

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:

<u>Production</u>	<u>Cost A</u>	<u>Cost B</u>	<u>Cost C</u>
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
- \$20,000
 - \$30,000
 - \$40,000
 - \$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?
- \$750,000
 - \$937,500
 - \$1,350,000
 - \$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?
- 3,000
 - 4,000
 - 5,000
 - 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.

	<u>Miles Driven</u>	<u>Total Cost</u>		<u>Miles Driven</u>	<u>Total Cost</u>
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:

	<u>Machine Hours</u>	<u>Electrical Cost</u>
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

- What is the breakeven point in sales dollars?
- What is the current margin of safety?
- 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)

<u>Cost \$</u>	<u>High Point</u> \$15,000	<u>-</u>	<u>Low Point</u> \$13,000	<u>=</u>	<u>Change</u> \$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)
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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:

<u>High Point</u>	<u>-</u>	<u>Low Point</u>	<u>=</u>	<u>Change</u>
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<u>Cost \$</u>	<u>\$4,460</u>	<u>\$2,900</u>	<u>\$1,560</u>
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)	<u>600,000</u>
Contribution Margin	400,000
Fixed Expenses	<u>135,000</u>
Net Income	265,000

Sales- Breakeven Sales= Margin of Safety

$$1,000,000 - 337,500 = \$662,500$$

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