Multiple Choice Questions

1. A mixed cost
   a) is fixed over a wider range of activity than a variable cost.
   b) is a fixed cost over the relevant range and a variable cost everywhere else.
   c) contains both fixed and variable components.
   d) always increases on a per unit basis.

2. The per-unit amount of three different production costs for Jones, Inc., are as follows:

Production	Cost A	Cost B	Cost C
20,000	$12.00	$15.00	$20.00
80,000	$12.00	$11.25	$5.00

   What type of cost is each of these three costs?
   a) Cost A is mixed, Cost B is variable, Cost C is mixed
   b) Cost A is fixed, Cost B is mixed, Cost C is variable.
   c) Cost A is fixed, Cost B is variable, Cost C is mixed.
   d) Cost A is variable, Cost B is mixed, Cost C is fixed.

3. An activity level the company expects to operate at is called a
   a) Margin of Safety
   b) Relevant range
   c) Contribution margin
   d) Target net income

4. Buddy uses the high-low method of estimating costs. Bud had total costs of $50,000 at its lowest level of activity, when 5,000 units were sold. When, at its highest level of activity, sales equaled 12,000 units, total costs were $78,000. Bud would estimate variable cost per unit as
   a) $10.00
   b) $6.50
   c) $4.00
   d) $7.53

5. Buddy uses the high-low method of estimating costs. Bud had total costs of $50,000 at its lowest level of activity, when 5,000 units were sold. When, at its highest level of activity, sales equaled 12,000 units, total costs were $78,000. Bud would estimate the fixed cost to be
   a) $20,000
   b) $30,000
   c) $40,000
   d) $50,000

6. ABC company sells shoes for $450. The variable cost is $200 per unit. The fixed costs are $750,000. What is the breakeven in sales dollars?
   a) $750,000
   b) $937,500
   c) $1,350,000
   d) $1,687,500

7. ABC company sells shoes for $450. The variable cost is $200 per unit. The fixed costs are $750,000. The company wants to have a profit of $250,000. How many units do they have to sell to achieve this goal?

a) 3,000
b) 4,000
c) 5,000
e) 6,000

8. According to the graph below, what is the break-even point in units?

a) 400
b) 600
c) 200
d) 700

9. Determine the margin of safety ratio from the following data:

Sales	$30 per unit
Variable Cost	$10 per unit
Units Sold	750 units
Fixed Costs	$10,000

a) 20%
b) 33%
c) 45%
d) 75%

10. Determine fixed costs using the high-low method from the following data:

Total Costs	Level of Activity
$65,000	11,250
$52,000	8,000
$86,000	16,500

a) 45,000
b) 20,000
c) 16,500
d) 9,500

Practice Problems

Practice Problem #1

A Company accumulated the following data for a delivery truck.

	Miles Driven	Total Cost		Miles Driven	Total Cost
January	10,000	$15,000	March	9,000	$12,500
February	8,000	$14,500	April	7,500	$13,000

Required: a) Determine the equation to predict total costs for the delivery truck.
b) Calculate the total costs be if 12,187 miles were driven.

Practice Problem #2

Data concerning N Company's activity for the first six months of the year appear below:

	Machine Hours	Electrical Cost
January	4,000	$3,120
February	6,000	4,460
March	4,800	3,500
April	5,800	5,040
May	3,600	2,900
June	4,200	3,200

Required: Using the high-low method of analysis, estimate the variable electrical cost per machine hour.

Practice Problem #3

P Company has provided the following data:

Sales Price per unit: $50
Variable Cost per unit: $30
Fixed Cost: $135,000
Expected Sales: 20,000 units

a) What is the breakeven point in sales dollars?
b) What is the current margin of safety?
c) If the company wants to have net income of $70,000, how many units must they sell?

Solutions

1. C
2. D
3. B
4. C
5. B
6. C
7. B
8. A
9. B
10. B

Practice Problem #1

a)

	High Point	-	Low Point	=	Change
Cost $	$15,000		$13,000		$2,000
Activity	10,000		7,500		2,500

$$\frac{\text{Change in Cost \$}}{\text{Change in Activity}} = \frac{\$2,000}{2,500} = \$0.80 \text{ variable cost/unit}$$

Using either the high point or low point, total fixed cost is calculated next:

Fixed Cost	=	Total Cost	-	Variable Cost
$7,000	=	$15,000	-	$8,000 = $0.80 (10,000)
OR				
$7,000	=	$13,000	-	$6,000 = $0.80 (7,500)

The equation is: $Y = \$7,000 + \$0.80(X)$

b)

Total Cost	=	Fixed Cost	+	Variable Cost
Y	=	a	+	b(X)
$16,750	=	$7,000	+	$9,750 = $0.80 (12,187)

Practice Problem #2:

High Point	-	Low Point	=	Change

Cost $	$4,460	$2,900	$1,560
Activity	6,000	3,600	2,400

$$\frac{\text{Change in Cost \$}}{\text{Change in Activity}} = \frac{\$1,560}{2,400} = \$0.65 \text{ variable cost/unit}$$

Practice Problem #3:

a)

	unit	ratio
sales	50	100%
Variable cost	30	60%
Contribution margin	20	40%

Fixed cost/contribution margin ratio= breakeven in sales dollars
135,000/ 40%= $337,500

b)Find current margin of safety

Current Income:

Sales (20,000*$50)	$1,000,000
Variable Cost (20,000* 30)	600,000
Contribution Margin	400,000
Fixed Expenses	135,000
Net Income	265,000

Sales- Breakeven Sales= Margin of Safety
1,000,000- 337,500= $662,500

c) (Fixed Costs + Target Profit)/ contribution margin per unit
(135,000+500,000)/ 20= 31,750