CHAPTER FIVE

Management Accounting:

Introduction To Cost Term And Purposes

DEFINITION

- **Management accounting ……..**a discipline that includes almost all manipulations of financial information for use by managers……
- ……..it includes the discipline of cost accounting
- Cost accounting ……..provides management and others with the cost of producing and/of selling each product and rendering a particular service.

COSTS AND COST TERMINOLOGY

- **Cost……**resources spent to reach specific objective.
  - Actual cost…and/or….Budgeted cost
- **Cost object…** is anything that a measurement of cost is desired……
- ***How does a cost system determine the costs of various cost objects?????????????***

✓ ***Cost accumulation***

✓ ***Cost assignment***

- **Cost driver…….**output measures of resources and activities that affect the cost over the given span of period.
- A cost driver is the direct cause of a cost
- **Relevant range……..** the range of cost through which the costs and volume relationship holds true
  - refers to a normal range of volume or normal amount of activity in which the total amount of a company's fixed costs will not change as the volume or amount of activity changes

COST CLASSIFICATION AND FLOW

- There are various ways of classifying costs. Each classification serves different purpose.

1. **Classification According to Function**: The grouping of costs is according to the broad divisions of functions such as *production, administration, selling, R&D Costs* etc.
2. **Classification on the basis of Traceability to the Product**
    1. **Direct costs……. can be traced to the cost object in an economically feasible way.**
    2. **Indirect costs (Overhead costs)……..are associated with the cost object, but cannot be traced to the cost object in an economically feasible way.,**

3…….Classification According to Variability and Behavior

- **This classification is based on the degree of traceability to the final product of the firm**
  - **Variable Costs ……**vary in direct proportion to volume, in total.
  - **Fixed Costs ……**stay the same amount in total as volume fluctuates.

4. Classification According to their treatment

a) Product costs…….. is any cost that is associated with units of product for a particular purpose.

b) Period costs…….. are not associated with the manufacture of products or not sufficiently identifiable with specific production

v…..Classification According to Controllability

1. **Controllable costs……** influenced by the action of a specified member of a firm
2. **Uncontrollable cost……** cannot be influenced by the action of any member of undertaking or beyond control

VI. **Cost Classification For Decision Making**

- ✓Differential (Incremental)cost
- ✓Opportunity Cost
- ✓Sunk Cost

Flow Of Costs And Classification:

Manufacturing Company

- Major Costs:

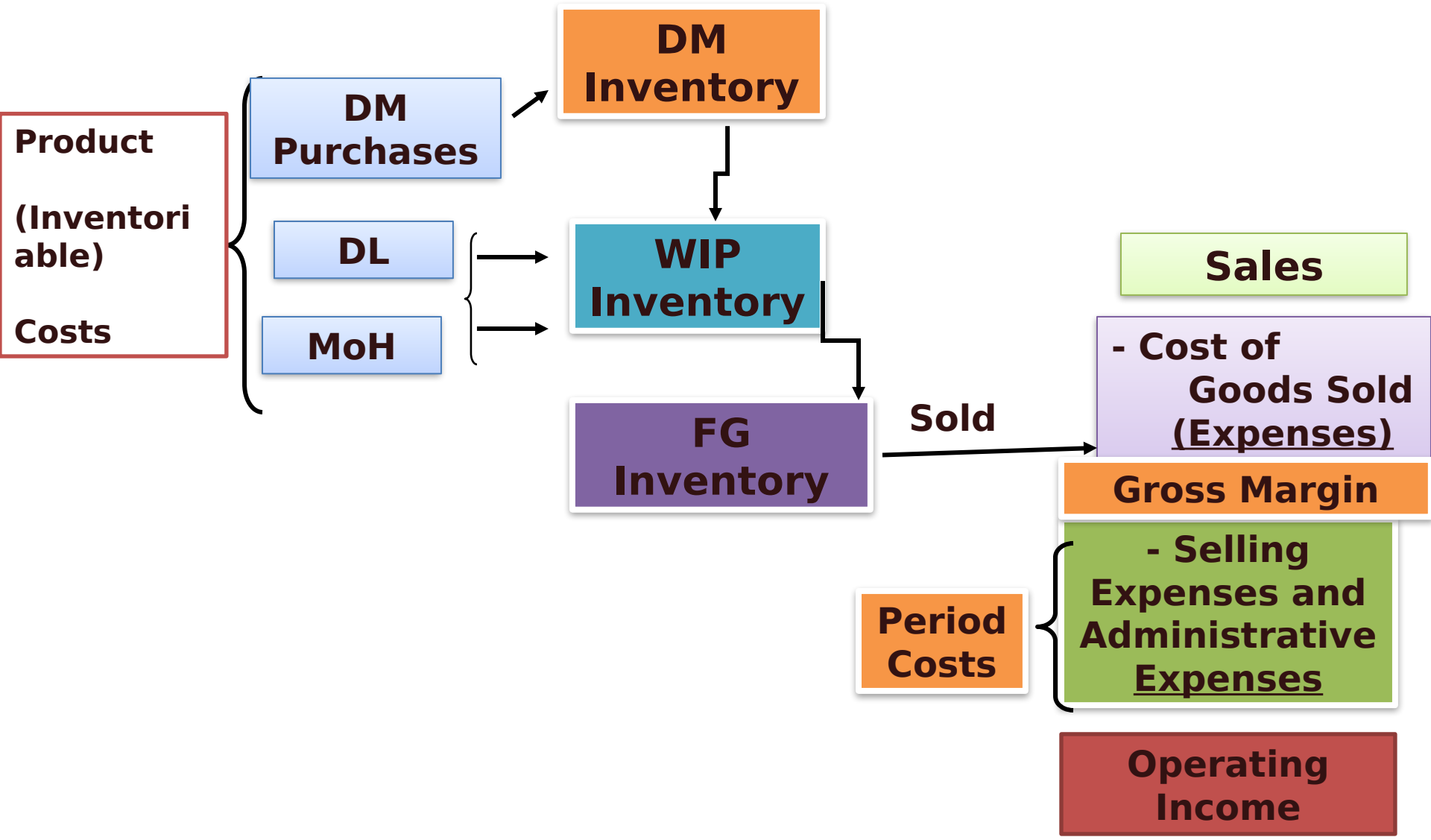
I. Manufacturing costs (product)

- ***Direct Materials Costs***
- ***Direct Labor Costs***
- ***Indirect Manufacturing Costs [MoH]***

II. Non-Manufacturing costs (period)

How those cost are flow ????????????/???????

Financial Statement Presentation



- **Prime cost ……** all direct costs.

  - PC = DMC +DLC

- **Conversion costs……**all mnfring costs used to convert direct material into finished goods.

  - CC=DLC +MOH

Unit 6

Product Costing Systems

Job order Vs. Process Costing

- **Job Order Costing System……** a system of product costing used by an entity that provides limited quantities of products or services unique to a customer's needs

✓ ……..works well when products are made one at a time or in batches operation of a of identical items .

✓ …..focus of recordkeeping is on individual jobs

✓ …….costs are accumulated for each job on a job cost sheet

- ……the fixed portion of overhead costs stay with the product until it is sold.

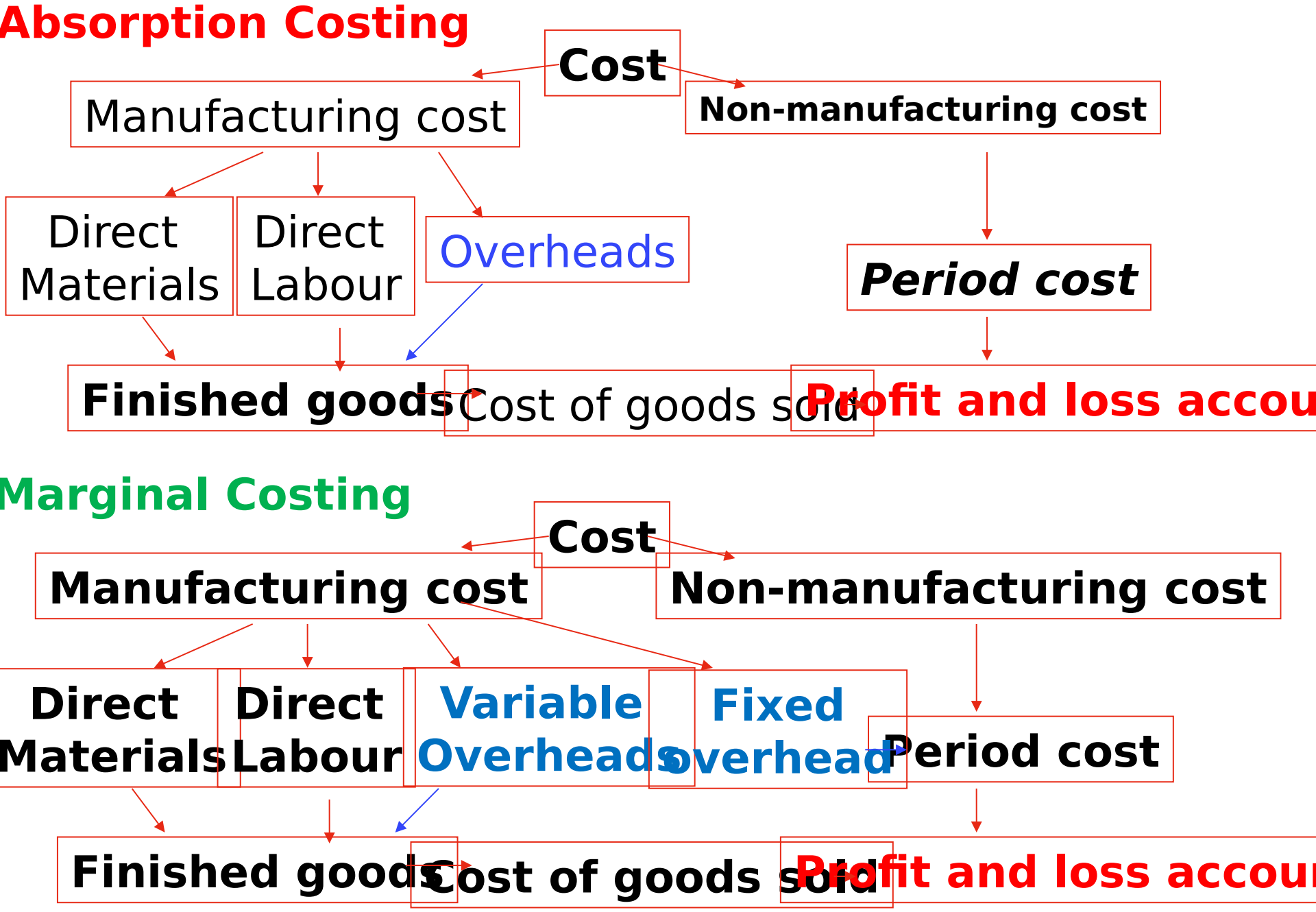
✓ ……..the unit cost is the total cost of the "job" divided by the units produced in the job.

- ***Process Costing System……***accumulating and assigning costs to units of production in companies producing large quantities of homogeneous products
- ……products are produced in a continuous manufacturing process,……
- ……focuses on the cost center
- ……the fixed portion of overhead costs stay with the product until it is sold.

Marginal Vs. Absorption Costing

- **Marginal costing ……** inventory costing in which only variable manufacturing costs are included as inventoriable costs.
- **Absorption costing…….** inventory costing in which all variable manufacturing costs and all fixed manufacturing costs are ***included as inventoriable costs.***
- Marginal costing applies only those costs to inventory that were incurred when each individual unit was produced, while absorption costing applies all production costs to all units produced.

- ***Difference B/n Absorption costing & Marginal costing***
- Cost application. Only the variable cost is applied to inventory under marginal costing, while fixed overhead costs are also applied under absorption costing.
- Profitability. The profitability of each individual sale will appear to be higher under marginal costing, while profitability will appear to be lower under absorption costing.
- Measurement. The measurement of profits under marginal costing uses the contribution margin (which excludes applied overhead), while the gross margin (which includes applied overhead) is used under absorption


Absorption Costing
Cost
Manufacturing cost
Non-manufacturing cost
Direct Materials
Direct Labour
Overheads
Period cost
Finished goods
Cost of goods sold
Profit and loss accou
Marginal Costing
Cost
Manufacturing cost
Non-manufacturing cost
Direct Materials
Direct Labour
Variable Overheads
Fixed overhead
Period cost
Finished goods
Cost of goods sold
Profit and loss accou

Traditional Vs. Activity Based Costing

Traditional Vs. Activity Based Costing

- Companies need accounting systems to track the costs of their operations.
- Two of the most commonly used systems to allocate overhead costs are traditional costing and activity-based costing.

Traditional Costing Systems

- Traditional costing is a costing method used to allocate overhead costs based on a single cost driver according to the consumption of a volume of production resources.
- This single cost driver can be based on machine hours, labor hours etc. and is used for all the different activities.

Activity-Based Costing

- Activity based costing is a method of cost allocation of overhead costs such that, for each different activity, a different cost driver is applied which is best suited for that activity.
- The cost driver is specifically selected for each activity.

CHAPTER SEVEN

COST-VOLUME-PROFIT (CVP) ANAYSIS

CONCEPT DEFINITION and WHY?????

- **CVP** analysis examines the interaction of a firm's sales volume, selling price, cost structure, and profitability.
- It is a powerful tool in making managerial decisions including marketing, production, investment, and financing decisions.
- How many units of its products must a firm sell to break even?
- How many units of its products must a firm sell to earn a certain amount of profit?
- Should a firm invest in highly automated machinery and reduce its labor force?
- Should a firm advertise more to improve its sales?

One Product Cost-Volume-Profit Model

- Net Income (NI) = Total Revenue – Total Cost Total
  - Revenue = Selling Price Per Unit (P) * Number of Units Sold (X)
  - Total Cost = Total Variable Cost + Total Fixed Cost (F)
  - Total Variable Cost = Variable Cost Per Unit (V) * Number of Units Sold (X)

  $NI = P X – V X – F$

  $NI = X (P – V) – F$

Underlying Assumptions of CVP Analysis

- **Assumptions on:**

✓ revenues change in relation to sales

✓ costs can be divided in variable and fixed categories

✓ revenues and costs behave in a linear fashion

✓ costs and prices are known

✓ we can ignore the time value of money

Expression Basis Of CVP Analysis Items

- **Contribution margin (CM)**..... is the excess of sales (S) over the variable costs (VC).

.....the amount (proportion) of revenue remaining after all variable costs have been covered.

..... the amount of Birr available to cover fixed costs (FC) and to generate profits.

Contribution Margin

This is the difference between price and variable cost.

It is what is leftover to cover fixed costs and then add to operating profit.

Contribution margin = Price per unit – Variable cost per u

$P - V$



Contribution Margin (CM) Income Statement

- XYZ Company has the following contribution margin income statement:

	Total	Per Unit
Sales (20,000 units)	$1,200,000	$60
Less: Variable costs	-$900,000	-$45
Contribution Margin	$300,000	$15
Less: Fixed costs	-$240,000	
Net income	$60,000	

- ***CM = Sales - TVC.***

- **CM = SP per unit – VC per unit = $300,000**

  CM Ratio = Contribution Margin = $300,000

  Sales $1,200,000

  = 0.25= 25%

A high CM ratio indicate low level of variable costs incurred.

Methods to express the CVP relationship

1. **Equation methods**

- ..... to determine operating income at a few specific levels of sales.

- .....is based on the profit (cost-volume) equation; expressed as:

❖**OI= R-VC-FC**

2. Contribution-margin method

- .....is a short version of the equation technique.

  ❖**OI = CM – FC**

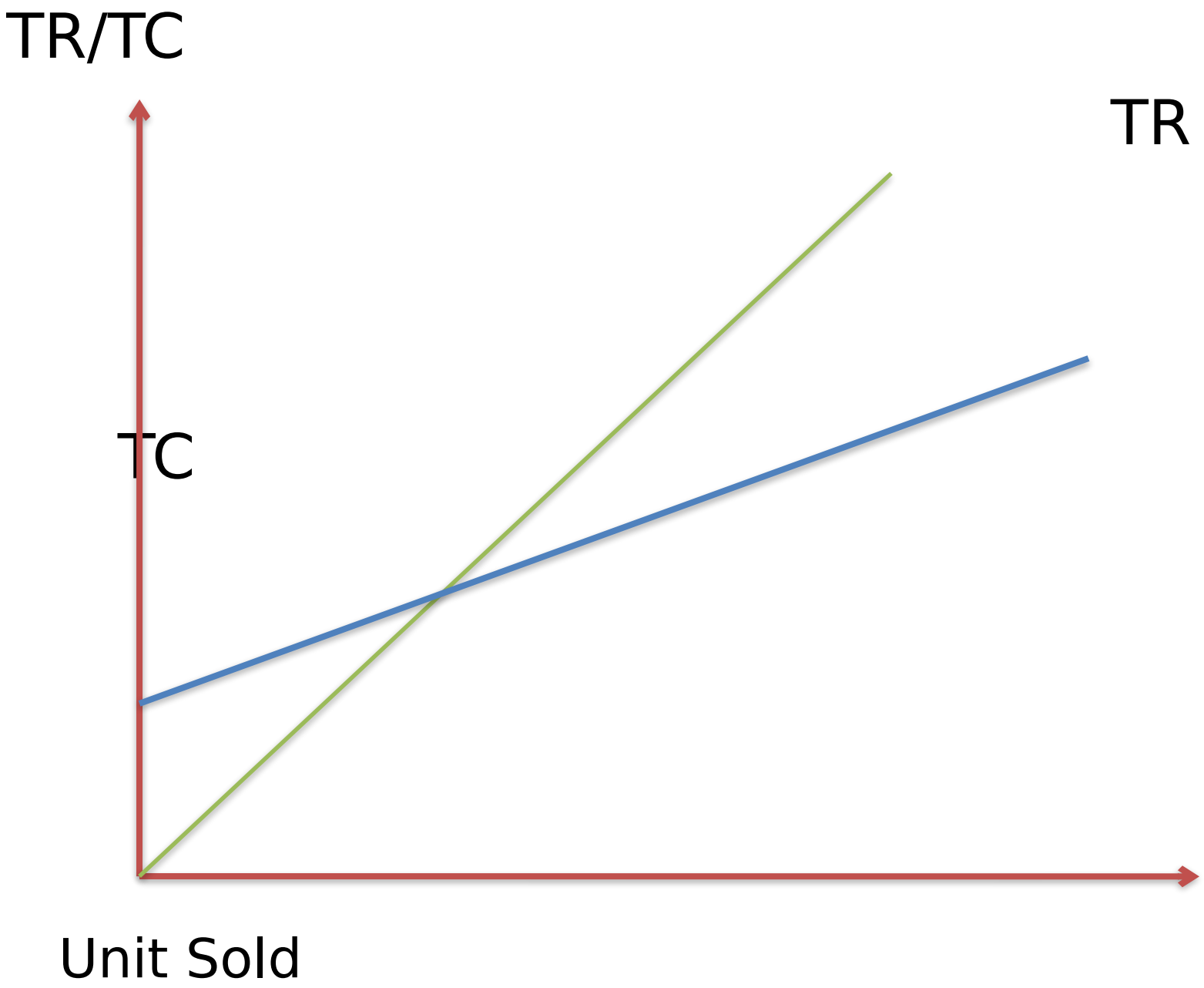
- .....centers on the idea that each unit sold provides a certain amount of fixed costs.

- .....having multiple product lines and/but wishes to compute a single break-even point for the company as a whole.

3. Graphic method

- ..... visualize the r/ship b/n unit sold and operating Income over the wide range of units.

- .....plot the total costs and revenue lines.


TR/TC
TR
TC
Unit Sold

The applications of CVP Analysis

Break-Even Point

The break-even point is the level of sales at which revenue equals expenses and



Sales
- Variable expenses
- Fixed expenses
Zero net income (break-even poin

I) Break Even Analysis

- **BEP** .....the point where total sales revenue equals total costs(TVC+FC).
- .....the point where the OI is zero in birr.

❖.....tells us how much should be sold to avoid losses.

❖.....provides a starting point for planning future operations.

A. Equation **technique**

…….. on the bases of the profit equation the BEP in quantity is:

✓ **0 birr = PQ-VQ-FC**

B. Contribution-**margin technique**

- ……..it assumes BEP will be reached when total contribution margin equal to the total fixed expenses.
- ……..each BIRR of contribution margin after BEP is a BIRR of profit.

✓ $$\text{BEP in unit} = \frac{\text{Fixed Costs}}{\text{CM per Unit}}$$

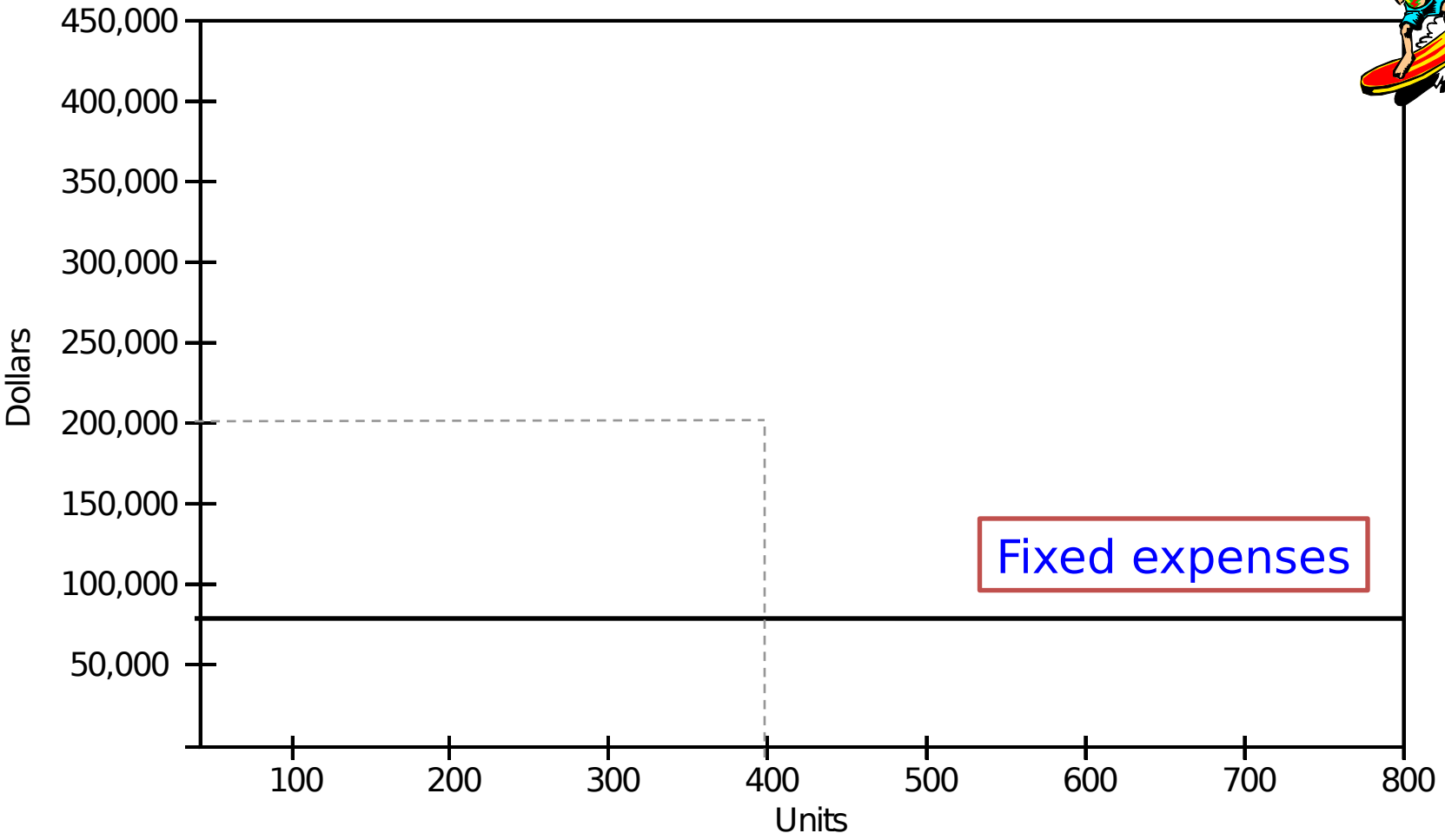
➢ $$\text{BEP (in birr)} = \frac{\text{Fixed costs}}{\text{CM ratio}}$$

C. Graphic method:

- .....the breakeven point is intersection point of plotted total costs and revenue lines

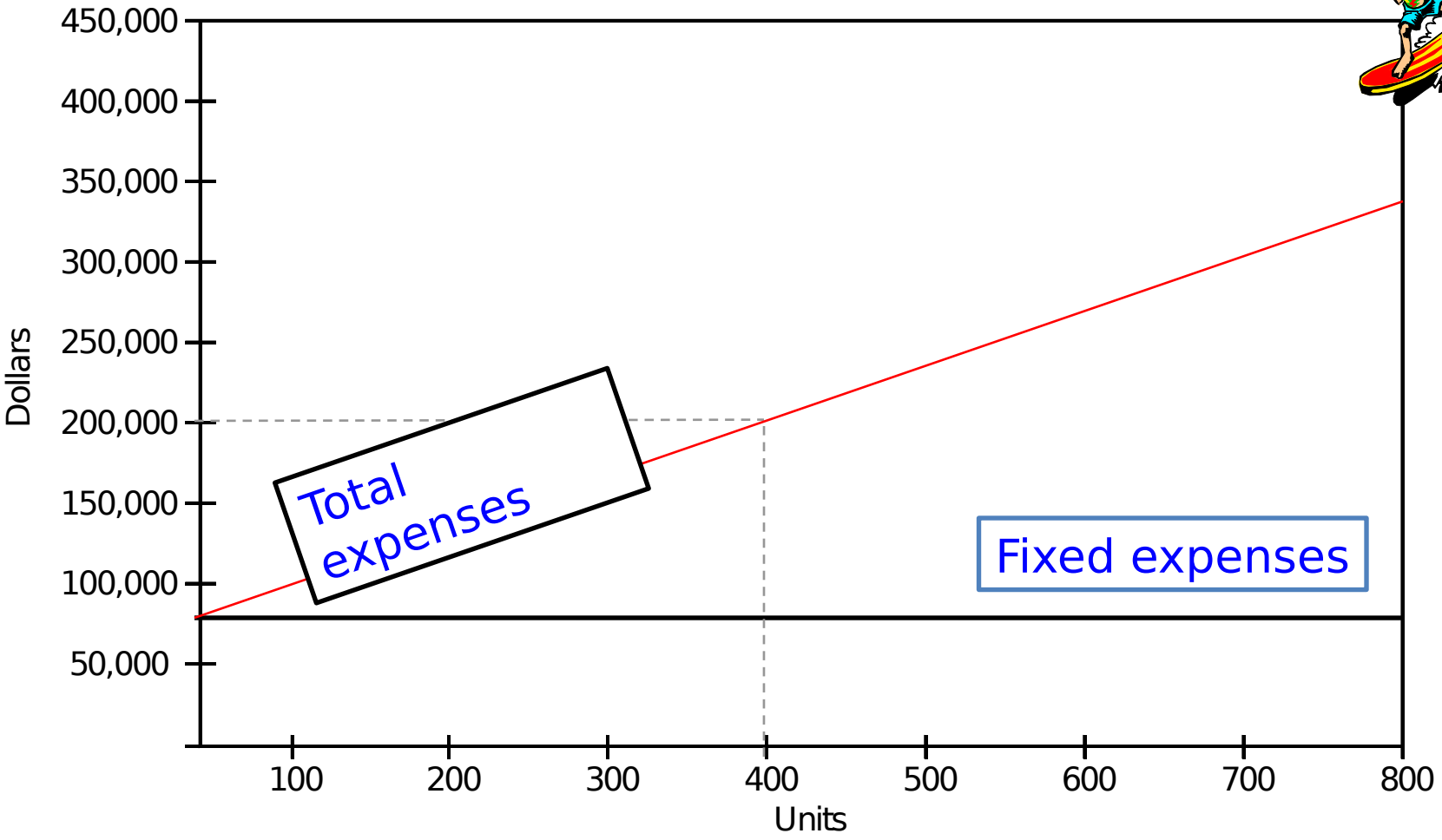
Cost-Volume-Profit Graph





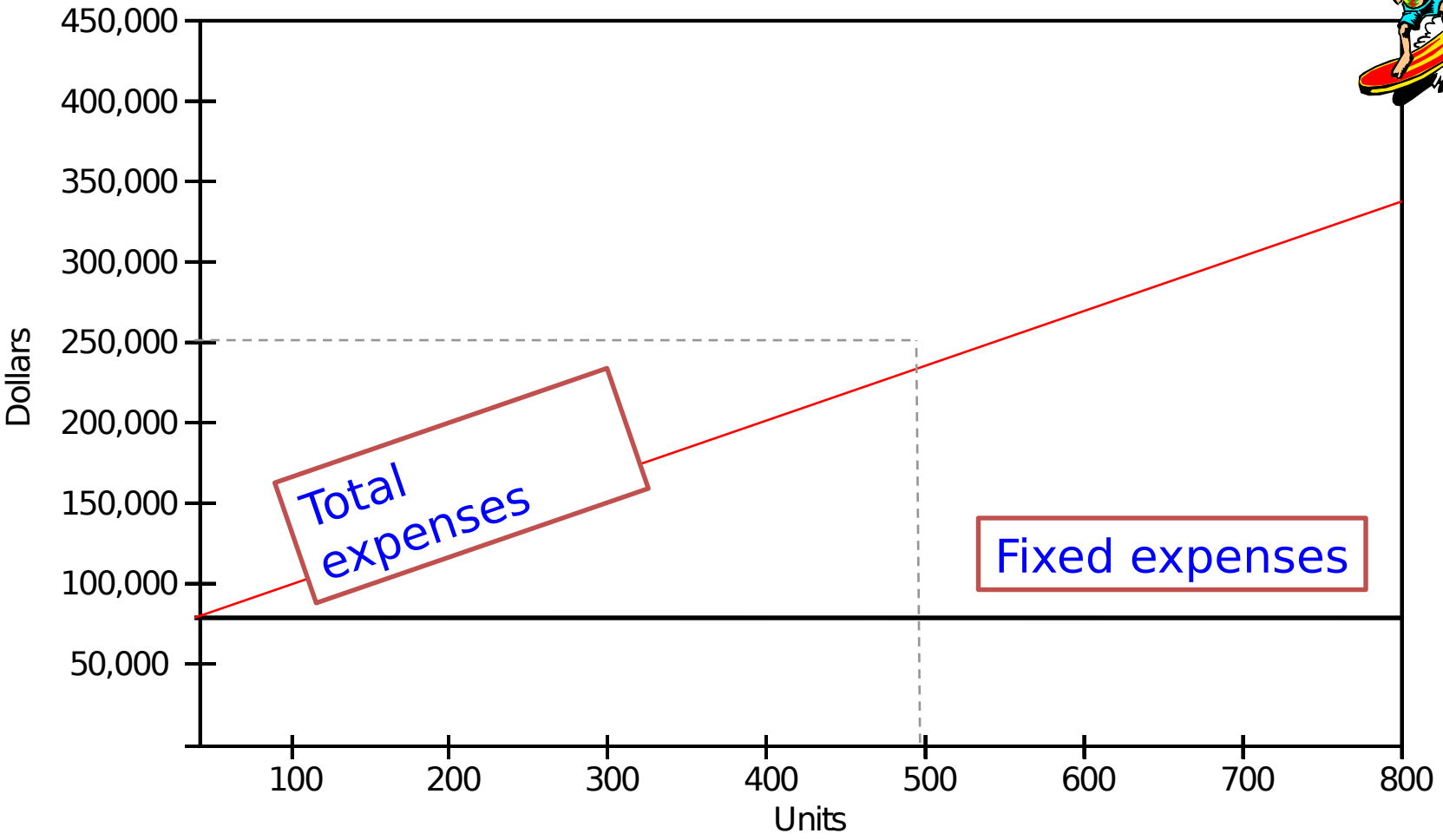
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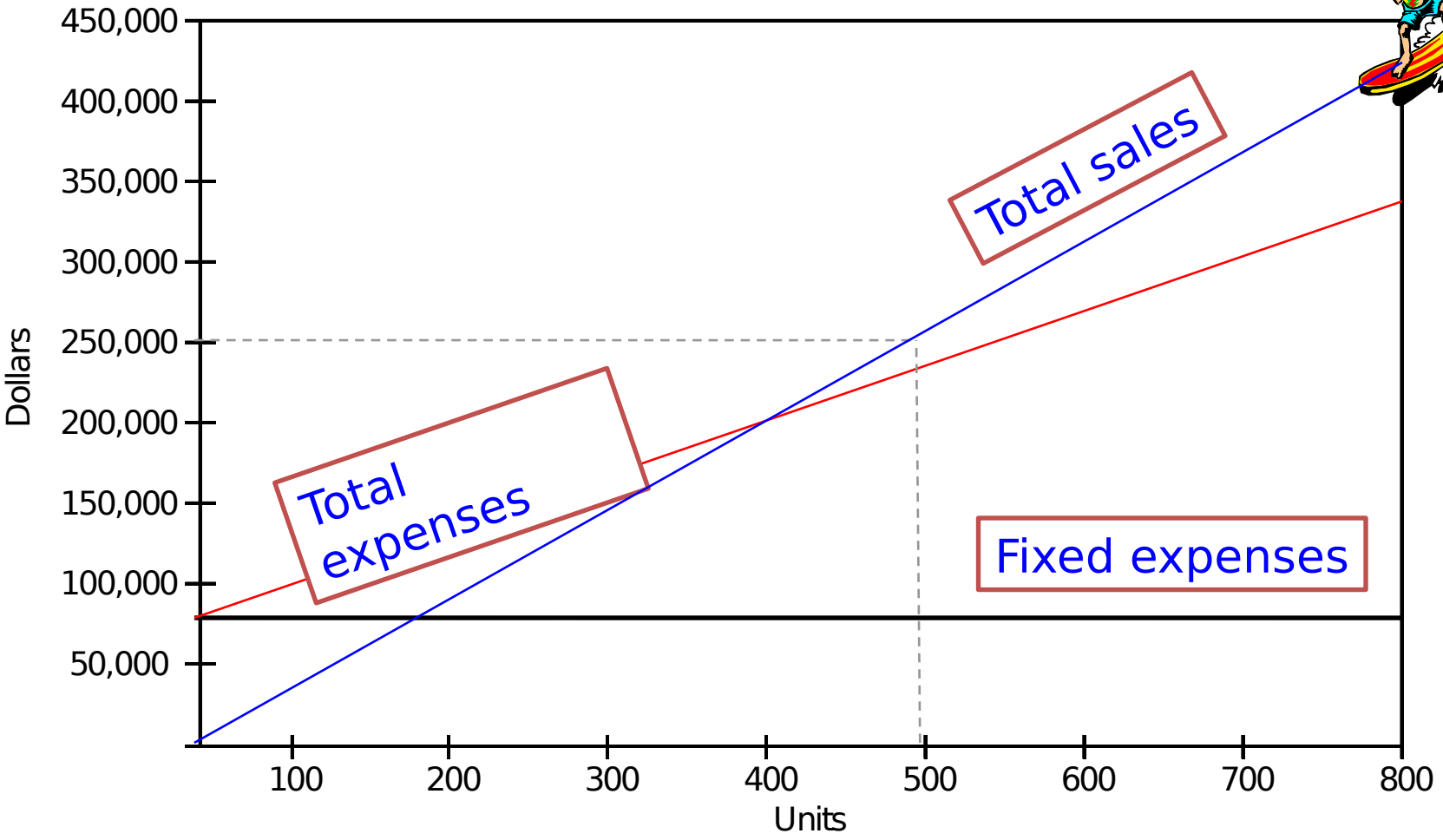
Cost-Volume-Profit Graph





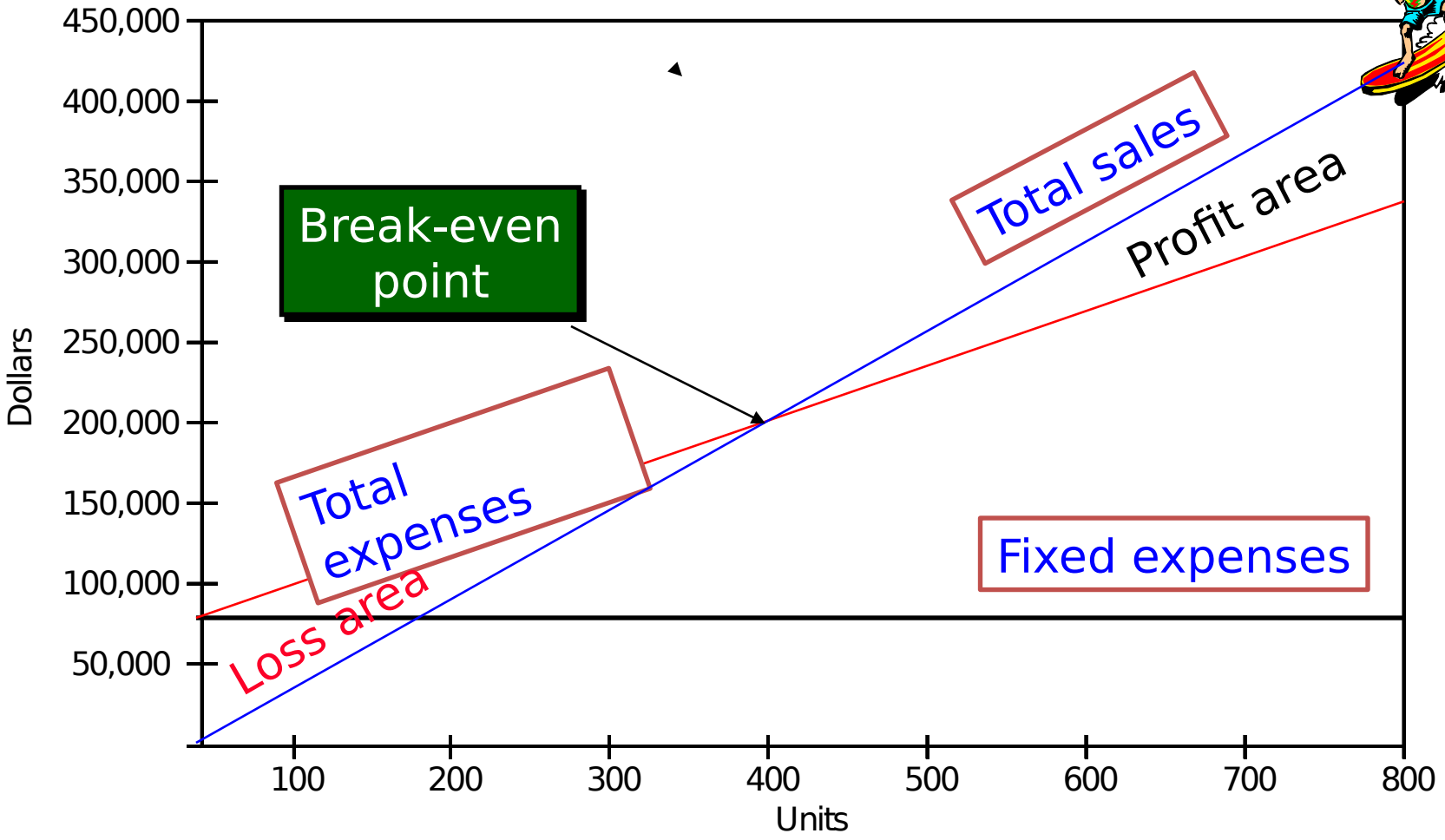
Cost-Volume-Profit Graph





Cost-Volume-Profit Graph





Example ..... computation of BEP

LO 3-1

CVP Example

U-DEVELOP
Income Statement
March

Sales (12,000 prints at $.60)		$7,200
Less		
Variable costs of goods sold (12,000 × $.30)	$3,600	
Variable selling costs (12,000 × $.06)	720	4,320
Contribution margin		$2,880
Less fixed costs		1,500
Operating profit		$1,380

Contribution margin = $2,880 ÷ 12,000 = $0.24

LO 3-1

Break-Even Volume in Units

This is the volume level at which profits equal zero.

Profit 0 = $X(P - V) - F$

If profit = 0, then $X = F \div (P - V)$

Break-even volume (in units) $= \dfrac{\text{Fixed costs}}{\text{CM per unit}}$

= \$1,500 ÷ \$0.24

= 6,250 prints

LO 3-1

Break-Even Volume in Sales Dollars

Contribution margin percentage (contribution margin ratio) is the contribution margin as a percentage of sales revenue.

Contribution Margin Percentage
CM per unit /sales = 2880/7200= 0.4

Break-even in Sales Dollars
Fixed cost / CM Ratio
$1,500 ÷ 0.40 = $3,750

CVP Summary: Break-Even

$$\text{Break-even volume (units)} = \frac{\text{Fixed costs}}{\text{Unit contribution margin}}$$

$$\text{Break-even volume (sales dollars)} = \frac{\text{Fixed costs}}{\text{Contribution margin ratio}}$$



II) Target Operating Profit Analysis

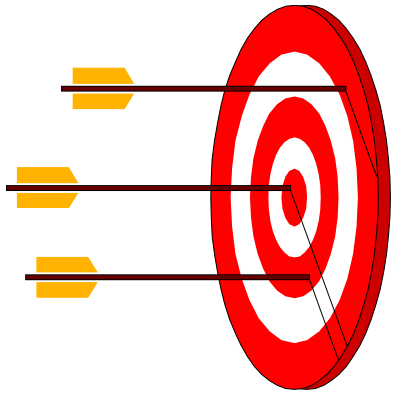
- .....to determine the total sales in units and birr needed to reach a target profit.
- ..... all techniques used for breakeven computation can be used.

LO 3-1

CVP Summary: Target Volume

$$\text{Target volume (units)} = \frac{\text{Fixed costs + Target profit}}{\text{contribution margin per unit}}$$

$$\text{Target volume (sales dollars)} = \frac{\text{Fixed costs + Target profit}}{\text{Contribution margin ratio}}$$



III) Sensitivity Analysis

- Sensitivity analysis is a **“what-if”** technique that examines how a result will change if the original predicted data are achieved or if an underlying assumption changes
- What will happen to operating income if volume declines by 5%?
- What will happen to operating income if variable costs increase by 10% per unit?
- sensitivity analysis broadens management’s perspectives about possible outcomes

Example

- In this example, if management wants to earn a profit of at least $1,000, how many units must the company sell?
- **No. of units = (Fixed Costs + Target Profit) / CM per unit**

=(1500 + 1,000)/0.24 = 10,417 units

Sales Volume= (1500 + 1,000)/0.4= $6,250

Margin of Safety



How much can sales drop before we incur a

Margin of safety =
Expected Sales – Break even sales

Percentage margin of safety =

$$\frac{\text{Expected sales - Break-even sales}}{\text{Expected sales}}$$

Margin of Safety

The excess of projected or actual sales volume over break-even volume

or

The excess of projected or actual sales revenue over break-even revenue

Suppose U-Develop sells 8,000 prints.

At a break-even volume of 6,250, its margin of safety is:

Sales – Break-even

8,000 – 6,250 = 1,750 prints

End of Chapter 7

