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Cost Volume Profit Analysis

AAT Level III
Management Accounting and Finance
(MAF)

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Cost Volume Profit Analysis

Is analysis of total cost and profitability at different levels of production?

Break Even Analysis : analysis which leads to determine the level of production(number of units) at which entity neither generate profit nor experience any losses. (Neutral).

- Contribution Per Unit (CPU) = (Selling Price – Variable Cost)
- Total Contribution = (Total Sales Value – Total Variable Cost)
  = CPU X Total Sales Volume/Quantity
  = Total Fixed Cost +/- Profit or Loss
  = Total Sales Revenue X Profit Volume Ratio
- Total Profit = Total Contribution – TFC
  = Total Revenue = Total Cost.

Assumptions/limitation in breakeven analysis

1. Cost can be divided into two categories as fixed and variable.
2. Variable cost is changing proportionately to the changes in production and fixed cost is constant.
3. The reason for the changes in variable cost and sales income is only the activity level.
4. No changes in technology, production efficiency, production methods in all the activity levels.
5. No changes in stocks and stocks are valued at marginal cost.

Advantages of Breakeven Analysis

1. Sales Revenue that is required to cover the fixed cost
2. What is the impact to the profit in various Sales quantities?
3. What is the quantity of sales required to be achieved to arrive at an expected level of profit?
4. What is the impact to profit from increasing or decreasing of fixed costs?
5. How the profit changes due to the changes in sales price?

1. Mathematical approach:

Determining a BEP using mathematical formulae when an entity produce only one product.

- BEP (in units) = Total Fixed Cost (TFC)/Contribution Per Unit (CPU)
- BEP (LKR) = BEP in units X Selling Price of One Unit (SPU) or
- BEP (LKR) = TFC/Contribution Sales (CS) ratio
- BEP with desired profit (units) = TFC + desired profit (DP)/CPU

Question No. 01:

Following Information is given (Per Unit) for the production of D

Direct Material –	Rs. 45
Direct Labor –	Rs. 35
Direct Expenses –	Rs. 25
Variable Production O.H –	Rs. 15
Fixed Production O.H –	Rs. 25
Selling Price –	Rs. 200

Expected units to produce & sell - 2000 Units

You are required to Calculate:

1. Fixed Cost
2. Contribution per Unit
3. BEP in units

4. C/S Ratio
5. BEP in sales Value
6. No. of units required to obtain targeted Profit of Rs. 100,000
7. Sales Value required to obtain targeted Profit Rs. 50,000

Question No. 02 :

Following information is given below per unit.

Selling Price – Rs. 1,500
Direct Labor – Rs. 300
Direct Material – Rs. 500
Variable O.H – Rs. 200

It is expected to increase the direct material cost by 25% & direct labour by 20% in the next coming year. Present annual production capacity is 2,000 units & the present annual fixed cost is Rs. 600,000.

You are required to compute: (Each question is independent)

1. The increase in selling price required in the next year in order to maintain the C/S ratio as present in the same manner.
2. The extra sales volume required to earn the present net profit if the fixed cost is increased by 102500/= in the next year while keeping the selling price in the same manner.
3. The profit in the next year considering the Fixed cost increased by 100000/= & the C/s ratio Remains constant.

Question No. 03 :

Description	500 units	1000 units
Sales volume	12,500	25,000
(-) Variable cost	(7,500)	(15,000)
Contribution	5,000	10,000
(-) Fixed cost	(4,000)	(4,000)
Net profit	1,000	6,000

You are required to calculate PV ratio individually and once.

Question No. 04 :

Sales & Profits in respect of 2 years are given below,

Year	Sales value	Profit
01	Rs.5,000,000	Rs.500,000
02	Rs.7,500,000	Rs.1,000,000

- The Selling Price was not changed during the 2 years.
- Fixed cost also remains constant.

You are required to calculate:

1. BEP in sales value
2. Sales value to obtain targeted Profit of Rs. 1,500,000
3. Targeted profit to be earned to reach the sales value Rs. 6,000,000

2. Graphical approach:

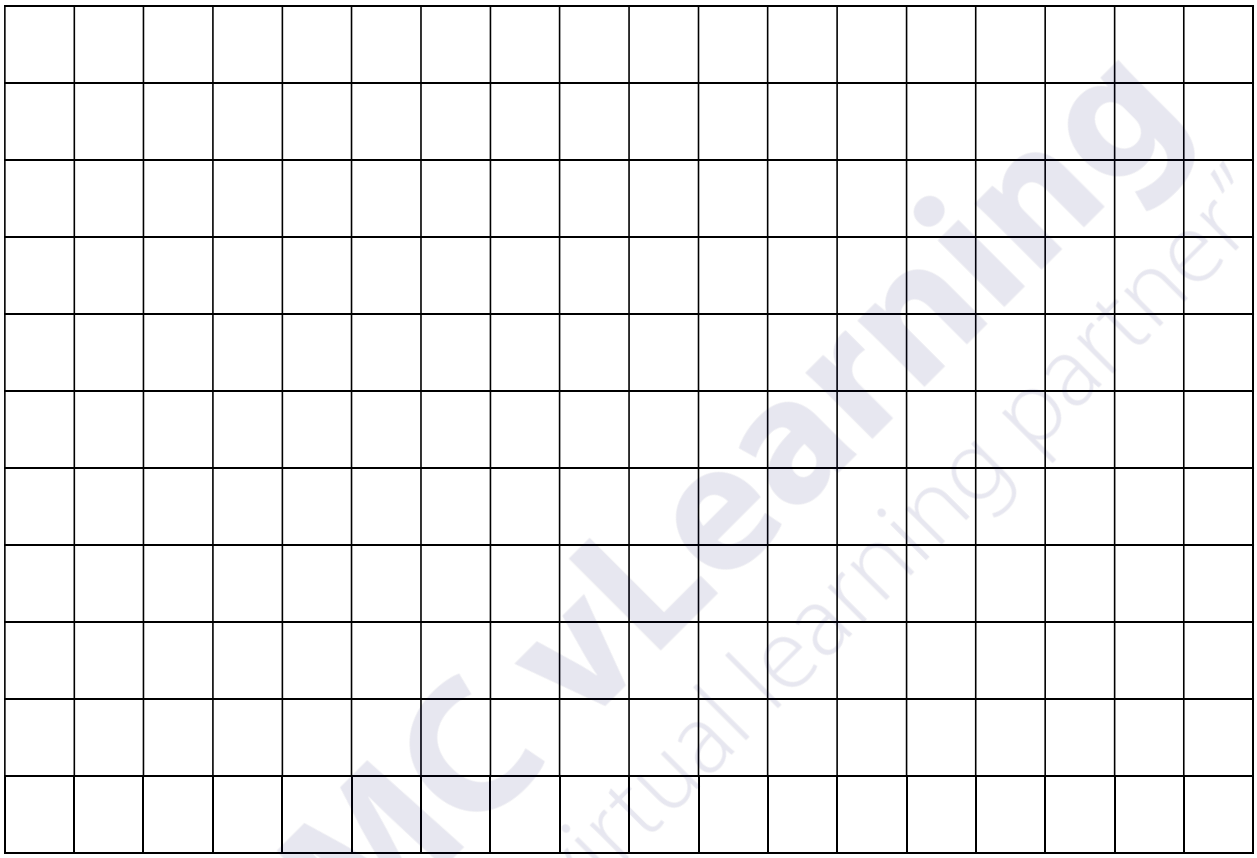
Graphical Presentation of BEP analysis Here, following 03 method can be used.

1. Basic Break Even chart or Traditional Chart
2. Contribution Break Even Chart
3. Profit Volume Chart

Question No. 05:

Selling Price - 50/=
Variable cost - 30/=
Fixed cost - 20000/=
Forecasting sales 1700 units

You are required to find the following based on mathematical graphical presentation of given 3 method.



Multi Product Profit volume chart

Question No. 06:

X Company Produce 3 products namely A, B, C. The Following information is given below.

Product	Sales value	Variable cost
A	300,000	240,000
B	80,000	40,000
C	120,000	70,000

- Annual Fixed Cost – Rs .100,000

You are required to draw a Multi – Product Profit Volume Chart & obtain the sales value at the BEP from the Graph.