Cost Accounting, Cdn. Ed., 7e **(Horngren)**
Chapter 16 Revenue and Customer Profitability Analysis

16.1 Select a method and allocate revenue from a product bundle to its distinct components.

1) Revenue allocation occurs where revenues can be identified with an individual product (service, customer, and so on) in an economically feasible (cost-effective) way.
Answer: FALSE
Explanation: Revenue allocation occurs when revenues must be assigned to distinct types of sales, but it is not economically feasible to trace the revenue.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

2) Revenue tracing results in a more accurate assignment of revenues to products, than does revenue allocation.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-1

3) A bundled product is a package of two or more products or services, sold for a single price, where the individual components of the bundle may also be sold as separate items, each with their own stand-alone prices.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

4) The stand-alone revenue allocation method pertains to products that cannot be bundled together.
Answer: FALSE
Explanation: The stand-alone revenue allocation method is a weighted-average method that uses product specific information about bundled products.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

5) An example of a bundled product is when a resort hotel charges a single price for lodging, food, and recreational activities.
Answer: TRUE
Diff: 1   Type: TF
Skill: Understand
Objective: LO 16-1

6) Revenue allocation is required to determine the profitability of individual items within a bundled product.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

7) The stand-alone method may use selling price or unit costs to allocate revenues.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

8) Under the incremental revenue allocation method, there is an incentive to be the first-ranked user.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-1

9) It is most appropriate to base revenue allocation on the number of physical units when individual products in the bundle are of unequal value.
Answer: FALSE
Explanation: Revenue allocation based on the number of physical units is only appropriate when individual products in the bundle are of *equal* value.
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-1

10) When allocating the revenues between a bundled product offering, there are only two methods which can be used: 1) the stand-alone revenue-method and 2) the incremental revenue-allocation method.
Answer: FALSE
Explanation: Although those are the formula-based methods, it is possible for management judgement to be used in issuing revenue-allocation weights.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

11) The stand-alone revenue allocation method is a weighted-average method.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

12) The incremental revenue-allocation method uses product specific information pertaining to products in the bundle to determine the weights used to allocate the bundled revenues to those individual products.
Answer: FALSE
Explanation: The incremental revenue allocation method ranks the individual products in a bundle then uses this ranking to allocate the bundled revenues to these individual products.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

13) The first-ranked product is termed the incremental product in the incremental revenue-allocation method.
Answer: FALSE
Explanation: The first-ranked product is term the primary product.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

14) The ranking of products with regard to the incremental revenue allocation method can only be done by top management.
Answer: FALSE
Explanation: Customer surveys, internal data on stand-alone performance, and management knowledge are all ways that can be used to determine ranking.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-1

15) _____ is a package of two or more products or services, sold for a single price, where the individual components of the package may also be sold as separate items, each with their own stand-alone price.
A) A revenue product
B) A byproduct
C) A bundled product
D) A joint product
E) A product package
Answer: C
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-1

16) _____ occurs where revenues, related but not traceable to individual products (service, customer, and so on), are assigned to those individual products.
A) Revenue tracing
B) Revenue allocation
C) A bundled product
D) Joint product costing
E) Revenue shedding
Answer: B
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-1

17) Which of the following statements is TRUE?
A) Joint product allocation results in more accurate assignment of revenues to products than does revenue allocation.
B) Revenue allocation results in more accurate assignment of revenues to products than does revenue tracing.
C) Revenue tracing results in more accurate assignment of revenues to products than does revenue allocation.
D) Revenue allocation results in more accurate assignment of revenues to products than does joint product allocation.
E) Joint product allocation results in more accurate assignment of revenues to products than does revenue tracing.
Answer: C
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-1

18) Which of the following statements is TRUE?
A) The two main classes of revenue allocation methods are the step-up method and the incremental method.
B) The stand-alone revenue allocation method ranks the individual products in a bundle and then uses this ranking to allocate the bundled revenues to these individual products.
C) A bundled product is a package of two or more products or services, sold for multiple prices.
D) The issues discussed with revenue tracing and sales returns apply to cost tracing.
E) The two main classes of revenue allocation methods are the stand-alone method and the incremental method.
Answer: E
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-1

19) _____ uses product specific information pertaining to products in the bundle to determine the weights used to allocate the bundled revenues to those individual products.
A) The stand-alone revenue allocation method
B) The averaging approach
C) The incremental revenue allocation method
D) The joint production costing method
E) The weighted-averaging approach
Answer: A
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-1

20) _____ ranks the individual products in a bundle and then uses this ranking to allocate the bundled revenues to these individual products.
A) The stand-alone revenue allocation method
B) The averaging approach
C) The incremental revenue allocation method
D) The joint production costing method
E) The weighted averaging approach
Answer: C
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-1

Use the information below to answer the following question(s).

John's Video Game Outlet encounters revenue-allocation decisions with its bundled product sales. Here, two or more of the video games are sold as a single package. Managers at John's are keenly interested in individual product-profitability figures. Information pertaining to its three bundled products and the stand-alone prices of its individual products is as follows:

Stand-Alone Sales Price

Package	Game A	Game B	Game C	Packaged Price
Package 1	$25	$30	N/A	$44
Package 2	25	N/A	$45	56
Package 3	25	30	45	76

The unit manufacturing costs are $3.60, $4.00, and $5.00 for games A, B, and C, respectively.

21) Calculate the allocation of packaged price for Game A in Package 1, using selling prices as the base.
A) $14.00
B) $20.00
C) $30.00
D) $25.00
E) $35.00
Answer: B
Explanation: B) [$25/($25 + $30)] × $44 = $20
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

22) Calculate the allocation of packaged price Game A in Package 3, using selling prices as the base.
A) $34.20
B) $30.00
C) $25.00
D) $22.80
E) $19.00
Answer: E
Explanation: E) [$25/($25 + $30 + 45)] × $76 = $19
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

23) Calculate the revenue allocation for Game A in Package 1, using physical units as the base.
A) $12.57
B) $14.67
C) $20.84
D) $22.00
E) $23.16
Answer: D
Explanation: D) [1/(1 + 1)] × $44 = $22
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

24) Calculate the allocation of packaged price for Game A in Package 1, using unit costs as the base.
A) $12.57
B) $13.97
C) $20.84
D) $22.00
E) $23.16
Answer: C
Explanation: C) [$3.60/($3.60 + $4.00)] × $44 = $20.84
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

25) To give more weight to the product that most likely drives the sales of the bundled product, the revenue allocation should be weighted using
A) selling prices.
B) unit costs.
C) physical units.
D) stand-alone product revenues.
E) total product costs.
Answer: D
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-1

Answer the following question(s) using the information below:

Elmo's Educational Software Outlet sells two or more of the video games as a single package. Managers are keenly interested in individual product profitability figures. Information pertaining to three bundled products and the stand-alone prices is as follows:

	Stand-Alone Selling Price	Cost		Package	Packaged Price
Reading Fun	$50	$7.20	1. Reading Fun & Math Fun	$88
Math Fun	$60	$8.00	2. Reading Fun & Analysis	$112
Analysis	$90	$10.00	3. All three	$152

Assume Reading Fun is the primary product, followed by Math Fun, and then Analysis.

26) Using the stand-alone method with selling price as the weight for revenue allocation, what amount of revenue will be allocated to Reading Fun in the first package (Reading Fun & Math Fun)?
A) $40
B) $44
C) $38
D) $50
E) $22
Answer: A
Explanation: A) [$50/($50 + $60)] × $88 = $40
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

27) Using the incremental method for revenue allocation, what amount of revenue will be allocated to Reading Fun in the first package (Reading Fun & Math Fun)?
A) $40
B) $44
C) $38
D) $50
E) $28
Answer: D
Explanation: D) $50 since Reading Fun is the primary product
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

28) Using the stand-alone method with selling price as the weight for revenue allocation, what amount of revenue will be allocated to Math Fun in the package that contains all three products?
A) $48.25
B) $60.00
C) $45.60
D) $50.67
E) $33.60
Answer: C
Explanation: C) [$60/($50 + $60 + $90)] × $152 = $45.60
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

29) Using the incremental method, what amount of revenue will be allocated to Math Fun in the package that contains all three products?
A) $48.25
B) $60.00
C) $45.60
D) $50.67
E) $90.00
Answer: B
Explanation: B) $152 - $50 primary product = $102 revenues remaining to be allocated to other products; $60 since there are revenues remaining to cover the selling price of Reading Fun, the first incremental product.
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

Answer the following questions using the information below:

Buzz's Educational Software Outlet sells two or more of the video games as a single package. Managers are keenly interested in individual product-profitability figures. Information pertaining to three bundled products and the stand-alone prices is as follows:

	Stand-Alone Selling Price	Cost		Package	Packaged Price
Reading Fun	$25	$3.60	1. *Reading Fun & Math Fun*		$44
Math Fun	$30	$4.00	2. *Reading Fun & Analysis*		$56
Analysis	$45	$5.00	3. *All three*		$76

30) Using the stand-alone method with selling price as the weight for revenue allocation, what amount of revenue will be allocated to Reading Fun in the first package (Reading Fun & Math Fun)?
A) $20
B) $22
C) $19
D) $25
Answer: A
Explanation: A) [$25/($25 + $30)] × $44 = $20
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

31) Using the incremental method, what amount of revenue will be allocated to Math Fun in the package that contains all three products?
A) $24.12
B) $30.00
C) $22.80
D) $25.33
Answer: B
Explanation: B) $76 - $25 primary product = $51 revenues remaining to be allocated to other products; $30 since there are revenues remaining to cover the selling price of Reading Fun, the first incremental product.
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

Answer the following question(s) using the information below:

The Appliance Store sells a refrigerator and a freezer as a single package for $1,000. Other data are in the chart below.

	Refrigerator	Full-size Freezer	Packaged Price
Selling price	$825	$375	$1,000
Manufacturing cost per unit	$620	$180	
Stand-alone product revenues	$1,225,000	$775,000	

32) Using the stand-alone method with selling price as the weight for revenue allocation, what amount will be allocated to the refrigerator?
A) $500.00
B) $825.00
C) $687.50
D) $625.00
E) $375.00
Answer: C
Explanation: C) Refrigerator $825/($825 + $375) × $1,000 = $687.50
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

33) Using the stand-alone method with stand-alone product revenues as the weight for revenue allocation, what amount will be allocated to the refrigerator?
A) $687.50
B) $612.50
C) $625.00
D) $825.00
E) $505.31
Answer: B
Explanation: B) Refrigerator $1,225,000/($1,225,000 + $775,000) × $1,000 = $612.50
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

34) Using the stand-alone method with manufacturing cost per unit as the weight for revenue allocation, what amount will be allocated to the refrigerator?
A) $500.00
B) $612.50
C) $620.00
D) $775.00
E) $687.50
Answer: D
Explanation: D) Refrigerator $620/($620 + $180) × $1,000 = $775
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

35) Using the stand-alone method with physical units as the weight for revenue allocation, what amount will be allocated to the refrigerator?
A) $500.00
B) $20.00
C) $775.00
D) $825.00
E) $687.50
Answer: A
Explanation: A) (1/2) × $1,000 = $500
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-1

36) Give examples of bundled products for each of the following industries:
a.   Resort hotel
b.   Bank
c.   Restaurant
d.   Computer store
e.   Gasoline service station/convenience store
f.   Software manufacturer
Answer:
a.   Hotel room plus meals, free drinks, use of athletic facilities, morning newspaper
b.   Checking account, safe deposit box, wire transfers, certified checks, travelers checks
c.   Fixed-price meal includes a beverage, appetizer, entree, and dessert
d.   Computer, keyboard, monitor, printer, software, 1-year contract for the repair and maintenance of the computer
e.   Gasoline, car wash, coffee
f.   Two (or more) software products
Diff: 1   Type: ES
Skill: Understand
Objective: LO 16-1

37) Max's DVD Store encounters revenue allocation decisions with its bundled product sales. Here, two or more of the DVDs are sold as a single package. Managers at Max's are keenly interested in individual product profitability figures. Information pertaining to its three bundled products and the stand-alone selling prices of its individual products is as follows:

	Stand-Alone Selling Price	Cost		Package	Packaged Price
New Releases	$15	$2.00		New & Old	$20
Older Releases	$10	$1.50		New & Classics	$17
Classics	$8	$1.25		All three	$25

Required:
a. With selling prices as the weights, allocate the $25 packaged price of "All Three" to the three videos using the stand-alone revenue allocation method.
b. Allocate the $25 packaged price of "All Three" to the three types of videos using the incremental revenue allocation method. Assume New Releases is the primary product, followed by Older Releases, and then Classics.
Answer:
a.
New $15 + Older $10 + Classics $8 = $33.00

New $15/$33 × $25	=	$11.36	
Old $10/$33 × $25	=	$7.58	
Classics $8/$33 × $25	=	$6.06	
Total		$25.00	

b.

Product	Revenue Allocated	Revenue Remaining to Be Allocated
New Releases	$15	$25 -15 = $10
Older Releases	$10	$25 - $15 - $10 = $0
Classics	$0	none
Total revenue allocated	$25	

Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

38) Manny's DVD Store encounters revenue allocation decisions with its bundled product sales. Here, two or more of the DVDs are sold as a single package. Managers at Max's are keenly interested in individual product profitability figures. Information pertaining to its three bundled products and the stand-alone selling prices of its individual products is as follows:

	Stand-Alone Selling Price	Cost		Package	Packaged Price
New Releases	$15	$2.00		New & Old	$20
Older Releases	$10	$1.50		New & Classics	$17
Classics	$8	$1.25		All three	$25

Required:

a. With cost as the weights, allocate the $17 packaged price of "New & Classics" using the stand-alone revenue allocation method.

b. Allocate the $17 packaged price of "New & Classics" using the incremental revenue allocation method. Assume New Releases is the primary product, followed by Older Releases, and then Classics.

Answer:

a.

New $2.00 + Classics $1.25 = $3.25

New $2.00/$3.25 × $17   = $10.46
Classics $1.25/$3.25 × $17 =   6.54
                Total $17.00

b.

Product	Revenue Allocated	Revenue Remaining to Be Allocated
New Releases	$15	$17 -$15 = $2
Older Releases	n/a	n/a
Classics	$2	$2 < $8
Total revenue allocated	$17	

Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

39) Roper's Cablevision encounters revenue allocation decisions with its bundled product sales. Two or more of its services are sold as a single package. Managers at Roper's are keenly interested in individual product profitability figures. Information pertaining to its three bundled products and the stand-alone prices of its individual products is as follows:

Stand-Alone Sales Price

Package	Basic Sports	Lifestyle	TV Classics	Packaged Price
Sp. & Lifestyle	$20	$15	N/A	$30
Sports & Classics	20	N/A	$15	30
All three	20	15	15	40

The unit variable costs are estimated at $4.00, $3.00, and $2.50 for Sports, Lifestyle, and TV Classics, respectively. Basic Sports is considered to be the primary product, Lifestyle the first incremental, and TV Classics the second incremental .

Required:
a. Allocate the bundled revenue to each product in the 'Sports & Classics' bundle, using selling prices as the base.
b. What is the allocated revenue to the Sports in each bundle, using the incremental revenue allocation method?
Answer:
a. Sports [($20/$35) × $30] = $17.14
   TV Classics [($15/$35) × $30] = $12.86

b. Since the bundled price exceeds the stand-alone price, the full stand-alone price is allocated to the Sports in each bundle. Therefore, $20 in each bundle.
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

40) Software For You encounters revenue allocation decisions with its bundled product sales. Two or more units of the software are sold as a single package. Managers at Software For You are keenly interested in individual product profitability figures. Information pertaining to its three bundled products and the stand-alone selling prices of its individual products is as follows:

	Stand-Alone Selling Price	Cost		Package	Packaged Price
Word Processing (WP)	$125	$18		WP & SS	$220
Spreadsheet (SS)	$150	$20		WP & AS	$280
Accounting Software (AS)	$225	$25		All three	$380

Required:
a.   Using the stand-alone revenue allocation method, allocate the $380 packaged price of "All Three" to the three software products
   1.   with selling prices as the weights.
   2.   based on physical units.
b.   Allocate the $380 packaged price of "All Three" to the three software products using the incremental revenue allocation method. Assume Word Processing is the primary product, followed by Spreadsheet, and then Accounting Software.

Answer:
a1.   WP $125/$500 × $380   = $95
      SS $150/$500 × $380   = $114
      AS $225/$500 × $380   = $171
              Total $380

a2.   1/(1+ 1 + 1) × $380 = $126.67 per software package

b.

Product	Revenue Allocated	Revenue Remaining to Be Allocated
WP	$125	$380 - 125 = $255
SS	$150	$380 - $125 - $150 = $105
AS	$105	none
Total revenue allocated	$380	

Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

41) Software For You encounters revenue allocation decisions with its bundled product sales. Two or more of the programs are sold as a single package. Managers at Software For You are keenly interested in individual product profitability figures. Information pertaining to its three bundled products and the stand-alone prices of its individual products is as follows:

	Stand-Alone Sales Price			
	Word Processing (WP)	Spread-Sheet (SS)	Accounting Software (AS)	Package Price
Package				
Package A	$125	$150	N/A	$220
Package B	125	N/A	$225	280
Package C	125	150	225	380

The unit inventory costs is $18, $20, and $25 for WP, SS, and AS, respectively. Assume AS is the primary product, followed by SS, then WP.

Required:
Allocate the bundle revenue to each product in Package C, using inventory unit costs as the weighting factor.
Answer: WP [(18/63) × 380   = $108.57
SS [(20/63) × 380= $120.63
AS [(25/63) × 380   = $150.79
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

42) Easton Photography Ltd. sells cameras and related equipment. It often packages these into bundles for sale to consumers. Currently it is offering the following "package" deal: a camera; a photo printer; and, a camera accessory pack that includes battery recharger, case and various lens adapters. The package deal is selling for $740. The individual prices and costs of these components are as follows:

Component	Selling Price	Unit Cost
Camera	$450	$350
Printer	$250	$150
Accessory Pack	$200	$75
Total		

Required:
Allocate the revenue among the products under each of the following:
a. Unit selling prices
b. Unit costs
c. Physical units
Answer:
a. total SP = $450 + $250 + $200 = $900
    The allocations would be:
    $450/$900 ∗ $740 or $370 to the Camera
    $250/$900 ∗ $740 or $206 to the Printer
    $200/$900 ∗ $740 or $$164 to the Accessory Pack

b. total costs = $350 + $150 + $75 = $575
    The allocations would be:
    $350/$575 ∗ $740 or $450 to the Camera
    $150/$575 ∗ $740 or $193 to the Printer
    $75/$575 ∗ $740 or $97 to the Accessory Pack

c. Based on 3 physical individual unit products in the package, each product would be allocated
    1/3 of $740 or $246.67 (rounded).
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-1

43) Why would businesses want to sell bundled products? What benefits, if any, are there for the consumer?
Answer: Businesses seek to sell bundled products as a means of increasing total revenues and spreading fixed costs across a larger dollar amount of revenues. The result is usually an increase in overall corporate profitability.

For a company to sell more goods, customers must believe that they are getting value for their money.

Receiving additional goods or services for what is likely only a marginal increase in price over the price of the primary product could entice consumers to buy the bundled package rather than forgoing the purchase altogether. While not strictly a bundled product, an automobile provides a good example.

Car dealers sell cars that are "loaded with options." The price is less than the basic car with the options added separately. Consumers believe they are getting a benefit even though the car might have more options than they would have purchased. The manufacturer has greater revenue than would be the case without the "bundle."

A benefit for the consumer is an extra product for only a marginal increase in price that is probably less than the separate price of the products.
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-1

44) Describe and discuss the two methods of allocating the revenues of a bundled package to the individual products in that package. Describe any special problems associated with the method.
Answer: The stand-alone method allocates bundled revenues using 4 alternative bases: (1) individual product unit selling price (revenues), (2) individual product unit costs, or (3) number of units, (4) physical measures. It is preferable to allocate common revenues based on unit revenues, since this best reflects customers' willingness to pay for the different products. However, if the products are never sold separately, unit selling prices are unavailable, revenues may be allocated based on unit costs (which should be available in the firm's accounting records), or simply the number of units, or on physical measures.

The incremental revenue allocation method parallels the incremental method for allocation of common costs. However, in the common cost situation, no one wants their product to be identified as the primary user, since the primary user is charged the bulk of the cost. In contrast, for revenue allocation, everyone wants their product to be identified as the primary product, as that product will be allocated the bulk of revenues.
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-1

45) Under the stand-alone method, which weights better capture the benefits received by customers who purchase a bundled product?
Answer: Four types of weights for the stand-alone allocation method are selling prices, stand-alone product revenues, unit costs, and physical units. Selling prices and stand-alone product revenues better capture the benefits received by customers who purchase a bundled product.
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-1

16.2   Apply an ABC system to allocate costs when the customer is the cost object.

1) A customer cost hierarchy categorizes costs related to customers into different cost pools on the basis of using only one cost driver.
Answer: FALSE
Explanation: A customer cost hierarchy categorizes costs related to customers into different cost pools using different drivers.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-2

2) An activity-based costing system may focus on customers rather than products.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-2

3) A customer cost hierarchy may include customer -sustaining costs.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-2

4) A customer cost hierarchy may include distribution-channel costs.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-2

5) The cost of visiting customers is an example of a customer output unit-level cost.
Answer: FALSE
Explanation: The cost of visiting customers is an example of a *customer-sustaining* cost.
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-2

6) In general, distribution-channel costs are more easily influenced by customer actions than customer batch-level costs.
Answer: FALSE
Explanation: In general, *customer batch-level costs* are more easily influenced by customer actions than distribution-channel costs.
Diff: 3   Type: TF
Skill: Understand
Objective: LO 16-2

7) If one of four distribution channels is discontinued, corporate-sustaining costs such as general administration costs will most likely be reduced by 25%.
Answer: FALSE
Explanation: If one of four distribution channels is discontinued, corporate-sustaining costs such as general administration costs will most likely *not be affected*.
Diff: 3   Type: TF
Skill: Understand
Objective: LO 16-2

8) To more accurately assess customer profitability, corporate-sustaining costs should be allocated.
Answer: FALSE
Explanation: The allocation of corporate-sustaining costs serves no useful purpose in assessing customer profitability, decision making, performance evaluation, or motivation.
Diff: 3   Type: TF
Skill: Understand
Objective: LO 16-2

9) It is common to find that a small number of customers generate a high percentage of operating income.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-2

10) Costs incurred to process orders would MOST likely be classified as a
A) customer output unit-level cost.
B) customer batch-level cost.
C) customer-sustaining cost.
D) corporate-sustaining cost.
E) distribution-channel cost.
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

11) Top management and general administration costs would MOST likely be classified as a
A) customer output unit-level cost.
B) customer batch-level cost.
C) customer-sustaining cost.
D) corporate-sustaining cost.
E) distribution-channel cost.
Answer: D
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

12) The cost of visiting customers would MOST likely be classified as a
A) customer output unit-level cost.
B) customer batch-level cost.
C) customer-sustaining cost.
D) corporate-sustaining cost.
E) distribution-channel cost.
Answer: C
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

13) Costs incurred to handle each unit sold would MOST likely be classified as a
A) customer output unit-level cost.
B) customer batch-level cost.
C) customer-sustaining cost.
D) corporate-sustaining cost.
E) distribution-channel cost.
Answer: A
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

14) The cost of the manager of a retail distribution channel would MOST likely be classified as a
A) customer-sustaining cost.
B) distribution-channel cost.
C) customer batch-level cost.
D) corporate-sustaining cost.
E) customer output unit-level cost.
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

15) Which item is NOT a category in the customer cost hierarchy?
A) customer output unit-level costs
B) customer batch-level costs
C) distribution-channel costs
D) corporate-sustaining costs
E) product-sustaining cost
Answer: E
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

16) _____ categorizes costs related to customers into different cost pools on the basis of either different classes of cost drivers or different degrees of difficulty in determining the cause-and-effect (or benefits-received) relationships.
A) Customer profitability analysis
B) Customer revenues
C) Customer cost hierarchy
D) Price discounting
E) Customer allocation
Answer: C
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-2

17) 24-hour customer service not traceable to an individual customer is an example of what type of cost?
A) corporate-sustaining costs
B) distribution-channel costs
C) customer-sustaining costs
D) customer specific costs
E) warranty costs
Answer: C
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

18) The president's salary, interest on corporate debt and corporate donations are all examples of what type of costs?
A) customer support costs
B) corporate-sustaining costs
C) customer specific costs
D) distribution-channel costs
E) sales costs
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-2

19) ABC systems use the concept of a _____ to identify the cost drivers that best demonstrate the cause-and-effect relationship between each activity and the costs in the related cost pool.
A) cost hierarchy
B) cost pool
C) cost allocation
D) cost driver
Answer: A
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-2

20) Lynnwood Ltd. is reviewing two of its customers using ABC analysis. It has identified the following customer related activities and their rates:

Activity	Cost Driver	Rate
Sales	# of visits	$450
Order processing	# of orders	$125
Product handling	# of units	$12
Special shipping	# of shipments	$500

The company has the following information regarding Enbright Ltd. and Jackson Inc.:

Activity	Enbright Ltd.	Jackson Inc.
# of visits	9	6
# of orders	18	24
Product handling	650	380
Special shipping	15	30

Sales for Enbright and Jackson are $280,000 and $148,000 respectively. The cost of goods sold on these sales are the same at 52%.

Required:
Using Customer ABC Analysis, analyze the relative profitability of Enbright and Jackson.
Answer: The customer related costs for each of the two customers are summarized below:

Enbright Ltd.	Enbright Ltd.	Jackson Inc.	Jackson Inc.
9 visits * $450	$4,050	6 visits * $450	$2,700
18 orders * $125	$2,250	24 orders * $125	$3,000
650 units * $12	$7,800	380 units * $12	$4,560
15 shipments * $500	$7,500	30 shipments * $500	$15,000

Total customer hierarchy costs for Enbright are $21,600 and for Jackson, total costs are $25,260.

Activity	Enbright Ltd.	Jackson Inc.
Sales	$280,000	$148,000
Cost of goods sold @ 52%	$145,600	$76,960
Customer hierarchy costs	$21,600	$25,260
Customer margin	$112,800	$45,780

Enbright Ltd. has a customer margin of 40% ($112,800/$280,000) while Jackson Inc. has a margin of 31% ($45,780/$148,000). In analyzing the costs within the hierarchy we see that Jackson requires more shipments and more orders for fewer units. Although Jackson does have fewer visits (6 vs. 9) when we compare the visits to either revenues ($280,000/9 = $31,111 sales revenue per visit for Enbright vs. $148,000/6 = $24,667 for Jackson) or units sold (650/9 = 72 per visit for Enbright vs 380/6 = 63 for Jackson) we can see that Jackson requires more resources to service.
Diff: 3   Type: ES
Skill: Apply
Objective: LO 16-2

21) Boxwood Ltd. is reviewing two of its customers using ABC analysis. It has identified the following customer related activities and their rates:

Activity	Cost Driver	Rate
Sales	# of visits	$250
Order processing	# of orders	$65
Product handling	# of units	$18
Special shipping	# of shipments	$490

The company has the following information regarding Enbright Ltd. and Jackson Inc.:

Activity	Ecobright Ltd.	Samson Inc.
# of visits	12	8
# of orders	25	36
Product handling	540	330
Special shipping	14	29

Sales for Ecobright and Samson are $285,000 and $146,000 respectively. The cost of goods sold on these sales are the same at 48%.

Required:
Using Customer ABC Analysis, analyze the relative profitability of Ecobright and Samson.
Answer: The customer related costs for each of the two customers are summarized below:

Ecobright Ltd.	Ecobright Ltd.	Samson Inc.	Samson Inc.
12 visits ∗ $250	$3,000	8 visits ∗ $250	$2,000
25 orders ∗ $65	$1,625	36 orders ∗ $65	$2,340
540 units ∗ $18	$9,720	330 units ∗ $18	$5,940
14 shipments ∗ $490	$6,860	29 shipments ∗ $490	$14,210

Total customer hierarchy costs for Enbright are $21,600 and for Jackson, total costs are $25,260.

Activity	Enbright Ltd.	Jackson Inc.
Sales	$285,000	$146,000
Cost of goods sold @ 48%	$136,800	$70,080
Customer hierarchy costs	$21,205	$24,490
Customer margin	$126,995	$51,430

Ecobright Ltd. has a customer margin of 45% ($126,995/$285,000) while Samson Inc. has a margin of 35% ($51,430/$146,000). In analyzing the costs within the hierarchy we see that Samson requires more shipments and more orders for fewer units. Although Samson does have fewer visits (8 vs. 12) when we compare the visits to either revenues ($285,000/12 = $23,470 sales revenue per visit for Ecobright vs. $146,000/8 = $18,250 for Samson) or handling costs as a percentage of revenue ($9,720/$285,000 = 3.4% for Ecobright vs. $5,940/$146,000 = 4.1% for Samson) we can see that Samson requires more resources to service.
Diff: 3   Type: ES
Skill: Apply
Objective: LO 16-2

22) Clarke Industries collects information on two customers for the past year:

	Langley Supply	Soldar Inc.
Revenues	$1,492,000	$640,000
Cost of goods sold	$1,164,000	$486,000
Number of in-stock orders	14	4
Number of out-of-stock orders	12	24

Clarke estimates the following activity-based costs:

Cost of processing and delivering an in-stock order	$1,200
Cost of processing and delivering an out-of-stock order	$3,500

An in-stock order is an order for which all the items included are in inventory at the time the order is received.

Required:
Compute the customer specific contribution of each customer for the year using:
a.   16% of revenues as the allocation rate for customer-related costs.
b.   The activity-based costing approach.
Answer:
a.

	Langley	Soldar
Revenues	$1,492,000	$640,000
Costs:		
Cost of goods sold	1,164,000	486,000
Customer-related costs, 16% of revenues	238,720	102,400
Total costs	1,402,720	588,400
Customer specific contribution	$89,280	$51,600

b.

	Langley	Soldar
Revenues	$1,492,000	$640,000
Costs:		
Cost of goods sold	1,164,000	486,000
In-stock costs		
14 × $1,200; 4 × $1,200	16,800	4,800
Out-of-stock costs		
12 × $3,500; 24 × $3,500	42,000	84,000
Total Costs	1,222,800	574,800
Customer specific contribution	$269,200	$65,200

Diff: 3   Type: ES
Skill: Apply
Objective: LO 16-2

23) List at least three different levels of costs in a customer-cost hierarchy and an example of each.
Answer: List any three of the following:
1.   Customer output unit-level costs, product-handling costs of each product sold
2.   Customer batch-level costs, order processing costs incurred
3.   Customer-sustaining costs, costs of visits to the customer
4.   Distribution-channel costs, a particular distribution channel manager's salary
5.   Corporate-sustaining costs, costs of top management
Note: Examples will vary.
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-2

16.3   Calculate and interpret four levels of contribution margin variance analyses.

1) The static-budget variance for revenues is the difference between the actual revenues and the budgeted revenues from the static budget.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-3

2) The sales-mix variance is the difference between two amounts: (1) the budgeted amount based on actual quantities sold of all products and the budgeted mix, and (2) the amount in the static budget.
Answer: FALSE
Explanation: Difference between: (1) actual qty. × actual mix; and, (2) the actual qty. × budgeted sales mix
Diff: 3   Type: TF
Skill: Remember
Objective: LO 16-3

3) The sales-quantity variance can be unfavourable if both the market-share and market-size variances are favourable.
Answer: FALSE
Explanation: Both favourable; or, if one unfavourable then the other must be favourable in a greater amount.
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-3

4) The sales-volume variance is favourable assuming the sales-mix variance and the sales-quantity variances are favourable.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-3

5) The market-size variance is the difference between two amounts: (1) the budgeted amount at budgeted mix based on the actual market size in units and the actual market share, and (2) the budgeted amount at budgeted mix based on actual market size in units and the budgeted market share.
Answer: FALSE
Explanation: (1) the budgeted amount based on actual market size in units, budgeted market share, and budgeted CM; (2) the static-budget amount based on the budgeted market size in units, budgeted market share, and budgeted CM
Diff: 3   Type: TF
Skill: Remember
Objective: LO 16-3

6) Additional insight can be gained by separating the sales-mix variance into the flexible-budget variance and the sales-volume variance.
Answer: FALSE
Explanation: Additional insight can be gained by separating the *static-budget variance* into the flexible-budget variance and the sales-volume variance.
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-3

7) A favorable total sales-mix variance arises when the actual sales-mix percentage for the higher contribution margin products is less than the budgeted sales-mix percentage.
Answer: FALSE
Explanation: A favorable sales-mix variance arises when the actual sales-mix percentage for the higher contribution margin products exceeds the budgeted sales-mix percentage.
Diff: 3   Type: TF
Skill: Understand
Objective: LO 16-3

8) A composite unit is a hypothetical unit with weights based on the mix of individual units.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-3

9) The sales-mix variance is calculated using the budgeted contribution margin per composite unit of the sales mix.
Answer: FALSE
Explanation: The market-share and market-size variances are calculated using the budgeted CM per composite unit
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-3

10) The sales-quantity variance is favorable when budgeted unit sales exceed actual unit sales.
Answer: FALSE
Explanation: The sales-quantity variance is *unfavorable* when budgeted unit sales exceed actual unit sales.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-3

11) The market-share variance is caused solely by the actual market share being different than the budgeted market share.
Answer: TRUE
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-3

12) A favorable market-size variance results with a decrease in market size.
Answer: FALSE
Explanation: A favorable market-size variance results with *an increase* in market size.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-3

13) A difficulty with the market-share and market-size variances is that accurate measures of market share and market size often do not exist.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-3

14) Some companies place more emphasis on the market-share variance than the market-size variance when evaluating their managers.
Answer: TRUE
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-3

15) Unfavourable variances reveal not only what occurred but how it occurred.
Answer: FALSE
Explanation: The unfavourable variances have only revealed what occurred, not how it occurred.
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-3

16) Which of the following is one of the items that are important to managers when analyzing sales-volume variance information?
A) the static-budget variance
B) the flexible-budget variance
C) direct materials price variance
D) the sales-mix variance
E) direct labour efficiency variance
Answer: D
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-3

17) Which of the following is not a sales related variance?
A) sales-volume variance
B) sales-quantity variance
C) market-size variance
D) direct materials yield variance
E) market-share variance
Answer: D
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-3

18) The sales-volume variance plus or minus the static budget amount results in
A) the fixed-budget amount.
B) the flexible-budget amount.
C) an unfavourable/favourable variance.
D) the variable-budget amount.
E) a static budget variance.
Answer: B
Diff: 2   Type: MC
Skill: Remember
Objective: LO 16-3

Use the information below to answer the following question(s).

Special Tea Products (STP) has an exclusive contract with Tea Distributors. Two brands of Teas are imported, Strong and Mild, and sold to retail outlets. The monthly budget for the contract is based on a combination of last year's performance, a forecast of general industry sales, and the company's expected share of the Canadian market for imported Tea. The following information is provided for the month of May:

	Budgeted Strong	Budgeted Mild	Actual Strong	Actual Mild
Price per kg	$2.00	$3.00	$2.50	$2.50
Variable cost /kg	1.00	1.50	1.00	2.00
Cont. margin	$1.00	$1.50	$1.50	$0.50
Sales (in kg)	2,000	1,500	1,700	1,800

Budgeted fixed costs are $1,750. Actual fixed costs are $2,000.

19) What is the static budget variance (contribution margin) for Mild Tea?
A) $2,250 U
B) $2,250 F
C) $900 U
D) $1,350 F
E) $1,350 U
Answer: E
Explanation: E) [$0.50 × 1,800] - [$1.50 × 1,500] = $900- $2,250 = $1,350 U
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

20) What is the STP sales-volume variance (contribution margin) for Strong tea?
A) $600 favourable
B) $600 unfavourable
C) $900 favourable
D) $900 unfavourable
E) $300 unfavourable
Answer: E
Explanation: E) [1,700 - 2,000] × $1.00 = $300 U
Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

21) What is the STP total static-budget variance for revenues?
A) $50 favourable
B) $250 favourable
C) $50 unfavourable
D) $250 unfavourable
E) $800 unfavourable
Answer: B
Explanation: B) [(1,800 × $2.50) + (1,700 × $2.50)] - [(1,500 × $3.00) + (2,000 × $2.00)] = $250 favourable
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

22) What is the STP total flexible-budget variance for revenues?
A) $50 favourable
B) $50 unfavourable
C) $900 favourable
D) $800 favourable
E) $250 unfavourable
Answer: B
Explanation: B) [(1,800 × $2.50) + (1,700 × $2.50)] - [(1,800 × $3.00) + (1,700 × $2.00)] = $50 unfavourable
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

23) What is the STP total sales-volume variance (contribution margin) for May?
A) $300 favourable
B) $300 unfavourable
C) $150 favourable
D) $150 unfavourable
E) $750 unfavourable
Answer: C
Explanation: C) Strong = (1,700 - 2,000) × $1.00   = $300 U
Mild = (1,800 - 1,500) × $1.50   = $450 F
Total   = $150 F
Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

24) What is the STP total sales-quantity variance for revenues?
A) $0
B) $150.00 unfavourable
C) $150.00 favourable
D) $300.00 unfavourable
E) $450.00 favourable
Answer: A
Explanation: A) Strong (3,500 - 3,500) × 2,000/3,500 × $2 $0
Mild (3,500 - 3,500) × 1,500/3,500 × $3   0
                                                           $0

Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

25) What is the STP total sales-mix variance for contribution margin?
A) $0
B) $150 unfavourable
C) $150 favourable
D) $300 favourable
E) $450 favourable
Answer: C
Explanation: C) Strong (3,500 × (1,700/3,500 - 2,000/3,500)) × $1.00 $300 U
Mild (3,500 × (1,800/3,500 - 1,500/3,500)) × $1.50 $450 F
                                                                          $150 F

Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

26) If the market-size variance is $650 F, the sales-mix variance is $500 F, the flexible budget variance is $9,250 F, and the static budget variance is $8,000 U, which of the following is TRUE?
A) The market-share variance is $18,400 U.
B) The sales-volume variance is $17,250 F.
C) The sales-quantity variance is $18,400 U.
D) The sales-volume variance is $17,750 U.
E) The market-share variance is $17,250 U.
Answer: A
Explanation: A) Sales Volume Var = $9,250 F + $8,000 U = $17,250 U
Sales Quantity Var. = $17,250 U + $500 F = $17,750 U
Market Share Var. = $17,750 U + $650 F = $18,400 U
Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

27) Fresh Bread Company sells a special mix of wheat bread. If the expected output equals the actual output, the sales-volume variance
A) will be negative.
B) will be positive.
C) will be favourable.
D) will be unfavourable.
E) will be zero.
Answer: E
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-3

28) The difference between (the budgeted contribution margin for the budgeted sales mix and budgeted volume) and (the budgeted contribution margin for the budgeted sales mix and the actual volume) is the
A) sales-mix variance.
B) sales-quantity variance.
C) sales-volume variance.
D) market-size variance.
E) market-share variance.
Answer: B
Diff: 2   Type: MC
Skill: Remember
Objective: LO 16-3

29) The sales-volume variance for revenue is the
A) (actual sales quantity in units divided by budgeted individual product selling price per unit) times (budgeted sales quantity in units).
B) (budgeted contribution margin per unit) times (actual unit sales plus static budget unit sales).
C) (actual sales quantity in units plus budgeted sales quantity in units) divided by (budgeted individual product selling price per unit).
D) (budgeted sales quantity in units divided by budgeted individual selling price per unit) times (actual sales quantity in units).
E) (budgeted individual product selling price per unit) times (actual sales quantity in units less budgeted sales quantity in units).
Answer: E
Diff: 2   Type: MC
Skill: Remember
Objective: LO 16-3

30) A company sells two products: radios and speakers. The expected sales for radios were 1,500 units; 2,000 were sold. The budgeted selling price for radios was $15.00; however, the actual selling price was $13.00. The expected sales for speakers were 4,600 units; 5,000 were sold. The budgeted selling price for speakers was $7.50; however, the actual selling price was $9.00. Budgeted and actual variable costs were $4.00 per unit for the radios and $2.00 per unit for the speakers. What is the contribution margin sales-volume variance for the period?
A) $2,200 unfavourable
B) $2,200 favourable
C) $4,500 favourable
D) $7,700 favourable
E) $7,700 unfavourable
Answer: D
Explanation: D) [(2,000 × $11) + (5,000 × $5.50)] - [(1,500 × $11) + (4,600 × $5.50)] = $7,700 F
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

31) The sales-quantity variance arises because
A) the mix of individual products actually sold differs from the budgeted mix.
B) the total quantity of units actually sold differs from the static budget.
C) the total quantity of units expected to be sold differs from the static budget.
D) the mix of budgeted products sold differs from the actual product mix.
E) the budgeted sales in units cannot be achieved unless the price is decreased
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-3

32) Which of the following actually calculates the sales-quantity variance?
A) (actual units of all products sold) times (actual sales mix percentage minus budgeted sales mix percentage) times (budgeted contribution margin per unit)
B) (actual sales quantity in units minus static-budget sales quantity in units) times (budgeted contribution margin per unit)
C) (actual units of all products sold minus budgeted units of all products sold) times (budgeted sales-mix percentage) times (budgeted contribution margin per unit)
D) (actual units of all products sold minus budgeted units of all products sold) times (budgeted sales-mix percentage) times (actual contribution margin per unit)
E) (actual units of all products sold) times (actual sales mix percentage minus budgeted sales mix percentage) times (actual contribution margin per unit)
Answer: C
Diff: 2   Type: MC
Skill: Remember
Objective: LO 16-3

33) Metal Cabinet Company manufactures two and four drawer filing cabinets. The actual units sold (5,000) equalled the expected units to be sold for both products. The four drawer cabinets constitute 66 percent of the budgeted sales mix. The budgeted selling price is $30 for four drawer cabinets and $15 for two drawer cabinets. What is the sales-quantity variance?
A) $0
B) $25,500
C) $49,500
D) $99,000
E) $101,500
Answer: A
Explanation: A) zero as actual units sold equals budgeted units sold
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

Use the information below to answer the following question(s).

Teddy Bear Company sold a total of 30,000 stuffed tigers and lions. During August the following information was gathered:

	Tigers	Lions
Actual selling price	$7.50	$10.50
Budgeted selling price	$5.50	$10.50
Actual sales mix	69%	31%
Budgeted sales mix	75%	25%
Actual variable costs	$5.00	$6.50
Budgeted variable costs	$4.75	$7.25
Budgeted unit sales	30,000	10,000

34) What is the Teddy Bear Company total sales-mix variance?
A) $21,600 favourable
B) $13,750 favourable
C) $13,750 unfavourable
D) $4,500 unfavourable
E) $4,500 favourable
Answer: E
Explanation: E) BCM for Tigers = $5.50 - $4.75 = $0.75
BCM for Lions = $10.50 - $7.25 = $3.25
Tigers [(30,000 × (.69 - .75)) × $0.75 = $1,350 U
Lions [(30,000 × (.31 - .25)) × $3.25 =   5,850 F
                                              $4,500 F

Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

35) What is the Teddy Bear Company total sales-quantity variance?
A) $21,600 favourable
B) $13,750 favourable
C) $13,750 unfavourable
D) $4,500 favourable
E) $4,500 unfavourable
Answer: C
Explanation: C) [(30,000 × 75% × $0.75) + (30,000 × 25% × $3.25)] - [(40,000 × 75% × $0.75) + (40,000 × 25% × $3.25)] = $13,750 U
Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

36) What is the Teddy Bear Company total sales-volume variance?
A) $9,250 favourable
B) $9,250 unfavourable
C) $26,100 favourable
D) $7,850 unfavourable
E) $7,850 favourable
Answer: B
Explanation: B) [(20,700 × $0.75) + (9,300 × $3.25)] - [(30,000 × $0.75) + (10,000 × $3.25)] = $9,250 U
Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

37) When the actual mix of products sold shifts in favour of the high-contribution-margin product
A) the total sales-mix variance is unfavourable.
B) the total sales-mix variance is favourable.
C) the total sales-volume variance is unfavourable.
D) the total sales-volume variance is favourable.
E) the total sales volume is more favourable (or less unfavourable).
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-3

38) A company sells three different types of satellite dishes in Ontario, but sells only (type 1) in Alberta. Available data are that the budgeted sales mix percentage in Ontario is .35 (type 1), and .25 (type 2). The contribution margins per unit are $200 (1), $120 (2), and $140(3).

Required:
Calculate the budgeted contribution margin per composite unit for the budgeted mix for Ontario and Alberta respectively.
A) $156 and $70
B) They are the same in both provinces.
C) $156 and $114
D) $156 and $200
E) $114 and $70
Answer: D
Explanation: D) For Ontario [35% * $200] + [25% * $120] + [40% * $140] = $70 + $30 + $56 = $156; $200 × 1.00 = $200 for Alberta
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

39) The (the difference between the actual market size in units and the budgeted market size in units) times (the budgeted market share) times (budgeted contribution margin per composite unit for the budgeted mix) is called the
A) budgeted market-size variance.
B) budgeted market-share variance.
C) market-share variance.
D) market-size variance.
E) sales quantity variance.
Answer: D
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-3

Use the information below to answer the following question(s).

Remote Company manufactures remote control devices for electronic equipment. The following information was collected during June:

Actual market size (units)	20,000
Budgeted market size (units)	22,500
Actual market share	34%
Budgeted market share	32%
Budgeted selling price	$12.00
Actual selling price	$10.50
Budgeted cont. margin per unit	$4.00
Actual cont. margin per unit	$3.00

40) What is the company's market-share variance?
A) $1,600 unfavourable
B) $1,600 favourable
C) $2,560 favourable
D) $1,200 unfavourable
E) $1,200 favourable
Answer: B
Explanation: B) 20,000 × (.34 - .32) × $4.00 = $1,600 F
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

41) What is the company's market-size variance?
A) $4,800 favourable
B) $3,200 favourable
C) $2,400 favourable
D) $2,400 unfavourable
E) $3,200 unfavourable
Answer: E
Explanation: E) (20,000 - 22,500) × .32 × $4.00 = $3,200 U
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

Answer the following question(s) using the information below:

Zorro Company manufactures remote control devices for garage doors. The following information was collected during June:

Actual market size (units)	10,000
Actual market share	32%
Actual average selling price	$10.00
Budgeted market size (units)	11,000
Budgeted market share	30%
Budgeted average selling price	$11.00
Budgeted contribution margin per composite unit for budgeted mix	$5.00

42) What is the Zorro Company market-size variance?
A) $500 U
B) $1,500 U
C) $1,600 F
D) $1,000 F
E) $1,500 F
Answer: B
Explanation: B) (10,000 - 11,000) × 0.30 × $5 = $1,500 U
Diff: 2   Type: MC
Skill: Analyze
Objective: LO 16-3

43) What is the Zorro Company market-share variance?
A) $1,000 F
B) $1,100 F
C) $500 U
D) $1,500 U
E) $1,000 U
Answer: A
Explanation: A) 10,000 × (0.32 - 0.30) × $5 = $1,000 F
Diff: 2   Type: MC
Skill: Analyze
Objective: LO 16-3

44) What is the Zorro Company sales-quantity variance?
A) $1,500 U
B) $1,000 F
C) $500 U
D) $2,500 U
E) $500 F
Answer: C
Explanation: C) (10,000 - 11,000) × 0.30 × $5 = $1,500 U
10,000 × (0.32 - 0.30) × $5 = $1,000 F
$1,500 U + $1,000 F = $500 U
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

45) If the market-size variance is $400 U and the sales-mix variance is $700 F, and the market share variance is $300 F, we know that which of the following is TRUE?
A) The sales-quantity variance is $100 F.
B) The market-share variance is $300 F.
C) The sales-quantity variance is $100 U, and the sales volume variance is $600 F.
D) The sales-volume variance is $600 U.
E) The sales-volume variance is $600 F, and the sales-quantity variance is $100 F.
Answer: C
Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

Answer the following questions using the information below:

The XTRA Appliance Manufacturing Corporation manufactures two vacuum cleaners, the Standard and the Super. The following information was gathered about the two products:

	Standard	Super
Budgeted sales in units	3,200	800
Budgeted selling price	$600	$1,700
Budgeted contribution margin per unit	$420	$1,100
Actual sales in units	3,500	1,500
Actual selling price	$650	$1,680
Actual contribution margin per unit	$450	$990

46) What is the budgeted sales-mix percentage for the Standard and the Super vacuum cleaners, respectively?
A) 0.80 and 0.20
B) 0.70 and 0.30
C) 0.20 and 0.80
D) 0.30 and 0.70
Answer: A
Explanation: A) 3,200/(3,200 + 800) = 0.80 and 800/(3,200 + 800) = 0.20
Diff: 1   Type: MC
Skill: Apply
Objective: LO 16-3

47) What is the total sales-volume variance in terms of the contribution margin?
A) $216,000 unfavorable
B) $216,000 favorable
C) $556,000 favorable
D) $896,000 favorable
Answer: D
Explanation: D) Standard = (3,500 - 3,200) × $420 = $ 126,000 F
Super   = (1,500 - 800) × $1,100   =   770,000 F
                                                                      $896,000 F

Diff: 2   Type: MC
Skill: Apply
Objective: LO 16-3

48) What is the total sales-quantity variance in terms of the contribution margin?
A) $220,000 favorable
B) $340,000 favorable
C) $556,000 favorable
D) $896,000 favorable
Answer: C
Explanation: C) Standard = (5,000 - 4,000) × .8 × $420 = $336,000 F
Super   = (5,000 - 4,000) × .2 × $1,100 =   <u>220,000 F</u>
                                     $556,000 F

Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

49) What is the total sales-mix variance in terms of the contribution margin?
A) $220,000 favorable
B) $340,000 favorable
C) $556,000 favorable
D) $896,000 favorable
Answer: B
Explanation: B) Standard = 5,000 × (.7 - .8) × $420 = $210,000 U
Super   = 5,000 × (.3 - .2) × $1,100 =   <u>$550,000 F</u>
                                     $340,000 F

Diff: 3   Type: MC
Skill: Apply
Objective: LO 16-3

50) Big Products sells only one product. Last year it sold 22,000 items when the budget was 16,000 items. The increased sales were due in part to reduced selling prices averaging $52. The budgeted selling price was $60. Total variable costs were budgeted at $144,000.

Required:
Compute the contribution margin sales-volume variance. Why doesn't the contribution sales volume variance equal the difference between budgeted and actual revenue?
Answer: Budgeted Variable costs per unit = $144,000/16,000 = $9, BCM = $60 - $9 = $51
Sales-volume variance
(22,000 - 16,000) × $51 = $306,000 favourable

The sales-volume variance is based on the budget contribution margin per unit, and does not consider any change in price.
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-3

51) Columbia Coffee Inc. sells two types of coffee, Regular and Decaf. The monthly budget for Canadian coffee sales is based on a combination of last year's performance, a forecast of industry sales, and the company's expected share of the Canadian market. The following information is provided for March:

	Budgeted		Actual	
	Regular	Decaf	Regular	Decaf
Price per kilogram	$50	$60	$52	$60
Variable cost per kilogram	24	26	24	28
Contribution margin	$26	$34	$28	$32
Sales (in kg)	4,000	4,500	3,700	4,800

Budgeted fixed costs are $58,000. Actual fixed costs are $62,000.

Required:
Calculate the static-budget, flexible-budget and sales-volume variances for the contribution margin, for the company for March.
Answer: Static-budget variance:
Regular = ($28 × 3,700) - ($26 × 4,000) = 103,600 - 104,000 = $400 U
Decaf = ($32 × 4,800) - ($34 × 4,500) = 153,600 - 153,000 = $600 F
Total $200 F

Flexible-budget variance:
Regular = ($28 -$26) × 3,700 = $7,400 F
Decaf = ($32 -$34) × 4,800 = $9,600 U
Total $2,200 U

Sales-volume variance:
Regular = (3,700 - 4,000) × $26 = $7,800 U
Decaf = (4,800 - 4,500) × $34 =   10,200 F
Total $2,400 F
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-3

52) A sporting goods division sells two types of juvenile skates; Atom and Mite. The following data are from the division's August results. Actual sales were 1,600 items, and the budget was 2,200 items.

	Actual Sales Price	Budget Sales Price	Actual Sales Mix	Budget Sales Mix
Atom	$115	$120	65%	60%
Mite	99	106	35%	40%

Variable costs per unit (pair) were budgeted at $56 for the Atom skates, and $119,350 in total.

Required:
Compute the sale-mix variance by type of skate, and in total.
Answer: Budget sales units for Atom = 2,200 × 60% = 1,320 units
Budget sales units for Mite = 2,200 × 40% = 880 units

Budget Variable costs for Mites = $119,350 - ($56 × 1,320) = $45,430

Budget C.M. per unit Atom = $120 - $56 = $64.00
Budget C.M. per unit Mite = $106 - ($45,430/880) = $54.375

Sales-mix variance
Atom = 1,600 × (.65 - .60) × $64.00 = $5,120.00 F
Mite = 1,600 × (.35 - .40) × $54.375 = $4,350.00U
Total $770.00 F
Diff: 3   Type: ES
Skill: Analyze
Objective: LO 16-3

53) The Chair Company manufactures two modular types of chairs; one for the residential market, and the other for the office market. Budgeted and actual operating data for the past year are:

	Static Budget		Actual Results	
	Home	Office	Home	Office
Number of chairs sold	260,000	140,000	248,400	165,600
Contribution margin	$26,000,000	$11,200,000	$22,356,000	$13,248,000

The industry volume for residential and office chairs of the type sold by the Chair company had been estimated at 2,400,000. Actual industry volume for the year was 2,200,000 chairs.

Required:
a. Compute the sale-mix variance and the sales- quantity variance by type of chair, and in total.
b. Compute the market-share variance and market-size variances. (Calculate actual and budgeted market share percentages to two decimal places.)

Answer: <u>Actual sales-mix percentage</u>:
Total volume of chairs sold = 248,400 + 165,600 = 414,000
    Residential = 248,400/414,000 = 60%
    Office = 165,400/ 414,000 = 40%

<u>Budgeted sales-mix percentage</u>:
    Residential = 260,000/400,000 = 65%
    Office = 140,000/400,000 = 35%

BCM -Home	=	$26,000,000/260,000 = $100
BCM-Office	=	$11,200,000/140,000 = $80
BCM-Comp	=	$37,200,000/400,000 = $93

AQAll * AMix* BCM	Sales Mix Variance	AQAll * BMix * BCM	Sales Quantity Variance	BQAll * BMIX * BCM
414,000 * 60% * 100		414,000 * 65% * 100		400,000 * 65% * 100
$24,840,000		**$26,910,000**		**$26,000,000**
	$2,070,000		**$910,000**	
	U		**F**	
414,000 * 40% * 80		414,000 * 35% * 80		400,000 * 35% * 80
$13,248,000		**$11,592,000**		**$11,200,000**
	$1,656,000		**$392,000**	
	F		**F**	
	$414,000			
	U		**$1,302,000F**	

    Actual market share= 414,000/ 2,200,000 = 18.82%
    Budgeted market share= 400,000/2,400,000 = 16.67%

Aqall * Ashare * BCM		Aqall * BShare * BCM		BQAll * BShare * BCM
2,200,000*18.81 %*93		2,200,000*16.67 %*93		2,400,000 * 16.67% * 93
414,000 * $93				400,000 * $93
$38,502,000		**$34,106,820**		**$37,200,000**
	$4,395,180		**$3,093,180**	
	F		**U**	
	Mkt Share		**Mkt Size**	

Diff: 2   Type: ES
Skill: Analyze
Objective: LO 16-3

54) Better Printing sells hardcover and softcover books. For January the following information is available:

	Hardcover	Softcover
Actual market size	200,000	400,000
Budgeted market size	250,000	300,000
Actual market share	38%	36%
Budgeted market share	36%	32%
Budgeted cont. margin	$2.40	$1.00
Actual average selling price	$14.00	$6.50

Required:
a.   Compute the market-share variance and market-size variance. (Round intermediate calculations to four decimal places)
b.   Compute the total sales-quantity variance .

Answer: Actual market share $= \dfrac{(200,000 \times .38) + (400,000 \times .36)}{(200,000 + 400,000)}$

$= 0.3667$

Budgeted market share $= \dfrac{(250,000 \times .36 = 90,000) + (300,000 \times .32 = 96,000)}{(250,000 + 300,000)}$

$= 0.3382$

CM per composite unit $= \dfrac{(90,000 \times \$2.40) + (96,000 \times \$1.00)}{(90,000 + 96,000)}$

$= \$312,000/186,000 = \$1.6774$

Market-share variance:
600,000 × (0.3667 - 0.3382) × $1.6774 = $28,684 F
Market-size variance:
(600,000 - 550,000) × 0.3382 × $1.6774= $28,364 F
Sales-quantity variance = $28,684 + $28,364 = $57,048 F
Diff: 3   Type: ES
Skill: Analyze
Objective: LO 16-3

55) Bob's Appliances manufactures industrial dryers and washers. During February the following data are available:

	Dryers	Washers
Actual units sold	10,000	40,000
Budgeted sales	8,820	33,180
Actual selling price	$700	$900
Budgeted selling price	$710	$930
Budgeted market share	25%	24%
Actual market share	20%	25%
Budget cont. margin /unit	$275	$375

Required:
Determine the following:
a.   Sales-mix and sales-quantity variances
b.   Market-share and market-size variances (for calculation purposes round combined actual and budgeted market share percentages to six decimal places.)
Answer:
1.   Sales-mix and sales-quantity variances:
     Actual sales mix: Dryers = 10,000/(10,000 + 40,000) = 20%; Washers = 80%.
     Budgeted sales mix: Dryers = 8,820/(8,820 + 33,180) = 21%; Washers = 79%

     Sales-mix variance:
     Dryers = 50,000 × (0.20 - 0.21) × $275 = $137,500 U
     Washers = 50,000 × (0.80 - 0.79) × $375 =   187,500 F
     Total $50,000 F

     Sales-quantity variance:
     Dryers = (50,000 - 42,000) × 0.21 × $275 = $462,000 F
     Washers = (50,000 - 42,000) × 0.79 × $375 =   2,370,000 F
     Total $2,832,000 F

2.   Market-share and market-size variances:
     Actual market size: Dryers (10,000/0.20) + Washers (40,000/0.25) = 210,000
     Budget market size: Dryers (8,820/0.25) + Washers (33,180/0.24) = 173,530

     Actual combined market share: (10,000 + 40,000)/210,000 = 0.238095
     Budgeted combined market share: (8,820 + 33,180)/173,530 = 0.242033

     Budgeted CM per composite unit: ((8,820 × $275) + (33,180 × $375))/42,000 = $354

     Market-share variance: 210,000 × (0.238095 - 0.242033) × $354 = $292,751 U
     Market-size variance: (210,000 - 173,530) × 0.242033 × $354 =   3,124,738 F
                                                                       $2,831,987 F
Rounding error = $2,832,000 - $2,831,987 = $13
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-3

56) The Omega Corporation manufactures two types of vacuum cleaners: the ZENITH for commercial building use and the House-Helper for residences. Budgeted and actual operating data for the year are as follows:

Static Budget	ZENITH	House-Helper	Total
Number sold	15,000	60,000	75,000
Contribution margin	$3,750,000	$12,000,000	$15,750,000

Actual Results	ZENITH	House-Helper	Total
Number sold	16,500	38,500	55,000
Contribution margin	$6,200,000	$10,200,000	$16,400,000

Required:
a. Calculate the contribution margin for the flexible budget.
b. Determine the total static-budget variance, the total flexible-budget variance, and the total sales-volume variance in terms of the contribution margin.
Answer: *Budgeted contribution margin per unit*:
ZENITH = $3,750,000/15,000 = $250   House-Helper = $12,000,000/60,000 = $200

a. Flexible-budget contribution margin: 16,500 × $250 = $4,125,000
   38,500 × $200 =   7,700,000
                                                     $11,825,000

b. Static-budget variance is $650,000 favorable = $15,750,000 - $16,400,000
   Flexible-budget variance is $4,575,000 favorable = $11,825,000 - $16,400,000
   Sales-volume variance is $3,925,000 unfavorable = $15,750,000 - $11,825,000
Diff: 2   Type: ES
Skill: Analyze
Objective: LO 16-3

57) The Omega Corporation manufactures two types of vacuum cleaners: the ZENITH for commercial building use and the House-Helper for residences. Budgeted and actual operating data for the year are as follows:

Static Budget	ZENITH	House-Helper	Total
Number sold	15,000	60,000	75,000
Contribution margin	$3,750,000	$12,000,000	$15,750,000

Actual Results	ZENITH	House-Helper	Total
Number sold	16,500	38,500	55,000
Contribution margin	$6,200,000	$10,200,000	$16,400,000

Required:
Compute the sales-mix variance and the sales-quantity variance by type of vacuum cleaner, and in total. (in terms of the contribution margin)
Answer: *Budgeted sales-mix percentage*:
ZENITH = 15,000/75,000 = 20%   House-Helper = 60,000/75,000 = 80%

Actual sales-mix percentage:
ZENITH = 16,500/55,000 = 30%   House-Helper = 38,500/55,000 = 70%

Budgeted contribution margin per unit:
ZENITH = $3,750,000/15,000 = $250   House-Helper = $12,000,000/60,000 = $200

Sales-mix variance	Actual units of all products sold	Actual sales-mix % - Budgeted sales-mix %	Budgeted CM per unit	Sales-mix variance
ZENITH	55,000 ×	(0.3 - 0.2) ×	$250	= $1,375,000 F
House-Helper	55,000 ×	(0.7 - 0.8) ×	$200	= $1,100,000 U
Total				$275,000 F

Sales-quantity variance	Actual units of all products sold - Budgeted units of all products sold	Budgeted sales-mix %	Budgeted CM per unit	Sales-quantity variance
ZENITH	(55,000 - 75,000) ×	0.2 ×	$250	= $1,000,000 U
House-Helper	(55,000 - 75,000) ×	0.8 ×	$200	= $3,200,000 U
Total				$4,200,000 U

Diff: 3   Type: ES
Skill: Analyze
Objective: LO 16-3

58) The Omega Corporation manufactures two types of vacuum cleaners, the ZENITH for commercial building use and the House-Helper for residences. Budgeted and actual operating data for the year are as follows:

Static Budget	ZENITH	House-Helper	Total
Number sold	15,000	60,000	75,000
Contribution margin	$3,750,000	$12,000,000	$15,750,000

Actual Results	ZENITH	House-Helper	Total
Number sold	16,500	38,500	55,000
Contribution margin	$6,200,000	$10,200,000	$16,400,000

Prior to the beginning of the year, a consulting firm estimated the total volume for vacuum cleaners of the Zenith and House-Helper category to be 300,000 units, but actual industry volume was only 275,000 units.

Required:
Compute the market-share variance and market-size variance in terms of the contribution margin.
Answer: *Actual market share*:   = 55,000/275,000   =   0.20

Budgeted market share: =   75,000/300,000   = 0.25

Budgeted contribution margin per composite unit of budgeted mix:
    ZENITH = $250 × 0.2 = $50
    House-Helper = $200 × 0.8 =   160
    OR $15,750,000/75,000 = $210

Market-share variance	Actual market size in units	Actual market share - Budgeted market share	Budgeted CM per composite unit for budgeted mix	Market-share variance
Omega Corp	275,000 ×	(0.2 - 0.25) ×	$210	= $2,887,500 U

Market-size variance	Actual market size in units - Budgeted market size in units	Budgeted market share	Budgeted CM per composite unit for budgeted mix	Market-size variance
Omega Corp	(275,000 - 300,000) ×	0.25 ×	$210	= $1,312,500 U

Diff: 3   Type: ES
Skill: Analyze
Objective: LO 16-3

59) Richard's Electronics manufactures TVs and DVDRs. During April, the following activities occurred:

	TVs	DVDRs
Budgeted units sold	17,640	66,360
Budgeted contribution margin per unit	$45	$78
Actual units sold	20,000	80,000
Actual contribution margin per unit	$50	$79

Required:
Compute the following variances in terms of the contribution margin.
a. Determine the total sales-mix variance.
b. Determine the total sales-quantity variance.
c. Determine the total sales-volume variance.
Answer:
a. TVs [(100,000 × 0.20) × $45]   = $900,000
   [(100,000 × 0.21) × $45]   =   945,000
   $ 45,000 unfavorable

   DVDRs [(100,000 × 0.80) × $78]   = $6,240,000
   (100,000 × 0.79) × $78]   =   6,162,000
   $ 78,000 favorable

Total sales-mix variance = $45,000 unfavorable + $78,000 favorable = $33,000 favorable.

b. TVs {[(100,000 - 84,000) × 0.21] × $45]   = $151,200 favorable
   DVDRs {[(100,000 - 84,000) × 0.79] × $78]   =   985,920 favorable
   Total sales-quantity variance $1,137,120 favorable

c. Total sales-volume variance = $33,000 favorable + $1,137,120 favorable = $1,170,120 favorable
Diff: 3   Type: ES
Skill: Apply
Objective: LO 16-3

60) Aromatic Coffee Inc.. sells two types of coffee, Colombian and Blue Mountain. The monthly budget for U.S. coffee sales is based on a combination of last year's performance, a forecast of industry sales, and the company's expected share of the U.S. market. The following information is provided for March:

	Actual		**Budget**	
	Colombian	Blue Mountain	Colombian	Blue Mountain
Sales in pounds	14,000 lbs.	16,000 lbs.	12,800 lbs.	17,200 lbs
Price per pound	$12.50	$15.00	$12.50	$15.00
Variable cost per pound	5.50	7.00	6.00	6.50
Contribution margin	$7.00	$8.00	$6.50	$8.50

Budgeted and actual fixed corporate-sustaining costs are $60,000 and $72,000, respectively.

Required:
a. Calculate the actual total contribution margin for the month.
b. Calculate the total contribution margin for the static budget.
c. Calculate the total contribution margin for the flexible budget.
d. Determine the total static-budget variance, the total flexible-budget variance, and the total sales-volume variance in terms of the contribution margin.
Answer:
a. Actual contribution margin: 14,000 × $7 = $ 98,000
       16,000 × $8 =   128,000
                                                                          $226,000

b. Static-budget contribution margin: 12,800 × $6.50 = $ 83,200
       17,200 × $8.50 =   146,200
                                                                          $229,400

c. Flexible-budget contribution margin: 14,000 × $6.50 = $ 91,000
       16,000 × $8.50 =   136,000
                                                                          $227,000

d. Static-budget variance is $3,400 unfavorable = $229,400 - $226,000
       Flexible-budget variance is $1,000 unfavorable = $227,000 - $226,000
       Sales-volume variance is $2,400 unfavorable = $229,400 - $227,000
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-3

61) The measures used to compute market size and share are debated intensely in the television industry, but generally, a TV station's ability to charge premium prices for airtime increases as its audience size increases. Explain how the sales and market variances might be relevant in this situation.

Answer: <u>Sales-mix</u>

This would be applicable where the TV station marketed multiple products. In this case, there is only one product mentioned, however, airtime at different times of the day,. Or different days of the week may be considered to be a different product.

<u>Sales-quantity</u>

This variance is applicable even for a single product. It will reflect the variance due to a change in the number of units (ie minutes of airtime) sold.

<u>Market-size</u>

This variance deals with the change in the size of the market itself. If the market increases, and the sales quantity decreases, this would be a concern.

<u>Market Share</u>

This variance will tell the station the variance due to changes in market share, against what it expected to achieve. This variance would be relevant in the station evaluating itself against its competitors in terms of marketing.

Diff: 3   Type: ES
Skill: Understand
Objective: LO 16-3

62) Various Product Company is a manufacturer of numerous products which are similar and are processed on the same assembly line. The production manager has decided that she will require all product managers and assembly line managers to be responsible for their own operations. The accounting information system is a large complex system that can provide specialized reporting when needed. It also has room for new, permanent applications.

Required:
Discuss how the production manager can expand the reporting responsibilities of these managers.
Answer: The reporting system can be expanded by providing a variety of variance reports. The product managers may receive sales-volume variances, total sales-quantity variances, sales-mix variances, market-size and market-share variances. The assembly line managers may receive individual variances for the assembly lines they control. These can include direct materials price and efficiency variances, and direct materials yield and mix variances

Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-3

63) Comment on why marketing managers generally find the market-share variance is more controllable than the market- size variance.
Answer: Marketing managers generally find the market-share variance is more controllable than the market-size variance because pricing and sale promotion decisions are more likely to affect market share than total market size. If market size and the demand for an industry's products are largely influenced by factors such as economic conditions, the market size variance is less controllable by marketing managers.
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-3

16.4   Generate a customer profitability profile.

1) Customer-profitability analysis examines how individual customers, or groupings of customers, differ in their profitability.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-4

2) Customer-specific costs are costs that are traceable or allocated to individual customers.
Answer: TRUE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-4

3) Customer retention likelihood is a qualitative customer value assessment.
Answer: FALSE
Explanation: Customer retention likelihood is a quantifiable assessment as it is a probability measure.
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-4

4) Managers find customer-profitability analysis useful because it frequently highlights how vital a small set of customers is to total profitability.
Answer: TRUE
Diff: 2   Type: TF
Skill: Understand
Objective: LO 16-4

5) Revenue shedding refers to the strategy of providing price discounts on a long-term basis to specific customers.
Answer: FALSE
Diff: 1   Type: TF
Skill: Remember
Objective: LO 16-4

6) _____ examine(s) how customers differ in their profitability.
A) Customer-profitability analysis
B) Customer revenue analysis
C) Customer-cost hierarchy
D) Price discounting
E) Customer-price hierarchy
Answer: A
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-4

7) Customer specific costs are costs that
A) are traceable to or allocated to individual customers.
B) are not traceable to individual customers.
C) are the same as customer support costs.
D) would not include cost of goods sold.
E) would not include selling-related costs.
Answer: A
Diff: 1   Type: MC
Skill: Remember
Objective: LO 16-4

8) Which of the following statements is TRUE?
A) Managers often find the bar chart presentation to be the most accurate way to analyze customer profitability.
B) Managers find customer-profitability analysis useful because it frequently highlights how vital a small set of customers is to total profitability.
C) Managers find customer-profitability analysis useful because when a customer is ranked in the loss category, they can focus their resources on this type of customer.
D) The 80/20 rule means that 80% of the customers provide 80% of the profit and 20% of the customers provide the remainder.
E) Managers can ensure that low profitability customers receive high priority.
Answer: B
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-4

9) Which of the following is NOT a factor that managers should consider in deciding how to allocate resources across customers?
A) short-run and long-run customer profitability
B) customer retention likelihood
C) economic forecasts
D) customer growth potential
E) increases in overall demand from having well-known customers
Answer: C
Diff: 2   Type: MC
Skill: Understand
Objective: LO 16-4

10) The data for a paint manufacturing company for February are as follows:

	Litres Sold	List Price	Customer-specific Costs
Customer 1	50,000	$9.00	$20,000
Customer 2	55,000	$9.00	$20,000
Customer 3	20,000	$9.00	$9,000
Customer 4	15,000	$9.00	$4,000
Customer 5	40,000	$9.00	$19,000

Price discount policy:
$0.25 discount per gallon in excess of 20,000 gallons (up to 40,000)
$0.35 discount per gallon in excess of 40,000 gallons

Required:
Prepare a report showing the customer-specific contribution. Present one column for customer-specific contribution and a second column showing customer-specific contribution as a percentage of customer revenue net of discounts (round percentages to two decimal places).
Answer:

	Customer-specific Contrb'n	As % of Revenue
Customer 1	$421,500	95.47%
Customer 2	$464,750	95.87%
Customer 3	$171,000	95.00%
Customer 4	$131,000	97.04%
Customer 5	$336,000	94.65%

Customer 1 (20 × $9) + (20 × $8.75) + (10 × $8.65) - $20,000
Customer 2 (20 × $9) + (20 × $8.75) + (15 × $8.65) - $20,000
Customer 3 (20 × $9) - $9,000
Customer 4 (15 × $9) - $4,000
Customer 1 (20 × $9) + (20 × $8.75) - $19,000
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-4

11) Harry's Electronics manufactures electronic parts. Data for two of the company's customers is as follows:

	Customer 1	Customer 2
Revenues at list price	$220,000	$220,000
Units sold	40,000	50,000
Unit list price	$5.50	$4.40
Cost of goods per unit	$2.90	$2.90
Sales discounts	20,000	30,000
Customer-specific costs		
Order-taking	$1,800	$2,250
Product-handling	$14,000	$17,500
Delivery	$4,200	$5,250

Required:
Prepare a comparative income statement in gross margin format with one column for each customer. Present customer-specific costs as period expenses.

Answer:	Customer 1	Customer 2
Revenues at list price	$220,000	$220,000
Discounts	20,000	30,000
Net revenues	$200,000	$190,000
Cost of goods	116,000	145,000
Gross margin	$84,000	$45,000
Customer-specific costs		
Order-taking	$1,800	$2,250
Product-handling	$14,000	$17,500
Delivery	$4,200	$5,250
Customer-specific contribution	$64,000	$20,000

Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-2, 4

12) Jung Manufacturing Ltd. manufactures small engine parts. Data for two of the company's customers is as follows:

	Customer 1	Customer 2
Revenues at list price	$620,000	$94,000
Units sold	80,000	10,000
Unit list price	$7.75	$9.40
Cost of goods per unit	$4.90	$5.17
Sales discounts	93,000	4,700
Customer-specific costs		
Order-taking	$12,400	$470
Product-handling	$14,000	$1,500
Delivery	$9,200	$1,250

Required:
a.   Prepare a comparative income statement in gross margin format with one column for each customer; present customer-specific costs as period expenses.
b.   Which customer is relatively more profitable? Support your answer with comparative percentage analysis.

Answer:	Customer 1	Customer 2
Revenues at list price	$620,000	$94,000
Discounts	93,000	4,700
Net revenues	$527,000	$89,300
Cost of goods	392,000	51,700
Gross margin	$135,000	$37,600
Customer-specific costs		
Order-taking	$12,400	$470
Product-handling	$14,000	$1,500
Delivery	$9,200	$1,250
Customer-specific contribution	$99,400	$34,380

b.   On every line item Customer 1 costs are higher as a percentage of sales than Customer 2.
Diff: 2   Type: ES
Skill: Apply
Objective: LO 16-2, 4

13) Handy-Man Services is a repair-service company specializing in small household jobs. Each client pays a fixed monthly service fee based on the number of rooms in the house. Records are kept on the time and material costs used for each repair. The following profitability data apply to five customers:

	Customer Revenues	Customer Costs
Marveline Burnett	$300	$225
J Jackson	200	305
Roger Jones	80	75
Paul Saas	75	110
Becky Stephan	350	220

Required:
a. Compute the operating income for each of the five customers.
b. What options should Handy-Man Services consider in light of the customer-profitability results?
c. What problems might Handy-Man Services encounter in accurately estimating the operating costs of each customer?

Answer:

a.

	Customer Revenues	Customer Costs	Operating income
Marveline Burnett	$300	$225	$ 75
J Jackson	200	305	(105)
Roger Jones	80	75	5
Paul Saas	75	110	(35)
Becky Stephan	350	220	130

b. 1. Pay increased attention to the profitable customers Stephan and Burnett.

2. Seek ways of reducing costs and increasing revenues for the loss accounts of J Jackson and Paul Saas. Work with the customers so their behavior reduces overall costs. Reduce costs with better scheduling. Maybe a different fee schedule needs to be implemented depending on the age of the house, the distance to the home, if the repair is preventive or an emergency, etc. Determine whether the operating income pattern will probably continue or not and why.

3. As a last resort, the company may want to discontinue the Jackson account if the customer does not agree to a fee increase and the operating loss pattern is expected to continue.

c. Problems in accurately estimating operating costs of each customer include:

1. The basic underlying records may not be accurate.

2. Some repair personnel may be efficient and more experienced, others may be less experienced and slower, and still others may "chit-chat" more with the clients than others.

3. Costs that are allocated to more than one customer may be distorting operating income. For example, how is the cost of a trip for parts for three different customers allocated?

Diff: 2   Type: ES
Skill: Analyze
Objective: LO 16-4

14) Each division manager for a paint manufacturer is provided with a customer profitability analysis for the past year. The managers use the analysis to determine how best to allocate the company's resources within their division, and when a customer is a "loss customer," that customer is dropped.

Required:
Advise (briefly) the managers on their strategy of focusing only on profitability over the year, in terms of improving the bottom line of their respective divisions. Include at least three other factors that managers should consider in deciding how to assess customer value.
Answer:
 - short-run and long-run customer profitability
- customer retention likelihood
- customer growth potential
- increases in overall demand from having a well-known customers
- ability to learn from a customer
Diff: 2   Type: ES
Skill: Understand
Objective: LO 16-4

15) What actions might be taken with an unprofitable customer?
Answer: An unprofitable customer might be dropped as a customer, might be charged more for some of the resources of the company that it is using in excess of other customers, or he/she might be counseled on how to use less resources and be restored to profitability in the future.
Diff: 2   Type: ES
Skill: Analyze
Objective: LO 16-4

16) Customer profitability analysis is used by companies to identify the most valuable customers.

Required:
a. What are some of the metrics that can be used to assess customer profitability?
b. What are some of the challenges companies face in customer profitability analysis?
c. What are some of the ethical issues raised by customer profitability analysis?
Answer: This is intended to be an open-ended question.
a. Many metrics may be cited. Here are some examples.
   · Revenue per customer
   · Revenue per customer segment
   · Top 10 or Bottom 10 list of customers by profit
   · Lifetime value
   · Expenditures per customer
   · Customer profitability
   · # of after sales service calls
b. Customer profitability analysis (CPA) requires allocation of common services costs to customers. Improper allocation can lead to erroneous conclusions about a customer's profitability. ABC can assist here through identification of more accurate cost drivers. The time frame for measurement is a difficult variable to measure. The concept of lifetime value is considered in CPA, but the valuation and measurement is highly problematic. The opportunity costs of improper customer profitability assessment is extremely difficult to identify, let alone measure. Customers that are not profitable today may become highly profitable in the future.
c. Issues of data mining, customer privacy.
Issues of discrimination or unfair practices may damage reputation.
There may be incentives to manipulate data. For example sales people might encourage customers to order frequently if # of orders or volume measures are used. Yet such practices may be more costly for the company.
Diff: 3   Type: ES
Skill: Analyze
Objective: Cumulative

17) Why would a manager perform customer-profitability analysis?
Answer: Customer profitability analysis highlights how individual customers contribute to profitability. It helps managers determine whether customers who are contributing significantly to profits are receiving a comparable level of attention from the organization.
Diff: 1   Type: ES
Skill: Understand
Objective: LO 16-4

16.5   Analyze relevant profitability data and decide whether to drop or add customers or branches.

1) A policy of dropping any customer that is currently unprofitable will eliminate, in the short run, all of the costs assigned to it.
Answer: FALSE
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-5

2) Analyzing whether to add or drop a customer is an application of relevant costing analysis.
Answer: TRUE
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-5

3) Allocated corporate costs are irrelevant when analyzing whether to drop a customer.
Answer: TRUE
Diff: 2   Type: TF
Skill: Remember
Objective: LO 16-5

4) Bannock Safety Equipment Ltd. operates two stores, one in Edmonton and another in Thunderbay. The following income statements were prepared for the most recent year:

	Edmonton	Thunderbay
Net sales	$3,780,000	$960,000
Variable costs:		
Cost of goods sold	1,512,000	528,000
Sales commission	189,000	48,000
Utilities	17,200	15,300
Contribution margin	$2,061,800	$368,700
Fixed costs:		
Annual building lease	84,000	39,000
Salaries	380,000	180,000
Allocated corporate overhead	750,000	250,000
Amortization of store equipment & leasehold improvements	60,000	30,000
Operating income (loss)	$787,800	$(130,300)

The store equipment and leasehold improvements have no market value. The building leases can be cancelled without penalty.

Required:
a. Calculate the dollar value of sales required for each store to break-even assuming that all of the fixed costs are to be covered?
b. Should management close the Thunderbay store? Assume that corporate overhead would be reduced by $100,000 if the Thunderbay store is closed.
Answer:
a. Edmonton
   ($84,000 + $380,000 + $750,000 + $60,000)/($2,061,800/$3,780,000) = $2,335,687.26

   Thunderbay
   ($39,000 + $180,000 + $250,000 + $30,000)/($368,700/$960,000) = $1,299,267.70

b. The inescapable corporate overhead ($150,000) and amortization ($30,000) are both irrelevant.

   $368,700 - ($39,000 + $180,000 + $100,000) = $49,700; therefore do not close
Diff: 3   Type: ES
Skill: Analyze
Objective: LO 16-5, 3-3