MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) ________ is the excess of sales over the cost of goods sold.
   A) The sales mix  B) Gross margin  C) Contribution- margin ratio  D) Variable- cost ratio
   Answer: B
   Explanation:  
   A)  
   B)  
   C)  
   D)  

2) If the proportions in a sales mix change, the:
   A) break-even point will remain the same  
   B) net income will not be altered  
   C) cost-volume-profit relationship also changes  
   D) contribution margin per unit increases
   Answer: C
   Explanation:  
   A)  
   B)  
   C)  
   D)  

3) As the cost-driver activity level increases within the relevant range:
   A) fixed costs per unit increases  
   B) variable costs per unit increases  
   C) total fixed costs remain unchanged  
   D) total variable costs decrease
   Answer: C
   Explanation:  
   A)  
   B)  
   C)  
   D)  

4) When analyzing cost, think of:
   A) variable costs on a per-unit basis  
   B) variable costs as a total  
   C) variable costs as a total and fixed costs on a per-unit basis  
   D) fixed costs on a per-unit basis
   Answer: A
   Explanation:  
   A)  
   B)  
   C)  
   D)
5) Which of the following is not a cost driver of customer services costs?
   A) Hours spent servicing products are not a cost driver of customer services costs.
   B) Number of service calls is not a cost driver of customer services costs.
   C) Travel costs are not a cost driver of customer services costs.
   D) All of these answers are correct.

Answer: C

Explanation:
A) B) C) D)

6) Assume the following cost information for Zachary Company:

<table>
<thead>
<tr>
<th>Selling price per unit</th>
<th>$144</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable costs per unit</td>
<td>$80</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$80,000</td>
</tr>
<tr>
<td>Tax rate</td>
<td>40%</td>
</tr>
</tbody>
</table>

_____ must be sold to earn an after-tax net income of $40,800.

   A) 3,700 units     B) 1,594 units     C) 1,063 units     D) 2,313 units

Answer: D

Explanation:
A) B) C) D)

D) \( \frac{[$80,000 \div (40,800 \div 0.6)] \div (144 - 80)}{2,312.5 \text{ or } 2,313 \text{ units}} \)

7) If the sales price per unit is $180, variable cost per unit is $96, targeted net income is $52,800, and total fixed costs are $39,600, the number of units that must be sold is:

   A) 963     B) 513     C) 1,100     D) 629

Answer: C

Explanation:
A) B) C) \( \frac{[$52,800 \div (180 - 96)]}{1,100 \text{ units}} \)

D)

8) If the sales price per unit is $100, the total fixed costs are $75,000, and the break-even volume in dollar sales is $250,000, then the variable cost per unit is:

   A) $70     B) $30     C) $100     D) $75,000

Answer: A

Explanation:
A) \( \frac{[$75,000 \div (100 - X)]}{250,000} = \frac{[$75,000 \div 250,000]}{(100 - X) / 100} \)

B) \( .3 = \frac{(100 - X)}{100} \)

C) \( $30 = (100 - X) \)

D) \( $70 = X \)
9) ______ is the relative proportions or combinations of quantities of products that comprise total sales.
   A) Variable-cost ratio
   B) Contribution-margin ratio
   C) Gross margin
   D) Sales mix

Answer: D

Explanation:
   B)
   C)
   D)

10) Meredith Company wishes to earn after-tax net income of $18,000. Total fixed costs are $84,000, and the contribution margin per unit is $6.00. Meredith’s tax rate is 40%. The number of units that must be sold to breakeven is:
   A) 19,000 units
   B) 21,500 units
   C) 14,000 units
   D) 17,000 units

Answer: C

Explanation:
   A)
   B)
   C) $84,000 / $6.00 = 14,000 units
   D)

11) Muy Mal Company, a producer of salsa, has the following information:

   Income tax rate
   Selling price per unit
   Variable cost per unit
   Total fixed costs

   ______ must be sold to obtain a targeted after-tax income of $14,000.
   A) 45,000 units
   B) 55,000 units
   C) 52,000 units
   D) 60,000 units

Answer: B

Explanation:
   A)
   B) \([\$90,000 + (\$14,000 / 0.7)] / (\$5.00 - \$3.00) = 55,000 \text{ units}\)
   C)
   D)

12) If targeted sales volume in units is 62,300, total fixed costs are $31,200, and contribution margin per unit is $1.20, then the targeted net income is:
   A) $43,560
   B) $74,760
   C) $31,200
   D) $37,440

Answer: A

Explanation:
   A) \((\$31,200 + X) / \$1.20 = 62,300 \text{ and } X = \$43,560\)
   B)
   C)
   D)
13) If fixed expenses were the same and contribution margin per unit was cut in half, then the break-even point would:
   A) be the same  B) be undeterminable  
   C) double  D) be cut in half
   Answer: C
   Explanation: 

14) Which value chain function would include the cost of computer-aided design equipment and cost to develop the prototype of a product?
   A) The distribution function would include these costs.  
   B) The production function would include these costs.  
   C) The marketing function would include these costs.  
   D) The design of product, services, and processes function would include these costs.
   Answer: D
   Explanation: 

15) If the contribution-margin ratio is 0.30, targeted net income is $76,800, and targeted sales volume in dollars is $480,000, then total fixed costs are:
   A) $44,160  B) $144,000  C) $67,200  D) $23,000
   Answer: C
   Explanation:

16) Which of the following would be a good cost driver for salaries of product and supervisory salaries?
   A) Number of hours worked is a good cost driver for salaries of product and supervisory salaries.  
   B) Number of customers served is a good cost driver for salaries of product and supervisory salaries.  
   C) Number of department transactions is a good cost driver for salaries of product and supervisory salaries.  
   D) Number of people supervised is a good cost driver for salaries of product and supervisory salaries.
   Answer: D
   Explanation: 

17) An increase in total variable cost usually indicates:
   A) variable costs per unit is increasing
   B) the cost-driver activity level is increasing
   C) variable costs per unit is decreasing
   D) the cost-driver activity level is decreasing

   Answer: B
   Explanation: A) B) C) D)

18) _______ is not shown in the cost-volume-profit graph.
   A) Sales volume in units
   B) The break-even point
   C) The fixed cost per unit
   D) The profit or loss at any rate of activity

   Answer: C
   Explanation: A) B) C) D)

19) Squeeze Me Company produces Beanie Babies. Each doll sells for $20.00. Variable costs per unit total $14.00, of which $6.25 is for direct materials and $5.25 is for direct labor. If total fixed costs are $435,000, then the break-even point is:
   A) 72,500 dolls
   B) 51,176 dolls
   C) 31,071 dolls
   D) 21,750 dolls

   Answer: A
   Explanation: A) $435,000 /($20 - $14) = 72,500 dolls
   B) C) D)

20) If total fixed costs are $84,000, contribution margin per unit is $6.00, and targeted after-tax net income is $18,000 with a 40% tax rate, then the number of units which must be sold is:
   A) 19,000 units
   B) 21,500 units
   C) 14,000 units
   D) 17,000 units

   Answer: A
   Explanation: A) [$84,000 + ($18,000 / 0.6)] / $6.00 = 19,000 units
   B) C) D)
21) Rampart Hospital has total variable costs of 90% of total revenues and fixed costs of $50 million per year. There are 50,000 patient-days estimated for next year. What is the average daily revenue per patient necessary to breakeven?

A) $250 is the average daily revenue per patient necessary to breakeven.

B) $4,000 is the average daily revenue per patient necessary to breakeven.

C) $10,000 is the average daily revenue per patient necessary to breakeven.

D) $1,000 is the average daily revenue per patient necessary to breakeven.

Answer: C

Explanation: 
A)  
B)  
C) \(\frac{50,000,000}{(1 - .90)} = $500,000,000; \)  
\(\frac{500,000,000}{50,000} = $10,000\)  
D)  

22) The following information is for Center Corporation:

<table>
<thead>
<tr>
<th>Total fixed costs</th>
<th>$313,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable costs per unit</td>
<td>$99</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>$154</td>
</tr>
</tbody>
</table>

If management has a targeted net income of $59,400 (ignore income taxes), then sales revenue should be:

A) $1,044,120  
B) $239,721  
C) $580,067  
D) $671,220

Answer: A

Explanation: 
A) \(\frac{(313,500 + 59,400)}{[(154 - 99) / 154]} = $1,044,120\)  
B)  
C)  
D)  

23) An increase in fixed costs usually indicates:

A) relevant range is decreasing  
B) cost driver activity is decreasing  
C) relevant range is increasing  
D) cost driver activity is increasing

Answer: C

Explanation: 
A)  
B)  
C)  
D)  


24) Burning Company, a producer of salsa, has the following information:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income tax rate</td>
<td>30%</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>$5.00</td>
</tr>
<tr>
<td>Variable cost per unit</td>
<td>$3.00</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$90,000.00</td>
</tr>
</tbody>
</table>

The break-even point in dollars is:
A) $180,000  B) $225,000  C) $270,000  D) $150,000
Answer: B
Explanation:
A) $90,000 / ($5.00 - $3.00) = 45,000 units;
   45,000 units x $5.00 = $225,000
B) $90,000 / ($5.00 - $3.00) = 45,000 units;
   45,000 units x $5.00 = $225,000
C) $90,000 / ($5.00 - $3.00) = 45,000 units;
   45,000 units x $5.00 = $225,000
D) $90,000 / ($5.00 - $3.00) = 45,000 units;
   45,000 units x $5.00 = $225,000

25) ________ is all variable costs divided by sales.
A) Variable-cost ratio        B) The sales mix
C) Gross margin               D) Contribution-margin ratio
Answer: A
Explanation:
A) Variable-cost ratio
B) The sales mix
C) Gross margin
D) Contribution-margin ratio

26) ________ will decrease a company's break-even point.
A) Decreasing the selling price per unit  B) Increasing variable cost per unit
C) Reducing its total fixed costs       D) Increasing contribution margin per unit
Answer: C
Explanation:
A) Decreasing the selling price per unit
B) Increasing variable cost per unit
C) Reducing its total fixed costs
D) Increasing contribution margin per unit

27) As sales exceed the break-even point, a high contribution-margin percentage:
A) increases profits faster than does a low contribution-margin percentage
B) decreases profits at the same rate as a low contribution-margin percentage
C) increases profits slower than does a low contribution-margin percentage
D) increases profits at the same rate as a low contribution-margin percentage
Answer: A
Explanation:
A) increases profits faster than does a low contribution-margin percentage
B) decreases profits at the same rate as a low contribution-margin percentage
C) increases profits slower than does a low contribution-margin percentage
D) increases profits at the same rate as a low contribution-margin percentage
28) Cuyahoga County Hospital has overall variable costs of 75% of total revenues and fixed costs of $40 million per year. There are 40,000 patient-days estimated for next year. The average daily revenue per patient necessary to breakeven is:

A) $250  
B) $20,000  
C) $1,000  
D) $4,000

Answer: D

Explanation: 
D) $40 million / (1 - .75); 
$160 million / 40,000 = $4,000

29) If the sales price per unit is $20, the unit contribution margin is $8, and total fixed costs are $24,000, the break-even point in units is:

A) 2,000  
B) 1,200  
C) 3,000  
D) 857

Answer: C

Explanation: 
C) $24,000 / $8 = 3,000 units

30) If targeted after-tax net income is $67,500 with a 40% tax rate, contribution margin per unit is $2.00, and total fixed costs are $370,000, then the number of units which must be sold is:

A) 241,250 units  
B) 218,750 units  
C) 167,250 units  
D) 160,833 units

Answer: A

Explanation: 
A) [(370,000 + ($67,500 / 0.6)) / $2 = 241,250 units

31) Suppose the In & Out Motel has annual fixed costs applicable to its rooms of $1.2 million for its 300-room motel, average daily room rents of $50, and average variable costs of $10 for each room rented. It operates 365 days per year. The percent of occupancy for the year needed to breakeven is:

A) 25%  
B) 27.4%  
C) 100%  
D) 3.65%

Answer: B

Explanation: 
B) $1,200,000 / ($50 - $10) = 30,000 rooms; 
30,000 / (300 x 365) = 27.4 percent

32) Given a break-even point of 88,000 units and a contribution margin per unit of $9.60, the total number of units that must be sold to reach a net pre-tax profit of $18,096 is:

A) 1,885 units  
B) 89,885 units  
C) 88,000 units  
D) indeterminable

Answer: B

Explanation: 
B) 88,000 + ($18,096 / $9.60) = 89,885 units
33) Output measures of both resources and activities are:
   A) stages of production   B) variable activities
   C) fixed activities       D) cost drivers

Answer: D
Explanation: A) B) C) D)

34) If the sales price per unit is $100, the unit variable cost is $75, and total fixed costs are $150,000, then the break-even volume in dollar sales rounded to the nearest whole dollar is:
   A) $600,000   B) $150,000   C) $1,500   D) $200,000

Answer: A
Explanation: A) $150,000 / ($100 - $75) = 6,000 units
              6,000 units x $100 = $600,000
B) C) D)

35) Ankeny Company wishes to earn after-tax net income of $18,000. Total fixed costs are $84,000, and the contribution margin per unit is $6.00. Ankeny’s tax rate is 40%. The number of units that must be sold to earn the targeted net income is:
   A) 17,000 units   B) 14,000 units   C) 19,000 units   D) 21,500 units

Answer: C
Explanation: A) B) C) [($84,000 + ($18,000 / .60)] / $6.00 = 19,000 units
              D)

36) Assume the following cost information for Donald Company:

   Selling price per unit       $144
   Variable costs per unit      $95
   Total fixed costs            $80,000
   Tax rate                     40%

The break-even point in units is
   A) 556 units   B) 1,633 units   C) 500 units   D) 1,000 units

Answer: B
Explanation: A) B) $80,000 / ($144 - $95) = 1,633 units
              C) D)
37) Number of engineering hours is a likely cost driver for which value chain function?

A) The production function has number of engineering hours as a likely cost driver.
B) The research and development function has number of engineering hours as a likely cost driver.
C) The marketing function has number of engineering hours as a likely cost driver.
D) The design function has number of engineering hours as a likely cost driver.

Answer: D
Explanation: 

38) An accountant may have difficulty classifying costs as fixed or variable because:

A) the decision situation may cause the costs to be fixed in the short term
B) costs may be affected by more than one cost driver
C) costs may behave in a nonlinear way
D) All of these answers are correct.

Answer: D
Explanation: 

39) Four Alarm Company, a producer of salsa, has the following information:

<table>
<thead>
<tr>
<th>Income tax rate</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price per unit</td>
<td>$5.00</td>
</tr>
<tr>
<td>Variable cost per unit</td>
<td>$3.00</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$90,000.00</td>
</tr>
</tbody>
</table>

The contribution-margin ratio is:

A) 30%          B) 100%          C) 60%          D) 40%

Answer: D
Explanation: 

$$\text{Contribution Margin Ratio} = \frac{\text{Selling Price} - \text{Variable Cost}}{\text{Selling Price}} = \frac{5.00 - 3.00}{5.00} = 0.40 = 40\%$$

40) Which of the following statements about highly leveraged companies is true?

A) There is a higher possibility of net income or net loss and therefore more risk than a highly leveraged firm.
B) Fixed costs are high and variable costs are low.
C) Large changes in sales volume result in larger changes in net income.
D) All of these answers are correct.

Answer: D
Explanation: 


41) If the sales price per unit is $34, the unit variable cost is $19, and the break-even point is 10,000 units, then the total fixed costs are:

A) $150,000  
B) $190,000  
C) $340,000  
D) $530,000

Answer: A

Explanation: A) \( \frac{X}{(34 - 19)} = 10,000 \)
\[ X = 10,000 \times 15 = 150,000 \]
B) 
C) 
D)

42) Suppose a Holiday Inn hotel has annual fixed costs applicable to its rooms of $1.2 million for its 300-room hotel, average daily room rents of $50, and average variable costs of $10 for each room rented. It operates 365 days per year. The amount of net income on rooms that will be generated if the hotel is completely full throughout the entire year is:

A) $5,475,000  
B) $4,275,000  
C) $3,180,000  
D) $(1,188,000)

Answer: C

Explanation: A) 
B) 
C) \( [300 \times 365 \times (50 - 10)] - 1,200,000 = 3,180,000 \)
D)

43) The horizontal axis on the cost-volume-profit graph is the:

A) net income  
B) sales volume in units  
C) dollars of cost  
D) dollars of revenue

Answer: B

Explanation: A) 
B) 
C) 
D)

44) Hug Me Company produces dolls. Each doll sells for $20.00. Variable costs per unit total $14.00, of which $6.25 is for direct materials and $5.25 is for direct labor. If the break-even volume in dollars is $1,446,000, then the total fixed costs for the period must be:

A) $1,446,000  
B) $433,800  
C) $361,500  
D) $516,425

Answer: B

Explanation: A) 
B) \( \frac{X}{(20 - 14)} \times 20 = 1,446,000 \)
\[ 20X = 1,446,000 \times (20 - 14) \]
\[ X = 433,800 \]
C) 
D)
45) Fixed costs:
   A) vary on a per-unit basis, but are fixed in total
   B) are fixed on a per-unit basis, and fixed in total
   C) vary on a per-unit basis, and vary in total
   D) are fixed on a per-unit basis, but vary in total

   Answer: A
   Explanation: 

46) Which value chain function would include advertising costs?
   A) The production function would include advertising costs.
   B) The distribution function would include advertising costs.
   C) The customer service function would include advertising costs.
   D) The marketing function would include advertising costs.

   Answer: D
   Explanation: 

47) On Fire Company, a producer of salsa, has the following information:

   | Income tax rate | 30% |
   | Selling price per unit | $5.00 |
   | Variable cost per unit | $3.00 |
   | Total fixed costs | $90,000.00 |

   The contribution margin per unit is:
   A) $3.00
   B) $8.00
   C) $2.00
   D) $5.00

   Answer: C
   Explanation: 

48) The following information is for Allen Corporation:

   | Total fixed costs | $313,500 |
   | Variable costs per unit | $101 |
   | Selling price per unit | $163 |

   The contribution margin ratio is:
   A) 64.3%
   B) 55.6%
   C) 38.0%
   D) 35.7%

   Answer: C
   Explanation: 

   ($163 - $101) / $163 = 38.04 percent
   D)
49) Clare Company currently sells 19,000 units. Total fixed costs are $84,000, and the contribution margin per unit is $6.00. Clare's tax rate is 40%. The margin of safety in units is:

A) 7,500 units  
B) 14,000 units  
C) 3,000 units  
D) 5,000 units

Answer: D
Explanation: 
\[
\text{Margin of Safety} = \frac{\text{Fixed Costs}}{\text{Contribution Margin per Unit}} - \frac{\text{Fixed Costs}}{\text{Selling Price per Unit}}
\]
\[
\text{Margin of Safety} = \frac{\$84,000}{\$6.00} - \frac{\$84,000}{\$144} = 19,000 - 5,000 = 14,000 \text{ units}
\]

50) As the level of activity decreases within the relevant range:

A) fixed costs per unit decreases  
B) total variable costs increase  
C) variable costs per unit remain unchanged  
D) total fixed costs increase

Answer: C
Explanation: 
As activity decreases, the fixed costs per unit remain unchanged.

51) Assume the following cost information for Marie Company:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price per unit</td>
<td>$144</td>
</tr>
<tr>
<td>Variable costs per unit</td>
<td>$80</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$80,000</td>
</tr>
<tr>
<td>Tax rate</td>
<td>40%</td>
</tr>
</tbody>
</table>

If fixed costs increased by 10% and management wanted to maintain the original break-even point, then the selling price per unit would have to be increased to:

A) $155.20  
B) $208.00  
C) $150.40  
D) $158.40

Answer: C
Explanation: 
\[
\text{New Break-even Point} = \frac{\text{New Total Fixed Costs}}{\text{Contribution Margin per Unit}}
\]
\[
\text{New Total Fixed Costs} = \$80,000 \times 1.10 = \$88,000
\]
\[
\text{Price} = \frac{\$88,000}{19,000} + \$80.00 = \$150.40
\]

52) ______ is how the activities of an organization affect its costs.

A) Volume-related cost drivers  
B) Cost driver  
C) Cost behavior  
D) None of these answers is correct.

Answer: C
Explanation: 
Cost behavior is how the activities of an organization affect its costs.
53) Knothole Company sells desks at $480 per desk. The costs associated with each desk are as follows:

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials</td>
<td>$195</td>
</tr>
<tr>
<td>Direct labor</td>
<td>126</td>
</tr>
<tr>
<td>Variable factory overhead</td>
<td>51</td>
</tr>
</tbody>
</table>

Total fixed costs for the period are $456,840. The break-even volume in dollars is:

A) $1,573,560  
B) $2,030,400  
C) $456,840  
D) None of these answers is correct.

Answer: B

Explanation:
A) $480 - $195 - $126 - $51 = $108;  
   $456,840 / $108 = 4,230 desks;  
   4,230 x $480 = $2,030,400

54) Babbling Brook Hospital has overall variable costs of 75% of total revenues and fixed costs of $40 million per year. There are 40,000 patient-days estimated for next year. The break-even point expressed in total revenue is:

A) $160 million  
B) $10 million  
C) $40 million  
D) None of these answers is correct.

Answer: A

Explanation:  
A) $40 million / (1 - 0.75) = $160 million

55) The level of sales at which revenues equal expenses and net income is zero is called the:

A) break-even point  
B) margin of safety  
C) marginal income point  
D) contribution margin

Answer: A

Explanation:  
A) 
B) 
C) 
D)

56) Assume the following cost information for Melissa Company:

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price per unit</td>
<td>$144</td>
</tr>
<tr>
<td>Variable costs per unit</td>
<td>$80</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$80,000</td>
</tr>
<tr>
<td>Tax rate</td>
<td>40%</td>
</tr>
</tbody>
</table>

_________ of sales dollars is required to earn an after-tax net income of $24,000.

A) $252,000  
B) $216,000  
C) $270,000  
D) $315,000

Answer: C

Explanation:
A) 
B) 
C) [($80,000 + ($24,000 / 0.6)] / ($144 - $80) = 1,875 units  
   1,875 x $144 = $270,000

D)
57) Suppose a Comfort Inn motel has annual fixed costs applicable to its rooms of $1.2 million for its 300-room motel, average daily room rents of $50, and average variable costs of $10 for each room rented. It operates 365 days per year. The break-even point in number of rooms rented is:
   A) 30,000 rooms  
   B) 120,000 rooms  
   C) 24,000 rooms  
   D) None of these answers is correct.
Answer: A  
Explanation: $1,200,000 / ($50 - $10) = 30,000 rooms  
B)  
C)  
D)

58) Suppose a Best Western motel has annual fixed costs applicable to its rooms of $1.2 million for its 300-room motel, average daily room rents of $50, and average variable costs of $10 for each room rented. It operates 365 days per year. The amount of net income on rooms that will be generated if the motel is half full throughout the entire year is:
   A) $(1,192,500)  
   B) $1,590,000  
   C) $990,000  
   D) $2,737,500
Answer: C  
Explanation:  
A)  
B)  
C) \[0.5 \times 300 \times 365 \times ($50 - $10)] - $1,200,000 = $990,000  
D)

59) The following information is for Albion Corporation:

<table>
<thead>
<tr>
<th>Total fixed costs</th>
<th>$313,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable costs per unit</td>
<td>$99</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>$154</td>
</tr>
</tbody>
</table>

If management has a targeted net income of $46,200 (ignore income taxes), then the number of units that must be sold is:
   A) 6,540 units  
   B) 5,700 units  
   C) 2,336 units  
   D) 2,036 units
Answer: A  
Explanation: $(313,500 + $46,200) / ($154 - $99) = 6,540 units  
B)  
C)  
D)

60) ________ is the ratio of fixed costs to variable costs.
   A) Operating leverage  
   B) Contribution margin  
   C) Break-even point  
   D) The margin of safety
Answer: A  
Explanation:  
A)  
B)  
C)  
D)
Like-U Company produces dolls. Each doll sells for $20.00. Variable costs per unit total $14.00, of which $6.25 is for direct materials and $5.25 is for direct labor. If total fixed costs are $435,000, then the break-even volume in dollars is:

A) $1,450,000  B) $1,023,529  C) $435,000  D) $621,429

Answer: A

Explanation:
A) $435,000 / ($20 - $14) = 72,500 dolls;
72,500 x $20 = $1,450,000
B) 
C) 
D)

Andrew Company has the following information:

<table>
<thead>
<tr>
<th>Income tax rate</th>
<th>40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price per unit</td>
<td>$7.50</td>
</tr>
<tr>
<td>Variable cost per unit</td>
<td>$2.50</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$100,000</td>
</tr>
</tbody>
</table>

If the tax rate decreases to 30%, ________ fewer units can be sold to retain the same net income of $42,000.

A) 1,000 units  B) 32,000 units  C) 34,000 units  D) 2,000 units

Answer: D

Explanation:
A) 
B) 
C) 
D) [$100,000 +($42,000 / 0.6)] / ($7.50 - $2.50) = 34,000 units @ 40% tax rate;
[$100,000 +($42,000 / 0.7)] / ($7.50 - $2.50) = 32,000 units @ 30% tax rate;
2,000 units is the difference.

If total fixed costs are $350,000, contribution margin per unit is $7.50, the tax rate is 30%, and the number of units to be sold is 100,000, then the after-tax net income will be:

A) $400,000  B) $280,000  C) $350,000  D) $877,500

Answer: B

Explanation:
A) 
B) [$350,000 +($7.50 / 0.7) = 100,000
$350,000 +($7.50 / 0.7) = $750,000
X / 0.7 = $400,000
X = $280,000
C) 
D)
64) Assuming a constant mix of 3 units of Alpha for every 1 unit of Beta, a selling price of $21.60 for Alpha and $28.80 for Beta, variable costs per unit of $14.40 for Alpha and $16.80 for Beta, and total fixed costs of $53,760, the break-even point in units would be:
   A) 4,800 units of Alpha and 1,600 units of Beta
   B) 40,320 units of Alpha and 13,440 units of Beta
   C) 1,600 units of Alpha and 4,800 units of Beta
   D) 1,200 units of Alpha and 400 units of Beta

Answer: A
Explanation: 

<table>
<thead>
<tr>
<th>Sales mix</th>
<th>Alpha</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$21.60</td>
<td>$28.80</td>
</tr>
<tr>
<td>Variable costs</td>
<td>$14.40</td>
<td>$16.80</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>$7.20</td>
<td>$12.00</td>
</tr>
</tbody>
</table>

Total contribution margin per mix = $21.60 + $12.00 = $33.60

Break-even point in composite units = $53,760 / $33.60 = 1,600 units

A) 1,600 x 3 = 4,800 units
B) 1,600 x 1 = 1,600 units
C)
D)

65) Managers should focus their efforts on managing:
   A) products and services
   B) activities required to make products or deliver services
   C) revenues
   D) None of these answers is correct.

Answer: B
Explanation: 

66) Days of Our Lives Hospital has total variable costs of 90% of total revenues and fixed costs of $50 million per year. There are 50,000 patient-days estimated for next year. What is the break-even point expressed in total revenue?
   A) $500 million is the break-even point.
   B) $12.5 million is the break-even point.
   C) $50 million is the break-even point.
   D) None of these answers is correct.

Answer: A
Explanation: 

A) $50 million / (1 - 0.90) = $500 million
B)
C)
D)
As the cost-driver activity level increases within the relevant range:

A) fixed costs per unit decrease
B) variable costs per unit decrease
C) total variable costs decrease
D) total fixed costs increase

Answer: A
Explanation: A)

Executive Ambience Company sells desks at $480 per desk. The costs associated with each desk are as follows:

| Direct materials | $195 |
| Direct labor     | 126  |
| Variable factory overhead | 51    |

Total fixed costs for the period are $456,840. The contribution-margin ratio is:

A) 77.5%  
B) 40.6%  
C) 22.5%  
D) 29.0%

Answer: C
Explanation: A) 
B) 
C) $480 - $195 - $126 - $51 = $108; 
$108 / $480 = 22.5%
D)

Which value chain function would include depreciation of plant and machinery?

A) The marketing function would include depreciation of plant and machinery.
B) The production function would include depreciation of plant and machinery.
C) The distribution function would include depreciation of plant and machinery.
D) The customer service function would include depreciation of plant and machinery.

Answer: B
Explanation: A) 
B) 
C) 
D)

Variable costs:

A) vary per unit
B) are fixed per unit and vary in total
C) decrease in total as the cost-driver activity level increases
D) are fixed in total

Answer: B
Explanation: A) 
B) 
C) 
D)
71) Desks R’ Us Corporation sells desks at $480 per desk. The costs associated with each desk are as follows:

- Direct materials: $195
- Direct labor: 126
- Variable factory overhead: 51

Total fixed costs for the period are $456,840. The break-even point in desks is:

A) 952 desks 
B) 4,230 desks 
C) 5,458 desks 
D) 1,228 desks

Answer: B
Explanation:
B) $480 - $195 - $126 - $51 = $108; 
$456,840 / $108 = 4,230 desks

72) Which value chain function would include depreciation on transportation cost?

A) The customer service function would include depreciation on transportation cost.  
B) The distribution function would include depreciation on transportation cost.  
C) The production function would include depreciation on transportation cost.  
D) The marketing function would include depreciation on transportation cost.

Answer: B
Explanation:  
B) The distribution function would include depreciation on transportation cost.

73) The margin of safety:

A) shows how actual sales differ from planned sales  
B) is the sales price minus all the fixed expenses  
C) is the same as contribution margin  
D) equals planned unit sales less break-even unit sales

Answer: D
Explanation:  
D) equals planned unit sales less break-even unit sales.

74) Up In Smoke Company, a producer of salsa, has the following information:

- Income tax rate: 30%
- Selling price per unit: $5.00
- Variable cost per unit: $3.00
- Total fixed costs: $90,000.00

________ must be sold to obtain a targeted income before taxes of $30,000.

A) 27,000 units 
B) 60,000 units 
C) 45,000 units 
D) 10,000 units

Answer: B
Explanation:  
B) ($90,000 + $30,000) / ($5.00 - $3.00) = 60,000 units
75) Relevant range applies to:
   A) the variable costs
   B) both fixed and variable costs
   C) cost driver activity levels
   D) fixed costs
Answer: B
Explanation: A) B) C) D)

76) As the cost driver activity level decreases within the relevant range:
   A) variable costs per unit decreases
   B) total fixed costs increase
   C) total variable costs decrease
   D) fixed costs per unit decreases
Answer: C
Explanation: A) B) C) D)

77) _______ is not an underlying assumption of the cost-volume-profit graph.
   A) Revenues and expenses are nonlinear over the relevant range
   B) Efficiency and productivity will be unchanged
   C) Sales mix will be constant
   D) Expenses are categorized into variable and fixed costs
Answer: A
Explanation: A) B) C) D)

78) Oak N’ More Corporation sells desks at $480 per desk. The costs associated with each desk are as follows:

   Direct materials $195
   Direct labor 126
   Variable factory overhead 51

Total fixed costs for the period are $456,840. The contribution margin per desk is:
   A) $108
   B) $195
   C) $51
   D) $126
Answer: A
Explanation: A) $480 - $195 - $126 - $51 = $108
B) C) D)
79) The ________ is the change in total results under a new condition, in comparison with some given or known condition.

A) detrimental effect  B) conditional effect
C) comparability effect  D) incremental effect

Answer: D
Explanation: A) B) C) D)

80) The following information is for Joshua Corporation:

<table>
<thead>
<tr>
<th>Total fixed costs</th>
<th>$333,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable costs per unit</td>
<td>$99</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>$154</td>
</tr>
</tbody>
</table>

If total fixed costs increased to $394,850, then break-even volume in dollars would increase by:
A) 34.3%  B) 12.3%  C) 18.4%  D) 10.0%

Answer: C
Explanation: A) B) C) ($394,850 - $333,500) /$333,500 = 18.40%  D)

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

81) The relationship between an organization’s activities and its costs

Answer: Cost behavior
Explanation:

82) Companies with high contribution-margin percentages

Answer: Airlines, cigarette, and cosmetic companies
Explanation:

83) The range of activity over which the relationship between cost and activity is valid.

Answer: Relevant range
Explanation:

84) All variable costs divided by sales.

Answer: Variable-cost ratio
Explanation:

85) Cause the consumption of costly resources

Answer: Cost drivers
Explanation:

86) A firm’s ratio of fixed and variable costs

Answer: Operating leverage
Explanation:
87) A cost that changes in direct proportion to changes in the cost driver
   Answer: Variable cost
   Explanation:

88) The horizontal axis of the CVP graph
   Answer: Sales volume
   Explanation:

89) The study of the effects of output volume on sales, costs, and profit
   Answer: Cost-volume-profit analysis
   Explanation:

90) Another name for gross profit
   Answer: Gross margin
   Explanation:

91) Total contribution margin /total sales
   Answer: Contribution-margin percentage
   Explanation:

92) The change in total results (such as revenue, expenses, or income) under a new condition in comparison with some given or known condition.
   Answer: Incremental effect
   Explanation:

93) The relationship between sales and variable costs
   Answer: Contribution margin
   Explanation:

94) The assumed relationship between the cost and its cost driver
   Answer: Linear
   Explanation:

95) The cost of advertisements is part of this value-chain function
   Answer: Marketing
   Explanation:

96) The sales price minus the cost of goods sold
   Answer: Gross profit
   Explanation:

97) The relative proportion or combinations of quantities of products that constitute total sales
   Answer: Sales mix
   Explanation:

98) A cost that is not immediately affected by changes in the cost driver
   Answer: Fixed cost
   Explanation:
99) The vertical axis of the CVP graph
   Answer: Dollars of cost and revenue
   Explanation:

100) The level of sales at which the contribution margin equals the fixed cost
    Answer: Break-even point
    Explanation:

101) The behavior of revenues and expenses on the CVP graph
    Answer: Linear
    Explanation:

102) At any given volume, this distance on the CVP graph measures the net income or net loss
    Answer: Vertical distance between the sales line and the total expenses line
    Explanation:

103) (change in volume in units) x (contribution margin per unit) x (1 - tax rate)
    Answer: Change in net income
    Explanation:

104) Net income / (1 - tax rate)
    Answer: Income before income taxes
    Explanation:

105) On the CVP graph, where the total expenses line crosses the sales line
    Answer: Break-even point
    Explanation:

106) A firm's ratio of fixed to variable costs
    Answer: Operating leverage
    Explanation:

107) Total fixed expenses / contribution margin ratio
    Answer: Break-even volume in dollars
    Explanation:

108) The cost of the merchandise that a company acquires or produces and then sells
    Answer: Cost of goods sold
    Explanation:

109) The relative proportions or combinations of quantities of products that comprise total sales
    Answer: Sales mix
    Explanation:

110) The difference between planned sales and break-even sales
    Answer: Margin of safety
    Explanation:
111) Shows how far sales can fall below the planned level of sales before losses occur
   Answer: Margin of safety
   Explanation:

112) Total fixed expenses /unit contribution margin
   Answer: Break-even volume in units
   Explanation:

113) A cost that does not change in total as the volume increases, assuming the volume is within
the relevant range
   Answer: Fixed cost
   Explanation:

114) The planned or desired net income
   Answer: Target profit
   Explanation:

115) A good cost driver for maintenance wages
   Answer: Number of mechanic hours
   Explanation:

116) (fixed expenses + target net income) /unit contribution margin
   Answer: Target sales volume in units
   Explanation:

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

117) Sales volume of a given product helps guide executives who must decide to emphasize or
dehemphasize particular products.
   Answer: True ☐ False
   Explanation:

118) Break-even volume in dollars = variable costs/contribution-margin ratio.
   Answer: True ☐ False
   Explanation:

119) The horizontal axis on the CVP graph is the dollars of cost and revenue.
   Answer: True ☐ False
   Explanation:

120) A good example of a cost driver for production labor wages is the number of machine hours.
   Answer: True ☐ False
   Explanation:

121) Margin of safety = actual unit sales - planned unit sales.
   Answer: True ☐ False
   Explanation:
122) Highly leveraged companies have low fixed costs and high variable costs. 
   Answer: True ○ False
   Explanation:

123) A good example of a cost driver for production supervisor salaries is the number of people supervised. 
   Answer: ○ True False
   Explanation:

124) The relevant range is the limit of cost-driver activity within which a specific relationship between costs and the cost driver is valid. 
   Answer: ○ True False
   Explanation:

125) Highly leveraged companies are less risky than companies with low leverage. 
   Answer: True ○ False
   Explanation:

126) An industry that has a high contribution-margin percentage is the airlines. 
   Answer: ○ True False
   Explanation:

127) Contribution margin = sales price - all variable expenses. 
   Answer: ○ True False
   Explanation:

128) Only one cost driver may affect a cost at any given time. 
   Answer: True ○ False
   Explanation:

129) The break-even point is located at the intersection of the total revenue line and the total expenses line on a cost-volume-profit graph. 
   Answer: ○ True False
   Explanation:

130) After a certain point, a unit sold does not generate marginal income. 
   Answer: True ○ False
   Explanation:

131) A major simplifying assumption of cost-volume-profit analysis is that costs can be classified as either variable or fixed with respect to a single measure of the volume of output activity. 
   Answer: ○ True False
   Explanation:

132) Cost of goods sold is the cost of the merchandise that a company acquires or produces and then sells. 
   Answer: ○ True False
   Explanation:
133) Target sales volume in units = \( \frac{\text{variable expenses} + \text{target net income}}{\text{unit contribution margin}} \).

Answer: True ○ False

Explanation:

134) Total contribution margin / total sales = 100\% - \text{variable cost percentage}.

Answer: ○ True False

Explanation:

135) The incremental approach means that a manager focuses on the effects of changes from the current condition.

Answer: ○ True False

Explanation:

136) Gross margin is the same as contribution margin.

Answer: True ○ False

Explanation:

137) Small increases in profits occur for high contribution-margin ratio companies when sales grow.

Answer: True ○ False

Explanation:

138) Generally, companies that spend heavily for advertising are willing to do so because they have low contribution-margin percentages.

Answer: True ○ False

Explanation:

139) The income statement can be expressed as: Sales - Variable Expenses - Fixed Expenses = Net Income.

Answer: ○ True False

Explanation:

140) Cost drivers are output measures of both resources and activities.

Answer: ○ True False

Explanation:

141) Only managers of profit-seeking organizations find that the cost-volume-profit analysis is useful.

Answer: True ○ False

Explanation:

142) The break-even point is the level of sales at which revenue equals fixed costs.

Answer: True ○ False

Explanation:

143) A fixed cost changes in direct proportion to changes in a cost driver.

Answer: True ○ False

Explanation:
144) The benefits of increased accuracy of using a computer model in CVP analysis always exceed the costs.

Answer: True  False
Explanation:

145) The sales mix is the relative proportions or combinations of quantities of products that constitute total sales.

Answer: True  False
Explanation:

146) Gross margin focuses on sales in relation to variable cost.

Answer: True  False
Explanation:

147) On a day-to-day basis managers must manage the activities required to make products and services.

Answer: True  False
Explanation:

148) A change in the tax rate will not affect the break-even point.

Answer: True  False
Explanation:

149) In highly leveraged companies, small changes in sales volume result in large changes in net income.

Answer: True  False
Explanation:

150) When analyzing costs, two rules of thumb are useful: (1) think of fixed costs on a per-unit basis; and (2) think of variable costs as a total.

Answer: True  False
Explanation:

151) A small margin of safety may indicate a risky situation.

Answer: True  False
Explanation:

152) Costs may behave in a linear and nonlinear way.

Answer: True  False
Explanation:

153) An assumption of the CVP analysis is that changes in efficiency or productivity are expected.

Answer: True  False
Explanation:

154) The CVP graph shows profit and loss at any rate of activity.

Answer: True  False
Explanation:
155) The margin of safety is the difference between planned unit sales and break-even sales.
   Answer:  True    False
   Explanation:

156) A key factor in controlling costs is associating costs with activities.
   Answer:  True    False
   Explanation:

157) With very short time spans, costs become more fixed and less variable.
   Answer:  True    False
   Explanation:

158) Manufacturers of industrial equipment have high contribution-margin percentages.
   Answer:  True    False
   Explanation:

159) Break-even volume in units = fixed costs / unit contribution margin.
   Answer:  True    False
   Explanation:

160) The CVP graph uses the assumption that costs are linear over the relevant range.
   Answer:  True    False
   Explanation:

161) An assumption of the CVP analysis is that the difference in inventory level at the beginning and at the end of a period is insignificant.
   Answer:  True    False
   Explanation:

162) Cost behavior pertains to how costs affect the activities of an organization.
   Answer:  True    False
   Explanation:

163) On the CVP graph, the horizontal difference between the sales line and the total expenses line measures the net income or net loss.
   Answer:  True    False
   Explanation:

164) Gross margin = sales price - cost of goods sold.
   Answer:  True    False
   Explanation:

165) Gross profit margin is the sales price minus the variable cost per unit.
   Answer:  True    False
   Explanation:

166) Operating leverage is the ratio of fixed costs to variable costs.
   Answer:  True    False
   Explanation:
167) The margin of safety shows how far sales can fall below the planned level of sales before losses occur.
   Answer: True  False
   Explanation:

168) Target sales - variable expenses - fixed expenses = target net income.
   Answer: True  False
   Explanation:

169) Selling expenses are found in the cost of goods sold.
   Answer: True  False
   Explanation:

170) The CVP graph shows how costs behave over multiple relevant ranges.
   Answer: True  False
   Explanation:

171) Income before income taxes = net income / marginal tax rate.
   Answer: True  False
   Explanation:

172) When changes occur in the sales mix, there is no effect on the cost-volume-profit relationships.
   Answer: True  False
   Explanation:

173) An assumption of the CVP analysis is that the sales mix can fluctuate.
   Answer: True  False
   Explanation:

174) Due to limited resources, sales of every type of product cannot be maximized.
   Answer: True  False
   Explanation:

175) The reliability of computer models used in CVP analysis depends on the accuracy of their underlying assumptions about how revenues and costs may actually be affected.
   Answer: True  False
   Explanation:

176) The break-even point is when enough units are sold that total contribution margin equals total variable costs.
   Answer: True  False
   Explanation:

177) The break-even point may be reduced by reducing total fixed costs and holding everything else constant.
   Answer: True  False
   Explanation:
An increase in sales price would cause a decrease in the break-even point.

Answer: True  False
Explanation:

The break-even point may be reduced by increasing the per unit variable cost.

Answer: True  False
Explanation:

At the break-even point, net income may be positive.

Answer: True  False
Explanation:

Sales mix concept is relevant for all companies, regardless of the number of units produced.

Answer: True  False
Explanation:

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Dodger Company produces two products, X and Y. The following information is presented for both products:

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price per unit</td>
<td>$46</td>
<td>$36</td>
</tr>
<tr>
<td>Variable cost per unit</td>
<td>$38</td>
<td>$24</td>
</tr>
</tbody>
</table>

Total fixed costs are $234,000. Dodger Company plans to sell 21,000 units of product X and 7,000 units of product Y.

Compute:

a. Contribution margin for each product
b. Current net income
c. Break-even point in units of both X and Y if the sales mix is 3 units of X for every unit of Y
d. Break-even volume in total dollars if the sales mix is 2 units of X for every 3 units of Y

Answer:

a. X: $46 - $38 = $8
   Y: $36 - $24 = $12
b. (21,000 x $8) + (7,000 x $12) - $234,000 = $18,000
c. 21,000:7,000 = 3:1
   (3 x $8) + (1 x $12) = $36
   $234,000 / $36 = 6,500 units
   X: 6,500 x 3 = 19,500 units
   Y: 6,500 x 1 = 6,500 units
d. (2 x $8) + (3 x $12) = $52
   $234,000 / $52 = 4,500 units
   X: 4,500 x 2 = 9,000 x $46 = $414,000
   Y: 4,500 x 3 = 13,500 x $36 = $486,000
Total dollar sales = $900,000
Retread Company manufactures running shoes. The selling price per pair of shoes (one unit) averages $80 and variable costs per pair are $47.50. The sales volume of $776,000 produces $100,750 of net income before taxes.

Required:

a. Compute total fixed costs.
b. Compute total variable costs.
c. Compute the breakeven point in units.
d. Compute the quantity of units above breakeven to reach targeted net income before taxes.

Answer:

a. $776,000 / $80 = 9,700 units
   9,700 x ($80.00 - $47.50) = $315,250
   $315,250 - $100,750 = $214,500
b. 9,700 units x $47.50 = $460,750
c. $214,500 / $32.50 = 6,600 units
d. 9,700 - 6,600 = 3,100 units

The Sweetheart Company, a producer of specialty cards, has asked you to complete several calculations based upon the following information:

- Income tax rate: 30%
- Selling price per unit: $6.60
- Variable cost per unit: $5.28
- Total fixed costs: $46,200.00

Required:

a. Compute the breakeven point in units.
b. Compute the sales volume necessary to produce an after-tax net income of $13,028.40.
c. Compute the total units sold to earn an after-tax net income of $18,480.

Answer:

a. $46,200 / ($6.60 - $5.28) = 35,000 units
b. $13,028.40 / 0.70 = $18,612
   $18,612 + $46,200 = $64,812
   $64,812 / $1.32 = 49,100 units
   49,100 units x $6.60 = $324,060
c. $18,480 / 0.70 = $26,400
   $26,400 + $46,200 = $72,600
   $72,600 / $1.32 = 55,000 units

Jefferson Company produces only product A. The following information is available:

- Selling price per unit: $95
- Variable costs per unit: $70
- Total fixed costs: $130,000

Required:

a. Compute break-even point in units.
b. Compute break-even volume in dollars.
c. Compute the margin of safety assuming planned unit sales of 6,000.

Answer:

a. $130,000 / ($95 - $70) = 5,200 units
b. 5,200 units x $95/unit = $494,000
c. 6,000 units - 5,200 units = 800 units
186) Graybill Corporation gathered the following information:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable costs</td>
<td>$945,000</td>
</tr>
<tr>
<td>Income tax rate</td>
<td>40%</td>
</tr>
<tr>
<td>Contribution- margin ratio</td>
<td>25%</td>
</tr>
</tbody>
</table>

Required:

a. Compute total fixed costs assuming a break-even volume in dollars of $1,610,000.
b. Compute sales volume in dollars to produce an after-tax net income of $210,000.

Answer:  
a. $1,610,000 x 0.25 = $402,500  
b. $210,000 / (1 - 0.40) = $350,000  
   ($350,000 + $402,500) / 0.25 = $3,010,000

187) The following information is for Wood Products Corporation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fixed costs</td>
<td>$345,700</td>
</tr>
<tr>
<td>Unit variable costs</td>
<td>$50.95</td>
</tr>
<tr>
<td>Unit selling price</td>
<td>$68.50</td>
</tr>
</tbody>
</table>

Required:

a. Compute the contribution margin per unit.  
b. Compute the contribution-margin ratio.  
c. Compute the break-even point in units.  
d. Compute the break-even volume in dollars.

Answer:  
a. $68.50 - $50.95 = $17.55 per unit  
b. $17.55 / $68.50 = 0.2562  
c. $345,700 / $17.55 = 19,698 units  
d. 19,698 units x $68.50 = $1,349,313

188) What are the assumptions used for CVP analysis?

Answer: Expenses can be classified as totally variable or fixed. Total variable expenses vary directly with activity level. Total fixed expenses do not change with activity level.

The behavior of revenues and expenses is linear over the relevant range.

No change in efficiency or productivity is expected.

Sales mix remains constant.

The difference in inventory level at the beginning and at the end of a period is insignificant.
189) Bonnie and Clyde started the BC Restaurant in 20X0. They rented a building, bought equipment, and hired two employees to work full time at a fixed monthly salary. Utilities and other operating charges remain fairly constant during each month.

During the past two years, the business has grown with average sales increasing 1% a month. This situation pleases both Bonnie and Clyde, but they do not understand how sales can grow by one percent a month while profits are increasing at an even faster pace. They are afraid that one day they will wake up to increasing sales but decreasing profits.

Required:
Explain why the profits have increased at a faster rate than sales.

Answer: The fixed cost per meal served is decreasing with increased volumes, while the contribution margin per meal served remains constant. Apparently, most of the restaurant’s expenses are fixed. Therefore, as sales pass the break-even point, the profit will increase even faster because the fixed expenses have already been covered. This allows sales to cover only variable expenses before contributing to the profit margin, thereby causing it to increase at a faster rate.

190) Too Hot To Handle Company produces fireworks and has provided the following information:

<table>
<thead>
<tr>
<th>Total fixed costs</th>
<th>$100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit variable costs</td>
<td>$6</td>
</tr>
<tr>
<td>Planned unit sales</td>
<td>30,000</td>
</tr>
</tbody>
</table>

The break-even point is 25,000 units.

Required:
- a. Compute the selling price per unit.
- b. Compute the contribution-margin ratio.
- c. Compute the break-even volume in dollars.
- d. Compute the margin of safety.

Answer: a. $100,000 / 25,000 = $4 + $6 = $10
b. $4 / $10 = 0.40
c. 25,000 units x $10 = $250,000
d. 30,000 - 25,000 = 5,000 fireworks

191) The Yetmar Family Restaurant is open 24 hours per day serving breakfast, lunch, and dinner. Fixed costs are $24,000 per month. Variable costs are estimated at $9.60 per meal. The average total bill (excluding tax and tip) is $12 per customer.

Required:
- a. Compute the number of meals that must be served if the Family Restaurant wishes to earn a profit before taxes of $6,000.
- b. Compute the break-even point in meals.
- c. Compute the break-even volume in dollars.
- d. Assume that fixed costs increase to $30,000. How many additional meals must be served if the Yetmar Family Restaurant wishes to earn the same before-tax profit?

Answer: a. ($24,000 + $6,000) / ($12.00 - $9.60) = 12,500 meals
b. $24,000 / ($12.00 - $9.60) = 10,000 meals
c. 10,000 meals x $12 per meal = $120,000
d. ($30,000 - $24,000) / ($12.00 - $9.60) = 2,500 meals
192) Cleveland Manufacturing, Inc.'s most recent income statement is presented below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$450,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>200,000</td>
</tr>
<tr>
<td>Gross margin</td>
<td>250,000</td>
</tr>
<tr>
<td>Other operating expenses</td>
<td>196,000</td>
</tr>
<tr>
<td>Operating income</td>
<td>$54,000</td>
</tr>
</tbody>
</table>

Cleveland Manufacturing, Inc., has determined that $50,000 of cost of goods sold and $166,000 of operating expenses is fixed.

Required:

a. Compute the contribution margin.
b. Compute the contribution margin percentage.
c. Compute the break-even volume in sales dollars.
d. Compute the current margin of safety.

Answer: 

a. Fixed costs = $50,000 + $166,000 = $216,000
   Variable costs + $150,000 + $30,000 = $180,000
   $450,000 - $180,000 = $270,000
b. $270,000 / $450,000 = 60%
c. $216,000 / 60% = $360,000
d. $450,000 - $360,000 = $90,000

193) A classmate is having difficulty understanding two sets of accounting terms, variable and fixed costs, as opposed to period and product costs. He understands that variable costs change during an accounting period while fixed costs do not. However, he explains that a period cost implies that it is for a period of time and is, therefore, also fixed. Does his assumption imply that all product costs are then variable?

Required: Assist your classmate in being able to distinguish between these terms.

Answer: First, you should explain that all costs should be first classified as either variable or fixed. This concept deals with cost behavior and not with what the costs are associated in the organization. Many decisions are made about costs because of the type of behavior they exhibit.

Second, a cost can be assigned to "why you are in business" activities (product costs) of the organization or to "support" activities (period costs) of the organization. For a manufacturing firm, period costs are all costs that have no direct relationship to the manufacturing process.

Using accounting terminology, you might explain that period costs are always expenses during the accounting period while product costs are included in inventory because they can be assigned to the products being produced.
Renew Tires has been in the tire business for five years. It rents a building but owns its equipment. All employees are paid a fixed salary except for the busy season (April - June), when temporary help is hired by the hour. Utilities and other operating charges remain fairly constant during each month except those in the busy season.

Selling prices per tire average $50 except during the busy season. Because a large number of customers buy tires prior to winter, discounts run above average during the busy season. A 15% discount is given when two tires are purchased at one time. During the busy months, selling prices per tire average $40.

The president of Renew Tires is somewhat displeased with the company’s management accounting system because the cost behavior pattern displayed by the monthly break-even charts is inconsistent; the busy months’ charts are different from the other months of the year. The president is never sure if the company has a satisfactory margin of safety or if it is just above the break-even point.

Required:
a. What is wrong with the accountant’s computations?
b. How can the information be presented in a better format for the president?

Answer: a. The accounting system includes some assumptions about the CVP model that do not hold for Renew Tires. The CVP model requires cost and revenue to be linear. During the busy months, the company has cost and revenue that behave differently than during the other months of the year. The revenue line turns down (less slope) with the average selling price per tire decreasing from $50 to $40. The variable costs line probably turns upward (increasing slope) with the additional hourly workers being added to the workforce.
b. The accountant may want to present two sets of information regarding the revenue and cost behaviors of the company: one for the busy season and one for the other months of the year. It would show that while the break-even point actually increases during the busy months (a negative), the marginal income increases because of increased sales (a positive).

Oakdale Municipal Hospital has variable costs of $80 million per year. These costs represent approximately 80% of the total revenues. There are 50,000 patient-days estimated for next year.

Required:
a. What is the break-even point expressed in total revenue?
b. What is the average daily revenue per patient necessary to breakeven?

Answer: a. $80 million / (1 - 0.80) =$400 million
b. $400 million /50,000 =$8,000
Answer Key
Testname: C2

1) B
2) C
3) C
4) A
5) C
6) D
7) C
8) A
9) D
10) C
11) B
12) A
13) C
14) D
15) C
16) D
17) B
18) C
19) A
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22) A
23) C
24) B
25) A
26) C
27) A
28) D
29) C
30) A
31) B
32) B
33) D
34) A
35) C
36) B
37) D
38) D
39) D
40) D
41) A
42) C
43) B
44) B
45) A
46) D
47) C
48) C
49) D
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51) C  
52) C  
53) B  
54) A  
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56) C  
57) A  
58) C  
59) A  
60) A  
61) A  
62) D  
63) B  
64) A  
65) B  
66) A  
67) A  
68) C  
69) B  
70) B  
71) B  
72) B  
73) D  
74) B  
75) B  
76) C  
77) A  
78) A  
79) D  
80) C  

81) Cost behavior  
82) Airlines, cigarette, and cosmetic companies  
83) Relevant range  
84) Variable-cost ratio  
85) Cost drivers  
86) Operating leverage  
87) Variable cost  
88) Sales volume  
89) Cost-volume-profit analysis  
90) Gross margin  
91) Contribution-margin percentage  
92) Incremental effect  
93) Contribution margin  
94) Linear  
95) Marketing  
96) Gross profit  
97) Sales mix  
98) Fixed cost  
99) Dollars of cost and revenue  
100) Break-even point
101) Linear
102) Vertical distance between the sales line and the total expenses line
103) Change in net income
104) Income before income taxes
105) Break-even point
106) Operating leverage
107) Break-even volume in dollars
108) Cost of goods sold
109) Sales mix
110) Margin of safety
111) Margin of safety
112) Break-even volume in units
113) Fixed cost
114) Target profit
115) Number of mechanic hours
116) Target sales volume in units
117) FALSE
118) FALSE
119) FALSE
120) FALSE
121) FALSE
122) FALSE
123) TRUE
124) TRUE
125) FALSE
126) TRUE
127) TRUE
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169) FALSE
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171) FALSE
172) FALSE
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174) TRUE
175) TRUE
176) FALSE
177) TRUE
178) TRUE
179) FALSE
180) FALSE
181) FALSE

182) a. X: $46 - $38 = $8
    Y: $36 - $24 = $12
    (21,000 x $8) + (7,000 x $12) - $234,000 = $18,000
b. 21,000:7,000 = 3:1
   (3 x $8) + (1 x $12) = $36
   $234,000 / $36 = 6,500 units
   X: 6,500 x 3 = 19,500 units
   Y: 6,500 x 1 = 6,500 units
c. (2 x $8) + (3 x $12) = $52
   $234,000 / $52 = 4,500 units
   X: 4,500 x 2 = 9,000 x $46 = $414,000
   Y: 4,500 x 3 = 13,500 x $36 = $486,000
   Total dollar sales = $900,000
d. 9,700 - 6,600 = 3,100 units

183) a. $776,000 / $80 = 9,700 units
   9,700 x ($80.00 - $47.50) = $315,250
   $315,250 - $100,750 = $214,500
b. 9,700 units x $47.50 = $460,750
c. $214,500 / $32.50 = 6,600 units
d. 9,700 - 6,600 = 3,100 units

39
184) a. $46,200 / ($6.60 - $5.28) = 35,000 units
   b. $13,028.40 / 0.70 = $18,612
      $18,612 + $46,200 = $64,812
      $64,812 / $1.32 = 49,100 units
      49,100 units x $6.60 = $324,600
   c. $18,480 / 0.70 = $26,400
      $26,400 + $46,200 = $72,600
      $72,600 / $1.32 = 55,000 units

185) a. $130,000 / ($95 - $70) = 5,200 units
   b. 5,200 units * $95/unit = $494,000
   c. 6,000 units - 5,200 units = 800 units

186) a. $1,610,000 x 0.25 = $402,500
   b. $210,000 / (1 - .40) = $350,000
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187) a. $68.50 / $50.95 = $1.75 per unit
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