		Question Type	Difficulty	LO1: DM, DL, Manuf. overhead	LO2: Period and product costs	LO3: Variable, fixed, and mixed costs	LO4: High-low method	LO5: Income statement formats	LO6: Direct and indirect costs	LO7: Decision-making cost classifications	Professional Exam Adapted	ID	Origin	CMA/CPA origin
	1	T/F	E	x		x						8/e:ATB2-2	David Keyes	
	2	T/F	E	x								3/e:2-TF9	Authors	
	3	T/F	E	x								3/e:2-TF11	Authors	
	4	T/F	E		x							1/e:Exam#1-I10	Authors	
	5	T/F	M		x							3/e:2-TF5	Authors	
	6	T/F	H		x							3/e:2-TF13	Authors	
	7	T/F	M		x							1/e:Exam#1-I6	Authors	
	8	T/F	E		x							8/e:ATB2-1	David Keyes	
	9	T/F	E			x						3/e:2-TF4	Authors	
	10	T/F	E			x						8/e:ATB2-6	David Keyes	
	11	T/F	E			x						4/e:30	Authors	
	12	T/F	E			x						3/e: 5-7	Authors	
	13	T/F	M			x						3/e: 5-6	Authors	
	14	T/F	E			x						4/e: 5-251	Authors	
	15	T/F	M			x						2/e: 4-3	Authors	
	16	T/F	E			x						2/e: 4-1	Authors	
	17	T/F	E			x						3-15-2010 TF A	E.N.	
	18	T/F	H			x						8/e:ATB6-07	David Keyes	
	19	T/F	E			x						2/e: 4-9	Authors	

	20	T/F	E					x				3/14/2010 A1	E.N.	
	21	T/F	E					x				3/14/2010 C2	E.N.	
	22	T/F	E					x				3/14/2010 E1	E.N.	
	23	T/F	E					x				3/14/2010 G2	E.N.	
	24	T/F	E					x				3/14/2010 J1	E.N.	
	25	T/F	E					x				3/14/2010 L2	E.N.	
	26	T/F	M						x			4/6/97C	E.N.	
	27	T/F	H						x			4/6/97D	E.N.	
	28	T/F	H						x			4/6/97E	E.N.	
	29	T/F	E							x		8/e:ATB2-9	David Keyes	
	30	Conceptual M/C	H	x	x					x		8/e: ATB2-13	David Keyes	
	31	Conceptual M/C	M	x	x							5/e: 2-58	Authors	
	32	Conceptual M/C	M	x					x			5/e: 2-27	Authors	
	33	Conceptual M/C	M	x								5/e: 2-70	Authors	
	34	Conceptual M/C	M	x								4/e: 50	Authors	
	35	Conceptual M/C	E	x								3/e: 2-MC8	Authors	
	36	Conceptual M/C	E	x								3/e: 2-MC7	Authors	
	37	Conceptual M/C	M		x	x						8/e: ATB2-14	David Keyes	
	38	Conceptual M/C	E		x							4/e: 43	Authors	
	39	Conceptual M/C	E		x							4/e: 84	Authors	
	40	Conceptual M/C	M		x							4/e: 44	Authors	
	41	Conceptual M/C	E		x							3/e: 2-MC6	Authors	
	42	Conceptual M/C	E		x							LD9e:CH02Q13	Larry Deppe	

	43	Conceptual M/C	M		x						CMA	CMA,6/96,Part3,Q18	CMA	CMA,6/96,Part3,Q18
	44	Conceptual M/C	H			x						5/e: 2-29	Authors	
	45	Conceptual M/C	M			x						5/e: 2-36	Authors	
	46	Conceptual M/C	M			x						3-15-2010 TF B	E.N.	
	47	Conceptual M/C	H			x						8/e: ATB2-18	David Keyes	
	48	Conceptual M/C	E			x						3-15-2010 TF C	E.N.	
	49	Conceptual M/C	E			x						4/e: 5-295	Authors	
	50	Conceptual M/C	E			x						5/e: 5-16	Authors	
	51	Conceptual M/C	H			x						5/e: 5-17	Authors	
	52	Conceptual M/C	H						x			4/6/97B	E.N.	
	53	Conceptual M/C	M							x		2/e: 2-MC12	Authors	
	54	Conceptual M/C	E							x		3/e: 2-MC10	Authors	
	55	Conceptual M/C	E							x	CMA	CMA,6/96,Part4,Q19	CMA	CMA,6/96,Part4,Q19
	56	M/C	M	x	x							New,11/9/95,D9	E.N.	
	57	M/C	M	x	x							New,11/9/95,E9	E.N.	
	58	M/C	H	x								New,11/9/95,C9	E.N.	
	59	M/C	H	x								New,11/8/95,A8	E.N.	
	60	M/C	H	x								New,11/9/95,B9	E.N.	
	61	M/C	M		x							LD9e:CH02Q11	Larry Deppe	
	62	M/C	H			x	x	x				EN 12-23-2002 SPI5	E.N.	
	63	M/C	M			x	x					EN 12-23-2002 SPG5	E.N.	
	64	M/C	H			x	x					EN 12-23-2002 SPB5	E.N.	
	65	M/C	H			x	x					EN 12-23-2002 SPC5	E.N.	

	66	M/C	M			x	x					EN 12-23-2002 SPE5	E.N.	
	67	M/C	M			x	x					EN 12-23-2002 SPD5	E.N.	
	68	M/C	M			x	x					EN 12-23-2002 SPH5	E.N.	
	69	M/C	M			x	x					EN 12-23-2002 SPF5	E.N.	
	70	M/C	H			x	x					EN 12-23-2002 SPA5	E.N.	
	71	M/C	M			x	x					LD9e:CH05Q7	Larry Deppe	
	72	M/C	H			x	x					5/e: 5-35	Authors	
	73	M/C	M			x						11/e: ATB 5-30	Antoinette Clegg	
	74	M/C	H			x						1/e: Achievement-6	Authors	
	75	M/C	E			x						8/22/2004 Single MC K4	E.N.	
	76	M/C	E			x						5/e: 5-63	Authors	
	77	M/C	E			x						4/e: 5-266	Authors	
	78	M/C	E			x						8/22/2004 Single MC I4	E.N.	
	79	M/C	E			x						1/e: 5-9	Authors	
	80	M/C	E			x						1/e: Achievement-8	Authors	
	81	M/C	E			x						8/22/2004 Single MC J4	E.N.	
	82	M/C	E				x					08/21/2004 Single MC C4	E.N.	
	83	M/C	E				x					08/21/2004 Single MC A4	E.N.	
	84	M/C	E				x					11/e: ATB 5-25	Antoinette Clegg	
	85	M/C	E				x					3/e: 5-9	Authors	
	86	M/C	E				x					2/e: 4-5	Authors	
	87	M/C	E				x					08/21/2004 Single MC B4	E.N.	
	88	M/C	M				x					LD9e:CH05Q4	Larry Deppe	
	89	M/C	M					x				New,11/9/95,H9	E.N.	
	90	M/C	E					x				New,11/9/95,G9	E.N.	
2-1	91-93	Multipart M/C	M	x	x							8/3/2004 Multi MC P4	E.N.	
2-2	94-96	Multipart M/C	M	x	x							8/3/2004 Multi MC O4	E.N.	
2-3	97-98	Multipart M/C	E	x								8/3/2004 Multi MC E4	E.N.	

2-4	99-100	Multipart M/C	E	x								8/3/2004 Multi MC M4	E.N.	
2-5	101-103	Multipart M/C	M			x	x	x				EN 12-23-2002 MPC5	E.N.	
2-6	104-106	Multipart M/C	M			x	x					EN 12-23-2002 MPB4	E.N.	
2-7	107-109	Multipart M/C	H			x	x					EN 12-23-2002 MPA5	E.N.	
2-8	110-111	Multipart M/C	E			x						8/22/2004 Multi MC L4	E.N.	
2-9	112-113	Multipart M/C	E			x						8/22/2004 Multi MC K4	E.N.	
2-10	114-115	Multipart M/C	E			x						8/3/2004 Multi MC U4	E.N.	
2-11	116-117	Multipart M/C	E			x						8/3/2004 Multi MC R4	E.N.	
2-12	118-119	Multipart M/C	E			x						8/3/2004 Multi MC S4	E.N.	
2-13	120-121	Multipart M/C	E			x						8/3/2004 Multi MC T4	E.N.	
2-14	122-123	Multipart M/C	E			x						8/22/2004 Multi MC J4	E.N.	
2-15	124-125	Multipart M/C	E				x					8/20/2004 Multi MC B4	E.N.	
2-16	126-127	Multipart M/C	E				x					8/21/2004 Multi MC C4	E.N.	
2-17	128-129	Multipart M/C	E				x					8/20/2004 Multi MC A4	E.N.	
2-18	130-132	Multipart M/C	M-H				x					LD9e:CH05Q14-16	Larry Deppe	
2-19	133-134	Multipart M/C	E					x				3-15-2010 Multi MC C1	E.N.	
2-20	135-136	Multipart M/C	M					x				3-15-2010 Multi MC A1	E.N.	
2-21	137-138	Multipart M/C	M					x				3-15-2010 Multi MC B1	E.N.	
2-22	139-140	Multipart M/C	E					x				3-15-2010 Multi MC D1	E.N.	
2-23	141-142	Multipart M/C	E					x				8/3/2004 Multi MC N4	E.N.	
2-24	143-144	Multipart M/C	E-M						x			8/3/2004 Multi MC AA4	E.N.	
2-25	145-146	Multipart M/C	E-M						x			8/3/2004 Multi MC Z4	E.N.	
2-26	147-149	Multipart M/C	E							x		8/3/2004 Multi MC W4	E.N.	
2-27	150-152	Multipart M/C	E							x		8/3/2004 Multi MC V4	E.N.	
	153	Problem	M	x	x	x				x		1/e:Exam #1-III	Authors	
	154	Problem	M		x	x				x		2/e:2-P2-2	Authors	
	155	Problem	M		x							8/3/2004 Problem F4	E.N.	
	156	Problem	M		x							8/3/2004 Problem E4	E.N.	
	157	Problem	E			x						5/e:5-56	Authors	
	158	Problem	E			x						8/22/2004 Problem L4	E.N.	
	159	Problem	E			x						8/22/2004 Problem M4	E.N.	

	160	Problem	E			x						8/4/2004 Problem N3	E.N.	
	161	Problem	E			x						8/4/2004 Problem M4	E.N.	
	162	Problem	E				x					8/21/2004 Problem B4	E.N.	
	163	Problem	E				x					8/21/2004 Problem A4	E.N.	
	164	Problem	E				x					8/21/2004 Problem C4	E.N.	
	165	Problem	E					x				8/3/2004 Problem D4	E.N.	
	166	Problem	M					x				3-15-2010 Problem B1	E.N.	
	167	Problem	E					x				3-15-2010 Problem D1	E.N.	
	168	Problem	E					x				3-15-2010 Problem C1	E.N.	
	169	Problem	M					x				3-15-2010 Problem A1	E.N.	
	170	Problem	E						x			8/4/2004 Problem O4	E.N.	

Chapter 02

Managerial Accounting and Cost Concepts

True / False Questions

1. Direct material costs are generally variable costs.

   True False

2. Property taxes and insurance premiums paid on a factory building are examples of manufacturing overhead.

   True False

3. Manufacturing overhead combined with direct materials is known as conversion cost.

   True False

4. All costs incurred in a merchandising firm are considered to be period costs.

   True False

5. Depreciation is always considered a product cost for external financial reporting purposes in a manufacturing firm.

   True False

6. In external financial reports, factory utilities costs may be included in an asset account on the balance sheet at the end of the period.

   True False

7. Advertising costs are considered product costs for external financial reports because they are incurred in order to promote specific products.

   True False

8. Selling and administrative expenses are product costs under generally accepted accounting principles.

   True False

9. A variable cost is a cost whose cost per unit varies as the activity level rises and falls.

   True False

10. When the level of activity increases, total variable cost will increase.

    True False

11. A decrease in production will ordinarily result in an increase in fixed production costs per unit.

    True False

12. Automation results in a shift away from variable costs toward more fixed costs.

    True False

13. In order for a cost to be variable it must vary with either units produced or units sold.

True False

14. The concept of the relevant range does not apply to fixed costs.

True False

15. Indirect costs, such as manufacturing overhead, are always fixed costs.

True False

16. Discretionary fixed costs arise from annual decisions by management to spend in certain fixed cost areas.

True False

17. Even if operations are interrupted or cut back, committed fixed costs remain largely unchanged in the short term because the costs of restoring them later are likely to be far greater than any short-run savings that might be realized.

True False

18. Committed fixed costs are fixed costs that are not controllable.

True False

19. A mixed cost is partially variable and partially fixed.

True False

20. Traditional format income statements are prepared primarily for external reporting purposes.

True False

21. In a contribution format income statement, sales minus cost of goods sold equals the gross margin.

True False

22. In a traditional format income statement for a merchandising company, the cost of goods sold reports the product costs attached to the merchandise sold during the period.

True False

23. Although the contribution format income statement is useful for external reporting purposes, it has serious limitations when used for internal purposes because it does not distinguish between fixed and variable costs.

True False

24. In a contribution format income statement for a merchandising company, cost of goods sold is a variable cost that gets included in the "Variable expenses" portion of the income statement.

True False

25. The traditional format income statement is used as an internal planning and decision-making tool. Its emphasis on cost behavior aids cost-volume-profit analysis, management performance appraisals, and budgeting.

True False

26. The following would typically be considered indirect costs of manufacturing a particular Boeing 747 to be delivered to Singapore Airlines: electricity to run production equipment, the factory manager's salary, and the cost of the General Electric jet engines installed on the aircraft.

True False

27. The following costs should be considered direct costs of providing delivery room services to a particular mother and her baby: the costs of drugs administered in the operating room, the attending physician's fees, and a portion of the liability insurance carried by the hospital to cover the delivery room.

True False

28. The following costs should be considered by a law firm to be indirect costs of defending a particular client in court: rent on the law firm's offices, the law firm's receptionist's wages, the costs of heating the law firm's offices, and the depreciation on the personal computer in the office of the attorney who has been assigned the client.

True False

29. In any decision making situation, sunk costs are irrelevant and should be ignored.

True False

Multiple Choice Questions

30. For a lamp manufacturing company, the cost of the insurance on its vehicles that deliver lamps to customers is best described as a:

A. prime cost.

B. manufacturing overhead cost.

C. period cost.

D. differential (incremental) cost of a lamp.

31. The cost of leasing production equipment is classified as:

	Prime cost	Product cost
A)	No	Yes
B)	No	No
C)	Yes	No
D)	Yes	Yes

A. Option A

B. Option B

C. Option C

D. Option D

32. The wages of factory maintenance personnel would usually be considered to be:

	Indirect labor	Manufacturing overhead
A)	No	Yes
B)	Yes	No
C)	Yes	Yes
D)	No	No

A. Option A

B. Option B

C. Option C

D. Option D

33. Manufacturing overhead consists of:

A. all manufacturing costs.

B. indirect materials but not indirect labor.

C. all manufacturing costs, except direct materials and direct labor.

D. indirect labor but not indirect materials.

34. Which of the following should NOT be included as part of manufacturing overhead at a company that makes office furniture?

A. sheet steel in a file cabinet made by the company.

B. manufacturing equipment depreciation.

C. idle time for direct labor.

D. taxes on a factory building.

35. Which of the following costs would not be included as part of manufacturing overhead?

A. Insurance on sales vehicles.

B. Depreciation of production equipment.

C. Lubricants for production equipment.

D. Direct labor overtime premium.

36. Conversion cost consists of which of the following?

A. Manufacturing overhead cost.

B. Direct materials and direct labor cost.

C. Direct labor cost.

D. Direct labor and manufacturing overhead cost.

37. The advertising costs that Pepsi incurred to air its commercials during the Super Bowl can best be described as a:

A. variable cost.

B. fixed cost.

C. product cost.

D. prime cost.

38. Each of the following would be a period cost except:

A. the salary of the company president's secretary.

B. the cost of a general accounting office.

C. depreciation of a machine used in manufacturing.

D. sales commissions.

39. Which of the following costs is an example of a period rather than a product cost?

A. Depreciation on production equipment.

B. Wages of salespersons.

C. Wages of production machine operators.

D. Insurance on production equipment.

40. Which of the following would be considered a product cost for external financial reporting purposes?

A. Cost of a warehouse used to store finished goods.

B. Cost of guided public tours through the company's facilities.

C. Cost of travel necessary to sell the manufactured product.

D. Cost of sand spread on the factory floor to absorb oil from manufacturing machines.

41. Which of the following would NOT be treated as a product cost for external financial reporting purposes?

A. Depreciation on a factory building.

B. Salaries of factory workers.

C. Indirect labor in the factory.

D. Advertising expenses.

42. The salary of the president of a manufacturing company would be classified as which of the following?

A. Product cost

B. Period cost

C. Manufacturing overhead

D. Direct labor

43. Conversion costs do NOT include:

A. depreciation.

B. direct materials.

C. indirect labor.

D. indirect materials.

44. Last month, when 10,000 units of a product were manufactured, the cost per unit was $60. At this level of activity, variable costs are 50% of total unit costs. If 10,500 units are manufactured next month and cost behavior patterns remain unchanged the:

A. total variable cost will remain unchanged.

B. fixed costs will increase in total.

C. variable cost per unit will increase.

D. total cost per unit will decrease.

45. Variable cost:

A. increases on a per unit basis as the number of units produced increases.

B. remains constant on a per unit basis as the number of units produced increases.

C. remains the same in total as production increases.

D. decreases on a per unit basis as the number of units produced increases.

46. Which of the following statements regarding fixed costs is incorrect?

A. Expressing fixed costs on a per unit basis usually is the best approach for decision making.

B. Fixed costs expressed on a per unit basis will decrease with increases in activity.

C. Total fixed costs are constant within the relevant range.

D. Fixed costs expressed on a per unit basis will increase with decreases in activity.

47. The salary paid to the production manager in a factory is:

A. a variable cost.

B. part of prime cost.

C. part of conversion cost.

D. both a variable cost and a prime cost.

48. Within the relevant range, variable cost per unit will:

A. increase as the level of activity increases.

B. remain constant.

C. decrease as the level of activity increases.

D. none of these.

49. The term "relevant range" means the range of activity over which:

A. relevant costs are incurred.

B. costs may fluctuate.

C. production may vary.

D. the assumptions about fixed and variable cost behavior are reasonably valid.

50. An example of a committed fixed cost is:

A. a training program for salespersons.

B. executive travel expenses.

C. property taxes on the factory building.

D. new product research and development.

51. In describing the cost formula equation Y = a + bX, which of the following statements is correct?

A. "X" is the dependent variable.

B. "a" is the fixed component.

C. In the high-low method, "b" equals change in activity divided by change in costs.

D. As "X" increases "Y" decreases.

52. Which one of the following costs should NOT be considered a direct cost of serving a particular customer who orders a customized personal computer by phone directly from the manufacturer?

A. the cost of the hard disk drive installed in the computer.

B. the cost of shipping the computer to the customer.

C. the cost of leasing a machine on a monthly basis that automatically tests hard disk drives before they are installed in computers.

D. the cost of packaging the computer for shipment.

53. The term differential cost refers to:

A. a difference in cost which results from selecting one alternative instead of another.

B. the benefit forgone by selecting one alternative instead of another.

C. a cost which does not involve any dollar outlay but which is relevant to the decision-making process.

D. a cost which continues to be incurred even though there is no activity.

54. Which of the following costs is often important in decision making, but is omitted from conventional accounting records?

A. Fixed cost.

B. Sunk cost.

C. Opportunity cost.

D. Indirect cost.

55. When a decision is made among a number of alternatives, the benefit that is lost by choosing one alternative over another is the:

A. realized cost.

B. opportunity cost.

C. conversion cost.

D. accrued cost.

56. The following costs were incurred in September:

Direct materials	$38,000
Direct labor	$29,000
Manufacturing overhead	$21,000
Selling expenses	$17,000
Administrative expenses	$32,000

Conversion costs during the month totaled:

A. $50,000

B. $59,000

C. $137,000

D. $67,000

57. The following costs were incurred in September:

Direct materials	$39,000
Direct labor	$23,000
Manufacturing overhead	$17,000
Selling expenses	$14,000
Administrative expenses	$27,000

Prime costs during the month totaled:

A. $79,000

B. $120,000

C. $62,000

D. $40,000

58. In September direct labor was 40% of conversion cost. If the manufacturing overhead for the month was $66,000 and the direct materials cost was $20,000, the direct labor cost was:

A. $13,333

B. $44,000

C. $99,000

D. $30,000

59. Aberge Company's manufacturing overhead is 60% of its total conversion costs. If direct labor is $38,000 and if direct materials are $21,000, the manufacturing overhead is:

A. $57,000

B. $88,500

C. $25,333

D. $31,500

60. During the month of September, direct labor cost totaled $11,000 and direct labor cost was 40% of prime cost. If total manufacturing costs during September were $73,000, the manufacturing overhead was:

A. $16,500

B. $27,500

C. $62,000

D. $45,500

61. A manufacturing company prepays its insurance coverage for a three-year period. The premium for the three years is $2,700 and is paid at the beginning of the first year. Eighty percent of the premium applies to manufacturing operations and 20% applies to selling and administrative activities. What amounts should be considered product and period costs respectively for the first year of coverage?

	Product	Period
A)	$2,700	$0
B)	$2,160	$540
C)	$1,440	$360
D)	$720	$180

A. Option A

B. Option B

C. Option C

D. Option D

62. Iadanza Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $195.70 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$457,800	$534,100
Selling and administrative costs	$621,000	$639,100

The best estimate of the total contribution margin when 6,300 units are sold is:

A. $752,220

B. $638,190

C. $100,170

D. $177,030

63. Gambarini Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $197.80 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$486,600	$567,700
Selling and administrative costs	$612,600	$624,400

The best estimate of the total monthly fixed cost is:

A. $541,800

B. $1,192,100

C. $1,099,200

D. $1,145,650

64. Bakker Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	4,000 units	5,000 units
Direct materials	$89.70 per unit	$89.70 per unit
Direct labor	$22.60 per unit	$22.60 per unit
Manufacturing overhead	$70.50 per unit	$60.30 per unit

The best estimate of the total variable manufacturing cost per unit is:

A. $89.70

B. $131.80

C. $19.50

D. $112.30

65. Carbaugh Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	3,000 units	4,000 units
Direct materials	$73.90 per unit	$73.90 per unit
Direct labor	$49.20 per unit	$49.20 per unit
Manufacturing overhead	$70.10 per unit	$55.20 per unit

The best estimate of the total cost to manufacture 3,300 units is closest to:

A. $637,560

B. $612,975

C. $588,390

D. $619,680

66. Edeen Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$311,000	$373,200
Direct labor	$171,500	$205,800
Manufacturing overhead	$415,000	$427,800

The best estimate of the total variable manufacturing cost per unit is:

A. $62.20

B. $96.50

C. $109.30

D. $12.80

67. Dabney Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	7,000 units	8,000 units
Direct materials	$246,400	$281,600
Direct labor	$350,700	$400,800
Manufacturing overhead	$860,300	$872,000

The best estimate of the total monthly fixed manufacturing cost is:

A. $778,400

B. $1,457,400

C. $1,505,900

D. $1,554,400

68. Haras Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $141.30 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$347,400	$405,300
Selling and administrative costs	$436,800	$458,500

The best estimate of the total variable cost per unit is:

A. $123.40

B. $79.60

C. $57.90

D. $130.70

69. Faraz Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$70,500	$84,600
Direct labor	$130,500	$156,600
Manufacturing overhead	$802,000	$824,400

The best estimate of the total cost to manufacture 5,300 units is closest to:

A. $1,002,230

B. $1,021,780

C. $1,063,180

D. $941,280

70. Anderwald Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	2,000 units	3,000 units
Direct materials	$72.30 per unit	$72.30 per unit
Direct labor	$19.70 per unit	$19.70 per unit
Manufacturing overhead	$88.40 per unit	$65.60 per unit

The best estimate of the total monthly fixed manufacturing cost is:

A. $360,800

B. $136,800

C. $196,800

D. $176,800

71. Anaconda Mining Company shipped 9,000 tons of copper concentrate for $450,000 in March and 11,000 tons for $549,000 in April. Shipping costs for 12,000 tons to be shipped in May would be expected to be:

A. $548,780

B. $549,020

C. $594,000

D. $598,500

72. Average maintenance costs are $1.50 per machine-hour at an activity level of 8,000 machine-hours and $1.20 per machine-hour at an activity level of 13,000 machine-hours. Assuming that this activity is within the relevant range, total expected maintenance cost for a budgeted activity level of 10,000 machine-hours would be closest to:

A. $16,128

B. $15,000

C. $13,440

D. $11,433

73. The following data pertains to activity and the cost of cleaning and maintenance for two recent months:

	Month 1	Month 2
Production volume	2,000 units	2,500 units
Cleaning and maintenance costs	$900	$1,100

The best estimate of the total month 1 variable cost for cleaning and maintenance is:

A. $300

B. $500

C. $800

D. $100

74. The following data pertains to activity and costs for two months:

	June	July
Activity level in units	10,000	20,000
Variable cost	$20,000	$?
Fixed cost	15,000	?
Mixed cost	10,000	?
Total cost	$45,000	$70,000

Assuming that these activity levels are within the relevant range, the mixed cost for July was:

A. $10,000

B. $35,000

C. $15,000

D. $40,000

75. At an activity level of 9,200 machine-hours in a month, Nooner Corporation's total variable production engineering cost is $761,300 and its total fixed production engineering cost is $154,008. What would be the total production engineering cost per unit, both fixed and variable, at an activity level of 9,300 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $98.42

B. $99.49

C. $99.31

D. $98.96

76. Jumpst Corporation uses the cost formula Y = $3,600 + $0.30X for the maintenance cost in Department B, where X is machine-hours. The August budget is based on 20,000 hours of planned machine time. Maintenance cost expected to be incurred during August is:

A. $3,600
B. $6,000
C. $6,300
D. $9,600

77. Given the cost formula, Y = $9,000 + $2.50X, total cost for an activity level of 3,000 units would be:

A. $9,750
B. $12,000
C. $16,500
D. $7,500

78. Blore Corporation reports that at an activity level of 7,300 units, its total variable cost is $511,803 and its total fixed cost is $76,650. What would be the total cost, both fixed and variable, at an activity level of 7,500 units? Assume that this level of activity is within the relevant range.

A. $604,575
B. $602,475
C. $596,514
D. $588,453

79. Given the cost formula Y = $15,000 + $5X, total cost at an activity level of 8,000 units would be:

A. $23,000

B. $15,000

C. $55,000

D. $40,000

80. At a volume of 10,000 units, Company P incurs $30,000 in factory overhead costs, including $10,000 in fixed costs. Assuming that this activity is within the relevant range, if volume increases to 12,000 units, Company P would expect to incur total factory overhead costs of:

A. $36,000

B. $34,000

C. $30,000

D. $32,000

81. At an activity level of 4,400 units in a month, Goldbach Corporation's total variable maintenance and repair cost is $313,632 and its total fixed maintenance and repair cost is $93,104. What would be the total maintenance and repair cost, both fixed and variable, at an activity level of 4,600 units in a month? Assume that this level of activity is within the relevant range.

A. $420,992

B. $425,224

C. $415,980

D. $406,736

82. Supply costs at Lattea Corporation's chain of gyms are listed below:

	Client-Visits	Supply Cost
March	11,647	$28,561
April	11,443	$28,395
May	11,975	$28,819
June	12,088	$28,892
July	11,707	$28,622
August	11,193	$28,221
September	11,987	$28,820
October	11,678	$28,578
November	11,826	$28,703

Management believes that supply cost is a mixed cost that depends on client-visits. Using the high-low method to estimate the variable and fixed components of this cost, those estimates would be closest to:

A. $2.44 per client-visit; $28,623 per month

B. $1.33 per client-visit; $12,768 per month

C. $0.79 per client-visit; $19,321 per month

D. $0.75 per client-visit; $19,826 per month

83. Electrical costs at one of Vanartsdalen Corporation's factories are listed below:

	Machine-Hours	Electrical Cost
January	2,388	$34,213
February	2,356	$33,912
March	2,380	$34,133
April	2,335	$33,717
May	2,312	$33,514
June	2,360	$33,943
July	2,304	$33,428
August	2,314	$33,530
September	2,378	$34,100

Management believes that electrical cost is a mixed cost that depends on machine-hours. Using the high-low method to estimate the variable and fixed components of this cost, these estimates would be closest to:

A. $14.41 per machine-hour; $33,832 per month

B. $0.11 per machine-hour; $33,957 per month

C. $9.35 per machine-hour; $11,885 per month

D. $11.30 per machine-hour; $7,229 per month

84. A soft drink bottler incurred the following plant utility costs: 1,800 units bottled with utility costs of $5,750, and 1,500 units bottled with utility costs of $5,200. What is the variable cost per unit bottled (Use the High-low method. Round to the nearest cent.)

A. $3.47

B. $3.19

C. $1.83

D. None of these is true.

85. The following data pertains to activity and maintenance costs for two recent years:

	Year 2	Year 1
Activity level in units.....	12,000	8,000
Maintenance cost.....	$15,000	$12,000

Using the high-low method, the cost formula for maintenance would be:

A. $1.50 per unit

B. $1.25 per unit

C. $3,000 plus $1.50 per unit

D. $6,000 plus $0.75 per unit

86. The following data pertains to activity and utility costs for two recent years:

	Year 2	Year 1
Activity level in units.....	10,000	6,000
Utilities cost observed.....	$12,000	$9,000

Using the high-low method, the cost formula for utilities is:

A. $1.50 per unit

B. $1.20 per unit

C. $3,000 plus $3.00 per unit

D. $4,500 plus $0.75 per unit

87. Maintenance costs at a Tierce Corporation factory are listed below:

	Machine-Hours	Maintenance Cost
January	3,658	$52,986
February	3,613	$52,580
March	3,607	$52,504
April	3,614	$52,585
May	3,638	$52,825
June	3,604	$52,500
July	3,653	$52,943
August	3,634	$52,776
September	3,588	$52,337

Management believes that maintenance cost is a mixed cost that depends on machine-hours. Using the high-low method to estimate the variable and fixed components of this cost, these estimates would be closest to:

A. $14.54 per machine-hour; $52,671 per month

B. $9.27 per machine-hour; $19,076 per month

C. $0.11 per machine-hour; $52,591 per month

D. $9.27 per machine-hour; $19,071 per month

88. Buckeye Company has provided the following data for maintenance cost:

	Prior Year	Current Year
Machine hours	12,500	15,000
Maintenance cost	$27,000	$31,000

The best estimate of the cost formula for maintenance would be:

A. $21,625 per year plus $0.625 per machine hour

B. $7,000 per year plus $0.625 per machine hour

C. $7,000 per year plus $1.60 per machine hour

D. $27,000 per year plus $1.60 per machine hour

89. Haar Inc. is a merchandising company. Last month the company's cost of goods sold was $61,000. The company's beginning merchandise inventory was $11,000 and its ending merchandise inventory was $21,000. What was the total amount of the company's merchandise purchases for the month?

A. $61,000

B. $51,000

C. $71,000

D. $93,000

90. Gabruk Inc. is a merchandising company. Last month the company's merchandise purchases totaled $88,000. The company's beginning merchandise inventory was $15,000 and its ending merchandise inventory was $13,000. What was the company's cost of goods sold for the month?

A. $88,000

B. $90,000

C. $86,000

D. $116,000

A partial listing of costs incurred during December at Gagnier Corporation appears below:

Factory supplies	$8,000
Administrative wages and salaries	$105,000
Direct materials	$153,000
Sales staff salaries	$68,000
Factory depreciation	$49,000
Corporate headquarters building rent	$34,000
Indirect labor	$32,000
Marketing	$103,000
Direct labor	$83,000

91. The total of the period costs listed above for December is:

A. $89,000

B. $310,000

C. $325,000

D. $399,000

92. The total of the manufacturing overhead costs listed above for December is:

A. $325,000

B. $635,000

C. $89,000

D. $40,000

93. The total of the product costs listed above for December is:

A. $310,000

B. $89,000

C. $635,000

D. $325,000

A partial listing of costs incurred at Backes Corporation during November appears below:

Direct materials	$157,000
Utilities, factory	$6,000
Administrative salaries	$99,000
Indirect labor	$25,000
Sales commissions	$54,000
Depreciation of production equipment	$46,000
Depreciation of administrative equipment	$30,000
Direct labor	$114,000
Advertising	$61,000

94. The total of the manufacturing overhead costs listed above for November is:

A. $348,000

B. $31,000

C. $592,000

D. $77,000

95. The total of the product costs listed above for November is:

A. $77,000

B. $348,000

C. $592,000

D. $244,000

96. The total of the period costs listed above for November is:

A. $244,000

B. $321,000

C. $348,000

D. $77,000

Dickison Corporation reported the following data for the month of December:

Direct materials	$71,000
Direct labor cost	$38,000
Manufacturing overhead	$69,000
Selling expense	$24,000
Administrative expense	$42,000

97. The conversion cost for December was:

A. $107,000

B. $142,000

C. $111,000

D. $178,000

98. The prime cost for December was:

A. $109,000

B. $111,000

C. $107,000

D. $66,000

Management of Mcentire Corporation has asked your help as an intern in preparing some key reports for April. Direct materials cost was $64,000, direct labor cost was $47,000, and manufacturing overhead was $75,000. Selling expense was $15,000 and administrative expense was $44,000.

99. The conversion cost for April was:

A. $186,000
B. $100,000
C. $128,000
D. $122,000

100. The prime cost for April was:

A. $59,000
B. $122,000
C. $100,000
D. $111,000

Callander Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $151.60 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$415,800	$485,100
Selling and administrative costs	$430,200	$441,000

101. The best estimate of the total monthly fixed cost is:

A. $846,000

B. $886,050

C. $365,400

D. $926,100

102. The best estimate of the total variable cost per unit is:

A. $141.00

B. $80.10

C. $69.30

D. $132.30

103. The best estimate of the total contribution margin when 6,300 units are sold is:

A. $450,450

B. $518,490

C. $121,590

D. $66,780

Babuca Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$340,200	$396,900
Direct labor	$81,000	$94,500
Manufacturing overhead	$1,003,200	$1,015,000

104. The best estimate of the total monthly fixed manufacturing cost is:

A. $1,424,400

B. $1,506,400

C. $932,400

D. $1,465,400

105. The best estimate of the total variable manufacturing cost per unit is:

A. $82.00

B. $70.20

C. $56.70

D. $11.80

106. The best estimate of the total cost to manufacture 6,300 units is closest to:

A. $1,425,690

B. $1,355,760

C. $1,495,620

D. $1,449,000

The following production and average cost data for two levels of monthly production volume have been supplied by a company that produces a single product:

Production volume	1,000 units	2,000 units
Direct materials	$15.70 per unit	$15.70 per unit
Direct labor	$51.00 per unit	$51.00 per unit
Manufacturing overhead	$47.70 per unit	$34.90 per unit

107. The best estimate of the total monthly fixed manufacturing cost is:

A. $25,600

B. $114,400

C. $47,700

D. $69,800

108. The best estimate of the total variable manufacturing cost per unit is:

A. $22.10

B. $66.70

C. $88.80

D. $15.70

109. The best estimate of the total cost to manufacture 1,200 units is closest to:

A. $132,160

B. $121,920

C. $129,600

D. $137,280

Erkkila Inc. reports that at an activity level of 7,900 machine-hours in a month, its total variable inspection cost is $210,061 and its total fixed inspection cost is $191,970.

110. What would be the average fixed inspection cost per unit at an activity level of 8,100 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $50.89

B. $24.30

C. $23.70

D. $32.96

111. What would be the total variable inspection cost at an activity level of 8,100 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $210,061

B. $196,830

C. $215,379

D. $402,031

At an activity level of 5,300 machine-hours in a month, Clyburn Corporation's total variable maintenance cost is $114,268 and its total fixed maintenance cost is $154,336.

112. What would be the total variable maintenance cost at an activity level of 5,600 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $163,072

B. $268,604

C. $114,268

D. $120,736

113. What would be the average fixed maintenance cost per unit at an activity level of 5,600 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $50.68

B. $27.56

C. $35.79

D. $29.12

Slappy Corporation leases its corporate headquarters building. This lease cost is fixed with respect to the company's sales volume. In a recent month in which the sales volume was 20,000 units, the lease cost was $482,000.

114. To the nearest whole dollar, what should be the total lease cost at a sales volume of 16,900 units in a month? (Assume that this sales volume is within the relevant range.)

A. $407,290

B. $482,000

C. $570,414

D. $444,645

115. To the nearest whole cent, what should be the average lease cost per unit at a sales volume of 19,200 units in a month? (Assume that this sales volume is within the relevant range.)

A. $28.52

B. $24.60

C. $25.10

D. $24.10

At a sales volume of 35,000 units, Thoma Corporation's sales commissions (a cost that is variable with respect to sales volume) total $448,000.

116. To the nearest whole dollar, what should be the total sales commissions at a sales volume of 33,200 units? (Assume that this sales volume is within the relevant range.)

A. $424,960

B. $448,000

C. $436,480

D. $472,289

117. To the nearest whole cent, what should be the average sales commission per unit at a sales volume of 36,800 units? (Assume that this sales volume is within the relevant range.)

A. $13.49

B. $12.17

C. $12.80

D. $12.49

At a sales volume of 27,000 units, Danielle Corporation's property taxes (a cost that is fixed with respect to sales volume) total $207,900.

118. To the nearest whole dollar, what should be the total property taxes at a sales volume of 30,900 units? (Assume that this sales volume is within the relevant range.)

A. $207,900

B. $181,660

C. $222,915

D. $237,930

119. To the nearest whole cent, what should be the average property tax per unit at a sales volume of 27,600 units? (Assume that this sales volume is within the relevant range.)

A. $6.73

B. $7.70

C. $7.62

D. $7.53

Chaffee Corporation staffs a helpline to answer questions from customers. The costs of operating the helpline are variable with respect to the number of calls in a month. At a volume of 33,000 calls in a month, the costs of operating the helpline total $742,500.

120. To the nearest whole dollar, what should be the total cost of operating the helpline costs at a volume of 34,800 calls in a month? (Assume that this call volume is within the relevant range.)

A. $742,500

B. $783,000

C. $704,095

D. $762,750

121. To the nearest whole cent, what should be the average cost of operating the helpline per call at a volume of 36,100 calls in a month? (Assume that this call volume is within the relevant range.)

A. $21.54

B. $20.57

C. $21.34

D. $22.50

Emilio Corporation reports that at an activity level of 3,400 units, its total variable cost is $59,058 and its total fixed cost is $101,150.

122. What would be the total variable cost at an activity level of 3,500 units? Assume that this level of activity is within the relevant range.

A. $59,058

B. $160,208

C. $60,795

D. $104,125

123. What would be the average fixed cost per unit at an activity level of 3,500 units? Assume that this level of activity is within the relevant range.

A. $29.75

B. $47.12

C. $35.26

D. $28.90

Inspection costs at one of Krivanek Corporation's factories are listed below:

	Units Produced	Inspection Cost
January	630	$8,850
February	615	$8,819
March	602	$8,760
April	595	$8,743
May	688	$9,036
June	626	$8,866
July	646	$8,920
August	670	$8,977
September	678	$9,013

Management believes that inspection cost is a mixed cost that depends on units produced.

124. Using the high-low method, the estimate of the variable component of inspection cost per unit produced is closest to:

A. $3.15

B. $0.32

C. $3.40

D. $13.91

125. Using the high-low method, the estimate of the fixed component of inspection cost per month is closest to:

A. $8,743

B. $8,887

C. $8,683

D. $6,869

Glatt Inc., an escrow agent, has provided the following data concerning its office expenses:

	Escrows Completed	Office Expenses
February	108	$8,542
March	83	$8,138
April	103	$8,459
May	91	$8,260
June	64	$7,792
July	122	$8,779
August	50	$7,536
September	57	$7,691
October	40	$7,376

Management believes that office expense is a mixed cost that depends on the number of escrows completed. Note: Real estate purchases usually involve the services of an escrow agent that holds funds and prepares documents to complete the transaction.

126. Using the high-low method, the estimate of the variable component of office expense per escrow completed is closest to:

A. $101.08

B. $59.12

C. $17.11

D. $17.15

127. Using the high-low method, the estimate of the fixed component of office expense per month is closest to:

A. $6,692

B. $8,064

C. $7,376

D. $7,720

Electrical costs at one of Reifel Corporation's factories are listed below:

	Machine-Hours	Electrical Cost
March	253	$5,594
April	283	$5,846
May	291	$5,877
June	289	$5,881
July	303	$6,005
August	295	$5,932
September	285	$5,849
October	296	$5,922
November	300	$5,969

Management believes that electrical cost is a mixed cost that depends on machine-hours.

128. Using the high-low method, the estimate of the variable component of electrical cost per machine-hour is closest to:

A. $0.12

B. $20.38

C. $7.98

D. $8.22

129. Using the high-low method, the estimate of the fixed component of electrical cost per month is closest to:

A. $5,594

B. $3,514

C. $5,875

D. $5,840

The following data have been provided by a retailer that sells a single product.

	This Year	Last Year
Units sold	200,000	150,000
Sales revenue	$1,000,000	$750,000
Cost of goods sold	700,000	525,000
Gross margin	300,000	225,000
Selling and administrative expense	222,000	210,000
Net operating income	$ 78,000	$ 15,000

130. What is the best estimate of the company's variable selling and administrative expense per unit?

A. $4.17 per unit

B. $0.24 per unit

C. $0.90 per unit

D. $0.71 per unit

131. What is the best estimate of the company's total fixed selling and administrative expense per year?

A. $0

B. $80,000

C. $44,000

D. 174,000

132. What is the best estimate of the company's contribution margin for this year?

A. $252,000

B. $300,000

C. $158,000

D. $120,000

Nikkel Corporation, a merchandising company, reported the following results for July:

Sales	$402,800
Cost of goods sold (all variable)	$169,100
Total variable selling expense	$17,100
Total fixed selling expense	$14,200
Total variable administrative expense	$7,600
Total fixed administrative expense	$30,100

133. The gross margin for July is:

A. $358,500

B. $209,000

C. $233,700

D. $164,700

134. The contribution margin for July is:

A. $333,800

B. $209,000

C. $233,700

D. $164,700

Holzhauer Corporation, a merchandising company, reported the following results for March:

Number of units sold	8,000 units
Selling price per unit	$300 per unit
Unit cost of goods sold	$130 per unit
Variable selling expense per unit	$18 per unit
Total fixed selling expense	$54,700
Variable administrative expense per unit	$12 per unit
Total fixed administrative expense	$142,700

Cost of goods sold is a variable cost in this company.

135. The gross margin for March is:

A. $922,600

B. $1,120,000

C. $2,202,600

D. $1,360,000

136. The contribution margin for March is:

A. $922,600

B. $1,120,000

C. $1,962,600

D. $1,360,000

Fiene Sales, Inc., a merchandising company, reported sales of 2,200 units in June at a selling price of $600 per unit. Cost of goods sold, which is a variable cost, was $364 per unit. Variable selling expenses were $23 per unit and variable administrative expenses were $33 per unit. The total fixed selling expenses were $30,500 and the total administrative expenses were $55,300.

137. The contribution margin for June was:

A. $1,111,000

B. $396,000

C. $310,200

D. $519,200

138. The gross margin for June was:

A. $310,200

B. $1,234,200

C. $396,000

D. $519,200

Getchman Marketing, Inc., a merchandising company, reported sales of $592,500 and cost of goods sold of $305,000 for April. The company's total variable selling expense was $37,500; its total fixed selling expense was $16,000; its total variable administrative expense was $35,000; and its total fixed administrative expense was $38,900. The cost of goods sold in this company is a variable cost.

139. The contribution margin for April is:

A. $465,100

B. $287,500

C. $160,100

D. $215,000

140. The gross margin for April is:

A. $287,500

B. $215,000

C. $537,600

D. $160,100

Salvadore Inc., a local retailer, has provided the following data for the month of September:

Merchandise inventory, beginning balance	$42,000
Merchandise inventory, ending balance	$41,000
Sales	$260,000
Purchases of merchandise inventory	$133,000
Selling expense	$15,000
Administrative expense	$52,000

141. The cost of goods sold for September was:

A. $132,000

B. $134,000

C. $133,000

D. $200,000

142. The net operating income for September was:

A. $60,000

B. $128,000

C. $127,000

D. $59,000

The following cost data pertain to the operations of Swestka Department Stores, Inc., for the month of July.

Corporate headquarters building lease	$78,000
Cosmetics Department sales commissions--Northridge Store	$5,000
Corporate legal office salaries	$57,000
Store manager's salary-Northridge Store	$10,000
Heating-Northridge Store	$11,000
Cosmetics Department cost of sales--Northridge Store	$31,000
Central warehouse lease cost	$6,000
Store security-Northridge Store	$13,000
Cosmetics Department manager's salary--Northridge Store	$4,000

The Northridge Store is just one of many stores owned and operated by the company. The Cosmetics Department is one of many departments at the Northridge Store. The central warehouse serves all of the company's stores.

143. What is the total amount of the costs listed above that are direct costs of the Cosmetics Department?

A. $74,000

B. $36,000

C. $31,000

D. $40,000

144. What is the total amount of the costs listed above that are NOT direct costs of the Northridge Store?

A. $40,000

B. $34,000

C. $141,000

D. $78,000

The following cost data pertain to the operations of Mancia Department Stores, Inc., for the month of February.

Corporate legal office salaries	$62,000
Shoe Department cost of sales--Brentwood Store	$80,000
Corporate headquarters building lease	$79,000
Store manager's salary--Brentwood Store	$14,000
Shoe Department sales commissions--Brentwood Store	$8,000
Store utilities--Brentwood Store	$13,000
Shoe Department manager's salary--Brentwood Store	$4,000
Central warehouse lease cost	$11,000
Janitorial costs--Brentwood Store	$11,000

The Brentwood Store is just one of many stores owned and operated by the company. The Shoe Department is one of many departments at the Brentwood Store. The central warehouse serves all of the company's stores.

145. What is the total amount of the costs listed above that are direct costs of the Shoe Department?

A. $80,000

B. $88,000

C. $130,000

D. $92,000

146. What is the total amount of the costs listed above that are NOT direct costs of the Brentwood Store?

A. $152,000

B. $92,000

C. $79,000

D. $38,000

Management of Modugno Corporation is considering whether to purchase a new model 370 machine costing $441,000 or a new model 240 machine costing $387,000 to replace a machine that was purchased 7 years ago for $429,000. The old machine was used to make product M25A until it broke down last week. Unfortunately, the old machine cannot be repaired.

Management has decided to buy the new model 240 machine. It has less capacity than the new model 370 machine, but its capacity is sufficient to continue making product M25A.

Management also considered, but rejected, the alternative of simply dropping product M25A. If that were done, instead of investing $387,000 in the new machine, the money could be invested in a project that would return a total of $430,000.

147. In making the decision to buy the model 240 machine rather than the model 370 machine, the sunk cost was:

A. $430,000

B. $429,000

C. $387,000

D. $441,000

148. In making the decision to buy the model 240 machine rather than the model 370 machine, the differential cost was:

A. $12,000

B. $1,000

C. $54,000

D. $42,000

149. In making the decision to invest in the model 240 machine, the opportunity cost was:

A. $430,000

B. $441,000

C. $387,000

D. $429,000

Temblador Corporation purchased a machine 7 years ago for $319,000 when it launched product E26T. Unfortunately, this machine has broken down and cannot be repaired. The machine could be replaced by a new model 330 machine costing $323,000 or by a new model 230 machine costing $285,000. Management has decided to buy the model 230 machine. It has less capacity than the model 330 machine, but its capacity is sufficient to continue making product E26T. Management also considered, but rejected, the alternative of dropping product E26T and not replacing the old machine. If that were done, the $285,000 invested in the new machine could instead have been invested in a project that would have returned a total of $386,000.

150. In making the decision to buy the model 230 machine rather than the model 330 machine, the differential cost was:

A. $34,000

B. $38,000

C. $4,000

D. $67,000

151. In making the decision to buy the model 230 machine rather than the model 330 machine, the sunk cost was:

A. $319,000

B. $386,000

C. $285,000

D. $323,000

152. In making the decision to invest in the model 230 machine, the opportunity cost was:

A. $386,000

B. $319,000

C. $285,000

D. $323,000

Essay Questions

153. Bill Pope has developed a new device that is so exciting he is considering quitting his job in order to produce and market it on a large-scale basis. Bill will rent a garage for $300 per month for production purposes. Utilities will cost $40 per month. Bill has already taken an industrial design course at the local community college to help prepare for this venture. The course cost $300. Bill will rent production equipment at a monthly cost of $800. He estimates the material cost per unit will be $5, and the labor cost will be $3. He will hire workers and spend his time promoting the product. To do this he will quit his job which pays $3,000 per month. Advertising and promotion will cost $900 per month.

Required:

Complete the chart below by placing an "X" under each heading that helps to identify the cost involved. There can be "Xs" placed under more than one heading for a single cost, e.g., a cost might be a sunk cost, an overhead cost and a product cost; there would be an "X" placed under each of these headings opposite the cost.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Manufacturing Overhead Cost	Product Cost	Selling Cost	Differential Cost*
Garage rent								
Utilities								
Cost of the industrial design course								
Equipment rented								
Material cost								
Labor cost								
Present salary								
Advertising								

* Between the alternatives of going into business to make the device or not going into business to make the device.

154. Laco Company acquired its factory building about 20 years ago. For a number of years the company has rented out a small, unused part of the building. The renter's lease will expire soon. Rather than renewing the lease, Laco Company is considering using the space itself to manufacture a new product. Under this option, the unused space will continue to be depreciated on a straight-line basis, as in past years.

Direct materials and direct labor cost for the new product would be $50 per unit. In order to have a place to store finished units of the new product, the company would have to rent a small warehouse nearby. The rental cost would be $2,000 per month. It would cost the company an additional $4,000 each month to advertise the new product. A new production supervisor would be hired to oversee production of the new product who would be paid $3,000 per month. The company would pay a sales commission of $10 for each unit of product that is sold.

Required:

Complete the chart below by placing an "X" under each column heading that helps to identify the costs listed to the left. There can be "X's" placed under more than one heading for a single cost. For example, a cost might be a product cost, an opportunity cost, and a sunk cost; there would be an "X" placed under each of these headings on the answer sheet opposite the cost.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Product Cost	Selling and Administrative Cost	Differential Cost*
Rent on unused factory space							
Depreciation on the factory space							
Direct materials and direct labor							
Rental cost of the small warehouse							
Advertising cost							
Production supervisor's salary							
Sales commissions							

*Between the alternatives of (1) renting the space out again or (2) using the space to produce the

new product.

155. Lettman Corporation has provided the following partial listing of costs incurred during November:

Marketing salaries	$45,000
Property taxes, factory	$9,000
Administrative travel	$98,000
Sales commissions	$48,000
Indirect labor	$38,000
Direct materials	$165,000
Advertising	$138,000
Depreciation of production equipment	$39,000
Direct labor	$87,000

Required:

a. What is the total amount of product cost listed above? Show your work.

b. What is the total amount of period cost listed above? Show your work.

156. A partial listing of costs incurred at Starr Corporation during June appears below:

Direct materials	$107,000
Utilities, factory	$11,000
Sales commissions	$35,000
Administrative salaries	$115,000
Indirect labor	$29,000
Advertising	$148,000
Depreciation of production equipment	$46,000
Direct labor	$109,000
Depreciation of administrative equipment	$39,000

Required:

a. What is the total amount of product cost listed above? Show your work.

b. What is the total amount of period cost listed above? Show your work.

157. The following information summarizes the company's cost structure:

Variable cost per unit.....	$1.30
Fixed cost per unit.....	4.50
Total cost per unit	$5.80
Units produced and sold.....	48,000

Required:

Estimate the following costs at the 40,000 unit level of activity:

a. Total variable cost.

b. Total fixed cost.

c. Variable cost per unit.

d. Fixed cost per unit.

158. Corio Corporation reports that at an activity level of 3,800 units, its total variable cost is $221,464 and its total fixed cost is $94,848.

Required:

For the activity level of 3,900 units, compute: (a) the total variable cost; (b) the total fixed cost; (c) the total cost; (d) the average variable cost per unit; (e) the average fixed cost per unit; and (f) the average total cost per unit. Assume that this activity level is within the relevant range.

159. At an activity level of 5,900 units, Haas Corporation's total variable cost is $347,982 and its total fixed cost is $284,321.

Required:

For the activity level of 6,100 units, compute: (a) the total variable cost; (b) the total fixed cost; (c) the total cost; (d) the average variable cost per unit; (e) the average fixed cost per unit; and (f) the average total cost per unit. Assume that this activity level is within the relevant range.

160. A number of costs and measures of activity are listed below.

	Cost Description	Possible Measure of Activity
1.	Insurance on a warehouse building at a computer retailer	Number of items stocked
2.	Cost of solder used in making computers	Computers produced
3.	Cost of heating an electronics store	Dollar sales
4.	Cost of testing materials used in a medical lab	Tests run
5.	Cost of electricity for production equipment at a surfboard manufacturer	Surfboards produced
6.	Cost of airplane fuel at a regularly scheduled commuter airline	Number of passengers
7.	Sales commissions at a cellphone dealer	Dollar sales
8.	Cost of renting production equipment on a monthly basis at a surfboard manufacturer	Surfboards produced
9.	Cook's wages at a coffee shop	Dollar sales
10.	Shift manager's wages at a coffee shop	Dollar sales

Required:

For each item above, indicate whether the cost is MAINLY fixed or variable with respect to the possible measure of activity listed next to it.

161. A number of costs and measures of activity are listed below.

	Cost Description	Possible Measure of Activity
1.	Cost of direct materials used to make furniture	Units produced
2.	Cost of vaccine used at a clinic	Vaccines administered
3.	Cost of renting production equipment on a monthly basis at a snowboard manufacturer	Snowboards produced
4.	Shift manager's wages at a taco shop	Dollar sales
5.	Dental hygiene supplies at a dentist's office	Number of patients
6.	Cost of heating a hardware store	Dollar sales
7.	Sales commissions at an auto dealer	Dollar sales
8.	Cost of electricity for production equipment at a snowboard manufacturer	Snowboards produced
9.	Cost of cement used to produce cinder blocks	Cinder blocks produced
10.	Ferry captain's salary on a regularly scheduled passenger ferry	Number of passengers

Required:

For each item above, indicate whether the cost is MAINLY fixed or variable with respect to the possible measure of activity listed next to it.

162. Slonaker Inc. has provided the following data concerning its maintenance costs:

	Machine-Hours	Maintenance Cost
April	5,799	$30,379
May	5,782	$30,289
June	5,764	$30,237
July	5,761	$30,233
August	5,717	$30,078
September	5,795	$30,360
October	5,809	$30,388
November	5,801	$30,378
December	5,785	$30,318

Management believes that maintenance cost is a mixed cost that depends on machine-hours.

Required:

Estimate the variable cost per machine-hour and the fixed cost per month using the high-low method. Show your work!

163. Utility costs at one of Helker Corporation's factories are listed below:

	Machine-Hours	Utility Cost
January	4,711	$34,799
February	4,780	$35,138
March	4,704	$34,762
April	4,768	$35,093
May	4,723	$34,872
June	4,721	$34,840
July	4,759	$35,053
August	4,730	$34,918
September	4,720	$34,834

Management believes that utility cost is a mixed cost that depends on machine-hours.

Required:

Estimate the variable cost per machine-hour and the fixed cost per month using the high-low method. Show your work! Round off all calculations to the nearest whole cent.

164. The management of Harrigill Corporation would like to have a better understanding of the behavior of its inspection costs. The company has provided the following data:

	Direct Labor-Hours	Inspection Cost
March	5,043	$48,500
April	5,036	$48,449
May	5,068	$48,677
June	5,066	$48,650
July	5,021	$48,374
August	4,992	$48,202
September	5,078	$48,721
October	5,033	$48,460
November	4,980	$48,125

Management believes that inspection cost is a mixed cost that depends on direct labor-hours.

Required:

Estimate the variable cost per direct labor-hour and the fixed cost per month using the high-low method. Show your work! Round off all calculations to the nearest whole cent.

165. In October, Patnode Inc., a merchandising company, had sales of $294,000, selling expenses of $27,000, and administrative expenses of $35,000. The cost of merchandise purchased during the month was $211,000. The beginning balance in the merchandise inventory account was $38,000 and the ending balance was $34,000.

Required:

Prepare a traditional format income statement for October.

166. Whitman Corporation, a merchandising company, reported sales of 7,400 units for May at a selling price of $677 per unit. The cost of goods sold (all variable) was $441 per unit and the variable selling expense was $54 per unit. The total fixed selling expense was $155,600. The variable administrative expense was $24 per unit and the total fixed administrative expense was $370,400.

Required:

a. Prepare a contribution format income statement for May.

b. Prepare a traditional format income statement for May.

167. Donmoyer Sales Corporation, a merchandising company, reported total sales of $2,230,200 for May. The cost of goods sold (all variable) was $1,518,300, the total variable selling expense was $214,200, the total fixed selling expense was $86,700, the total variable administrative expense was $119,700, and the total fixed administrative expense was $138,400.

Required:

a. Prepare a contribution format income statement for May.

b. Prepare a traditional format income statement for May.

168. Pittman Corporation, a merchandising company, reported the following results for September:

Sales	$2,088,800
Cost of goods sold (all variable)	$896,000
Total variable selling expense	$120,400
Total fixed selling expense	$52,700
Total variable administrative expense	$81,200
Total fixed administrative expense	$144,700

Required:

a. Prepare a traditional format income statement for September.

b. Prepare a contribution format income statement for September.

169. Honey Corporation, a merchandising company, reported the following results for January:

Number of units sold	5,800
Selling price per unit	$892
Unit cost of goods sold	$517
Variable selling expense per unit	$31
Total fixed selling expense	$152,600
Variable administrative expense per unit	$48
Total fixed administrative expense	$390,200

Cost of goods sold is a variable cost in this company.

Required:

a. Prepare a traditional format income statement for January.

b. Prepare a contribution format income statement for January.

170. A number of costs are listed below.

	Cost Description	Cost Object
1.	Wood used to build a home	A particular home
2.	Cost of testing equipment in a computer manufacturing facility	A particular personal computer
3.	Cost of heating an outpatient clinic at a hospital	The outpatient clinic
4.	Supervisor's wages in a computer manufacturing facility	A particular personal computer
5.	Monthly lease cost of X-ray equipment at a hospital	The Radiology (X-Ray) Department
6.	Cost of tongue depressors used in an outpatient clinic at a hospital	The outpatient clinic
7.	Monthly depreciation on construction tools used to build a home	A particular home
8.	Cost of wiring used in making a personal computer	A particular personal computer
9.	Cost of a measles vaccine administered at an outpatient clinic at a hospital	The outpatient clinic
10.	Cost of heating a hotel run by a chain of hotels	A particular hotel guest

Required:

For each item above, indicate whether the cost is direct or indirect with respect to the cost object listed next to it.

Chapter 02 Managerial Accounting and Cost Concepts Answer Key

True / False Questions

1. Direct material costs are generally variable costs.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

2. Property taxes and insurance premiums paid on a factory building are examples of manufacturing overhead.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Level: 1 Easy

3. Manufacturing overhead combined with direct materials is known as conversion cost.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Level: 1 Easy

4. All costs incurred in a merchandising firm are considered to be period costs.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

5. Depreciation is always considered a product cost for external financial reporting purposes in a manufacturing firm.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 2 Medium

6. In external financial reports, factory utilities costs may be included in an asset account on the balance sheet at the end of the period.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 3 Hard

7. Advertising costs are considered product costs for external financial reports because they are incurred in order to promote specific products.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 2 Medium

8. Selling and administrative expenses are product costs under generally accepted accounting principles.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

9. A variable cost is a cost whose cost per unit varies as the activity level rises and falls.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

10. When the level of activity increases, total variable cost will increase.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

11. A decrease in production will ordinarily result in an increase in fixed production costs per unit.

TRUE

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

12. Automation results in a shift away from variable costs toward more fixed costs.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

13. In order for a cost to be variable it must vary with either units produced or units sold.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 2 Medium

14. The concept of the relevant range does not apply to fixed costs.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

15. Indirect costs, such as manufacturing overhead, are always fixed costs.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 2 Medium

16. Discretionary fixed costs arise from annual decisions by management to spend in certain fixed cost areas.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

17. Even if operations are interrupted or cut back, committed fixed costs remain largely unchanged in the short term because the costs of restoring them later are likely to be far greater than any short-run savings that might be realized.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

18. Committed fixed costs are fixed costs that are not controllable.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 3 Hard

19. A mixed cost is partially variable and partially fixed.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

20. Traditional format income statements are prepared primarily for external reporting purposes.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 1 Easy

21. In a contribution format income statement, sales minus cost of goods sold equals the gross margin.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 1 Easy

22. In a traditional format income statement for a merchandising company, the cost of goods sold reports the product costs attached to the merchandise sold during the period.

TRUE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 1 Easy

23. Although the contribution format income statement is useful for external reporting purposes, it has serious limitations when used for internal purposes because it does not distinguish between fixed and variable costs.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

24. In a contribution format income statement for a merchandising company, cost of goods sold is a variable cost that gets included in the "Variable expenses" portion of the income statement.

TRUE

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Remember

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

25. The traditional format income statement is used as an internal planning and decision-making tool. Its emphasis on cost behavior aids cost-volume-profit analysis, management performance appraisals, and budgeting.

FALSE

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Remember

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

26. The following would typically be considered indirect costs of manufacturing a particular Boeing 747 to be delivered to Singapore Airlines: electricity to run production equipment, the factory manager's salary, and the cost of the General Electric jet engines installed on the aircraft.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-06 Understand the differences between direct and indirect costs.
Level: 2 Medium

27. The following costs should be considered direct costs of providing delivery room services to a particular mother and her baby: the costs of drugs administered in the operating room, the attending physician's fees, and a portion of the liability insurance carried by the hospital to cover the delivery room.

FALSE

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-06 Understand the differences between direct and indirect costs.
Level: 3 Hard

28. The following costs should be considered by a law firm to be indirect costs of defending a particular client in court: rent on the law firm's offices, the law firm's receptionist's wages, the costs of heating the law firm's offices, and the depreciation on the personal computer in the office of the attorney who has been assigned the client.

TRUE

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Understand

Learning Objective: 02-06 Understand the differences between direct and indirect costs.

Level: 3 Hard

29. In any decision making situation, sunk costs are irrelevant and should be ignored.

TRUE

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Decision Making

Blooms: Remember

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 1 Easy

Multiple Choice Questions

30. For a lamp manufacturing company, the cost of the insurance on its vehicles that deliver lamps to customers is best described as a:

A. prime cost.

B. manufacturing overhead cost.

C. period cost.

D. differential (incremental) cost of a lamp.

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Understand

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 3 Hard

31. The cost of leasing production equipment is classified as:

	Prime cost	Product cost
A)	No	Yes
B)	No	No
C)	Yes	No
D)	Yes	Yes

A. Option A

B. Option B

C. Option C

D. Option D

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Understand

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

32. The wages of factory maintenance personnel would usually be considered to be:

	Indirect labor	Manufacturing overhead
A)	No	Yes
B)	Yes	No
C)	Yes	Yes
D)	No	No

A. Option A

B. Option B

C. Option C

D. Option D

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Understand

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-06 Understand the differences between direct and indirect costs.

Level: 2 Medium

33. Manufacturing overhead consists of:

A. all manufacturing costs.

B. indirect materials but not indirect labor.

C. all manufacturing costs, except direct materials and direct labor.

D. indirect labor but not indirect materials.

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Understand

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 2 Medium

34. Which of the following should NOT be included as part of manufacturing overhead at a company that makes office furniture?

A. sheet steel in a file cabinet made by the company.
B. manufacturing equipment depreciation.
C. idle time for direct labor.
D. taxes on a factory building.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Level: 2 Medium

35. Which of the following costs would not be included as part of manufacturing overhead?

A. Insurance on sales vehicles.
B. Depreciation of production equipment.
C. Lubricants for production equipment.
D. Direct labor overtime premium.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Level: 1 Easy

36. Conversion cost consists of which of the following?

A. Manufacturing overhead cost.
B. Direct materials and direct labor cost.
C. Direct labor cost.
D. Direct labor and manufacturing overhead cost.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.
Level: 1 Easy

37. The advertising costs that Pepsi incurred to air its commercials during the Super Bowl can best be described as a:

A. variable cost.
B. fixed cost.
C. product cost.
D. prime cost.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 2 Medium

38. Each of the following would be a period cost except:

A. the salary of the company president's secretary.
B. the cost of a general accounting office.
C. depreciation of a machine used in manufacturing.
D. sales commissions.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

39. Which of the following costs is an example of a period rather than a product cost?

A. Depreciation on production equipment.
B. Wages of salespersons.
C. Wages of production machine operators.
D. Insurance on production equipment.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

40. Which of the following would be considered a product cost for external financial reporting purposes?

A. Cost of a warehouse used to store finished goods.
B. Cost of guided public tours through the company's facilities.
C. Cost of travel necessary to sell the manufactured product.
D. Cost of sand spread on the factory floor to absorb oil from manufacturing machines.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 2 Medium

41. Which of the following would NOT be treated as a product cost for external financial reporting purposes?

A. Depreciation on a factory building.
B. Salaries of factory workers.
C. Indirect labor in the factory.
D. Advertising expenses.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

42. The salary of the president of a manufacturing company would be classified as which of the following?

A. Product cost
B. Period cost
C. Manufacturing overhead
D. Direct labor

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 1 Easy

43. Conversion costs do NOT include:

A. depreciation.
B. direct materials.
C. indirect labor.
D. indirect materials.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 2 Medium
Source: CMA, adapted

44. Last month, when 10,000 units of a product were manufactured, the cost per unit was $60. At this level of activity, variable costs are 50% of total unit costs. If 10,500 units are manufactured next month and cost behavior patterns remain unchanged the:

A. total variable cost will remain unchanged.
B. fixed costs will increase in total.
C. variable cost per unit will increase.
D. total cost per unit will decrease.

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 3 Hard

45. Variable cost:

A. increases on a per unit basis as the number of units produced increases.
B. remains constant on a per unit basis as the number of units produced increases.
C. remains the same in total as production increases.
D. decreases on a per unit basis as the number of units produced increases.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 2 Medium

46. Which of the following statements regarding fixed costs is incorrect?

A. Expressing fixed costs on a per unit basis usually is the best approach for decision making.
B. Fixed costs expressed on a per unit basis will decrease with increases in activity.
C. Total fixed costs are constant within the relevant range.
D. Fixed costs expressed on a per unit basis will increase with decreases in activity.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 2 Medium

47. The salary paid to the production manager in a factory is:

A. a variable cost.
B. part of prime cost.
C. part of conversion cost.
D. both a variable cost and a prime cost.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 3 Hard

48. Within the relevant range, variable cost per unit will:

A. increase as the level of activity increases.

B. remain constant.

C. decrease as the level of activity increases.

D. none of these.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

49. The term "relevant range" means the range of activity over which:

A. relevant costs are incurred.

B. costs may fluctuate.

C. production may vary.

D. the assumptions about fixed and variable cost behavior are reasonably valid.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

50. An example of a committed fixed cost is:

A. a training program for salespersons.
B. executive travel expenses.
C. property taxes on the factory building.
D. new product research and development.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Remember
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

51. In describing the cost formula equation Y = a + bX, which of the following statements is correct?

A. "X" is the dependent variable.
B. "a" is the fixed component.
C. In the high-low method, "b" equals change in activity divided by change in costs.
D. As "X" increases "Y" decreases.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 3 Hard

52. Which one of the following costs should NOT be considered a direct cost of serving a particular customer who orders a customized personal computer by phone directly from the manufacturer?

A. the cost of the hard disk drive installed in the computer.
B. the cost of shipping the computer to the customer.
C. the cost of leasing a machine on a monthly basis that automatically tests hard disk drives before they are installed in computers.
D. the cost of packaging the computer for shipment.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Understand
Learning Objective: 02-06 Understand the differences between direct and indirect costs.
Level: 3 Hard

53. The term differential cost refers to:

A. a difference in cost which results from selecting one alternative instead of another.
B. the benefit forgone by selecting one alternative instead of another.
C. a cost which does not involve any dollar outlay but which is relevant to the decision-making process.
D. a cost which continues to be incurred even though there is no activity.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Understand
Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.
Level: 2 Medium

54. Which of the following costs is often important in decision making, but is omitted from conventional accounting records?

A. Fixed cost.
B. Sunk cost.
C. Opportunity cost.
D. Indirect cost.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Remember
Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.
Level: 1 Easy

55. When a decision is made among a number of alternatives, the benefit that is lost by choosing one alternative over another is the:

A. realized cost.
B. opportunity cost.
C. conversion cost.
D. accrued cost.

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Remember
Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.
Level: 1 Easy
Source: CMA, adapted

56. The following costs were incurred in September:

Direct materials	$38,000
Direct labor	$29,000
Manufacturing overhead	$21,000
Selling expenses	$17,000
Administrative expenses	$32,000

Conversion costs during the month totaled:

A. $50,000

B. $59,000

C. $137,000

D. $67,000

Conversion cost = Direct labor + Manufacturing overhead

= $29,000 + $21,000

= $50,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

57. The following costs were incurred in September:

Direct materials	$39,000
Direct labor	$23,000
Manufacturing overhead	$17,000
Selling expenses	$14,000
Administrative expenses	$27,000

Prime costs during the month totaled:

A. $79,000

B. $120,000

C. $62,000

D. $40,000

Prime cost = Direct materials + Direct labor

= $39,000 + $23,000 = $62,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

58. In September direct labor was 40% of conversion cost. If the manufacturing overhead for the month was $66,000 and the direct materials cost was $20,000, the direct labor cost was:

A. $13,333

B. $44,000

C. $99,000

D. $30,000

Given:

Direct labor = 0.40 × Conversion cost

Manufacturing overhead = $66,000

Conversion cost = Direct labor + Manufacturing overhead

Conversion cost = Direct labor + $66,000

Conversion cost = 0.40 × Conversion cost + $66,000

0.60 × Conversion cost = $66,000

Conversion cost = $66,000 ÷ 0.60

Conversion cost = $110,000

Direct labor = 0.40 × Conversion cost = 0.40 × $110,000 = $44,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 3 Hard

59. Aberge Company's manufacturing overhead is 60% of its total conversion costs. If direct labor is $38,000 and if direct materials are $21,000, the manufacturing overhead is:

A. $57,000

B. $88,500

C. $25,333

D. $31,500

Given:

Manufacturing overhead = 0.60 × Conversion cost

Direct labor = $38,000

Conversion cost = Direct labor + Manufacturing overhead

Conversion cost = $38,000 + Manufacturing overhead

Conversion cost = $38,000 + 0.60 × Conversion cost

0.40 × Conversion cost = $38,000

Conversion cost = $38,000 ÷ 0.40

Conversion cost = $95,000

Manufacturing overhead = 0.60 × Conversion cost

Manufacturing overhead = 0.60 × $95,000

Manufacturing overhead = $57,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 3 Hard

60. During the month of September, direct labor cost totaled $11,000 and direct labor cost was 40% of prime cost. If total manufacturing costs during September were $73,000, the manufacturing overhead was:

A. $16,500

B. $27,500

C. $62,000

D. $45,500

Given:

Direct labor cost = $11,000

Direct labor cost = 0.40 × Prime cost

Total manufacturing cost = $73,000

Direct labor cost = 0.40 × Prime cost

Prime cost = Direct labor cost ÷ 0.40

Prime cost = $11,000 ÷ 0.40 = $27,500

Total manufacturing cost = Prime cost + Manufacturing overhead cost

$73,000 = $27,500 + Manufacturing overhead cost

Manufacturing overhead cost = $45,500

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 3 Hard

61. A manufacturing company prepays its insurance coverage for a three-year period. The premium for the three years is $2,700 and is paid at the beginning of the first year. Eighty percent of the premium applies to manufacturing operations and 20% applies to selling and administrative activities. What amounts should be considered product and period costs respectively for the first year of coverage?

	Product	Period
A)	$2,700	$0
B)	$2,160	$540
C)	$1,440	$360
D)	$720	$180

A. Option A

B. Option B

C. Option C

D. Option D

Annual insurance expense = $2,700 ÷ 3 = $900

Portion applicable to product cost = 0.80 × $900 = (0.80) × $900 = $720

Portion applicable to period cost = 0.20 × $900 = $180

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

62. Iadanza Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $195.70 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$457,800	$534,100
Selling and administrative costs	$621,000	$639,100

The best estimate of the total contribution margin when 6,300 units are sold is:

A. $752,220

B. $638,190

C. $100,170

D. $177,030

Used the high-low method to estimate variable components of the costs:

Variable cost of sales = Change in cost ÷ Change in activity

= ($534,100 - $457,800) ÷ (7,000 units - 6,000 units)

= $76,300 ÷ 1,000 units

= $76.30 per unit

Variable selling and administrative cost = Change in cost ÷ Change in activity

= ($639,100 - $621,000) ÷ (7,000 units - 6,000 units)

= $18,100 ÷ 1,000 units

= $18.10 per unit

Total variable cost per unit = Variable cost of sales + Variable selling and administrative cost

= $76.30 per unit + $18.10 per unit = $94.40 per unit

Contribution margin per unit = Selling price per unit - Total variable cost per unit

= $195.70 per unit - $94.40 per unit = $101.30 per unit

Total contribution margin = Contribution margin per unit × Total unit sales

= $101.30 per unit × 6,300 units = $638,190

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 3 Hard

63. Gambarini Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $197.80 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$486,600	$567,700
Selling and administrative costs	$612,600	$624,400

The best estimate of the total monthly fixed cost is:

A. $541,800

B. $1,192,100

C. $1,099,200

D. $1,145,650

Variable cost of sales per unit = Change in cost ÷ Change in activity

= ($567,700 - $486,600) ÷ (7,000 units - 6,000 units)

= $81,100 ÷ 1,000 units

= $81.10 per unit

Fixed cost of sales:

Total cost at 7,000 units	$567,700
Less variable cost element: 7,000 units × $81.10 per unit	567,700
Fixed cost	$0

Variable selling and administrative cost per unit = Change in cost ÷ Change in activity

= ($624,400 - $612,600) ÷ (7,000 units - 6,000 units)

= $11,800 ÷ 1,000 units

= $11.80 per unit

Fixed cost of sales:

Total cost at 7,000 units	$624,400
Less variable cost element: 7,000 units × $11.80 per unit	82,600
Fixed cost	$541,800

Total fixed cost = $0 + $541,800 = $541,800

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

64. Bakker Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	4,000 units	5,000 units
Direct materials	$89.70 per unit	$89.70 per unit
Direct labor	$22.60 per unit	$22.60 per unit
Manufacturing overhead	$70.50 per unit	$60.30 per unit

The best estimate of the total variable manufacturing cost per unit is:

A. $89.70

B. $131.80

C. $19.50

D. $112.30

Total manufacturing overhead at 5,000 units = 5,000 units × $60.30 per unit = $301,500

Total manufacturing overhead at 4,000 units = 4,000 units × $70.50 per unit = $282,000

Variable manufacturing overhead per unit = Change in cost ÷ Change in activity

= ($301,500 - $282,000) ÷ (5,000 units - 4,000 units)

= $19,500 ÷ 1,000 units

= $19.50 per unit

Total variable manufacturing cost = Direct materials + Direct labor + Variable manufacturing overhead

= $89.70 per unit + $22.60 per unit + $19.50 per unit

= $131.80 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

65. Carbaugh Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	3,000 units	4,000 units
Direct materials	$73.90 per unit	$73.90 per unit
Direct labor	$49.20 per unit	$49.20 per unit
Manufacturing overhead	$70.10 per unit	$55.20 per unit

The best estimate of the total cost to manufacture 3,300 units is closest to:

A. $637,560

B. $612,975

C. $588,390

D. $619,680

Total manufacturing overhead at 4,000 units = 4,000 units × $55.20 per unit = $220,800

Total manufacturing overhead at 3,000 units = 3,000 units × $70.10 per unit = $210,300

Variable manufacturing overhead per unit = Change in cost ÷ Change in activity

= ($220,800 - $210,300) ÷ (4,000 units - 3,000 units)

= $10,500 ÷ 1,000 units

= $10.50 per unit

Fixed cost element of manufacturing overhead = Total cost - Variable cost element

= $220,800 - 4,000 units × $10.50 per unit

= $220,800 - $42,000

= $178,800

Total variable manufacturing cost = Direct materials + Direct labor + Manufacturing overhead

= $73.90 per unit + $49.20 per unit + $10.50 per unit

= $133.60 per unit

Total manufacturing cost = Total manufacturing cost per unit × Total units manufactured + Total fixed manufacturing cost

= $133.60 per unit × 3,300 units + $178,800

= $440,880 + $178,800

= $619,680

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

66. Edeen Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$311,000	$373,200
Direct labor	$171,500	$205,800
Manufacturing overhead	$415,000	$427,800

The best estimate of the total variable manufacturing cost per unit is:

A. $62.20

B. $96.50

C. $109.30

D. $12.80

Direct materials cost per unit = Change in cost ÷ Change in activity

= ($373,200 - $311,000) ÷ (6,000 units - 5,000 units)

= $62,200 ÷ 1,000 per unit

= $62.20 per unit

Direct labor cost per unit = Change in cost ÷ Change in activity

= ($205,800 - $171,500) ÷ (6,000 units - 5,000 units)

= $34,300 ÷ 1,000 units

= $34.30 per unit

Variable manufacturing overhead per unit = Change in cost ÷ Change in activity

= ($427,800 - $415,000) ÷ (6,000 units - 5,000 units)

= $12,800 ÷ 1,000 units

= $12.80 per unit

Total variable manufacturing cost per unit = Direct materials per unit + Direct labor per unit +

Variable manufacturing overhead per unit = $62.20 per unit + $34.30 per unit + $12.80 per unit

= $109.30 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

67. Dabney Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	7,000 units	8,000 units
Direct materials	$246,400	$281,600
Direct labor	$350,700	$400,800
Manufacturing overhead	$860,300	$872,000

The best estimate of the total monthly fixed manufacturing cost is:

A. $778,400

B. $1,457,400

C. $1,505,900

D. $1,554,400

Direct materials cost per unit = Change in cost ÷ Change in activity

= ($281,600 - $246,400) ÷ (8,000 units - 7,000 units)

= $35,200 ÷ 1,000 units

= $35.20 per unit

Direct labor cost per unit = Change in cost ÷ Change in activity

= ($400,800 - $350,700) ÷ (8,000 units - 7,000 units)

= $50,100 ÷ 1,000 units

= $50.10 per unit

Variable manufacturing overhead cost per unit = Change in cost ÷ Change in activity

= ($872,000 - $860,300) ÷ (8,000 units - 7,000 units)

= $11,700 ÷ 1,000 units

= $11.70 per unit

Fixed cost element of manufacturing overhead = Total cost - Variable cost element

= $872,000 - 8,000 units × $11.70 per unit

= $872,000 - $93,600

= $778,400

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

68. Haras Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $141.30 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$347,400	$405,300
Selling and administrative costs	$436,800	$458,500

The best estimate of the total variable cost per unit is:

A. $123.40

B. $79.60

C. $57.90

D. $130.70

Variable cost of sales = Change in cost ÷ Change in activity

= ($405,300 - $347,400) ÷ (7,000 units - 6,000 units)

= $57,900 ÷ 1,000 units

= $57.90 per unit

Variable selling and administrative cost = Change in cost ÷ Change in activity

= ($458,500 - $436,800) ÷ (7,000 units - 6,000 units)

= $21,700 ÷ 1,000 units

= $21.70 per unit

Total variable cost = Variable cost of sales + Variable selling and administrative cost

= $57.90 per unit + $21.70 per unit

= $79.60 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

69. Faraz Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$70,500	$84,600
Direct labor	$130,500	$156,600
Manufacturing overhead	$802,000	$824,400

The best estimate of the total cost to manufacture 5,300 units is closest to:

A. $1,002,230

B. $1,021,780

C. $1,063,180

D. $941,280

Direct materials is a variable cost, so it can be computed as follows:
Direct materials cost per unit = $70,500/5,000 units = $14.10 per unit

Direct labor could also be computed the same way, but just to make sure it is purely a variable cost, we'll use the high-low method:
Variable direct labor cost per unit = Change in cost ÷ Change in activity
= ($156,600 - $130,500) ÷ (6,000 units - 5,000 units)
= $26,100 ÷ 1,000 units
= $26.10 per unit

Direct labor fixed cost element = Total cost - Variable cost element
= $156,600 - ($26.10 per unit × 6,000 units)
= $156,600 - ($156,600) = $0

Variable manufacturing overhead cost per unit = Change in cost ÷ Change in activity
= ($824,400 - $802,000) ÷ (6,000 units - 5,000 units)
= $22,400 ÷ 1,000 units
= $22.40 per unit

Manufacturing overhead fixed cost element = Total cost - Variable cost element

= $824,400 - ($22.40 per unit × 6,000 units)

= $824,400 - ($134,400) = $690,000

Total variable cost = Direct materials + Direct labor + Variable manufacturing overhead

= $14.10 per unit + $26.10 per unit + $22.40 per unit

= $62.60 per unit

Total fixed overhead cost = $690,000

Total cost to manufacture 5,300 units = Total fixed cost + Total variable cost

= $690,000 + ($62.60 per unit × 5,300 units)

= $690,000 + ($331,780)

= $1,021,780

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

70. Anderwald Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	2,000 units	3,000 units
Direct materials	$72.30 per unit	$72.30 per unit
Direct labor	$19.70 per unit	$19.70 per unit
Manufacturing overhead	$88.40 per unit	$65.60 per unit

The best estimate of the total monthly fixed manufacturing cost is:

A. $360,800

B. $136,800

C. $196,800

D. $176,800

Both direct materials and direct labor are variable costs.

Total manufacturing overhead at 2,000 units = $88.40 per unit × 2,000 units = $176,800

Total manufacturing overhead at 3,000 units = $65.60 per unit × 3,000 units = $196,800

Variable element of manufacturing overhead = Change in cost ÷ Change in activity

= ($196,800 - $176,800) ÷ (3,000 units - 2,000 units)

= $20,000 ÷ 1,000 units

= $20 per unit

Fixed cost element of manufacturing overhead = Total cost - Total variable cost

= $196,800 - ($20.00 per unit × 3,000 units)

= $196,800 - ($60,000)

= $136,800

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

71. Anaconda Mining Company shipped 9,000 tons of copper concentrate for $450,000 in March and 11,000 tons for $549,000 in April. Shipping costs for 12,000 tons to be shipped in May would be expected to be:

A. $548,780

B. $549,020

C. $594,000

D. $598,500

Variable shipping cost per ton = Change in cost ÷ Change in activity

= ($549,000 - $450,000) ÷ (11,000 tons - 9,000 tons)

= $99,000 ÷ 2,000 tons

= $49.50 per ton

Fixed cost element of shipping cost = Total cost - Total variable cost

= $549,000 - ($49.50 per ton × 11,000 tons)

= $549,000 - $544,500

= $4,500

Total shipping cost = $4,500 + $49.50 per ton × 12,000 tons = $4,500 + $594,000 = $598,500

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

72. Average maintenance costs are $1.50 per machine-hour at an activity level of 8,000 machine-hours and $1.20 per machine-hour at an activity level of 13,000 machine-hours. Assuming that this activity is within the relevant range, total expected maintenance cost for a budgeted activity level of 10,000 machine-hours would be closest to:

A. $16,128
B. $15,000
C. $13,440
D. $11,433

Average maintenance cost = Total maintenance cost ÷ Total activity
At 8,000 machine-hours:
$1.50 per machine-hour = Total maintenance cost ÷ 8,000 machine-hours
Total maintenance cost = 8,000 machine-hours × $1.50 per machine-hour = $12,000
At 13,000 machine-hours:
$1.20 per machine-hour = Total maintenance cost ÷ 13,000 machine-hours
Total maintenance cost = 13,000 machine-hours × $1.20 per machine-hour = $15,600

Variable cost = Change in cost ÷ Change in activity
= ($15,600 - $12,000) ÷ (13,000 machine-hours - 8,000 machine hours)
= $3,600 ÷ 5,000 machine-hours
= $0.72 per machine-hour

Total fixed cost = Total cost - Total variable cost
= $15,600 - ($0.72 per machine-hour × 13,000 machine-hours)
= $15,600 - $9,360
= $6,240

Total cost = Total fixed cost + Total variable cost
= $6,240 + $0.72 per machine-hour × 10,000 machine-hours
= $6,240 + $7,200

= $13,440

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

73. The following data pertains to activity and the cost of cleaning and maintenance for two recent months:

	Month 1	Month 2
Production volume	2,000 units	2,500 units
Cleaning and maintenance costs	$900	$1,100

The best estimate of the total month 1 variable cost for cleaning and maintenance is:

A. $300

B. $500

C. $800

D. $100

Cleaning and maintenance

Variable cost per unit = Change in cost ÷ Change in activity

= ($1,100 - $900) ÷ (2,500 units - 2,000 units)

= $200 ÷ 500 units

= $0.40 per unit

Total variable cost at 22,000 units = 2,000 units × $0.40 per unit

= $800

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 2 Medium

74. The following data pertains to activity and costs for two months:

	June	July
Activity level in units	10,000	20,000
Variable cost	$20,000	$?
Fixed cost	15,000	?
Mixed cost	10,000	?
Total cost	$45,000	$70,000

Assuming that these activity levels are within the relevant range, the mixed cost for July was:

A. $10,000

B. $35,000

C. $15,000

D. $40,000

Variable cost per unit = $20,000 ÷ 10,000 units = $2 per unit

Total variable cost in July = $2 per unit × 20,000 units = $40,000 per unit

Fixed cost = $15,000 (given)

Total cost = Variable cost + Fixed cost + Mixed cost

$70,000 = $40,000 + $15,000 + Mixed cost

Mixed cost = $70,000 - ($40,000 + $15,000)

= $70,000 - $55,000

= $15,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 3 Hard

75. At an activity level of 9,200 machine-hours in a month, Nooner Corporation's total variable production engineering cost is $761,300 and its total fixed production engineering cost is $154,008. What would be the total production engineering cost per unit, both fixed and variable, at an activity level of 9,300 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $98.42

B. $99.49

C. $99.31

D. $98.96

Variable cost per unit = $761,300 ÷ 9,200 units = $82.75 per unit

Fixed cost per unit at 9,300 units = $154,008 ÷ 9,300 units = $16.56 per unit

Total cost = Variable cost + Fixed cost

= $82.75 per unit + $16.56 per unit

= $99.31 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

76. Jumpst Corporation uses the cost formula Y = $3,600 + $0.30X for the maintenance cost in Department B, where X is machine-hours. The August budget is based on 20,000 hours of planned machine time. Maintenance cost expected to be incurred during August is:

A. $3,600

B. $6,000

C. $6,300

D. $9,600

Y = $3,600 + $0.30 per unit × X

= $3,600 + $0.30 per unit × 20,000 hours

= $3,600 + $6,000

= $9,600

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

77. Given the cost formula, Y = $9,000 + $2.50X, total cost for an activity level of 3,000 units would be:

A. $9,750

B. $12,000

C. $16,500

D. $7,500

Y = $9,000 + $2.50 per unit × X

= $9,000 + $2.50 per unit × 3,000 units

= $9,000 + $7,500

= $16,500

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

78. Blore Corporation reports that at an activity level of 7,300 units, its total variable cost is $511,803 and its total fixed cost is $76,650. What would be the total cost, both fixed and variable, at an activity level of 7,500 units? Assume that this level of activity is within the relevant range.

A. $604,575

B. $602,475

C. $596,514

D. $588,453

Variable cost per unit = $511,803 ÷ 7,300 units = $70.11 unit

Total cost = Total fixed cost + Total variable cost

= $76,650 + $70.11 per unit × 7,500 units

= $76,650 + $525,825

= $602,475

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

79. Given the cost formula Y = $15,000 + $5X, total cost at an activity level of 8,000 units would be:

A. $23,000

B. $15,000

C. $55,000

D. $40,000

Y = $15,000 + $5 per unit × 8,000 units

Y = $15,000 + $40,000

Y = $55,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

80. At a volume of 10,000 units, Company P incurs $30,000 in factory overhead costs, including $10,000 in fixed costs. Assuming that this activity is within the relevant range, if volume increases to 12,000 units, Company P would expect to incur total factory overhead costs of:

A. $36,000

B. $34,000

C. $30,000

D. $32,000

Total cost = Fixed cost + Variable cost

$30,000 = $10,000 + Variable costs

Variable cost = $30,000 - $10,000

Variable cost = $20,000

Variable costs per unit = $20,000 ÷ 10,000 units = $2 per unit

Total cost = Total fixed cost + Total variable cost

= $10,000 + $2 per unit × 12,000 units

= $10,000 + $24,000

= $34,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

81. At an activity level of 4,400 units in a month, Goldbach Corporation's total variable maintenance and repair cost is $313,632 and its total fixed maintenance and repair cost is $93,104. What would be the total maintenance and repair cost, both fixed and variable, at an activity level of 4,600 units in a month? Assume that this level of activity is within the relevant range.

A. $420,992
B. $425,224
C. $415,980
D. $406,736

Variable cost per unit = $313,632 ÷ 4,400 units = $71.28 unit

Total cost = Total fixed cost + Total variable cost
= $93,104 + $71.28 per unit × 4,600 units
= $93,104 + $327,888
= $420,992

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

82. Supply costs at Lattea Corporation's chain of gyms are listed below:

	Client-Visits	Supply Cost
March	11,647	$28,561
April	11,443	$28,395
May	11,975	$28,819
June	12,088	$28,892
July	11,707	$28,622
August	11,193	$28,221
September	11,987	$28,820
October	11,678	$28,578
November	11,826	$28,703

Management believes that supply cost is a mixed cost that depends on client-visits. Using the high-low method to estimate the variable and fixed components of this cost, those estimates would be closest to:

A. $2.44 per client-visit; $28,623 per month

B. $1.33 per client-visit; $12,768 per month

C. $0.79 per client-visit; $19,321 per month

D. $0.75 per client-visit; $19,826 per month

	Client-Visits	Supply Cost
High level of activity (June)	12,088	$28,892
Low level of activity (August)	11,193	28,221
Change	895	$ 671

Variable cost per unit = Change in cost ÷ Change in activity

= $671 ÷ 895 client-visits

= $0.75 per client-visit

Fixed cost = Total cost - Variable cost element

= $28,892 - ($0.75 per unit × 12,088 client-visits)

= $28,892 - $9,066

= $19,826

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

83. Electrical costs at one of Vanartsdalen Corporation's factories are listed below:

	Machine-Hours	Electrical Cost
January	2,388	$34,213
February	2,356	$33,912
March	2,380	$34,133
April	2,335	$33,717
May	2,312	$33,514
June	2,360	$33,943
July	2,304	$33,428
August	2,314	$33,530
September	2,378	$34,100

Management believes that electrical cost is a mixed cost that depends on machine-hours. Using the high-low method to estimate the variable and fixed components of this cost, these estimates would be closest to:

A. $14.41 per machine-hour; $33,832 per month

B. $0.11 per machine-hour; $33,957 per month

C. $9.35 per machine-hour; $11,885 per month

D. $11.30 per machine-hour; $7,229 per month

	Machine-Hours	Electrical Cost
High level of activity (January)	2,388	$34,213
Low level of activity (July)	2,304	33,428
Change	84	$ 785

Variable cost per unit = Change in cost ÷ Change in activity

= $785 ÷ 84 machine-hours

= $9.35 per machine-hour

Fixed cost = Total cost - Variable cost element

= $34,213 - ($9.35 per machine-hour × 2,388 machine-hours)

= $34,213 - $22,328

= $11,885

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

84. A soft drink bottler incurred the following plant utility costs: 1,800 units bottled with utility costs of $5,750, and 1,500 units bottled with utility costs of $5,200. What is the variable cost per unit bottled (Use the High-low method. Round to the nearest cent.)

A. $3.47

B. $3.19

C. $1.83

D. None of these is true.

	Units	Utility Cost
High level of activity.....	1,800	$5,750
Low level of activity	1,500	5,200
Change	300	$ 550

Variable cost per unit = Change in cost ÷ Change in activity

= $550 ÷ 300 units

= $1.83 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

85. The following data pertains to activity and maintenance costs for two recent years:

	Year 2	Year 1
Activity level in units.....	12,000	8,000
Maintenance cost.....	$15,000	$12,000

Using the high-low method, the cost formula for maintenance would be:

A. $1.50 per unit

B. $1.25 per unit

C. $3,000 plus $1.50 per unit

D. $6,000 plus $0.75 per unit

	Units	Maintenance Cost
High level of activity.....	12,000	$15,000
Low level of activity	8,000	12,000
Change	4,000	$ 3,000

Variable cost per unit = Change in cost ÷ Change in activity

= $3,000 ÷ 4,000 units

= $0.75 per unit

Fixed cost = Total cost - Variable cost element

= $15,000 - ($0.75 per unit × 12,000 units)

= $15,000 - $9,000

= $6,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

86. The following data pertains to activity and utility costs for two recent years:

	Year 2	Year 1
Activity level in units	10,000	6,000
Utilities cost observed	$12,000	$9,000

Using the high-low method, the cost formula for utilities is:

A. $1.50 per unit

B. $1.20 per unit

C. $3,000 plus $3.00 per unit

D. $4,500 plus $0.75 per unit

	Units	Maintenance Cost
High level of activity	10,000	$12,000
Low level of activity	6,000	9,000
Change	4,000	$ 3,000

Variable cost per unit = Change in cost ÷ Change in activity

= $3,000 ÷ 4,000 units

= $0.75 per unit

Fixed cost = Total cost - Variable cost element

= $12,000 - ($0.75 per unit × 10,000 units)

= $12,000 - $7,500

= $4,500

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

87. Maintenance costs at a Tierce Corporation factory are listed below:

	Machine-Hours	Maintenance Cost
January	3,658	$52,986
February	3,613	$52,580
March	3,607	$52,504
April	3,614	$52,585
May	3,638	$52,825
June	3,604	$52,500
July	3,653	$52,943
August	3,634	$52,776
September	3,588	$52,337

Management believes that maintenance cost is a mixed cost that depends on machine-hours. Using the high-low method to estimate the variable and fixed components of this cost, these estimates would be closest to:

A. $14.54 per machine-hour; $52,671 per month

B. $9.27 per machine-hour; $19,076 per month

C. $0.11 per machine-hour; $52,591 per month

D. $9.27 per machine-hour; $19,071 per month

	Machine-Hours	Maintenance Cost
High level of activity (January)	3,658	$52,986
Low level of activity (September)	3,588	52,337
Change	70	$ 649

Variable cost per unit = Change in cost ÷ Change in activity

= $649 ÷ 70 machine-hours

= $9.27 per machine-hour

Fixed cost = Total cost - Variable cost element

= $52,986 - ($9.27 per machine-hour × 3,658 machine-hours)

= $52,986 - $33,910

= $19,076

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

88. Buckeye Company has provided the following data for maintenance cost:

	Prior Year	Current Year
Machine hours	12,500	15,000
Maintenance cost	$27,000	$31,000

The best estimate of the cost formula for maintenance would be:

A. $21,625 per year plus $0.625 per machine hour

B. $7,000 per year plus $0.625 per machine hour

C. $7,000 per year plus $1.60 per machine hour

D. $27,000 per year plus $1.60 per machine hour

	Machine-Hours	Maintenance Cost
High level of activity	15,000	$31,000
Low level of activity	12,500	27,000
Change	2,500	$ 4,000

Variable cost per unit = Change in cost ÷ Change in activity

= $4,000 ÷ 2,500 machine-hours

= $1.60 per machine-hour

Fixed cost = Total cost - Variable cost element

= $31,000 - ($1.60 per machine-hour × 15,000 machine-hours)

= $31,000 - $24,000

= $7,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

89. Haar Inc. is a merchandising company. Last month the company's cost of goods sold was $61,000. The company's beginning merchandise inventory was $11,000 and its ending merchandise inventory was $21,000. What was the total amount of the company's merchandise purchases for the month?

A. $61,000
B. $51,000
C. $71,000
D. $93,000

Purchases = Cost of goods sold + Ending merchandise inventory - Beginning merchandise inventory
= $61,000 + $21,000 - $11,000
= $71,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 2 Medium

90. Gabruk Inc. is a merchandising company. Last month the company's merchandise purchases totaled $88,000. The company's beginning merchandise inventory was $15,000 and its ending merchandise inventory was $13,000. What was the company's cost of goods sold for the month?

A. $88,000

B. $90,000

C. $86,000

D. $116,000

Cost of goods sold = Beginning merchandise inventory + purchases - Ending merchandise inventory
= $15,000 + $88,000 - $13,000
= $90,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 1 Easy

A partial listing of costs incurred during December at Gagnier Corporation appears below:

Factory supplies	$8,000
Administrative wages and salaries	$105,000
Direct materials	$153,000
Sales staff salaries	$68,000
Factory depreciation	$49,000
Corporate headquarters building rent	$34,000
Indirect labor	$32,000
Marketing	$103,000
Direct labor	$83,000

91. The total of the period costs listed above for December is:

A. $89,000

B. $310,000

C. $325,000

D. $399,000

Period costs = Administrative wages and salaries + Sales staff salaries + Corporate headquarters building rent + Marketing

= $105,000 + $68,000 + $34,000 + $103,000

= $310,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.
Level: 2 Medium

92. The total of the manufacturing overhead costs listed above for December is:

A. $325,000

B. $635,000

C. $89,000

D. $40,000

Manufacturing overhead costs = Factory supplies + Factory depreciation + Indirect labor

= $8,000 + $49,000 + $32,000

= $89,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 2 Medium

93. The total of the product costs listed above for December is:

A. $310,000

B. $89,000

C. $635,000

D. $325,000

Product costs = Direct materials + Direct labor + Manufacturing overhead

= $153,000 + $83,000 + $89,000

= $325,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

A partial listing of costs incurred at Backes Corporation during November appears below:

Direct materials	$157,000
Utilities, factory	$6,000
Administrative salaries	$99,000
Indirect labor	$25,000
Sales commissions	$54,000
Depreciation of production equipment	$46,000
Depreciation of administrative equipment	$30,000
Direct labor	$114,000
Advertising	$61,000

94. The total of the manufacturing overhead costs listed above for November is:

A. $348,000

B. $31,000

C. $592,000

D. $77,000

Manufacturing overhead costs = Utilities, factory + Indirect labor + Depreciation of production equipment

= $6,000 + $25,000 + $46,000

= $77,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 2 Medium

95. The total of the product costs listed above for November is:

A. $77,000

B. $348,000

C. $592,000

D. $244,000

Product costs = Direct materials + Direct labor + Manufacturing overhead

= $157,000 + $114,000 + $77,000

= $348,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

96. The total of the period costs listed above for November is:

A. $244,000

B. $321,000

C. $348,000

D. $77,000

Period costs = Administrative salaries + Sales commissions + Depreciation of administrative equipment + Advertising

= $99,000 + $54,000 + $30,000 + $61,000

= $244,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

Dickison Corporation reported the following data for the month of December:

Direct materials	$71,000
Direct labor cost	$38,000
Manufacturing overhead	$69,000
Selling expense	$24,000
Administrative expense	$42,000

97. The conversion cost for December was:

A. $107,000

B. $142,000

C. $111,000

D. $178,000

Conversion cost = Direct labor + Manufacturing overhead

= $38,000 + $69,000

= $107,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 1 Easy

98. The prime cost for December was:

A. $109,000

B. $111,000

C. $107,000

D. $66,000

Prime cost = Direct materials + Direct labor

= $71,000 + $38,000

= $109,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 1 Easy

Management of Mcentire Corporation has asked your help as an intern in preparing some key reports for April. Direct materials cost was $64,000, direct labor cost was $47,000, and manufacturing overhead was $75,000. Selling expense was $15,000 and administrative expense was $44,000.

99. The conversion cost for April was:

A. $186,000

B. $100,000

C. $128,000

D. $122,000

Conversion cost = Direct labor + Manufacturing overhead

= $47,000 + $75,000

= $122,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 1 Easy

100. The prime cost for April was:

A. $59,000

B. $122,000

C. $100,000

D. $111,000

Prime cost = Direct materials + Direct labor

= $64,000 + $47,000

= $111,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Level: 1 Easy

Callander Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $151.60 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$415,800	$485,100
Selling and administrative costs	$430,200	$441,000

101. The best estimate of the total monthly fixed cost is:

A. $846,000

B. $886,050

C. $365,400

D. $926,100

Cost of sales is a variable cost.

Selling and administrative costs:

Variable cost per unit = Change in cost ÷ Change in activity

= ($441,000 - $430,200) ÷ (7,000 units - 6,000 units)

= $10,800 ÷ 1,000 units

= $10.80 per unit

Fixed cost = Total cost - Variable cost element

= $441,000 - ($10.80 per unit × 7,000 units)

= $441,000 - $75,600

= $365,400

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

102. The best estimate of the total variable cost per unit is:

A. $141.00

B. $80.10

C. $69.30

D. $132.30

Cost of sales:

Because cost of sales is a variable cost, there are several ways to compute the variable cost per unit. Here is one:

Variable cost per unit = Change in cost ÷ Change in activity

= ($485,100 - $415,800) ÷ (7,000 units - 6,000 units)

= $69,300 ÷ 1000 units

= $69.30 per unit

Selling and administrative costs:

Variable cost per unit = Change in cost ÷ Change in activity

= ($441,000 - $430,200) ÷ (7,000 units - 6,000 units)

= $10,800 ÷ 1000 units

= $10.80 per unit

Total cost per unit = $69.30 per unit + $10.80 per unit = $80.10

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

103. The best estimate of the total contribution margin when 6,300 units are sold is:

A. $450,450

B. $518,490

C. $121,590

D. $66,780

Contribution margin per unit = Selling price per unit - Variable cost per unit

= $151.60 per unit - $80.10 per unit

= $71.50 per unit

Total contribution margin = Contribution margin per unit × Unit sales

= $71.50 per unit × 6,300 units

= $450,450

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

Babuca Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$340,200	$396,900
Direct labor	$81,000	$94,500
Manufacturing overhead	$1,003,200	$1,015,000

104. The best estimate of the total monthly fixed manufacturing cost is:

A. $1,424,400

B. $1,506,400

C. $932,400

D. $1,465,400

Direct materials is a variable cost.

Direct labor is usually a variable cost, but it doesn't hurt to check.

Variable cost per unit = Change in cost ÷ Change in activity

= ($94,500 - $81,000) ÷ (7,000 units - 6,000 units)

= $13,500 ÷ 1,000 units

= $13.50 per unit

Fixed cost = Total cost - Variable cost element

= $94,500 - ($13.50 per unit × 7,000 units)

= $94,500 - 94,500

= $0

Manufacturing overhead:

Variable cost per unit = Change in cost ÷ Change in activity

= ($1,015,000- $1,003,200) ÷ (7,000 units - 6,000 units)

= $11,800 ÷ 1,000 units

= $11.80 per unit

Fixed cost = Total cost - Variable cost element

= $1,015,000 - ($11.80 per unit × 7,000 units)

= $1,015,000 - $82,600

= $932,400

Total fixed cost per month = $0 + $932,400 = $932,400

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

105. The best estimate of the total variable manufacturing cost per unit is:

A. $82.00

B. $70.20

C. $56.70

D. $11.80

Note: There are several ways to computer the variable cost per unit for direct materials and direct labor.

Direct materials:

Variable cost per unit = Change in cost ÷ Change in activity

= ($396,900 - $340,200) ÷ (7,000 units - 6,000 units)

= $56,700 ÷ 1,000 units

= $56.70 per unit

Direct labor:

Variable cost per unit = Change in cost ÷ Change in activity

= ($94,500 - $81,000) ÷ (7,000 units - 6,000 units)

= $13,500 ÷ 1,000 units

= $13.50 per unit

Manufacturing overhead

Variable cost per unit = Change in cost ÷ Change in activity

= ($1,015,000- $1,003,200) ÷ (7,000 units - 6,000 units)

= $11,800 ÷ 1,000 units

= $11.80 per unit

Total variable cost per unit = $56.70 per unit + $13.50 per unit + $11.80 per unit

= $82.00 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

106. The best estimate of the total cost to manufacture 6,300 units is closest to:

A. $1,425,690

B. $1,355,760

C. $1,495,620

D. $1,449,000

See earlier parts for the variable cost per unit and the total fixed cost.

Total cost = Total fixed cost + Total variable cost

= $932,400 + ($82.00 per units × 6,300 units)

= $932,400 + $516,600

= $1,449,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

The following production and average cost data for two levels of monthly production volume have been supplied by a company that produces a single product:

Production volume	1,000 units	2,000 units
Direct materials	$15.70 per unit	$15.70 per unit
Direct labor	$51.00 per unit	$51.00 per unit
Manufacturing overhead	$47.70 per unit	$34.90 per unit

107. The best estimate of the total monthly fixed manufacturing cost is:

A. $25,600

B. $114,400

C. $47,700

D. $69,800

Total manufacturing overhead at 1,000 units = 1,000 units × $47.70 per unit = $47,700

Total manufacturing overhead at 2,000 units = 2,000 units × $34.90 per unit = $69,800

	Units Produced	Total Manufacturing Overhead
High level of activity.....	2,000	$69,800
Low level of activity	1,000	47,700
Change	1,000	$22,100

Variable cost per unit = Change in cost ÷ Change in activity

= $22,100 ÷ 1,000 units

= $22.10 per unit

Fixed cost = Total cost - Variable cost element

= $69,800 - ($22.10 per unit × 2,000 units)

= $69,800 - $44,200

= $25,600

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

108. The best estimate of the total variable manufacturing cost per unit is:

A. $22.10

B. $66.70

C. $88.80

D. $15.70

Total manufacturing overhead at 1,000 units = 1,000 units × $47.70 per unit = $47,700

Total manufacturing overhead at 2,000 units = 2,000 units × $34.90 per unit = $69,800

	Units Produced	Total Manufacturing Overhead
High level of activity.....	2,000	$69,800
Low level of activity	1,000	47,700
Change	1,000	$22,100

Variable cost per unit = Change in cost ÷ Change in activity

= $22,100 ÷ 1,000 units

= $22.10 per unit

Total variable cost per unit = Direct materials per unit + Direct labor per unit + variable manufacturing overhead per unit

= $15.70 + $51.00 + $22.10

= $88.80

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

109. The best estimate of the total cost to manufacture 1,200 units is closest to:

A. $132,160

B. $121,920

C. $129,600

D. $137,280

From earlier parts, the total fixed cost is $25,600 and the variable cost per unit is $88.80.

Total cost = Total fixed cost + Total variable cost

= $25,600 + ($88.80 per unit × 1,200 units)

= $25,600 + $106,560

= $132,160

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

Erkkila Inc. reports that at an activity level of 7,900 machine-hours in a month, its total variable inspection cost is $210,061 and its total fixed inspection cost is $191,970.

110. What would be the average fixed inspection cost per unit at an activity level of 8,100 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $50.89

B. $24.30

C. $23.70

D. $32.96

Average fixed inspection cost = Total fixed inspection cost ÷ Total activity

= $191,970 ÷ 8,100 machine-hours

= $23.70 per machine-hour

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

111. What would be the total variable inspection cost at an activity level of 8,100 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $210,061

B. $196,830

C. $215,379

D. $402,031

Variable inspection cost per unit = Total variable inspection cost ÷ Total activity

= $210,061 ÷ 7,900 machine-hours

= $26.59 per machine-hour

Total variable inspection cost = Variable inspection cost per unit × Total activity

= $26.59 per machine-hour × 8,100 machine-hours

= $215,379

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

At an activity level of 5,300 machine-hours in a month, Clyburn Corporation's total variable maintenance cost is $114,268 and its total fixed maintenance cost is $154,336.

112. What would be the total variable maintenance cost at an activity level of 5,600 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $163,072

B. $268,604

C. $114,268

D. $120,736

Variable maintenance cost per unit = Total variable maintenance cost ÷ Total activity

= $114,268 ÷ 5,300 machine-hours

Total variable maintenance cost = Variable maintenance cost per unit × Total activity

= $21.56 per machine-hours × 5,600 machine-hours

= $120,736

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

113. What would be the average fixed maintenance cost per unit at an activity level of 5,600 machine-hours in a month? Assume that this level of activity is within the relevant range.

A. $50.68

B. $27.56

C. $35.79

D. $29.12

Average fixed maintenance cost = Total fixed maintenance cost ÷ Total activity = $154,336 ÷ 5,600 machine-hours = $27.56 per machine-hours

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

Slappy Corporation leases its corporate headquarters building. This lease cost is fixed with respect to the company's sales volume. In a recent month in which the sales volume was 20,000 units, the lease cost was $482,000.

114. To the nearest whole dollar, what should be the total lease cost at a sales volume of 16,900 units in a month? (Assume that this sales volume is within the relevant range.)

A. $407,290

B. $482,000

C. $570,414

D. $444,645

Given: $482,000 - Within the relevant range, a fixed cost is constant.

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

115. To the nearest whole cent, what should be the average lease cost per unit at a sales volume of 19,200 units in a month? (Assume that this sales volume is within the relevant range.)

A. $28.52

B. $24.60

C. $25.10

D. $24.10

Average lease cost per unit = Total lease cost ÷ Unit sales

= $482,000 ÷ 19,200 units

= $25.10 per unit

AACSB: Analytic
AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

At a sales volume of 35,000 units, Thoma Corporation's sales commissions (a cost that is variable with respect to sales volume) total $448,000.

116. To the nearest whole dollar, what should be the total sales commissions at a sales volume of 33,200 units? (Assume that this sales volume is within the relevant range.)

A. $424,960

B. $448,000

C. $436,480

D. $472,289

Sales commission per unit = Total sales commission ÷ Unit sales

= $448,000 ÷ 35,000 units

= $12.80 per unit

Total sales commission = Sales commission per unit × Unit sales

= $12.80 per unit × 33,200 units

= $424,960

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

117. To the nearest whole cent, what should be the average sales commission per unit at a sales volume of 36,800 units? (Assume that this sales volume is within the relevant range.)

A. $13.49

B. $12.17

C. $12.80

D. $12.49

Sales commission per unit = Total sales commission ÷ Unit sales

= $448,000 ÷ 35,000 units

= $12.80 per unit

The average sales commission per unit is constant within the relevant range.

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

At a sales volume of 27,000 units, Danielle Corporation's property taxes (a cost that is fixed with respect to sales volume) total $207,900.

118. To the nearest whole dollar, what should be the total property taxes at a sales volume of 30,900 units? (Assume that this sales volume is within the relevant range.)

A. $207,900

B. $181,660

C. $222,915

D. $237,930

Given: $207,900 - Within the relevant range, a fixed cost is constant.

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

119. To the nearest whole cent, what should be the average property tax per unit at a sales volume of 27,600 units? (Assume that this sales volume is within the relevant range.)

A. $6.73

B. $7.70

C. $7.62

D. $7.53

Average property tax per unit = Total property tax ÷ Unit sales
= $207,900 ÷ 27,600 units
= $7.53 per unit

AACSB: Analytic
AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

Chaffee Corporation staffs a helpline to answer questions from customers. The costs of operating the helpline are variable with respect to the number of calls in a month. At a volume of 33,000 calls in a month, the costs of operating the helpline total $742,500.

120. To the nearest whole dollar, what should be the total cost of operating the helpline costs at a volume of 34,800 calls in a month? (Assume that this call volume is within the relevant range.)

A. $742,500

B. $783,000

C. $704,095

D. $762,750

Helpline cost per call = Total helpline costs ÷ Number of calls

= $742,500 ÷ 33,000 calls

= $22.50 cost per call

Total helpline cost = Helpline cost per call × Number of calls

= $22.50 × 34,800 calls

= $783,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

121. To the nearest whole cent, what should be the average cost of operating the helpline per call at a volume of 36,100 calls in a month? (Assume that this call volume is within the relevant range.)

A. $21.54

B. $20.57

C. $21.34

D. $22.50

Helpline cost per call = Total helpline costs ÷ Number of calls

= $742,500 ÷ 33,000 calls

= $22.50 cost per call

The average helpline cost per call is constant within the relevant range

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

Emilio Corporation reports that at an activity level of 3,400 units, its total variable cost is $59,058 and its total fixed cost is $101,150.

122. What would be the total variable cost at an activity level of 3,500 units? Assume that this level of activity is within the relevant range.

A. $59,058

B. $160,208

C. $60,795

D. $104,125

Variable cost per unit = Total variable cost ÷ Total activity

= $59,058 ÷ 3,400 units

= $17.37 per unit

Total variable cost = Variable cost per unit × Total activity

= $17.37 per unit × 3,500 units

= $60,795

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

123. What would be the average fixed cost per unit at an activity level of 3,500 units? Assume that this level of activity is within the relevant range.

A. $29.75

B. $47.12

C. $35.26

D. $28.90

Average fixed cost per unit = Total fixed cost ÷ Total activity

= $101,150 ÷ 3,500 units

= $28.90 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

Inspection costs at one of Krivanek Corporation's factories are listed below:

	Units Produced	Inspection Cost
January	630	$8,850
February	615	$8,819
March	602	$8,760
April	595	$8,743
May	688	$9,036
June	626	$8,866
July	646	$8,920
August	670	$8,977
September	678	$9,013

Management believes that inspection cost is a mixed cost that depends on units produced.

124. Using the high-low method, the estimate of the variable component of inspection cost per unit produced is closest to:

A. $3.15

B. $0.32

C. $3.40

D. $13.91

	Units Produced	Inspection Cost
High level of activity (May)	688	$9,036
Low level of activity (April)	595	8,743
Change	93	$ 293

Variable cost per unit = Change in cost ÷ Change in activity

= $293 ÷ 93 units

= $3.15 per unit

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

125. Using the high-low method, the estimate of the fixed component of inspection cost per month is closest to:

A. $8,743

B. $8,887

C. $8,683

D. $6,869

	Units Produced	Inspection Cost
High level of activity (May).....	688	$9,036
Low level of activity (April).....	595	8,743
Change	93	$ 293

Variable cost per unit = Change in cost ÷ Change in activity

= $293 ÷ 93 units

= $3.15 per unit

Total fixed cost = Total cost - Variable cost element

= $9,036 - ($3.15 per unit × 688 units)

= $9,036 - $2,167

= $6,869

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

Glatt Inc., an escrow agent, has provided the following data concerning its office expenses:

	Escrows Completed	Office Expenses
February	108	$8,542
March	83	$8,138
April	103	$8,459
May	91	$8,260
June	64	$7,792
July	122	$8,779
August	50	$7,536
September	57	$7,691
October	40	$7,376

Management believes that office expense is a mixed cost that depends on the number of escrows completed. Note: Real estate purchases usually involve the services of an escrow agent that holds funds and prepares documents to complete the transaction.

126. Using the high-low method, the estimate of the variable component of office expense per escrow completed is closest to:

A. $101.08

B. $59.12

C. $17.11

D. $17.15

	Escrows Completed	Office Expenses
High level of activity (July)	122	$8,779
Low level of activity (October)	40	7,376
Change	82	$1,403

Variable cost per unit = Change in cost ÷ Change in activity

= $1,403 ÷ 82 escrows

= $17.11 per escrow

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

127. Using the high-low method, the estimate of the fixed component of office expense per month is closest to:

A. $6,692

B. $8,064

C. $7,376

D. $7,720

	Escrows Completed	Office Expenses
High level of activity (July).....	122	$8,779
Low level of activity (October).....	40	7,376
Change	82	$1,403

Variable cost per unit = Change in cost ÷ Change in activity

= $1,403 ÷ 82 escrows

= $17.11 per escrow

Total fixed cost = Total cost - Variable cost element

= $8,779 - ($17.11 per escrow × 122 escrows)

= $8,779 - $2,087

= $6,692

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

Electrical costs at one of Reifel Corporation's factories are listed below:

	Machine-Hours	Electrical Cost
March	253	$5,594
April	283	$5,846
May	291	$5,877
June	289	$5,881
July	303	$6,005
August	295	$5,932
September	285	$5,849
October	296	$5,922
November	300	$5,969

Management believes that electrical cost is a mixed cost that depends on machine-hours.

128. Using the high-low method, the estimate of the variable component of electrical cost per machine-hour is closest to:

A. $0.12

B. $20.38

C. $7.98

D. $8.22

	Machine-Hours	Electrical Cost
High level of activity (July)	303	$6,005
Low level of activity (March)	253	5,594
Change	50	$ 411

Variable cost per unit = Change in cost ÷ Change in activity

= $411 ÷ 50 machine-hours

= $8.22 per machine hour

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

129. Using the high-low method, the estimate of the fixed component of electrical cost per month is closest to:

A. $5,594

B. $3,514

C. $5,875

D. $5,840

	Machine-Hours	Electrical Cost
High level of activity (July).....	303	$6,005
Low level of activity (March)	253	5,594
Change	50	$ 411

Variable cost per unit = Change in cost ÷ Change in activity

= $411 ÷ 50 machine-hours

= $8.22 per machine hour

Total fixed cost = Total cost - Variable cost element

= $6,005 - ($8.22 per machine-hour × 303 machine-hours)

= $6,005 - $2,491

= $3,514

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

The following data have been provided by a retailer that sells a single product.

	This Year	Last Year
Units sold	200,000	150,000
Sales revenue	$1,000,000	$750,000
Cost of goods sold	700,000	525,000
Gross margin	300,000	225,000
Selling and administrative expense	222,000	210,000
Net operating income	$ 78,000	$ 15,000

130. What is the best estimate of the company's variable selling and administrative expense per unit?

A. $4.17 per unit

B. $0.24 per unit

C. $0.90 per unit

D. $0.71 per unit

	Units Sold	Selling and Administrative Expense
This year	200,000	$222,000
Last year	150,000	210,000
Change	50,000	$ 12,000

Variable cost per unit = Change in cost ÷ Change in activity

= $12,000 ÷ 50,000 units sold

= $0.24 per unit sold

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

131. What is the best estimate of the company's total fixed selling and administrative expense per year?

A. $0

B. $80,000

C. $44,000

D. 174,000

Total fixed cost = Total cost - Variable cost element

= $222,000 - ($0.24 per unit sold × 200,000 units sold)

= $222,000 - $48,000

= $174,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 2 Medium

132. What is the best estimate of the company's contribution margin for this year?

A. $252,000

B. $300,000

C. $158,000

D. $120,000

	Units Sold	Cost of Goods Sold
This year.....	200,000	$700,000
Last year.....	150,000	525,000
Change	50,000	$175,000

Variable cost per unit = Change in cost ÷ Change in activity

= $175,000 ÷ 50,000 units sold

= $3.50 per unit sold

Total fixed cost = Total cost - Variable cost element

= $700,000 - ($3.50 per unit sold × 200,000 units sold)

= $700,000 - $700,000

= $0

Selling price per unit = Sales revenue ÷ Units sold

= $1,000,000 ÷ 200,000 units sold

= $5.00 per unit sold

Total contribution margin = Total sales revenue - Total variable cost

= $1,000,000 - ($700,000 + $48,000)

= $1,000,000 - $748,000

= $252,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 3 Hard

Nikkel Corporation, a merchandising company, reported the following results for July:

Sales	$402,800
Cost of goods sold (all variable)	$169,100
Total variable selling expense	$17,100
Total fixed selling expense	$14,200
Total variable administrative expense	$7,600
Total fixed administrative expense	$30,100

133. The gross margin for July is:

A. $358,500

B. $209,000

C. $233,700

D. $164,700

Gross margin = Total sales - Cost of goods sold

= $402,800 - $169,100

= $233,700

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

134. The contribution margin for July is:

A. $333,800

B. $209,000

C. $233,700

D. $164,700

Sales		$402,800
Variable expenses:		
Cost of goods sold	$169,100	
Variable selling expense	17,100	
Variable administrative expense	7,600	193,800
Contribution margin		$209,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

Holzhauer Corporation, a merchandising company, reported the following results for March:

Number of units sold	8,000 units
Selling price per unit	$300 per unit
Unit cost of goods sold	$130 per unit
Variable selling expense per unit	$18 per unit
Total fixed selling expense	$54,700
Variable administrative expense per unit	$12 per unit
Total fixed administrative expense	$142,700

Cost of goods sold is a variable cost in this company.

135. The gross margin for March is:

A. $922,600

B. $1,120,000

C. $2,202,600

D. $1,360,000

Sales (8,000 units × $300 per unit)	$2,400,000
Cost of goods sold (8,000 units × $130 per unit)	1,040,000
Gross margin	$1,360,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

136. The contribution margin for March is:

A. $922,600

B. $1,120,000

C. $1,962,600

D. $1,360,000

Sales (8,000 units × $300 per unit)		$2,400,000
Variable expenses:		
Cost of goods sold (8,000 units × $130 per unit)	$1,040,000	
Variable selling expense (8,000 units × $18 per unit)	144,000	
Variable administrative expense (8,000 units × $12 per unit)	96,000	1,280,000
Contribution margin		$1,120,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

Fiene Sales, Inc., a merchandising company, reported sales of 2,200 units in June at a selling price of $600 per unit. Cost of goods sold, which is a variable cost, was $364 per unit. Variable selling expenses were $23 per unit and variable administrative expenses were $33 per unit. The total fixed selling expenses were $30,500 and the total administrative expenses were $55,300.

137. The contribution margin for June was:

A. $1,111,000

B. $396,000

C. $310,200

D. $519,200

Sales (2,200 units × $600 per unit)		$1,320,000
Variable expenses:		
Cost of goods sold (2,200 units × $364 per unit)	$800,800	
Variable selling expense (2,200 units × $23 per unit)	50,600	
Variable administrative expense (2,200 units × $33 per unit)	72,600	924,000
Contribution margin		$ 396,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

138. The gross margin for June was:

A. $310,200

B. $1,234,200

C. $396,000

D. $519,200

Sales (2,200 units × $600 per unit)	$1,320,000
Cost of goods sold (2,200 units × $364 per unit)	800,800
Gross margin	$ 519,200

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.
Level: 2 Medium

Getchman Marketing, Inc., a merchandising company, reported sales of $592,500 and cost of goods sold of $305,000 for April. The company's total variable selling expense was $37,500; its total fixed selling expense was $16,000; its total variable administrative expense was $35,000; and its total fixed administrative expense was $38,900. The cost of goods sold in this company is a variable cost.

139. The contribution margin for April is:

A. $465,100

B. $287,500

C. $160,100

D. $215,000

Sales		$592,500
Variable expenses:		
Cost of goods sold	$305,000	
Variable selling expense	37,500	
Variable administrative expense	35,000	377,500
Contribution margin		$215,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

140. The gross margin for April is:

A. $287,500

B. $215,000

C. $537,600

D. $160,100

Sales	$592,500
Cost of goods sold	305,000
Gross margin	$287,500

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

Salvadore Inc., a local retailer, has provided the following data for the month of September:

Merchandise inventory, beginning balance	$42,000
Merchandise inventory, ending balance	$41,000
Sales	$260,000
Purchases of merchandise inventory	$133,000
Selling expense	$15,000
Administrative expense	$52,000

141. The cost of goods sold for September was:

A. $132,000

B. $134,000

C. $133,000

D. $200,000

Cost of goods sold = Beginning merchandise inventory + Purchases of merchandise inventory - Ending merchandise inventory

= $42,000 + $133,000 - $41,000

= $134,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

142. The net operating income for September was:

A. $60,000

B. $128,000

C. $127,000

D. $59,000

Net operating income = Sales - Cost of goods sold - Selling and administrative expenses

= $260,000 - $134,000 - ($15,000 + $52,000)

= $59,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

The following cost data pertain to the operations of Swestka Department Stores, Inc., for the month of July.

Corporate headquarters building lease	$78,000
Cosmetics Department sales commissions--Northridge Store	$5,000
Corporate legal office salaries	$57,000
Store manager's salary-Northridge Store	$10,000
Heating-Northridge Store	$11,000
Cosmetics Department cost of sales--Northridge Store	$31,000
Central warehouse lease cost	$6,000
Store security-Northridge Store	$13,000
Cosmetics Department manager's salary--Northridge Store	$4,000

The Northridge Store is just one of many stores owned and operated by the company. The Cosmetics Department is one of many departments at the Northridge Store. The central warehouse serves all of the company's stores.

143. What is the total amount of the costs listed above that are direct costs of the Cosmetics Department?

A. $74,000

B. $36,000

C. $31,000

D. $40,000

Direct costs of the Cosmetics Department = Cosmetics Department sales commissions + Cosmetics Department cost of sales + Cosmetics Department manager's salary

= $5,000 + $31,000 + $4,000

= $40,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-06 Understand the differences between direct and indirect costs.

Level: 1 Easy

144. What is the total amount of the costs listed above that are NOT direct costs of the Northridge Store?

A. $40,000

B. $34,000

C. $141,000

D. $78,000

Costs that are not direct costs of the Northridge Store = Corporate headquarters building lease + Corporate legal office salaries + Central warehouse lease cost

= $78,000 + $57,000 + $6,000

= $141,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-06 Understand the differences between direct and indirect costs.

Level: 2 Medium

The following cost data pertain to the operations of Mancia Department Stores, Inc., for the month of February.

Corporate legal office salaries	$62,000
Shoe Department cost of sales--Brentwood Store	$80,000
Corporate headquarters building lease	$79,000
Store manager's salary--Brentwood Store	$14,000
Shoe Department sales commissions--Brentwood Store	$8,000
Store utilities--Brentwood Store	$13,000
Shoe Department manager's salary--Brentwood Store	$4,000
Central warehouse lease cost	$11,000
Janitorial costs--Brentwood Store	$11,000

The Brentwood Store is just one of many stores owned and operated by the company. The Shoe Department is one of many departments at the Brentwood Store. The central warehouse serves all of the company's stores.

145. What is the total amount of the costs listed above that are direct costs of the Shoe Department?

A. $80,000

B. $88,000

C. $130,000

D. $92,000

Direct costs of the Shoe Department = Shoe Department cost of sales + Shoe Department sales commissions + Shoe Department manager's salary

= $80,000 + $8,000 + $4,000

= $92,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-06 Understand the differences between direct and indirect costs.

Level: 1 Easy

146. What is the total amount of the costs listed above that are NOT direct costs of the Brentwood Store?

A. $152,000

B. $92,000

C. $79,000

D. $38,000

Costs that are not direct costs of the Brentwood Store = Corporate legal office salaries + Corporate headquarters building lease + Central warehouse lease cost
= $62,000 + $79,000 + $11,000
= $152,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-06 Understand the differences between direct and indirect costs.
Level: 2 Medium

Management of Modugno Corporation is considering whether to purchase a new model 370 machine costing $441,000 or a new model 240 machine costing $387,000 to replace a machine that was purchased 7 years ago for $429,000. The old machine was used to make product M25A until it broke down last week. Unfortunately, the old machine cannot be repaired. Management has decided to buy the new model 240 machine. It has less capacity than the new model 370 machine, but its capacity is sufficient to continue making product M25A. Management also considered, but rejected, the alternative of simply dropping product M25A. If that were done, instead of investing $387,000 in the new machine, the money could be invested in a project that would return a total of $430,000.

147. In making the decision to buy the model 240 machine rather than the model 370 machine, the sunk cost was:

A. $430,000

B. $429,000

C. $387,000

D. $441,000

The $429,000 cost of the old machine is a sunk cost.

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Apply
Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.
Level: 1 Easy

148. In making the decision to buy the model 240 machine rather than the model 370 machine, the differential cost was:

A. $12,000

B. $1,000

C. $54,000

D. $42,000

Differential cost = $441,000 - $387,000 = $54,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Apply

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 1 Easy

149. In making the decision to invest in the model 240 machine, the opportunity cost was:

A. $430,000

B. $441,000

C. $387,000

D. $429,000

The $430,000 return from alternative investment is an opportunity cost.

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Decision Making

Blooms: Apply

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 1 Easy

Temblador Corporation purchased a machine 7 years ago for $319,000 when it launched product E26T. Unfortunately, this machine has broken down and cannot be repaired. The machine could be replaced by a new model 330 machine costing $323,000 or by a new model 230 machine costing $285,000. Management has decided to buy the model 230 machine. It has less capacity than the model 330 machine, but its capacity is sufficient to continue making product E26T. Management also considered, but rejected, the alternative of dropping product E26T and not replacing the old machine. If that were done, the $285,000 invested in the new machine could instead have been invested in a project that would have returned a total of $386,000.

150. In making the decision to buy the model 230 machine rather than the model 330 machine, the differential cost was:

A. $34,000

B. $38,000

C. $4,000

D. $67,000

Differential cost = $323,000 - $285,000 = $38,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Apply
Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.
Level: 1 Easy

151. In making the decision to buy the model 230 machine rather than the model 330 machine, the sunk cost was:

A. $319,000

B. $386,000

C. $285,000

D. $323,000

The $319,000 cost of the old machine is a sunk cost.

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Decision Making
Blooms: Apply

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 1 Easy

152. In making the decision to invest in the model 230 machine, the opportunity cost was:

A. $386,000

B. $319,000

C. $285,000

D. $323,000

The $386,000 return from alternative investment is an opportunity cost.

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Decision Making

Blooms: Apply

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 1 Easy

Essay Questions

153. Bill Pope has developed a new device that is so exciting he is considering quitting his job in order to produce and market it on a large-scale basis. Bill will rent a garage for $300 per month for production purposes. Utilities will cost $40 per month. Bill has already taken an industrial design course at the local community college to help prepare for this venture. The course cost $300. Bill will rent production equipment at a monthly cost of $800. He estimates the material cost per unit will be $5, and the labor cost will be $3. He will hire workers and spend his time promoting the product. To do this he will quit his job which pays $3,000 per month. Advertising and promotion will cost $900 per month.

Required:

Complete the chart below by placing an "X" under each heading that helps to identify the cost involved. There can be "Xs" placed under more than one heading for a single cost, e.g., a cost might be a sunk cost, an overhead cost and a product cost; there would be an "X" placed under each of these headings opposite the cost.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Manufacturing Overhead Cost	Product Cost	Selling Cost	Differential Cost*
Garage rent								
Utilities								
Cost of the industrial design course								
Equipment rented								
Material cost								
Labor cost								
Present salary								
Advertising								

* Between the alternatives of going into business to make the device or not going into business to make the device.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Manufacturing Overhead Cost	Product Cost	Selling Cost	Differential Cost*
Garage rent				X	X	X		X
Utilities				X	X	X		X
Cost of the industrial design course		X						
Equipment rented				X	X	X		X
Material cost			X			X		X
Labor cost			X			X		X
Present salary	X							X
Advertising				X			X	X

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Decision Making

Blooms: Apply

Learning Objective: 02-01 Identify and give examples of each of the three basic manufacturing cost categories.

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 2 Medium

154. Laco Company acquired its factory building about 20 years ago. For a number of years the company has rented out a small, unused part of the building. The renter's lease will expire soon. Rather than renewing the lease, Laco Company is considering using the space itself to manufacture a new product. Under this option, the unused space will continue to be depreciated on a straight-line basis, as in past years.

Direct materials and direct labor cost for the new product would be $50 per unit. In order to have a place to store finished units of the new product, the company would have to rent a small warehouse nearby. The rental cost would be $2,000 per month. It would cost the company an additional $4,000 each month to advertise the new product. A new production supervisor would be hired to oversee production of the new product who would be paid $3,000 per month. The company would pay a sales commission of $10 for each unit of product that is sold.

Required:

Complete the chart below by placing an "X" under each column heading that helps to identify the costs listed to the left. There can be "X's" placed under more than one heading for a single cost. For example, a cost might be a product cost, an opportunity cost, and a sunk cost; there would be an "X" placed under each of these headings on the answer sheet opposite the cost.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Product Cost	Selling and Administrative Cost	Differential Cost*
Rent on unused factory space							
Depreciation on the factory space							
Direct materials and direct labor							
Rental cost of the small warehouse							
Advertising cost							
Production supervisor's salary							
Sales commissions							

*Between the alternatives of (1) renting the space out again or (2) using the space to produce the new product.

	Opportunity Cost	Sunk Cost	Variable Cost	Fixed Cost	Product Cost	Selling and Administrative Cost	Differential Cost
Rent on unused factory space	X						X*
Depreciation on the factory space		X		X	X		
Direct materials and direct labor			X		X		X
Rental cost of the small warehouse				X		X	X
Advertising cost				X		X	X
Production supervisor's salary				X	X		X
Sales commissions			X			X	X

* We suggest you allow either answer (a blank or an X) in this cell. Some would consider an opportunity cost to be a differential cost and others would not. It is all a matter of definition and the definitions given in the text do not really cover this contingency.

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Decision Making

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Learning Objective: 02-07 Understand cost classifications used in making decisions: differential costs; opportunity costs; and sunk costs.

Level: 2 Medium

155. Lettman Corporation has provided the following partial listing of costs incurred during November:

Marketing salaries	$45,000
Property taxes, factory	$9,000
Administrative travel	$98,000
Sales commissions	$48,000
Indirect labor	$38,000
Direct materials	$165,000
Advertising	$138,000
Depreciation of production equipment	$39,000
Direct labor	$87,000

Required:

a. What is the total amount of product cost listed above? Show your work.

b. What is the total amount of period cost listed above? Show your work.

a. Product costs consist of direct materials, direct labor, and manufacturing overhead:

Direct materials		$165,000
Direct labor		87,000
Manufacturing overhead:		
Property taxes, factory	$ 9,000	
Indirect labor	38,000	
Depreciation of production equipment	39,000	86,000
Total product cost		$338,000

b. Period costs consist of all costs other than product costs:

Administrative travel	$ 98,000
Sales commissions	48,000
Marketing salaries	45,000
Advertising	138,000
Total period cost	$329,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

156. A partial listing of costs incurred at Starr Corporation during June appears below:

Direct materials	$107,000
Utilities, factory	$11,000
Sales commissions	$35,000
Administrative salaries	$115,000
Indirect labor	$29,000
Advertising	$148,000
Depreciation of production equipment	$46,000
Direct labor	$109,000
Depreciation of administrative equipment	$39,000

Required:

a. What is the total amount of product cost listed above? Show your work.

b. What is the total amount of period cost listed above? Show your work.

a. Product costs consist of direct materials, direct labor, and manufacturing overhead:

Direct materials		$107,000
Direct labor		109,000
Manufacturing overhead:		
Utilities, factory	$11,000	
Indirect labor	29,000	
Depreciation of production equipment	46,000	86,000
Total product cost		$302,000

b. Period costs consist of all costs other than product costs:

Administrative salaries	$115,000
Sales commissions	35,000
Depreciation of administrative equipment	39,000
Advertising	148,000
Total period cost	$337,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-02 Distinguish between product cost and period costs and give examples of each.

Level: 2 Medium

157. The following information summarizes the company's cost structure:

Variable cost per unit	$1.30
Fixed cost per unit	4.50
Total cost per unit	$5.80
Units produced and sold	48,000

Required:

Estimate the following costs at the 40,000 unit level of activity:

a. Total variable cost.

b. Total fixed cost.

c. Variable cost per unit.

d. Fixed cost per unit.

Parts a., b., c., & d.

Note: The total fixed cost is 48,000 units × $4.50 per unit = $216,000.

Total costs:	
Variable (40,000 units × $1.30 per unit)	$52,000
Fixed	$216,000
Costs per unit:	
Variable (unchanged)	$1.30
Fixed ($216,000 ÷ 40,000 units)	$5.40

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

158. Corio Corporation reports that at an activity level of 3,800 units, its total variable cost is $221,464 and its total fixed cost is $94,848.

Required:

For the activity level of 3,900 units, compute: (a) the total variable cost; (b) the total fixed cost; (c) the total cost; (d) the average variable cost per unit; (e) the average fixed cost per unit; and (f) the average total cost per unit. Assume that this activity level is within the relevant range.

Variable cost = $221,464 ÷ 3,800 units = $58.28 per unit

Activity level	3,900
Total cost:	
Variable cost (a) [3,900 units × $58.28 per unit]	$227,292
Fixed cost (b)	94,848
Total (c)	$322,140
Cost per unit:	
Variable cost (d)	$58.28
Fixed cost (e) [$94,848 ÷ 3,900 units]	24.32
Total (f)	$82.60

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

159. At an activity level of 5,900 units, Haas Corporation's total variable cost is $347,982 and its total fixed cost is $284,321.

Required:

For the activity level of 6,100 units, compute: (a) the total variable cost; (b) the total fixed cost; (c) the total cost; (d) the average variable cost per unit; (e) the average fixed cost per unit; and (f) the average total cost per unit. Assume that this activity level is within the relevant range.

Variable cost = $347,982 ÷ 5,900 units = $58.98 per unit

Activity level	6,100
Total cost:	
Variable cost (a) [6,100 units × $58.98 per unit]	$359,778
Fixed cost (b)	284,321
Total (c)	$644,099
Cost per unit:	
Variable cost (d)	$58.98
Fixed cost (e) [$284,321 ÷ 6,100 units]	46.61
Total (f)	$105.59

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.
Level: 1 Easy

160. A number of costs and measures of activity are listed below.

	Cost Description	Possible Measure of Activity
1.	Insurance on a warehouse building at a computer retailer	Number of items stocked
2.	Cost of solder used in making computers	Computers produced
3.	Cost of heating an electronics store	Dollar sales
4.	Cost of testing materials used in a medical lab	Tests run
5.	Cost of electricity for production equipment at a surfboard manufacturer	Surfboards produced
6.	Cost of airplane fuel at a regularly scheduled commuter airline	Number of passengers
7.	Sales commissions at a cellphone dealer	Dollar sales
8.	Cost of renting production equipment on a monthly basis at a surfboard manufacturer	Surfboards produced
9.	Cook's wages at a coffee shop	Dollar sales
10.	Shift manager's wages at a coffee shop	Dollar sales

Required:

For each item above, indicate whether the cost is MAINLY fixed or variable with respect to the possible measure of activity listed next to it.

1. Insurance on a warehouse building at a computer retailer; Number of items stocked; Fixed

2. Cost of solder used in making computers; Computers produced; Variable

3. Cost of heating an electronics store; Dollar sales; Fixed

4. Cost of testing materials used in a medical lab; Tests run; Variable

5. Cost of electricity for production equipment at a surfboard manufacturer; Surfboards produced; Variable

6. Cost of airplane fuel at a regularly scheduled commuter airline; Number of passengers; Fixed

7. Sales commissions at a cell phone dealer; Dollar sales; Variable

8. Cost of renting production equipment on a monthly basis at a surfboard manufacturer; Surfboards produced; Fixed

9. Cook's wages at a coffee shop; Dollar sales; Fixed

10. Shift manager's wages at a coffee shop; Dollar sales; Fixed

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

161. A number of costs and measures of activity are listed below.

	Cost Description	Possible Measure of Activity
1.	Cost of direct materials used to make furniture	Units produced
2.	Cost of vaccine used at a clinic	Vaccines administered
3.	Cost of renting production equipment on a monthly basis at a snowboard manufacturer	Snowboards produced
4.	Shift manager's wages at a taco shop	Dollar sales
5.	Dental hygiene supplies at a dentist's office	Number of patients
6.	Cost of heating a hardware store	Dollar sales
7.	Sales commissions at an auto dealer	Dollar sales
8.	Cost of electricity for production equipment at a snowboard manufacturer	Snowboards produced
9.	Cost of cement used to produce cinder blocks	Cinder blocks produced
10.	Ferry captain's salary on a regularly scheduled passenger ferry	Number of passengers

Required:

For each item above, indicate whether the cost is MAINLY fixed or variable with respect to the possible measure of activity listed next to it.

1. Cost of direct materials used to make furniture; Units produced; Variable

2. Cost of vaccine used at a clinic; Vaccines administered; Variable

3. Cost of renting production equipment on a monthly basis at a snowboard manufacturer; Snowboards produced; Fixed

4. Shift manager's wages at a taco shop; Dollar sales; Fixed

5. Dental hygiene supplies at a dentist's office; Number of patients; Variable

6. Cost of heating a hardware store; Dollar sales; Fixed

7. Sales commissions at an auto dealer; Dollar sales; Variable

8. Cost of electricity for production equipment at a snowboard manufacturer; Snowboards produced; Variable

9. Cost of cement used to produce cinder blocks; Cinder blocks produced; Variable

10. Ferry captain's salary on a regularly scheduled passenger ferry; Number of passengers; Fixed

AACSB: Reflective Thinking

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-03 Understand cost behavior patterns including variable costs; fixed costs; and mixed costs.

Level: 1 Easy

162. Slonaker Inc. has provided the following data concerning its maintenance costs:

	Machine-Hours	Maintenance Cost
April	5,799	$30,379
May	5,782	$30,289
June	5,764	$30,237
July	5,761	$30,233
August	5,717	$30,078
September	5,795	$30,360
October	5,809	$30,388
November	5,801	$30,378
December	5,785	$30,318

Management believes that maintenance cost is a mixed cost that depends on machine-hours.

Required:

Estimate the variable cost per machine-hour and the fixed cost per month using the high-low method. Show your work!

	Machine-Hours	Maintenance Cost
High activity level	5,809	$30,388
Low activity level	5,717	$30,078

Variable cost = Change in cost ÷ Change in activity

= ($30,388 - $30,078) ÷ (5,809 machine-hours - 5,717 machine-hours)

= $310 ÷ 92 machine-hours

= $3.37 per machine-hour

Fixed cost element = Total cost - Variable cost element

= $30,078 - ($3.37 per machine-hour × 5,717 machine-hours)

= $10,812

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

163. Utility costs at one of Helker Corporation's factories are listed below:

	Machine-Hours	Utility Cost
January	4,711	$34,799
February	4,780	$35,138
March	4,704	$34,762
April	4,768	$35,093
May	4,723	$34,872
June	4,721	$34,840
July	4,759	$35,053
August	4,730	$34,918
September	4,720	$34,834

Management believes that utility cost is a mixed cost that depends on machine-hours.

Required:

Estimate the variable cost per machine-hour and the fixed cost per month using the high-low method. Show your work! Round off all calculations to the nearest whole cent.

	Machine-Hours	Utility Cost
High activity level	4,780	$35,138
Low activity level	4,704	$34,762

Variable cost = Change in cost ÷ Change in activity

= ($35,138 - $34,762) ÷ (4,780 machine-hours - 4,704 machine-hours)

= $376 ÷ 76 machine-hours

= $4.95 per machine-hour

Fixed cost element = Total cost - Variable cost element

= $34,762 - ($4.95 per machine-hour × 4,704 machine-hours)

= $34,762.00 - $23,284.80

= $11,477.20

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

164. The management of Harrigill Corporation would like to have a better understanding of the behavior of its inspection costs. The company has provided the following data:

	Direct Labor-Hours	Inspection Cost
March	5,043	$48,500
April	5,036	$48,449
May	5,068	$48,677
June	5,066	$48,650
July	5,021	$48,374
August	4,992	$48,202
September	5,078	$48,721
October	5,033	$48,460
November	4,980	$48,125

Management believes that inspection cost is a mixed cost that depends on direct labor-hours.

Required:

Estimate the variable cost per direct labor-hour and the fixed cost per month using the high-low method. Show your work! Round off all calculations to the nearest whole cent.

	Direct Labor-Hours	Inspection Cost
High activity level	5,078	$48,721
Low activity level	4,980	$48,125

Variable cost = Change in cost ÷ Change in activity

= ($48,721 - $48,125) ÷ (5,078 direct labor-hours - 4,980 direct labor-hours)

= $596 ÷ 98 direct labor-hours

= $6.08

Fixed cost element = Total cost - Variable cost element

= $48,125 - ($6.08 per direct labor-hour × 4,980 direct labor-hours)

= $48,125.00 - $30,278.40

= $17,846.60

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-04 Analyze a mixed cost using a scattergraph plot and the high-low method.

Level: 1 Easy

165. In October, Patnode Inc., a merchandising company, had sales of $294,000, selling expenses of $27,000, and administrative expenses of $35,000. The cost of merchandise purchased during the month was $211,000. The beginning balance in the merchandise inventory account was $38,000 and the ending balance was $34,000.

Required:

Prepare a traditional format income statement for October.

Traditional Format Income Statement

Sales		$294,000
Cost of goods sold*		215,000
Gross margin		79,000
Selling and administrative expenses:		
Selling expenses	$27,000	
Administrative expenses	35,000	62,000
Net operating income		$17,000

*Cost of goods sold:	
Beginning merchandise inventory	$38,000
Add: Purchases	211,000
Goods available for sale	249,000
Deduct: Ending merchandise inventory	34,000
	$215,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

166. Whitman Corporation, a merchandising company, reported sales of 7,400 units for May at a selling price of $677 per unit. The cost of goods sold (all variable) was $441 per unit and the variable selling expense was $54 per unit. The total fixed selling expense was $155,600. The variable administrative expense was $24 per unit and the total fixed administrative expense was $370,400.

Required:

a. Prepare a contribution format income statement for May.

b. Prepare a traditional format income statement for May.

a. Contribution Format Income Statement

Sales (7,400 units × $677 per unit)		$5,009,800
Variable expenses:		
Cost of goods sold (7,400 units × $441 per unit)	$3,263,400	
Variable selling expense (7,400 units × $54 per unit)	399,600	
Variable administrative expense (7,400 units × $24 per unit)	177,600	3,840,600
Contribution margin		1,169,200
Fixed expenses:		
Fixed selling expense	155,600	
Fixed administrative expense	370,400	526,000
Net operating income		$643,200

b. Traditional Format Income Statement

Sales (7,400 units × $677 per unit)		$5,009,800
Cost of goods sold (7,400 units × $441 per unit)		3,263,400
Gross margin		1,746,400
Selling and administrative expenses:		
Selling expense ((7,400 units × $54 per unit) + $155,600)	$555,200	
Administrative expense ((7,400 units × $24 per unit) + $370,400)	548,000	1,103,200
Net operating income		$643,200

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

167. Donmoyer Sales Corporation, a merchandising company, reported total sales of $2,230,200 for May. The cost of goods sold (all variable) was $1,518,300, the total variable selling expense was $214,200, the total fixed selling expense was $86,700, the total variable administrative expense was $119,700, and the total fixed administrative expense was $138,400.

Required:

a. Prepare a contribution format income statement for May.

b. Prepare a traditional format income statement for May.

a. Contribution Format Income Statement

Sales		$2,230,200
Variable expenses:		
Cost of goods sold	$1,518,300	
Variable selling expense	214,200	
Variable administrative expense	119,700	1,852,200
Contribution margin		378,000
Fixed expenses:		
Fixed selling expense	86,700	
Fixed administrative expense	138,400	225,100
Net operating income		$152,900

b. Traditional Format Income Statement

Sales		$2,230,200
Cost of goods sold		1,518,300
Gross margin		711,900
Selling and administrative expenses:		
Selling expense	$300,900	
Administrative expense	258,100	559,000
Net operating income		$152,900

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

168. Pittman Corporation, a merchandising company, reported the following results for September:

Sales	$2,088,800
Cost of goods sold (all variable)	$896,000
Total variable selling expense	$120,400
Total fixed selling expense	$52,700
Total variable administrative expense	$81,200
Total fixed administrative expense	$144,700

Required:

a. Prepare a traditional format income statement for September.

b. Prepare a contribution format income statement for September.

a. Traditional Format Income Statement

Sales		$2,088,800
Cost of goods sold		896,000
Gross margin		1,192,800
Selling and administrative expenses:		
Selling expense	$173,100	
Administrative expense	225,900	399,000
Net operating income		$793,800

b. Contribution Format Income Statement

Sales		$2,088,800
Variable expenses:		
Cost of goods sold	$896,000	
Variable selling expense	120,400	
Variable administrative expense	81,200	1,097,600
Contribution margin		991,200
Fixed expenses:		
Fixed selling expense	52,700	
Fixed administrative expense	144,700	197,400
Net operating income		$793,800

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 1 Easy

169 Honey Corporation, a merchandising company, reported the following results for January:

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Number of units sold	5,800
Selling price per unit	$892
Unit cost of goods sold	$517
Variable selling expense per unit	$31
Total fixed selling expense	$152,600
Variable administrative expense per unit	$48
Total fixed administrative expense	$390,200

Cost of goods sold is a variable cost in this company.

Required:

a. Prepare a traditional format income statement for January.

b. Prepare a contribution format income statement for January.

a. Traditional Format Income Statement

Sales (5,800 units × $892 per unit)		$5,173,600
Cost of goods sold (5,800 units × $517 per unit)		2,998,600
Gross margin		2,175,000
Selling and administrative expenses:		
Selling expense ((5,800 units × $31 per unit) + $152,600)	$332,400	
Administrative expense ((5,800 units × $48 per unit) + $390,200)	668,600	1,001,000
Net operating income		$1,174,000

b. Contribution Format Income Statement

Sales (5,800 units × $892 per unit)		$5,173,600
Variable expenses:		
Cost of goods sold (5,800 units × $517 per unit)	$2,998,600	
Variable selling expense (5,800 units × $31 per unit)	179,800	
Variable administrative expense (5,800 units × $48 per unit)	278,400	3,456,800
Contribution margin		1,716,800
Fixed expenses:		
Fixed selling expense	152,600	
Fixed administrative expense	390,200	542,800
Net operating income		$1,174,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Blooms: Apply

Learning Objective: 02-05 Prepare income statements for a merchandising company using the traditional and contribution formats.

Level: 2 Medium

170. A number of costs are listed below.

	Cost Description	Cost Object
1.	Wood used to build a home	A particular home
2.	Cost of testing equipment in a computer manufacturing facility	A particular personal computer
3.	Cost of heating an outpatient clinic at a hospital	The outpatient clinic
4.	Supervisor's wages in a computer manufacturing facility	A particular personal computer
5.	Monthly lease cost of X-ray equipment at a hospital	The Radiology (X-Ray) Department
6.	Cost of tongue depressors used in an outpatient clinic at a hospital	The outpatient clinic
7.	Monthly depreciation on construction tools used to build a home	A particular home
8.	Cost of wiring used in making a personal computer	A particular personal computer
9.	Cost of a measles vaccine administered at an outpatient clinic at a hospital	The outpatient clinic
10.	Cost of heating a hotel run by a chain of hotels	A particular hotel guest

Required:

For each item above, indicate whether the cost is direct or indirect with respect to the cost object listed next to it.

1. Wood used to build a home; A particular home; Direct

2. Cost of testing equipment in a computer manufacturing facility; A particular personal computer; Indirect

3. Cost of heating an outpatient clinic at a hospital; The outpatient clinic; Direct

4. Supervisor's wages in a computer manufacturing facility; A particular personal computer; Indirect

5. Monthly lease cost of X-ray equipment at a hospital; The Radiology (X-Ray) Department; Direct

6. Cost of tongue depressors used in an outpatient clinic at a hospital; The outpatient clinic; Direct

7. Monthly depreciation on construction tools used to build a home; A particular home; Indirect

8. Cost of wiring used in making a personal computer; A particular personal computer; Indirect

9. Cost of a measles vaccine administered at an outpatient clinic at a hospital; The outpatient clinic; Direct

10. Cost of heating a hotel run by a chain of hotels; A particular hotel guest; Indirect

AACSB: Reflective Thinking
AICPA BB: Critical Thinking
AICPA FN: Measurement
Blooms: Apply
Learning Objective: 02-06 Understand the differences between direct and indirect costs.
Level: 1 Easy