

Introduction to Management Accounting, 16e (Horngren)

Chapter 2 Introduction to Cost Behavior and Cost-Volume-Profit Relationships

2.1 Questions

1) Why is it important to identify the most appropriate cost drivers for a particular product?

- A) so managers can identify the activities necessary to manufacture a product
- B) so managers can control product costs better
- C) so managers can predict product costs better and make better decisions
- D) B and C

Answer: D

Diff: 1

LO: 2-1

AACSB: Reflective thinking skills

Learning Outcome: None

2) A brainstorming group in the Research and Development area is charged with developing new product ideas for the company. What is a good cost driver of the cost of this activity?

- A) number of parts in new products proposed
- B) number of new product proposals
- C) number of workers
- D) number of engineering hours

Answer: B

Diff: 1

LO: 2-1

AACSB: Reflective thinking skills

Learning Outcome: None

3) Janitors clean the factory at the end of each workday. The wages of the janitors are used to determine the cost of the only manufactured product in the factory. What is a good cost driver for the wages of the janitors?

- A) number of janitors
- B) number of kilowatt hours used
- C) number of machine hours on cleaning machines
- D) number of labor hours worked by janitors

Answer: D

Diff: 1

LO: 2-1

AACSB: Reflective thinking skills

Learning Outcome: None

4) Janitors clean the factory with scrubbing machines and polishing machines. Scrubbing machines scrub the factory floor and polishing machines polish the floor. The cost associated with cleaning the factory is treated as a product cost. What is a good cost driver for the Depreciation Expense associated with the scrubbing and polishing machines?

- A) number of janitors operating machines
- B) number of labor hours put in by janitors
- C) number of kilowatt hours used
- D) number of machine hours used

Answer: D

Diff: 1

LO: 2-1

AACSB: Reflective thinking skills

Learning Outcome: None

5) Cost drivers are _____.

- A) the different functions in the value chain
- B) different types of functional areas in the firm
- C) measures of activities that require the use of resources and thereby cause costs
- D) different types of cost calculations

Answer: C

Diff: 2

LO: 2-1

AACSB: Reflective thinking skills

Learning Outcome: None

6) Consider the following activity: The installation of seats by an airplane manufacturer in a commercial airplane. What is an appropriate cost driver for the labor resources used for this activity?

- A) number of service center hours
- B) number of labor hours used to install seats
- C) number of mechanic hours
- D) number of engineering hours

Answer: B

Diff: 2

LO: 2-1

AACSB: Analytic skills

Learning Outcome: None

7) Consider the following activity: The manufacturer in a commercial airplane. What is an appropriate cost driver for the cost of the seats?

- A) number of seats installed
- B) number of labor hours used to install seats
- C) number of mechanic hours
- D) number of engineering hours

Answer: A

Diff: 2

LO: 2-1

AACSB: Analytic skills

Learning Outcome: None

2.2 Questions

1) Within the relevant range, the total amount of _____ cost changes in direct proportion to changes in the cost driver. Within the relevant range, the total amount of _____ cost does not change in direct proportion to changes in the cost driver.

- A) fixed; variable
- B) variable; fixed
- C) step; mixed
- D) mixed; step

Answer: B

Diff: 2

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

2) As cost-driver level decreases in the relevant range, fixed costs per unit of cost driver _____, but total fixed costs _____.

- A) increase; do not change
- B) decrease; do not change
- C) do not change; increase
- D) do not change; decrease

Answer: A

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

3) As cost-driver level increases in the relevant range, a fixed cost does not change _____, but the fixed cost _____ becomes progressively smaller.

- A) per unit of cost driver; total
- B) in total; per unit of cost driver
- C) per-unit; per unit of cost driver
- D) in total; per year

Answer: B

Diff: 1

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

4) As the cost-driver level increases in the relevant range, variable costs per unit of cost driver _____ but total variable costs _____.

- A) do not change; increase in direct proportion to the cost-driver activity level
- B) do not change; decrease in direct proportion to the cost-driver activity level
- C) increase; do not change
- D) decrease; do not change

Answer: A

Diff: 1

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

5) Which of the following costs is a variable cost?

- A) rental expense for factory building for manufacturer of electronics
- B) lease cost for factory machine for manufacturer of electronics
- C) fuel for airplane for airline
- D) depreciation expense of airplane for airline

Answer: C

Diff: 1

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

6) What happens when the cost-driver level increases within the relevant range?

- A) Total fixed costs remain unchanged.
- B) Fixed costs per unit of cost driver increase.
- C) Total variable costs decrease.
- D) Variable costs per unit of cost driver increase.

Answer: A

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

7) What happens when the cost-driver activity level increases within the relevant range?

- A) Total fixed costs increase.
- B) Fixed costs per unit of cost driver decrease.
- C) Total variable costs decrease.
- D) Variable costs per unit of cost driver decrease.

Answer: B

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

8) What happens when the cost-driver activity level decreases within the relevant range?

- A) Total fixed costs increase.
- B) Fixed costs per unit of cost driver decrease.
- C) Total variable costs decrease.
- D) Variable costs per unit of cost driver decrease.

Answer: C

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

9) What happens when the cost-driver activity level decreases within the relevant range?

- A) Total fixed costs increase.
- B) Fixed costs per unit of cost driver decrease.
- C) Total variable costs increase.
- D) Variable costs per unit of cost driver are unchanged.

Answer: D

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

10) Which of the following costs is a fixed cost?

- A) cost of dairy ingredients used to produce ice cream
- B) depreciation expense on factory building
- C) fuel used by delivery trucks
- D) labor wages of workers who mix dairy ingredients to make ice cream

Answer: B

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

11) An increase in total variable costs usually indicates that _____.

- A) the cost-driver activity level is decreasing
- B) the cost-driver activity level is increasing
- C) variable costs per unit is decreasing
- D) fixed costs per unit is increasing

Answer: B

Diff: 2

LO: 2-2

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

12) The relevant range applies to _____.

- A) variable costs only
- B) fixed costs only
- C) fixed costs and variable costs
- D) none of the above

Answer: C

Diff: 2

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

13) Total fixed costs increase when the cost-driver level increases in the relevant range.

Answer: FALSE

Diff: 1

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

14) The relevant range is the limit of cost-driver level within which a specific relationship between costs and the cost driver is valid.

Answer: TRUE

Diff: 1

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

15) Total variable costs increase when the cost-driver level increases in the relevant range.

Answer: TRUE

Diff: 2

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

16) Variable costs per unit of the cost driver increase when the cost-driver level increases in the relevant range.

Answer: FALSE

Diff: 2

LO: 2-2

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

2.3 Questions

1) Two types of costs that each combine fixed cost and variable cost behaviors are _____ and _____.

- A) capacity costs; incremental costs
- B) semi-fixed costs; semivariable costs
- C) composite costs; average costs
- D) step costs; mixed costs

Answer: D

Diff: 2

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

2) If an individual chunk of step costs applies to a large range of cost-driver activity, the step costs are treated as _____ within that range.

- A) variable costs
- B) mixed costs
- C) fixed costs
- D) semivariable costs

Answer: C

Diff: 2

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: None

3) If individual cost steps are uniform and the decision being made spans a number of steps, the step costs are treated as a _____.

- A) fixed cost
- B) mixed cost
- C) incremental cost
- D) variable cost

Answer: D

Diff: 2

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

4) With mixed costs, the _____ element is unchanged over the relevant range and the _____ element varies proportionately with cost-driver activity.

- A) variable cost; fixed cost
- B) fixed cost; variable cost
- C) fixed cost; step cost
- D) step cost; variable cost

Answer: B

Diff: 2

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

5) With mixed costs, the fixed cost element is viewed as the _____ and the variable cost element is viewed as the _____.

- A) step cost; cost of capacity
- B) cost of capacity; incremental cost of using capacity
- C) variable cost; cost of capacity
- D) step cost; mixed cost

Answer: B

Diff: 2

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

6) Costs that change abruptly at different levels of activity because the resources are available only in indivisible chunks are called _____.

- A) mixed costs
- B) variable costs
- C) fixed costs
- D) step costs

Answer: D

Diff: 1

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

7) In a small construction firm, a crew supervisor is added for every ten workers employed. The salaries of the crew supervisors are a _____.

- A) variable cost
- B) mixed cost
- C) step cost
- D) fixed cost

Answer: C

Diff: 2

LO: 2-3

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

8) Which example is NOT a step cost?

A) When oil and gas exploration activity reaches a certain level in a given area, a company leases an additional rig. The lease cost of the rigs is a step cost.

B) When ten nurses are added to a shift, a nursing supervisor is also added to the shift. The salaries of the nursing supervisors are a step cost.

C) When a telemarketing company adds ten workers to a shift, a supervisor is also added to the shift. The salaries of the supervisors are a step cost.

D) When a manufacturing company ceases production, a skeleton crew of maintenance workers continues to work, but the rest are terminated. When production resumes, maintenance workers are rehired in direct proportion to the amount of production. The wages of the maintenance workers are a step cost.

Answer: D

Diff: 2

LO: 2-3

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

9) A compensation plan where the sales force is paid salary plus commission is a _____.

A) purely variable cost

B) mixed cost

C) step cost

D) fixed cost

Answer: B

Diff: 1

LO: 2-3

AACSB: Analytic skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

10) Step costs change abruptly at different levels of cost-driver activity.

Answer: TRUE

Diff: 1

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

11) Mixed costs are composed of only fixed costs.

Answer: FALSE

Diff: 1

LO: 2-3

AACSB: Reflective thinking skills

Learning Outcome: Define and distinguish between variable, fixed and mixed costs

2.4 Questions

1) A cost-volume-profit graph has a line for _____ and a line for _____.

- A) revenues; variable costs only
- B) revenues; fixed costs only
- C) revenues; total costs
- D) net profit; net loss

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

2) The break-even point on the cost-volume-profit graph is where the _____.

- A) total cost line intersects the net profit line
- B) total cost line intersects the net loss line
- C) revenue line intersects the total cost line
- D) revenue line intersects the variable cost line

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

3) On a cost-volume-profit graph, the vertical distance between the Revenue line and the Total Cost line represents _____ or _____.

- A) mixed cost; step cost
- B) variable cost; fixed cost
- C) net profit; net loss
- D) step cost; fixed cost

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

4) To construct the Total Cost line on a cost-volume-profit graph, plot _____ and then plot _____.

- A) mixed costs; step costs
- B) step costs; mixed costs
- C) fixed costs; variable costs
- D) fixed costs; fixed costs plus variable costs

Answer: D

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

5) On a cost-volume-profit graph, when the Total Cost line is higher than the Total Revenue line, the difference represents _____.

- A) net income
- B) a positive return on the investment
- C) a net loss
- D) not enough information is presented

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

6) It is misleading to call a cost-volume-profit graph a break-even graph. Why?

- A) The graph reveals more information than the break-even point.
- B) The graph does not show the break-even point.
- C) The main purpose of the graph is to show the cost drivers for different activity levels.
- D) The main purpose of the graph is to show the margin of safety.

Answer: A

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

7) If a company faces declining sales over time, it must restructure its costs to break-even at a lower volume. In order to carry this out, what costs can be reduced?

- A) variable costs only
- B) fixed costs only
- C) variable and fixed costs
- D) step costs only

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

8) On a cost-volume-profit graph, the net profit area is found _____.

- A) at the break-even point
- B) to the right of the break-even point
- C) to the left of the break-even point
- D) to the right of the intersection of the y-axis and x-axis

Answer: B

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

9) On a cost-volume-profit graph, at the point where the Total Revenue line intersects the Total Cost line, _____.

- A) net income is positive
- B) net income is negative
- C) net income is zero
- D) not enough information is given

Answer: C

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

10) The horizontal axis on the cost-volume-profit graph is the _____.

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

Answer: B

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

11) The vertical axis on the cost-volume-profit graph is the _____.

- A) dollars of net profit
- B) sales volume in units
- C) margin of safety
- D) dollars of cost and revenue

Answer: D

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

12) Which of the following is NOT an underlying assumption of cost-volume-profit analysis?

- A) We can classify expenses into fixed and variable categories.
- B) In multiproduct companies, sales mix will be constant.
- C) Revenues and expenses are linear over the relevant range.
- D) The inventory level changes significantly during the period.

Answer: D

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

13) The break-even point is located at the intersection of the total revenue line and the total costs line on a cost-volume-profit graph.

Answer: TRUE

Diff: 2

LO: 2-4

AACSB: Analytic skills

Learning Outcome: None

14) The CVP graph shows how costs behave over different relevant ranges.

Answer: FALSE

Diff: 2

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

15) The horizontal axis on the CVP graph is the dollars of cost and revenue.

Answer: FALSE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

16) The CVP graph uses the assumption that costs are linear over the relevant range.

Answer: TRUE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

17) An assumption of the CVP analysis is that changes in efficiency are expected.

Answer: FALSE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

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

Answer: TRUE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

19) An assumption of the CVP analysis is that the sales mix can fluctuate.

Answer: FALSE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: None

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

Answer: FALSE

Diff: 1

LO: 2-4

AACSB: Reflective thinking skills

Learning Outcome: Perform fundamental CVP calculations

2.5 Questions

1) Herman Loebel Company, a producer of salsa, has the following information:

Income tax rate	30%
Selling price per unit	\$8.00
Variable cost per unit	\$3.00
Total fixed costs	\$90,000.00

The contribution margin per unit is _____.

A) \$2.00

B) \$3.00

C) \$5.00

D) \$8.00

Answer: C

Diff: 1

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

2) Kaprelian Company sells desks at \$480 per desk. The variable costs are \$300 per desk. Total fixed costs for the period are \$400,000. The contribution margin ratio is _____.

A) 22.5%

B) 37.5%

C) 40.6%

D) 62.5%

Answer: B

Diff: 1

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

3) Gnat Company, a producer of electronic devices, has the following information:

Selling price per unit	\$5.00
Variable cost per unit	\$3.00
Total fixed costs	\$90,000.00

The contribution-margin ratio is _____.

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

Answer: B

Diff: 1

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

4) Suppose a hotel has annual fixed costs applicable to its rooms of \$2.0 million for its 300-room hotel. Average daily room rents are \$50 per room and average variable costs are \$10 for each room rented. It operates 365 days per year. If the hotel is completely full throughout the year, what is net income for one year?

- A) \$1,280,000
- B) \$2,380,000
- C) \$3,180,000
- D) \$4,380,000

Answer: B

Diff: 3

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

5) Beckham Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$55
Fixed costs per year	\$400,000
Expected sales per year	20,000 units

What is the expected operating income for a year?

- A) \$480,000
- B) \$500,000
- C) \$680,000
- D) \$700,000

Answer: B

Diff: 1

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

6) Suppose a Super 9 Hotel has annual fixed costs applicable to its rooms of \$1.0 million for its 300-room hotel. Average daily room rents are \$60 per room and average variable costs are \$10 for each room rented. It operates 365 days per year. If the hotel is one-half full throughout the entire year, what is the amount of net income for one year?

- A) \$1,737,500
- B) \$4,475,000
- C) \$5,475,000
- D) \$5,570,000

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

7) Step Company has total variable costs of 80% of total revenues and fixed costs of \$20 million per year. What is the break-even point expressed in total revenue dollars?

- A) \$10 million
- B) \$12.5 million
- C) \$20 million
- D) \$100 million

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

8) Cornwell Company, a producer of electronic components, has the following information:

Income tax rate	30%
Selling price per unit	\$8.00
Variable cost per unit	\$3.00
Total fixed costs	\$120,000.00

The break-even point in dollars is _____.

- A) \$150,000
- B) \$180,000
- C) \$192,000
- D) \$320,000

Answer: C

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

9) Christian Corporation sells desks at \$480 per desk. The variable costs are \$300 per desk. Total fixed costs for the period are \$540,000. The break-even point in desks is _____.

- A) 1,125
- B) 1,800
- C) 3,000
- D) 4,230

Answer: C

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

10) Abbott Company sells desks at \$480 per desk. The variable costs are \$372 per desk. Total fixed costs for the period are \$456,840. The break-even volume in dollars is _____.

- A) \$456,840
- B) \$589,471
- C) \$1,573,560
- D) \$2,030,400

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

11) Murphy Company produces dolls. Each doll sells for \$20.00. Variable costs per unit are \$14.00 and total fixed costs for the period are \$435,000. What is the break-even point in units?

- A) 21,750
- B) 31,071
- C) 51,176
- D) 72,500

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

12) Johnson Company produces dolls. Each doll sells for \$20.00. Variable costs per unit are \$14.00 and total fixed costs for the period are \$300,000. What is the break-even volume in dollars?

- A) \$50,000
- B) \$621,429
- C) \$1,000,000
- D) \$1,450,000

Answer: C

Diff: 1

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

13) Jensen Company produces dolls. Each doll sells for \$20.00. Variable costs are \$14.00 per unit. If the break-even volume in dollars is \$1,446,000, then the total fixed costs for the period are _____.

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

Answer: B

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

14) Assume the sales price is \$34 per unit and the variable cost is \$19 per unit. The break-even point is 12,000 units. What are total fixed costs?

- A) \$180,000
- B) \$190,000
- C) \$340,000
- D) \$530,000

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

15) Assume the sales price is \$100 per unit and the variable cost is \$75 per unit. Total fixed costs are \$150,000. Then the break-even volume in dollar sales is _____.

- A) \$1,500
- B) \$150,000
- C) \$200,000
- D) \$600,000

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

16) Assume the sales price is \$100 per unit and the total fixed costs are \$75,000. The break-even volume in dollar sales is \$250,000. What is the variable cost per unit?

- A) \$30
- B) \$70
- C) \$100
- D) \$125

Answer: B

Diff: 3

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

17) Suppose Sunnyside Hotel has annual fixed costs applicable to its rooms of \$1.0 million for its 300-room hotel. Average daily room rents are \$60 per room, and average variable costs are \$10 for each room rented. It operates 365 days per year. What is the break-even point in number of rooms rented?

- A) 20,000
- B) 30,000
- C) 100,000
- D) 120,000

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

18) Suppose Shady Lane Hotel has annual fixed costs applicable to its rooms of \$1.0 million for its 300-room hotel. Average daily room rents are \$60 per room and average variable costs are \$10 for each room rented. It operates 365 days per year. What percent of occupancy is needed to breakeven?

- A) 3.65%
- B) 18.3%
- C) 27.4%
- D) 34.3%

Answer: B

Diff: 3

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

19) Sharpie Company has variable costs of 75% of total revenues and fixed costs of \$40 million per year. What is the break-even point in dollars?

- A) \$40 million
- B) \$53.33 million
- C) \$100 million
- D) \$160 million

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

20) The sales price is \$30 per unit, the contribution margin is \$8 per unit and total fixed costs are \$32,000. What is the break-even point in units?

- A) 857
- B) 1,200
- C) 2,000
- D) 4,000

Answer: D

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

21) If the total amount of fixed costs increases, what is the effect on the break-even point? (Assume no other changes.)

- A) The break-even point increases.
- B) The break-even point decreases.
- C) The break-even point remains the same.
- D) The break-even point is zero.

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

22) If the variable cost per unit increases, what is the effect on the break-even point? (Assume no other changes.)

- A) The break-even point increases.
- B) The break-even point decreases.
- C) The break-even point remains the same.
- D) The break-even point is zero.

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

23) If the selling price per unit increases, what is the effect on the break-even point? (Assume no other changes.)

- A) The break-even point increases.
- B) The break-even point decreases.
- C) The break-even point remains the same.
- D) The break-even point is zero.

Answer: B

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

24) Which action will decrease a company's break-even point?

- A) reducing total fixed costs
- B) decreasing contribution margin per unit
- C) increasing variable cost per unit
- D) decreasing the selling price per unit

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

25) Assume Mussa Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$45
Fixed costs per year	\$420,000
Expected sales per year (units)	20,000

If fixed costs increase by \$200,000, what is the expected operating income?

- A) \$280,000
- B) \$480,000
- C) \$680,000
- D) \$1,380,000

Answer: B

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

26) Assume Hull Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$40
Fixed costs per year	\$400,000
Expected sales per year (units)	20,000

If fixed costs increase by \$200,000, what is the break-even point in units?

- A) 6,667
- B) 10,000
- C) 12,000
- D) 13,000

Answer: B

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

27) The following information is available for Trump Corporation:

Total fixed costs	\$300,000
Variable costs per unit	\$100
Selling price per unit	\$200

If total fixed costs increased to \$600,000, then the break-even volume in dollars would increase by _____.

- A) 10.0%
- B) 50.0%
- C) 100%
- D) 200%

Answer: C

Diff: 3

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

28) Assume Unicorn Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$45
Fixed costs per year	\$420,000
Expected sales per year	20,000 units

If variable costs increase to \$65 per unit, what is the expected net income for one year?

- A) \$280,000
- B) \$700,000
- C) \$880,000
- D) \$1,580,000

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

29) Assume fixed costs are constant and contribution margin per unit is reduced by 50 percent. What will happen to the break-even point in units?

- A) It will decrease 50 percent.
- B) It will increase 100 percent.
- C) It will be the same.
- D) It will increase 50 percent.

Answer: B

Diff: 3

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

30) If the contribution margin per unit increases, what is the effect on the break-even point? (Assume no other changes.)

- A) The break-even point increases.
- B) The break-even point decreases.
- C) The break-even point remains the same.
- D) The break-even point will be zero.

Answer: B

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

31) Xerox Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$45
Fixed costs per year	\$420,000
Expected sales per year (units)	20,000

If variable costs increase to \$65 per unit, what is the break-even point in units?

- A) 12,000
- B) 13,000
- C) 20,000
- D) none of the above

Answer: A

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

32) The break-even point may be reduced by reducing total fixed costs and holding everything else constant.

Answer: TRUE

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

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

Answer: FALSE

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

34) An increase in the sales price per unit will cause a decrease in the break-even point.

Answer: TRUE

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

35) The break-even point is when enough units are sold that total contribution margin equals total variable costs.

Answer: FALSE

Diff: 1

LO: 2-5

AACSB: Reflective thinking skills

Learning Outcome: Perform fundamental CVP calculations

36) Wehr Corporation produces one product. Total fixed costs are \$600,000. The unit selling price is \$60.00 and the unit variable cost is \$45.00.

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 point in dollars.

Answer:

A) $\$60.00 - \$45.00 = \$15.00$

B) $\$15.00/\$60.00 = 0.25$

C) $\$600,000/\$15.00 = 40,000$ units

D) $40,000 \times \$60 = \$2,400,000$

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

37) Stefanko Manufacturing has prepared the following income statement:

Sales	\$450,000
Cost of goods sold	<u>200,000</u>
Gross margin	250,000
Operating expenses	<u>196,000</u>
Operating income	<u>\$54,000</u>

According to company records, \$100,000 of Cost of Goods Sold and \$100,000 of Operating Expenses are fixed.

Required:

- A) Compute the contribution margin.
- B) Compute the contribution margin ratio.
- C) Compute the break-even point in sales dollars.

Answer:

A) Fixed costs = \$100,000 + \$100,000 = \$200,000

Variable costs = \$100,000 + \$96,000 = \$196,000

Contribution Margin = \$450,000 - \$196,000 = \$254,000

B) $\$254,000/\$450,000 = 56.44\%$

C) $\$200,000/0.5644 = \$354,359$

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

38) Bruder Company produces one type of product. Total fixed costs are \$100,000. Unit variable costs are \$6.00. The break-even point is 25,000 units. Planned unit sales are 30,000.

Required:

- A) Compute the selling price per unit.
- B) Compute the contribution-margin ratio.
- C) Compute the break-even point in dollars.

Answer:

A) $\frac{\$100,000}{X - \$6} = 25,000$

$$(X - 6)25,000 = 100,000$$

$$X = \$10$$

B) $(\$10 - \$6)/\$10 = 0.40$

C) $25,000 \times \$10 = \$250,000$

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

39) Franklin Company produces only one product. The selling price is \$100 per unit and the variable cost is \$60 per unit. Total fixed costs are \$120,000.

Required:

A) Compute break-even point in units.

B) Compute break-even point in dollars.

Answer: A) $\$120,000/(\$100 - \$60) = 3,000$ units

B) $3,000 \text{ units} \times \$100 = \$300,000$

Diff: 2

LO: 2-5

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

2.6 Questions

1) What is the margin of safety in dollars?

A) planned net income minus actual net income

B) planned revenue minus actual expenses

C) actual revenue in dollars minus planned revenue in dollars

D) planned sales in dollars minus break-even sales in dollars

Answer: D

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

2) The county government released \$100,000 as an appropriation for a counseling program for at-risk teenagers. The program should run one year and the variable costs for the program are \$400 per teenager per year. Within the relevant range of 50 to 150 teenagers, the fixed costs for the program are \$60,000.

How many teenagers can the program serve?

A) 50

B) 100

C) 150

D) 250

Answer: B

Diff: 3

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: Perform fundamental CVP calculations

3) Assume the following information for Janice Company:

Selling price per unit	\$100
Variable costs per unit	\$80
Total fixed costs	\$80,000

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) \$101.00
- B) \$102.40
- C) \$102.00
- D) \$103.00

Answer: C

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

4) What does the margin of safety in units measure?

- A) how far fixed costs can rise before an operating loss occurs
- B) how far variable costs can rise before an operating loss occurs
- C) how far total costs can rise before an operating loss occurs
- D) how far sales can fall before an operating loss occurs

Answer: D

Diff: 3

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

5) Falls Company has budgeted sales of \$120,000 based on 80,000 units. The margin of safety is \$1,000. What is the break-even point in dollars?

- A) \$81,000
- B) \$119,000
- C) \$120,000
- D) \$121,000

Answer: B

Diff: 3

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

6) Winston Company has variable costs of \$5 per unit and a selling price of \$10 per unit. Fixed costs are \$100,000. Planned unit sales for 2015 are 25,000 units. Actual unit sales for 2014 were 22,000 units. What is the margin of safety in units for 2015?

- A) 2,000 units
- B) 3,000 units
- C) 5,000 units
- D) 7,000 units

Answer: C

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

7) Worbel Company has variable costs of \$5 per unit and a selling price of \$10 per unit. Fixed costs are \$100,000. Planned unit sales for 2015 are 25,000 units. Actual unit sales for 2014 were 22,000. What is the margin of safety in dollars for 2015?

- A) \$5,000
- B) \$20,000
- C) \$30,000
- D) \$50,000

Answer: D

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

8) Wetzel Company has variable costs of \$5 per unit and a selling price of \$10 per unit. Fixed costs are \$200,000. Planned unit sales for 2015 are 45,000 units. Actual unit sales for 2014 were 42,000. What is the margin of safety in units for 2015?

- A) 2,000 units
- B) 3,000 units
- C) 5,000 units
- D) 7,000 units

Answer: C

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

9) Operating leverage is the sensitivity of a firm's _____ to changes in _____.

- A) sales volume; the cost structure
- B) margin of safety; ratio of fixed costs to variable costs
- C) sales volume; the cost driver levels
- D) net income; sales volume

Answer: D

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

10) The degree of operating leverage for a firm equals the ratio of _____ to _____.

- A) fixed costs; variable costs
- B) variable costs; fixed costs
- C) fixed costs: operating profit
- D) contribution margin; net income

Answer: D

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

11) The degree of operating leverage for Geesling Company is 8.0 at 80,000 units of sales. At 80,000 units of sales, the net profit is \$10,000. If the sales volume increases to 90,000 units, what is the net profit?

- A) \$12,000
- B) \$20,000
- C) \$22,222
- D) \$80,000

Answer: B

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

12) The degree of operating leverage for Murphy Company is 8.0 at 80,000 units of sales. At 80,000 units of sales, the net profit is \$10,000. If the sales volume decreases to 72,000 units, what is the net profit?

- A) \$2,000
- B) \$8,000
- C) \$10,000
- D) \$18,000

Answer: A

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

13) Gokey Company has a contribution-margin ratio of 0.30. Targeted net income is \$76,800 and targeted sales volume in dollars is \$480,000. What are total fixed costs?

- A) \$23,000
- B) \$44,160
- C) \$67,200
- D) \$144,000

Answer: C

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

14) Key Company has a targeted sales volume of 62,300 units. Total fixed costs are \$31,200. The contribution margin per unit is \$1.20. What is targeted net income?

- A) \$31,200
- B) \$37,440
- C) \$43,560
- D) \$74,760

Answer: C

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

15) Goy Company has a break-even point of 88,000 units. The contribution margin per unit is \$9.60. The desired target profit is \$18,096. How many units must be sold to achieve the desired profit?

- A) 1,885 units
- B) 88,000 units
- C) 89,885 units
- D) 106,096 units

Answer: C

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

16) Assume the following facts:

Sales price	\$180 per unit
Variable cost	\$100 per unit
Total fixed costs	\$39,600
Targeted net income	\$52,800

How many units must be sold to achieve the targeted net income?

A) 513

B) 629

C) 963

D) 1,155

Answer: D

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

17) Helium Company has the following information available:

Selling price per unit	\$5.00
Variable cost per unit	\$3.50
Total fixed costs	\$90,000.00
Targeted net income	\$30,000.00

How many units must be sold to achieve the targeted net income?

A) 10,000 units

B) 27,000 units

C) 45,000 units

D) 80,000 units

Answer: D

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

18) The following information is available for Kinsner Corporation:

Total fixed costs	\$313,500
Variable costs per unit	\$99
Selling price per unit	\$154

If management has a targeted net income of \$46,200, then the number of units that must be sold is _____.

- A) 2,036 units
- B) 2,336 units
- C) 5,700 units
- D) 6,540 units

Answer: D

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

19) The following information is available for Kismer Corporation:

Total fixed costs	\$313,500
Variable costs per unit	\$90
Selling price per unit	\$150

If management has a targeted net income of \$59,400, then sales revenue should be _____.

- A) \$239,721
- B) \$580,067
- C) \$671,220
- D) \$932,250

Answer: D

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

20) Berea Company expects to sell 19,000 units. Total fixed costs are \$84,000 and the contribution margin per unit is \$6.00. Berea's tax rate is 40%. What is the margin of safety in units?

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

Answer: B

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: None

21) Yemen Company has the following information available:

Selling price per unit	\$100
Variable cost per unit	\$45
Fixed costs per year	\$420,000
Expected sales per year (units)	20,000

If variable costs increase to \$65 per unit and fixed costs increase by \$200,000, what is the break-even point in units?

- A) 11,273
- B) 12,000
- C) 20,000
- D) 17,714

Answer: D

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Define and use cost-volume-profit analysis to analyze the effects of changes in costs and volume on a company's profits

22) In companies with high operating leverage, small changes in sales volume result in large changes in net income.

Answer: TRUE

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

23) Companies with high levels of operating leverage are less risky than companies with low levels of operating leverage.

Answer: FALSE

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

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

Answer: TRUE

Diff: 2

LO: 2-6

AACSB: Reflective thinking skills

Learning Outcome: None

25) The Eastman Family Restaurant is open 24 hours per day. Fixed costs are \$24,000 per month. Variable costs are estimated at \$9.60 per meal. The average revenue is \$12 per meal. The restaurant wished to earn a profit before taxes of \$6,000 per month.

Required:

- A) Compute the number of meals that must be served to earn a profit before taxes of \$6,000 per month.
- B) Assume that fixed costs increase to \$30,000 per month. How many additional meals must be served to earn a profit before taxes of \$6,000 per month?

Answer:

A) $(\$24,000 + \$6,000)/(\$12.00 - \$9.60) = 12,500$ meals

B) $(\$30,000 - \$24,000)/(\$12.00 - \$9.60) = 2,500$ meals

Diff: 3

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

26) Sole Company manufactures running shoes. The selling price is \$80 per pair (unit) and variable costs are \$60 per pair (unit). The sales volume of \$776,000 generates \$100,750 of net income before taxes.

Required:

- A) Compute total fixed costs.
- B) Compute total variable costs.
- C) Compute the break-even point in units.
- D) Compute the quantity of units above the break-even point to reach targeted net income before taxes.

Answer:

A) $\$776,000/\$80 = 9,700$ units

Variable costs = $\$60 \times 9,700 = \$582,000$

Fixed costs = $\$776,000 - \$582,000 - \$100,750 = \$93,250$

B) $9,700 \times \$60 = \$582,000$

C) $\$93,250/(\$80 - \$60) = 4,662.5 = 4,663$ units

D) $9,700 - 4,663 = 5,038$ units

Diff: 2

LO: 2-6

AACSB: Analytic skills

Learning Outcome: Perform fundamental CVP calculations

2.7 Questions

1) Nealy Company has the following information available:

Revenue	\$500,000
Variable production costs	\$100,000
Fixed production costs	\$100,000
Variable selling costs	\$50,000
Fixed selling costs	\$50,000

What is the contribution margin?

- A) \$300,000
- B) \$350,000
- C) \$400,000
- D) \$450,000

Answer: B

Diff: 2

LO: 2-7

AACSB: Analytic skills

Learning Outcome: None

2) Henricks Company has the following information available:

Revenue	\$500,000
Variable production costs	\$100,000
Fixed production costs	\$100,000
Variable selling costs	\$50,000
Fixed selling costs	\$50,000

What is the gross margin and net income?

- A) \$200,000; \$200,000
- B) \$250,000; \$150,000
- C) \$300,000; \$200,000
- D) \$400,000; \$200,000

Answer: C

Diff: 2

LO: 2-7

AACSB: Analytic skills

Learning Outcome: None

3) _____ is the excess of sales over the cost of goods sold.

- A) Gross margin
- B) Contribution-margin ratio
- C) Variable-cost ratio
- D) Contribution margin

Answer: A

Diff: 1

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

4) Contribution margin is equal to _____.

- A) sales minus variable costs
- B) sales minus fixed costs
- C) sales minus variable production costs
- D) sales minus production costs

Answer: A

Diff: 1

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

5) The following information is available for a company:

Sales	\$1,000,000
Variable Selling Expenses	23,000
Fixed Selling Expenses	33,000
Variable Administrative Expenses	39,000
Fixed Administrative Expenses	10,000
Variable Cost of Goods Sold	300,000
Fixed Cost of Goods Sold	100,000

What is the contribution margin for this company?

- A) \$500,000
- B) \$600,000
- C) \$638,000
- D) \$700,000

Answer: C

Diff: 2

LO: 2-7

AACSB: Analytic skills

Learning Outcome: None

6) The following information for Zippy Company is:

Sales	\$1,000,000
Variable Selling Expenses	23,000
Fixed Selling Expenses	33,000
Variable Administrative Expenses	39,000
Fixed Administrative Expenses	10,000
Variable Cost of Goods Sold	300,000
Fixed Cost of Goods Sold	100,000

What is the gross margin for this company?

- A) \$500,000
- B) \$548,000
- C) \$578,000
- D) \$600,000

Answer: D

Diff: 2

LO: 2-7

AACSB: Analytic skills

Learning Outcome: None

7) The following information is available for Company ZZ:

Sales	\$1,000,000
Variable Selling Expenses	22,000
Fixed Selling Expenses	33,000
Variable Administrative Expenses	30,000
Fixed Administrative Expenses	10,000
Variable Cost of Goods Sold	400,000
Fixed Cost of Goods Sold	100,000

If sales increase to \$1,500,000, what is operating income?

- A) \$405,000
- B) \$500,000
- C) \$548,000
- D) \$679,000

Answer: D

Diff: 3

LO: 2-7

AACSB: Analytic skills

Learning Outcome: None

8) Gross margin is the same as contribution margin for most companies.

Answer: FALSE

Diff: 2

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

9) Gross margin focuses on sales in relation to variable costs.

Answer: FALSE

Diff: 1

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

10) Cost of goods sold is the cost of the merchandise that a company acquires or produces and then sells.

Answer: TRUE

Diff: 1

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

11) Selling expenses are found in the cost of goods sold.

Answer: FALSE

Diff: 1

LO: 2-7

AACSB: Reflective thinking skills

Learning Outcome: None

2.8 Questions

1) Which statement is FALSE?

A) Each different sales-mix of products has a different break-even point.

B) Changes in the sales-mix of products sold affects a company's net operating profit.

C) Changes in the sales-mix of products sold affects a company's contribution margin.

D) If the sales-mix of products sold changes, the break-even point does not change.

Answer: D

Diff: 2

LO: 2-8

AACSB: Reflective thinking skills

Learning Outcome: None

2) _____ is the relative proportions or combinations of quantities of different products that comprise total sales.

A) Sales mix

B) Constant mix

C) Fluctuating mix

D) Variable cost ratio

Answer: A

Diff: 1

LO: 2-8

AACSB: Reflective thinking skills

Learning Outcome: None

3) Assume the following facts for two products, Zip and Zap:

	<u>Zip</u>	<u>Zap</u>
Sales mix	3 units	1 unit
Selling price per unit	\$21.00	\$28.00
Variable costs per unit	\$14.00	\$16.00

If total fixed costs are \$132,000, the break-even point in units would be _____.

- A) 4,000 units of Zip and 12,000 units of Zap
- B) 1,200 units of Zip and 400 units of Zap
- C) 12,000 units of Zip and 4,000 units of Zap
- D) 8,400 units of Zip and 2,800 units of Zap

Answer: C

Diff: 3

LO: 2-8

AACSB: Analytic skills

Learning Outcome: None

4) Assume the following information for two products, Hawaii Fantasy and Hawaii Joy.

	<u>Hawaii Fantasy</u>	<u>Hawaii Joy</u>
Sales mix	2 units	1 unit
Selling price per unit	\$15	\$100
Variable cost per unit	\$10	\$40

Fixed expenses total \$490,000 per year. What is the breakeven point in units for each product?

- A) 4,575 units of Hawaii Fantasy and 18,300 units of Hawaii Joy
- B) 7,000 units of Hawaii Fantasy and 14,000 units of Hawaii Joy
- C) 18,300 units of Hawaii Fantasy and 4,575 units of Hawaii Joy
- D) 14,000 units of Hawaii Fantasy and 7,000 units of Hawaii Joy

Answer: D

Diff: 3

LO: 2-8

AACSB: Analytic skills

Learning Outcome: None

5) If the proportions of different products sold in a sales mix change, the _____.

- A) contribution margin per unit for each product increases
- B) break-even point will change
- C) contribution margin per unit for each product decreases
- D) net income will not change

Answer: B

Diff: 2

LO: 2-8

AACSB: Reflective thinking skills

Learning Outcome: None

6) Nearly all companies sell more than one product, and thus, they must be concerned with sales mix.

Answer: TRUE

Diff: 1

LO: 2-8

AACSB: Reflective thinking skills

Learning Outcome: None

7) The contribution margin per unit of a given product guides managers when deciding which product to emphasize in a sales mix.

Answer: TRUE

Diff: 2

LO: 2-8

AACSB: Reflective thinking skills

Learning Outcome: None

8) Lakers Company produces two products. The following information is available:

	<u>Product X</u>	<u>Product Y</u>
Selling price per unit	\$46	\$36
Variable cost per unit	\$38	\$24

Total fixed costs are \$234,000. Lakers plans to sell 21,000 units of Product X and 7,000 units of Product Y.

Required:

- A) Compute the contribution margin for each product.
- B) What is the expected net income?
- C) Assume the sales mix is 3 units of Product X for every 1 unit of Product Y. What is the break-even point in units for each product?
- D) Assume the sales mix is 3 units of Product X for every 2 units of Product Y. What is the break-even point in units for each product?

Answer:

A) Product X: Contribution margin = \$46 - \$38 = \$8

Product Y: Contribution margin = \$36 - \$24 = \$12

B) Contribution margin ($\$8 \times 21,000$) + ($\$12 \times 7,000$) = \$252,000

Net income = \$252,000 - \$234,000 = \$18,000

C) $(\$8 \times 3)Z + (\$12 \times 1)Z - \$234,000 = 0$

$$\$24Z + \$12Z = \$234,000$$

$$Z = 6,500 \text{ units}$$

$$\text{Product X: } 6,500 \times 3 = 19,500 \text{ units}$$

$$\text{Product Y: } 6,500 \text{ units}$$

D) $(\$8 \times 3)Z + (\$12 \times 2)Z - \$234,000 = 0$

$$\$24Z + \$24Z = \$234,000$$

$$Z = 4,875 \text{ units}$$

$$\text{Product X: } 4,875 \times 3 = 14,625 \text{ units}$$

$$\text{Product Y: } 4,875 \times 2 = 9,750 \text{ units}$$

Diff: 3

LO: 2-8

AACSB: Analytic skills

Learning Outcome: None

2.9 Questions

1) Seidner Company has the following information available:

Total fixed costs	\$80,000
Targeted after-tax net income	\$18,000
Contribution margin per unit	\$2.00
Tax rate	40%

How many units must be sold to achieve the targeted after-tax net income?

- A) 45,400
- B) 49,000
- C) 55,000
- D) 62,500

Answer: C

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

2) The Todd Dolhun Company has the following information available:

Targeted after-tax net income	\$120,000
Total fixed costs	\$300,000
Contribution margin per unit	\$2
Tax rate	40%

How many units should be sold to achieve the targeted after-tax net income?

- A) 180,000
- B) 210,000
- C) 250,000
- D) 300,000

Answer: C

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

3) The Troy Company has the following information available:

Total fixed costs	\$400,000
Expected sales (units)	100,000
Contribution margin per unit	\$7.50
Tax rate	30%

What is the after-tax net income?

- A) \$245,000
- B) \$280,000
- C) \$350,000
- D) \$400,000

Answer: A

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

4) Assume the following information for Rodney Company:

Selling price per unit	\$100
Variable cost per unit	\$80
Total fixed costs	\$80,000
After-tax net income	\$24,000
Tax rate	40%

To achieve the targeted after-tax net income, what amount of sales in dollars is necessary?

- A) \$400,000
- B) \$520,000
- C) \$600,000
- D) \$660,000

Answer: C

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

5) Assume the following information for Richard Company:

Selling price per unit	\$100
Variable cost per unit	\$80
Total fixed costs	\$80,000
After-tax net income	\$40,800
Tax rate	40%

How many units must be sold to achieve the after-tax net income?

- A) 6,040
- B) 7,400
- C) 7,770
- D) 7,800

Answer: B

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

6) Benjamin Company has the following information available:

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

If Benjamin Company wants a targeted after-tax net income of \$14,000, how many units must be sold?

- A) 45,000
- B) 52,000
- C) 55,000
- D) 60,000

Answer: C

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

7) John Company has the following information:

Income tax rate	40%
Selling price per unit	\$7.50
Variable cost per unit	\$2.50
Total fixed costs	\$100,000
Target after-tax net income	\$42,000

Assume the tax rate decreases to 30%. How many fewer units can be sold to retain the same after-tax net income of \$42,000?

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

Answer: B

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

8) Atkinson Company wishes to earn after-tax net income of \$18,000. Total fixed costs are \$84,000 and the contribution margin is \$6.00 per unit. Atkinson's tax rate is 40%. The number of units that must be sold to earn the targeted net income is _____.

- A) 14,000
- B) 17,000
- C) 19,000
- D) 21,500

Answer: C

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

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

Answer: TRUE

Diff: 2

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

10) The Wolter Company has provided the following information:

Income tax rate	50%
Selling price per unit	\$6.60
Variable cost per unit	\$5.00
Total fixed costs	\$46,000.00

Required:

A) Compute the break-even point in units.

B) Compute the sales volume in units necessary to generate an after-tax net income of \$10,000.

C) Compute the sales volume in units necessary to generate an after-tax net income of \$20,000.

Answer:

A) $\$46,000 / (\$6.60 - \$5.00) = 28,750$ units

B) $\$10,000 / 0.50 = \$20,000$

$(\$20,000 + \$46,000) / (\$1.60) = 41,250$ units

C) $\$20,000 / 0.50 = \$40,000$

$(\$40,000 + \$46,000) / (\$1.60) = 53,750$ units

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None

11) Lorna Corporation has determined the contribution margin ratio is 35% and the income tax rate is 40%.

Required:

A) Assume break-even volume in dollars is \$1,500,000. What are total fixed costs?

B) Assume Lorna Corporation wants after-tax net income of \$300,000. What volume of sales in dollars is necessary to achieve this net income?

Answer:

A) $\$1,500,000 \times 0.35 = \$525,000$

B) $\$300,000 / 0.6 = \$500,000$

$(\$500,000 + \$525,000) / 0.35 = \$2,928,571.4$

Diff: 3

LO: 2-9

AACSB: Analytic skills

Learning Outcome: None