

**REVIEW FOR EXAM NO. 2, ACCT-2302**  
**(Chapters 17-19)**

**(SAC)**

**A. Chapter 17 (Activity-Based Costing & Analysis).**

1. Plant-wide Overhead Rate Method (Page 667)

a. Traditional Costing:

(1) Single pre-determined overhead rate for allocating all overhead costs.

b. Single Plant-wide Overhead Rate. (Page 668)

(1) Formula: 
$$\text{Overhead Rate} = \frac{\text{Estimated overhead costs}}{\text{Estimated activity base}}$$

(2) Activity Base - can be any appropriate cost driver such as, direct labor hours, machine hours, direct labor cost, material costs, etc..

2. Activity-Based Costing (ABC) Method. (Page 672)

a. Multiple cost pools (i.e.,activities).

(1) Multiple pre-determined overhead rates for related activities.

b. In the ABC method, many activities, within a department, drive overhead costs.  
(costs are assigned on the basis of activities)

c. Cost Allocation Process:

- (1) Identify specific activities consuming costs.
- (2) Determine activity cost pools.
- (3) Identify cost driver (factor that causes costs to go up and down).
- (4) Compute predetermined overhead cost rate for each cost pool.
- (5) Assign costs to jobs based on cost pool rates.

d. Can be applied to, and utilized by, any type of business.

e. System traces cost to products on the basis of activities performed in the production process.

## **B. Chapter 18 (Cost-Volume-Profit Analysis).**

### 1. Cost Behavior Analysis. (Page 705)

- a. Study of how costs respond to changes in activity level within a firm/organization. Provides management data with which to predict sales/revenue.
- b. Activity base identifies the activity that causes changes in behavior of costs, and is sometimes referred to as a "cost driver".
- c. The range of activity, in which a specific relationship exists between cost and volume, and is the focus of most management operating decisions, is known as the "relevant range".

### 2. Cost Behavior Classifications. (Pages 706-707)

#### a. Variable Costs:

- (1) Costs that change in total, and proportionately, with changes in activity (production) level.
- (2) Remains constant "per unit" at every level of activity.

#### b. Fixed Costs:

- (1) Costs that remain the same "in total" regardless of changes in the activity level.
- (2) Vary inversely with activity (unit costs decline as volume increases and vice versa).

#### c. Mixed Costs:

- (1) Contains both a variable and fixed cost element (also called semi-variable cost).
- (2) Increase in total, but not proportionately with changes in activity level.

### 3. High-Low Method of Cost Separation. (Page 709)

- a. A cost estimation technique used to separate a mixed cost into its' fixed and variable components.
- b. This method uses a 4-step process to identify the variable and fixed costs.
  - (1) From a set of data, identify the highest level of production and cost, and identify the lowest level of production and cost.
  - (2) Calculate the difference in production units and cost between the high and low levels.
  - (3) Compute the variable cost per unit by dividing the cost difference by the production units difference.
  - (4) Determine the fixed cost by substituting the applicable data (either the highest level or the lowest level) in the following formula:

$$\text{Fixed Cost} = \text{Total Cost} - (\text{Units of Production} \times \text{Variable Cost per Unit})$$

4. Break-Even Analysis.

a. Contribution Margin: (Page 710)

(1) Amount of revenue remaining after deducting variable costs.

(2) (Sales Price) - (Variable Cost)

(3) Formula:  $CM = SP - VC$       *Where*, CM = Contribution Margin  
SP = Sales Price  
VC = Variable Costs

b. Contribution Ratio (Rate): (Page 710)

(1) The percentage of each sales dollar that is available to cover fixed cost and produce operating income.

(2) Expressed as a percentage of the sales price.

(3) Formula:  $CR = \frac{CM}{SP}$       *Where*, CR = Contribution Ratio  
CM = Contribution Margin  
SP = Sales Price

c. Break-Even Point (BEP): (Page 711)

(1) The level of activity at which total revenues equal total costs (no profit, no loss).

(2) The BEP can be:

(a) Computed by using contribution margin and contribution ratio.

(b) Derived from a C-V-P graph.(where the total revenue line crosses the total cost line).

d. Break-Even Point (Units): (Page 711)

(1) Computed by dividing Fixed Costs by the Contribution Margin.

(2) Formula:  $BEP(U) = \frac{FC}{CM}$

e. Break-Even Point (Dollars): (Page 711)

(1) Computed by dividing Fixed Costs by the Contribution Ratio (Rate).

(2) Formula:  $BEP(\$) = \frac{FC}{CR}$

5. Margin of Safety (MS). (Page 714)

a. Measures the cushion that management has to break even, if actual sales fail to materialize.

b. Excess of expected sales over break-even sales.

c. Formulas:  $MS = \text{Total Expected Sales} - BEP$

$$MS \% = \frac{\text{Total Sales} - BEP}{\text{Expected Sales}}$$

6. Target Profit. (Page 714)

a. Income objective set by management. Indicates the sales necessary to achieve the specified level of profit.

b. May be expressed in either sales dollars or units.

c. Formulas:  $\text{Sales} (\$) = \frac{FC + \text{Target Profit}}{CR}$

$$\text{Sales (Units)} = \frac{FC + \text{Target Profit}}{CM}$$

7. Multi-product Break-Even Point. (Page 716)


a. The unit contribution margin is replaced with the contribution margin for a composite unit.

b. A composite unit is composed of specific numbers of each product in proportion to the product sales mix.

c. Sales mix is the ratio of the volumes of the various products.

d. Example:

	<u>Product A</u>	<u>Product B</u>
Sale price.....	\$ 90	\$140
Variable costs.....	<u>(70)</u>	<u>(95)</u>
Contribution margin.....	\$ 20	\$ 45
Sales mix.....	<u>x 80%</u>	<u>x 20%</u>
Product contribution margin.....	\$ 16	\$ 9



Composite contribution margin..... \$25

$$\text{Break-even Units} = \frac{\text{Fixed Costs}}{\text{Margin}} = \frac{\$200,000}{\$25} = 8,000 \text{ composite units}$$

8,000 composite units x 80% = 6,400 units of Product A

8,000 composite units x 20% = 1,600 units of Product B

**C. Chapter 19 (Variable Costing).**

1. Reporting. (Page 741)

- a. Contribution margin income statement (variable costing) is limited to *internal* use by management.
- b. Traditional income statement format. Companies are *required to use absorption costing* for both external reporting and tax preparation.

2. Costing Method Comparisons. (Page 741)

a. Absorption (Full) Costing.

- (1) All manufacturing costs are treated as product costs.
- (2) Includes direct material, direct labor, and both variable and fixed overhead.

b. Variable Costing.

- (1) Only variable manufacturing costs are treated as product costs, along with direct material and direct labor.
- (2) Fixed manufacturing costs are treated as period costs.
- (3) Inventory cost of a unit of product contains no fixed overhead costs.

c. Cost Classifications (Variable vs Absorption) Comparison (Exhibit 19-3, Page 742).

(1) Unit Cost Computation Example.

<u>Product Cost</u>	<u>Absorption Costing</u>	<u>Variable Costing</u>
Direct Materials	\$150 per unit	\$150 per unit
Direct Labor	\$ 75 per unit	\$ 75 per unit
Variable Factory Overhead	\$ 20 per unit	\$ 20 per unit
Fixed Factory Overhead	<u>\$ 55 per unit</u>	<u>\$ 0 per unit</u>
Total Product Cost	<u>\$300 per unit</u>	<u>\$245 per unit</u>

- (2) Variable Contribution Margin is derived by subtracting total variable costs from total revenues. Using the above variable costing information, and assuming the product has a selling price of \$315, the contribution margin per unit is as follows:

Revenue per unit.....	\$ 315
Variable cost per unit.....	<u>(245)</u>
Contribution margin.....	<u>\$ 70</u>

- d. Selling and Administrative expenses are considered period costs under both methods.