

## Cost Account Methods:

### Second method: Break Even Analysis Method (BEP):

الطريقة الثانية: تحليل نقطة التعادل

#### 1. Introduction:

The cost is classified by variability to:

##### 1. Variable Costs:

- Variable Costs: are costs which do vary directly with the level of output or production.
- Sometime are called direct costs.
- Costs that change in total, directly in proportion to changes in the level of activities (volume).
- The unit cost remains the same over a wide range of volume (referred to as the relevant range).
- Relevant Range is the range of activity (production volume) within which variable unit costs are constant and fixed costs are constant in total. In this range, the incremental cost of one additional unit of production is the same.
- Examples include direct materials, direct labor, and part of manufacturing overhead.

هي التكاليف التي تتغير اعتمادا على مستوى المخرجات او الإنتاج وتسمى أحيانا بالتكاليف المباشرة

من أمثلة التكاليف المتغيرة: تكاليف المواد الخام واجور العمال وجزء من نفقات التصنيع

## 2. Fixed Costs: **2. التكاليف الثابتة**

- **Fixed Costs: are costs which do not vary directly with the level of output or production.**
- **Sometime are called indirect costs.** **هي التي لا تتغير مباشرة مع تغير مستوى المخرجات أو الإنتاج وتسمى أحيانا بالتكاليف غير المباشرة**
- **Costs that do not change in total regardless of changes in activity.**
- **The unit cost decreases as volume increases.**
- **Examples include rent, taxes, and insurance on manufacturing plant.**

**من الأمثلة عليها: الإيجارات والضرائب والتأمين على المصنع**

## 3. Semi-variable (Mixed) Costs **3. التكاليف شبه المتغيرة (الخليط)**

- **Costs that contain both variable and fixed costs.**
- **Examples include: light, heat, and power.**

**من الأمثلة عليها: الإضاءة والتدفئة والطاقة**

**Breakeven Point:** It is the relationship between a variable cost, fixed cost and volume of production (sales). No profit or loss at the breakeven point.

نقطة التعادل هي العلاقة بين الكلفة المتغيرة والثابتة وحجم الإنتاج (المبيعات)، ليس هناك ربح أو خسارة عند نقطة التعادل

#### **Benefits of BEP:**

1. Forecasting profit at any volume of sales.
2. Giving clear image about relationship between costs and sales per unit.
3. Help management to make decisions.

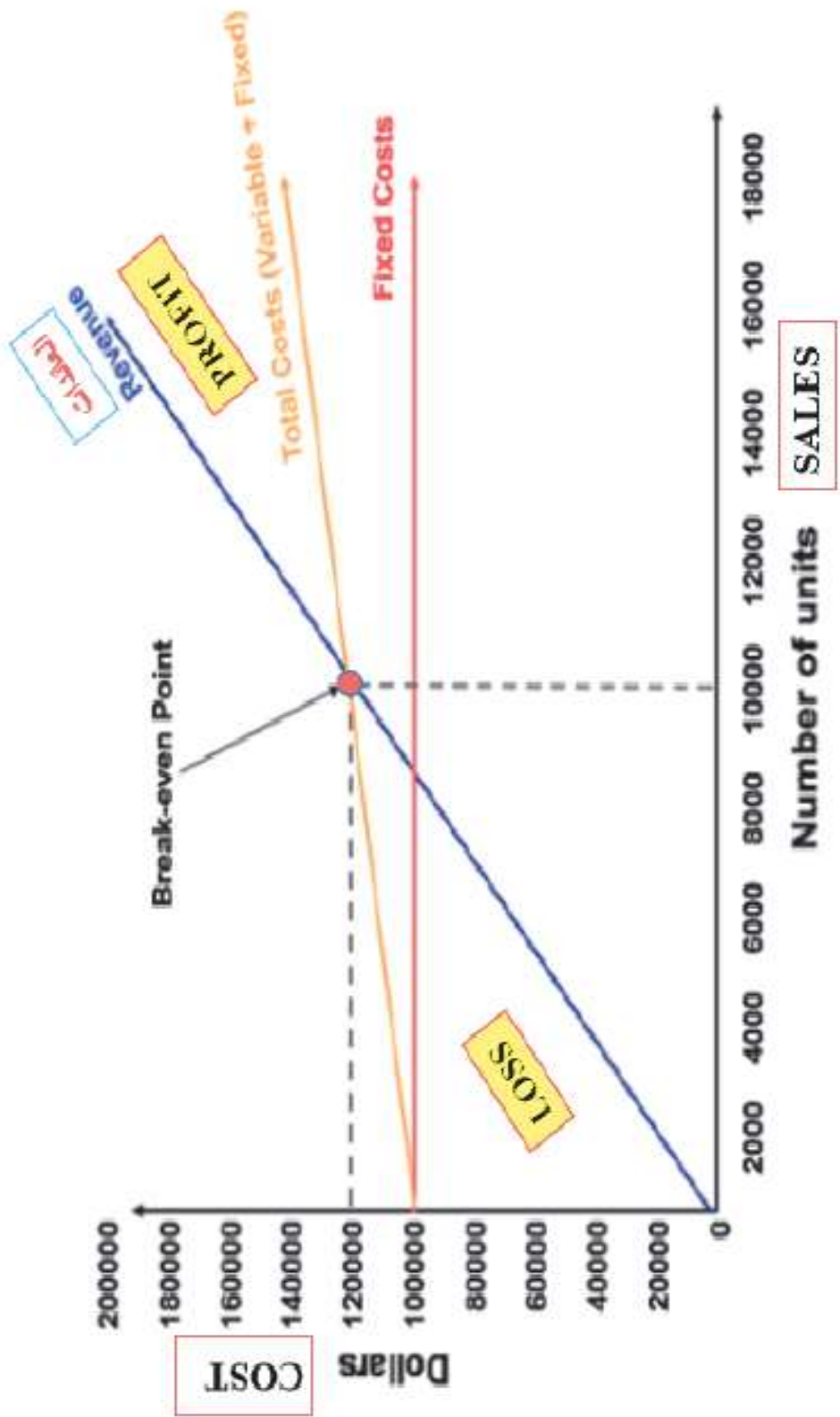
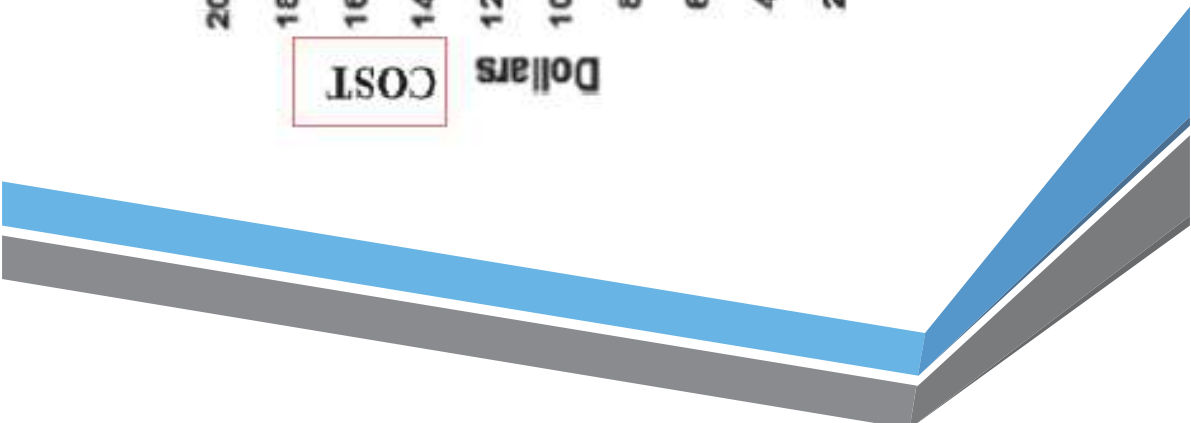
#### **Breakeven Point (BEP) Methods:**

1. طريقة المعادلة

- Sales = Total Fixed Costs + Total Variable Costs

$$- \mathbf{BEP} = \frac{F}{1 - \frac{V}{S}}$$

Where  $F$  is a fixed cost,  $V$  is a variable cost and  $S$  is total sales.



### **Ex1:**

For the following data:

Fixed cost = 100,000 ID

Variable cost per unit = 300 ID

Selling price per unit = 500 ID

1. Find number of unit (Units of Production) to verify BEP. **جد عدد الوحدات الواجب بيعها لتحقيق نقطة التعادل.**
2. Find BEP. **جد نقطة التعادل**
3. Find number of selling units to obtain an operating profit of 1,000,000 ID.

**جد عدد الوحدات الواجب بيعها لتحقيق مليون دينار ربح**

4. Find the operating profit at production and selling 2,000 units. **جد الربح المتوقع عند انتاج وبيع الفين وحدة.**

**Ans:**

1. Operating profit = Sales - Total Fixed Costs - Total Variable Costs

Operating profit = 0 at BEP

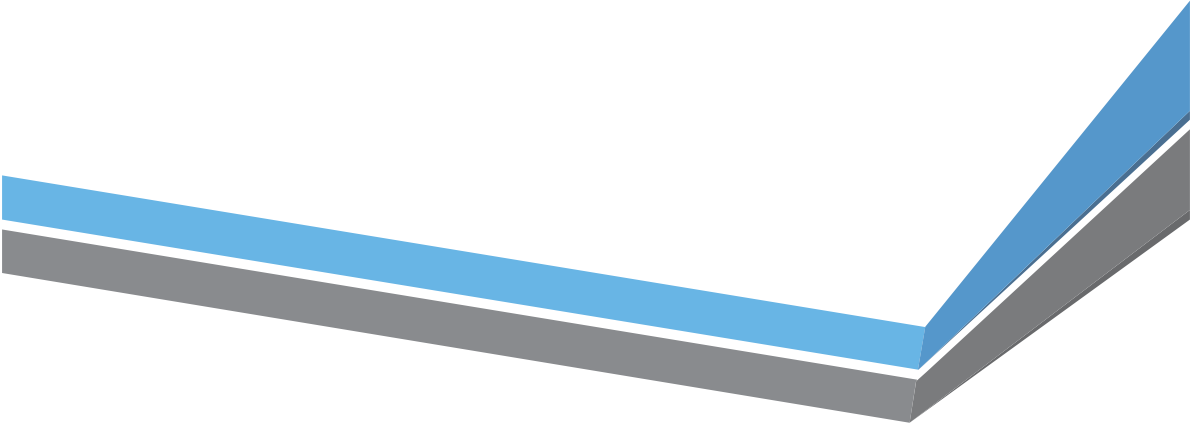
∴ Sales = Total Fixed Costs + Total Variable Costs

$$500 U = 100,000 + 300 U$$

$$500 U - 300 U = 100,000$$

$$200 U = 100,000$$

$$\therefore U = \frac{100,000}{200} = 500 \text{ Units}$$


$$2. \text{ BEP} = \frac{F}{1 - \frac{V}{S}} = \frac{100,000}{1 - \frac{300}{500}} = \mathbf{250,000 \text{ ID}}$$

3. Operating profit = Sales - Total Fixed Costs - Total Variable Costs

$$1,000,000 = 500U - 100,000 - 300U$$

$$1,100,000 = 200U$$

$$U = \mathbf{5500 \text{ unit}}$$

4. Operating profit = Sales - Total Fixed Costs - Total Variable Costs

$$= 500U - 100,000 - 300U$$

$$= 200U - 100,000$$

$$= (200 \times 2000) - 100,000$$

$$= \mathbf{300,000 \text{ ID}}$$

**Ex3:** For the following data:

Fixed cost = 150,000 ID

Variable cost per unit = 450 ID

Selling price per unit=650 ID

1. Find number of unit (Units of Production) to verify BEP.
2. Find BEP.
3. Find number of unit to obtain an operating profit of 3,000,000 ID.
4. Find the operating profit at production and selling 1,500 units.

**Ans:**

**1. Operating profit = Sales - Total Fixed Costs - Total Variable Costs**

Operating profit = 0 at BEP

**$\therefore$  Sales = Total Fixed Costs + Total Variable Costs**

$$650 U = 150,000 + 450 U$$

$$650 U - 450 U = 150,000$$

$$200 U = 150,000$$

$$\therefore U = \frac{150,000}{200} = 750 \text{ Units}$$


$$2. \text{ BEP} = \frac{F}{1 - \bar{v}} = \frac{150,000}{1 - \frac{450}{650}} = 487,500 \text{ ID}$$

$$3. \text{ Operating profit} = \text{Sales} - \text{Total Fixed Costs} - \text{Total Variable Costs}$$
$$3,000,000 = 650U - 150,000 - 450U$$
$$3,150,000 = 200U$$
$$U = 15,750 \text{ unit}$$

$$4. \text{ Operating profit} = \text{Sales} - \text{Total Fixed Costs} - \text{Total Variable Costs}$$
$$= 650U - 150,000 - 450U$$
$$= (200 \times 1500) - 150,000 = 150,000 \text{ ID}$$





**H.W:** For the following data:

**Fixed cost = 120,000 ID**

**Variable cost per unit = 350 ID**

**Selling price per unit=550 ID**

- 1. Find number of unit (Units of Production) to verify BEP.**
- 2. Find BEP.**
- 3. Find number of unit to obtain on operating profit of 2,000,000 ID.**
- 4. Calculate the operating profit at production and selling 1,000 units.**

## 2. Chart method:

2. طريقة المخطط

**Ex4:** For the following data:

Fixed cost = 40,000 ID

Variable cost = 20,000 ID

Sales = 100,000 ID

Calculate BEP by using chart method.

**Ans:**

