine (a) whether variable cost income from operations is less than or greater than absorption costing income from operations, and (b) the difference in variable costing and absorption costing income from operations.

ANS:
(a) Variable costing income from operations is less than absorption cost income from operations.
(b) $10,000 ($10 per unit × 1,000 units)

DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-2

4. Fixed costs are $50 per unit and variable costs are $125 per unit. Production was 130,000 units, while sales were 125,000 units. Determine (a) whether variable cost income from operations is less than or greater than absorption costing income from operations, and (b) the difference in variable costing and absorption costing income from operations.

ANS:
(a) Variable costing income from operations is less than absorption cost income from operations.
(b) $250,000 ($50 per unit × 5,000 units)

DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-2

5. The beginning inventory is 10,000 units. All of the units manufactured during the period and 8,000 units of the beginning inventory were sold. The beginning inventory fixed costs are $50 per unit, and variable costs are $300 per unit. Determine (a) whether variable costing income from operations is less than or greater than absorption costing income from operations, and (b) the difference in variable costing and absorption income from operations.

ANS:
(a) Variable costing income from operations is greater than absorption costing income from operations.
(b) $400,000 ($50 per unit × 8,000 units)

DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-3

6. The beginning inventory is 5,000 units. All of the units manufactured during the period and 3,000 units of the beginning inventory were sold. The beginning inventory fixed costs are $20 per unit, and variable costs are $55 per unit. Determine (a) whether variable costing income from operations is less than or greater than absorption costing income from operations, and (b) the difference in variable costing and absorption income from operations.

ANS:

(a) Variable costing income from operations is greater than absorption costing income from operations.

(b) $60,000 ($20 per unit × 3,000 units)

DIF: Moderate OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-3

7. Variable costs are $80 per unit, and fixed costs are $40,000. Sales are estimated to be 4,000 units. (a) How much would absorption costing income from operations differ between a plan to produce 4,000 units and a plan to produce 5,000 units? (b) How much would variable costing income from operations differ between the two production plans?

ANS:

(a) $8,000 greater 4,000 units x ($10.00 - $8.00), or [1,000 units × $40,000/5,000)]

(b) There would be no difference in variable costing income from operations between the two plans.

DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 20(5)-4

8. If variable manufacturing costs are $14 per unit and total fixed manufacturing costs are $200,000, what is the manufacturing cost per unit if:h

(a) 20,000 units are manufactured and the company uses the variable costing concept?

(b) 25,000 units are manufactured and the company uses the variable costing concept?

(c) 20,000 units are manufactured and the company uses the absorption costing concept?

(d) 25,000 units are manufactured and the company used the absorption costing concept?

ANS:

(a) $14 (variable cost only)

(b) $14 (variable cost only)

(c) $24 (variable cost ($14) + fixed costs ($200,000 / 20,000))

(d) $22 (variable cost ($14) + fixed costs ($200,000 / 25,000))
DIF: Moderate OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

9. The following data are for Fashionable Place Apparel:

	North	South
Sales volume (units):		
Blouses	5,000	4,000

Shorts	3,000	8,000
Sales Price:		
Blouses	$20.00	$22.00
Shorts	$18.00	$20.00
Variable cost per unit		
Blouses	$ 8.00	$ 8.00
Shorts	$10.00	$10.00

Determine the contribution margin for (a) Shorts and (b) the South Region.

ANS:

(a) $104,000 [3,000 units × ($18 - $10)] + [8,000 units × ($20 - $10)]

(b) $136,000 [4,000 units × ($22 - $8)] + [8,000 units × ($20 - $10)]

DIF: Difficult OBJ: 20(5)-04

NAT: AACSB Analytic | IMA-Performance Measurement TOP: Example Exercise 20(5)-5

10. The actual price for a product was $50 per unit, while the planned price was $44 per unit. The volume increased by 4,000 to 60,000 total units. Determine the (a) quantity factor and the (b) price factor for sales.

ANS:

(a) $200,000 increase (4,000 units × $50 per unit)

(b) $360,000 increase ($50 - $44) × 60,000 units

DIF: Difficult OBJ: 20(5)-05

NAT: AACSB Analytic | IMA-Performance Measurement TOP: Example Exercise 20(5)-6

PROBLEM

1. On January 1 of the current year, C. F. Hartley Co. commenced operations. It operated its plant at 100% of capacity during January. The following data summarized the results for January:

	Units
Production:	50,000
Sales ($18 per unit)	42,000
Inventory, January 31	8,000

Total Cost or Expense:	
Manufacturing costs:	
Variable	$575,000
Fixed	75,000
Total	$650,000
Selling and administrative expenses:	
Variable	$ 33,600
Fixed	10,500
Total	$ 44,100

(a) Prepare an income statement in accordance with absorption costing.

(b) Prepare an income statement in accordance with variable costing.

ANS:

(a)

C. F. Hartley Co.
Absorption Costing Income Statement
For Month Ended January 31, 20--

Sales		$756,000
Cost of goods sold:		
Cost of goods manufactured	$650,000	
Less inventory, January 31, 20--	104,000	
Cost of goods sold		546,000
Gross profit		$210,000
Selling and administrative expenses		44,100
Income from operations		$165,900

(b)

C. F. Hartley Co.
Variable Costing Income Statement
For Month Ended January 31, 20--

Sales		$756,000
Variable cost of goods sold:		
Variable cost of goods manufactured	$575,000	
Less inventory, January 31, 20--	92,000	
Variable cost of goods sold		483,000
Manufacturing margin		$273,000
Variable selling and administrative expense		33,600
Contribution margin		$239,400
Fixed costs:		
Fixed manufacturing costs	$ 75,000	
Fixed selling and administrative expenses	10,500	85,500
Income from operations		$153,900

DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

2. On October 31, the end of the first month of operations, Carswell & Co. prepared the following income statement based on absorption costing:

Carswell & Co.
Income Statement
For Month Ended October 31, 20-

Sales (2,600 units)		$104,000
Cost of goods sold:		
Cost of goods manufactured	$85,500	
Less ending inventory (400 units)	11,400	
Cost of goods sold		74,100
Gross profit		$ 29,900
Selling and administrative expenses		21,500
Income from operations		$ 8,400

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If the fixed manufacturing costs were $42,000 and the variable selling and administrative expenses were $15,600, prepare an income statement in accordance with the variable costing concept.

ANS:

Carswell & Co.
Income Statement
For Month Ended October 31, 20-

Sales		$104,000
Variable cost of goods sold:		
Variable cost of goods manufactured	$43,500	
Less ending inventory		
(400 units ´ $14.50)	5,800	
Variable cost of goods sold		37,700
Manufacturing margin		$ 66,300
Variable selling and administrative expenses		15,600
Contribution margin		$ 50,700
Mixed costs:		
Fixed manufacturing costs	$42,000	
Fixed selling and administrative expenses	5,900	47,900
Income from operations		$ 2,800
		========

Computations:
Variable cost of goods manufactured: $85,500 - $42,000 = $43,500

Unit cost of ending inventory:

$$\frac{\$43{,}500 \text{ variable cost of goods manufactured}}{3{,}000 \text{ units manufactured}} = \$14.50$$

Fixed selling and admin. expenses: $21,500 - $15,600 = $5,900
DIF: Difficult OBJ: 20(5)-01
NAT: AACSB Analytic | IMA-Cost Management

3. Presented below are the major categories or captions that would appear on an income statement prepared in the variable costing format:

   Contribution margin
   Fixed costs
   Income from operations
   Manufacturing margin
   Sales
   Variable cost of goods sold
   Variable selling and administrative expenses

   (a) Arrange the above captions in the proper order in accordance with the variable costing concept.
   (b) Which of the captions represents (1) the difference between sales and the total of all the variable costs and expenses and (2) the remaining amount of revenue available

for fixed manufacturing costs, fixed expenses, and net income?

ANS:

(a) Sales
Variable cost of goods sold
Manufacturing margin
Variable selling and administrative expenses
Contribution margin
Fixed costs
Income from operations

(b) (1) Contribution margin
(2) Contribution margin

DIF: Easy OBJ: 20(5)-02
NAT: AACSB Analytic | IMA-Cost Management

4. On August 31, the end of the first year of operations, during which 18,000 units were manufactured and 13,500 units were sold, Finberg Inc. prepared the following income statement based on the variable costing concept:

Finberg Inc.
Income Statement
For Year Ended August 31, 20--

Sales		$297,000
Variable cost of goods sold:		
Variable cost of goods manufactured	$279,000	
Less ending inventory	67,500	
Variable cost of goods sold		211,500
Manufacturing margin		$ 85,500
Variable selling and administrative expenses		40,500
Contribution margin		$ 45,000
Fixed costs:		
Fixed manufacturing costs	$ 12,000	
Fixed selling and administrative expenses	10,800	22,800
Income from operations		$ 22,200

Determine the unit cost of goods manufactured, based on (a) the variable costing concept and (b) the absorption costing concept.

ANS:

(a) $15.50. ($279,000 total variable cost of goods manufactured/18,000 units manufactured.)

(b)	Unit variable cost of goods manufactured (a)	$15.50
	Unit fixed cost of goods manufactured ($12,000/18,000 units manufactured)	.67
	Unit cost	$16.17

DIF: Moderate OBJ: 20(5)-02

NAT: AACSB Analytic | IMA-Cost Management

5. Nicopoulos Company manufactures Products T and W and is operating at full capacity. To manufacture Product W requires three times the number of machine hours required for Product T. Market research indicates that 1,000 additional units of Product W could be sold. The contribution margin by unit of product is as follows:

	Product T	Product W
Sales price	$300	$325
Variable cost of goods sold	235	250
Manufacturing margin	$ 65	$ 75
Variable selling and administrative expenses	25	10
Contribution margin	$ 40	$ 65

Calculate the increase or decrease in total contribution margin if 1,000 additional units of Product W are produced and sold.

ANS:

Additional contribution margin from sale of additional 1,000 units of Product W (1,000 × $65)	$ 65,000
Less contribution margin from forgoing production and sale of 3,000 units of Product T (3,000 × $40)	120,000
Decrease in total contribution margin	($55,000)

DIF: Moderate OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Performance Measurement

6. Based upon the following data taken from the records of Willis Inc., prepare a contribution margin analysis report for the year ended December 31, 2008.

	For Year Ended December 31, 2008		
	Actual	Planned	Difference Increase (Decrease)
Sales	$312,000	$325,000	($13,000)
Less:			
Variable cost of goods sold	$169,200	$182,000	($12,800)
Variable selling and administrative expenses	32,400	39,000	(6,600)
Total	$201,600	$221,000	($19,400)
Contribution margin	$110,400	$104,000	$ 6,400
Number of units sold	120,000	130,000	
Per unit:			
Sales price	$2.60	$2.50	.10
Variable cost of goods sold	1.41	1.40	.01

Variable selling and administrative expenses	.27	.30	(.03)

ANS:

Willis Inc.
Contribution Margin Analysis
For the Year Ended December 31, 2008

Decrease in amount of sales attributed to:			
Quantity factor:			
Decrease in number of units sold in 2008	10,000		
Planned sales price in 2008	× $2.50	$25,000	
Price factor:			
Increase in unit sales price in 2008	$ .10		
Number of units sold in 2008	× 120,000	12,000	
Net decrease in amount of sales			$13,000
Decrease in amount of variable cost of goods sold attributed to:			
Quantity factor:			
Decrease in number of units sold in 2008	10,000		
Planned unit cost in 2008	× $1.40	$14,000	
Unit cost factor:			
Increase in unit cost in 2008	$ .01		
Number of units sold in 2008	× 120,000	1,200	
Net decrease in amount of variable cost of goods sold			12,800
Decrease in amount of variable cost of selling and administrative expenses attributed to:			
Quantity factor:			
Decrease in number of units sold in 2008	10,000		
Planned unit cost in 2008	× $ .30	$ 3,000	
Unit cost factor:			
Decrease in unit cost in 2008	$ .03		
Number of units sold in 2008	× 120,000	3,600	
Net decrease in amount of variable cost of selling and administrative expenses			6,600
Increase in contribution margin			$ 6,400
			=======

DIF: Difficult OBJ: 20(5)-03
NAT: AACSB Analytic | IMA-Performance Measurement

7. The Ambler Company has three salespersons. Below is given their average sales price per unit sold, average variable manufacturing costs per unit, and number of units sold. Their commissions are according to the following schedule: $0 to 49,999 - 5%; $50,000 to $52,999 - 7 %; $53,000+ 8%.

Salesperson	Mary Q	John A.	Susan B.
Avg. Selling price per unit	50.00	65.00	45.00
Avg. Var. Mfg. costs per unit	25.00	30.00	35.00
Number of units sold	1,000	750	1,200

Prepare a contribution by salesperson report.

ANS:

Salesperson	Mary Q	John A	Susan B
Total Sales	50,000	48,750	54,000
Variable mfg. costs per unit	25,000	22,500	42,000
Manufacturing margin	25,000	26,250	12,000
commissions	3,500	2,437.50	4,320
Contribution margin per salesperson	21,500	23,812.50	7,680

DIF: Moderate OBJ: 20(5)-04 | 20(5)-06
NAT: AACSB Analytic | IMA-Performance Measurement