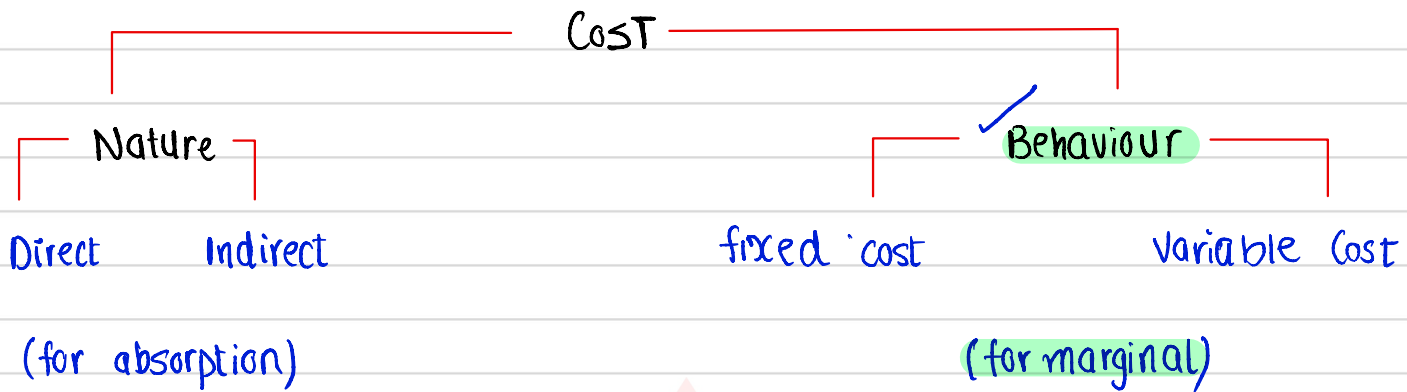


MARGINAL COSTING

The tool of marginal costing is used by internal management for decision making purpose.



Fixed Cost: The cost which remains constant/unchanged/unaffected at all level of output in the short run is defined as fixed cost.

Fixed cost has to be paid irrespective a firm is producing zero output or working at full capacity (fixed cost is usually considered irrelevant in decision making)

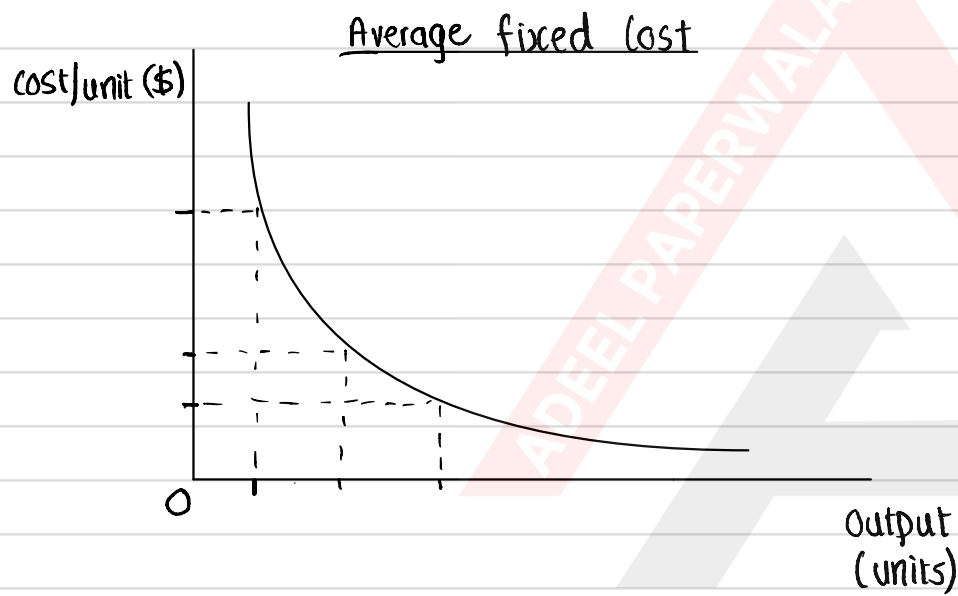
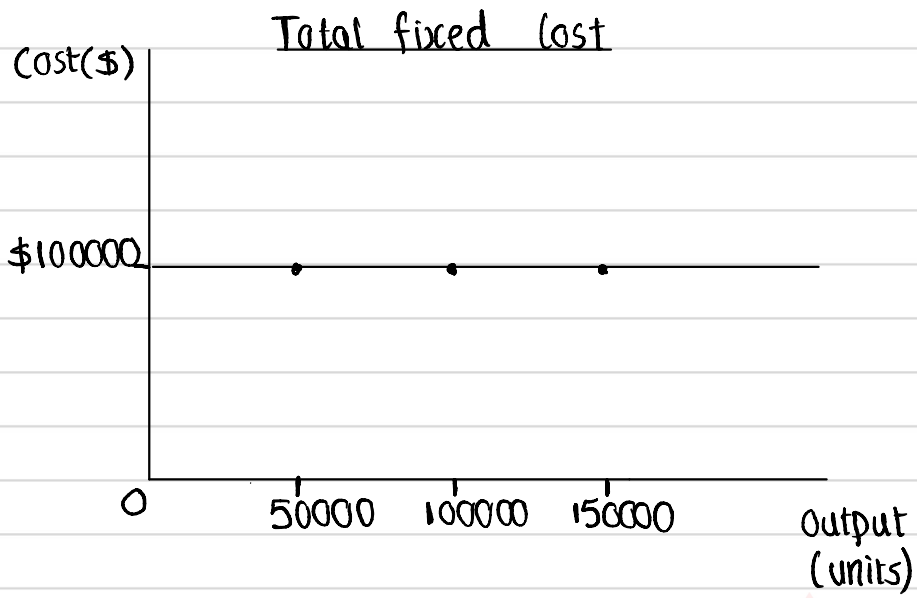
Fixed cost in total remains constant but per unit fixed cost decreases with increase in output level.

Examples include:

- Insurance
- fixed management salaries
- rent

(Total fixed cost ÷ number of units)

Output (Units)	Total fixed Cost	Fixed cost per unit/Average Fixed Cost
0	\$100000	∞
1	\$100000	\$100000
10	\$100000	\$10000
100	\$100000	\$1000
1000	\$100000	\$100
10000	\$100000	\$10
100000	\$100000	\$1



Variable Cost: The cost which varies or changes due to changes in output or activity level is called variable cost.

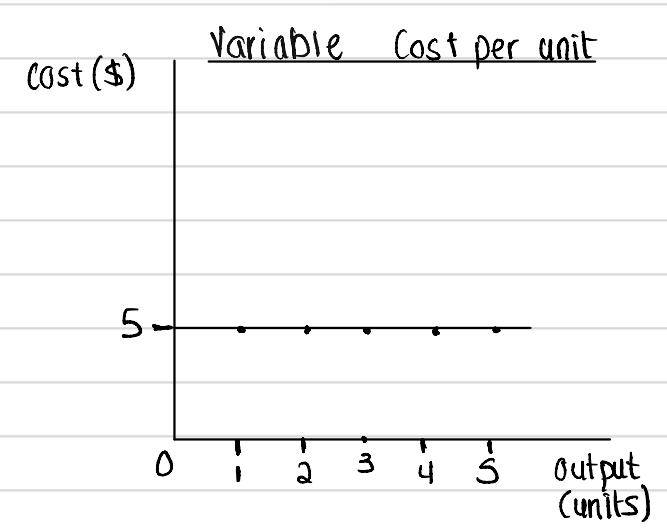
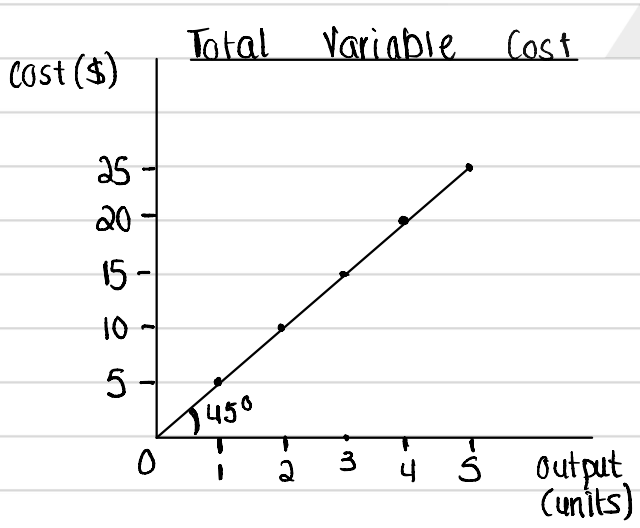
Variable cost in total increases due to increase in output level but per unit variable cost remains constant [Assumption of marginal costing]

Variable cost is also called **marginal cost** as it is the cost of producing one additional unit of output.

Examples of variable cost

- Direct material
- Direct Labour
- Variable Production overheads
- Variable sales overheads

Average Variable cost Variable Cost per unit	Output level (units)	(variable cost/unit x output) Total Variable cost
\$5	0	0
\$5	1	\$5
\$5	10	\$50
\$5	100	\$500
\$5	1000	\$5000
\$5	10000	\$50000
\$5	100000	\$500000



Note: The change in variable cost is constant as the variable cost is changing at constant proportion.

Total Cost: It is the sum of total variable cost and total fixed cost

$$\text{Total Cost} = \text{Total Variable Cost} + \text{Total Fixed Cost}$$

OR

$$\text{Total Cost} = \text{variable cost/unit (output level)} + \text{Total fixed Cost}$$

Output (units)	Variable cost/unit (\$)	Total Variable Cost (\$)	Total Fixed Cost (\$)	Total Cost (\$)
0	5	0	100000	100000
1	5	5	100000	100005
10	5	50	100000	100050
100	5	500	100000	100500
1000	5	5000	100000	105000
10000	5	50000	100000	150000
100000	5	500000	100000	600000

Important Points

1. At zero output level total cost equals to fixed cost.
2. Increase in total cost is due to increase in variable cost.
3. Change in total cost divided by change in output level is always equal to variable cost per unit [High low method]

Highlow Method

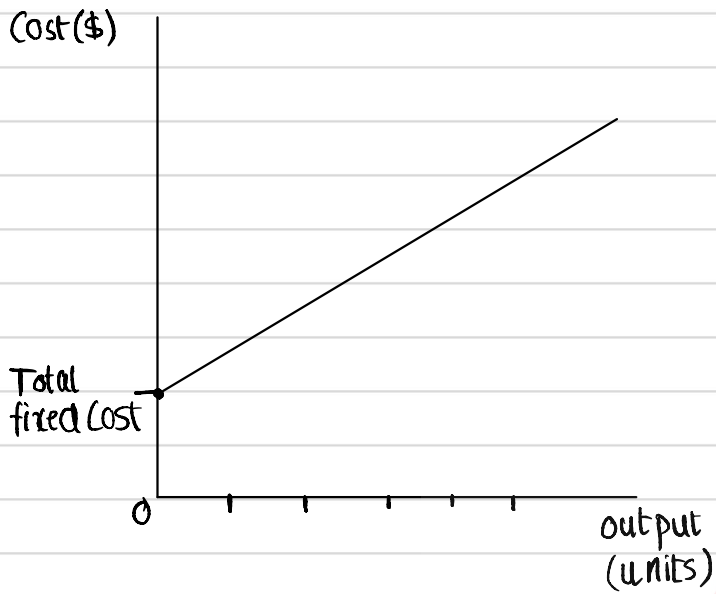
$$\text{Variable Cost/unit} = \frac{\text{change in total cost}}{\text{change in output level}}$$

E.g:

Cost (\$)	Output (units)
105000	1000
600000	100000

$$\text{variable cost/unit} = \frac{\text{Change in total cost}}{\text{Change in output level}} = \frac{600000 - 105000}{100000 - 1000} = \frac{495000}{99000} = \$5/\text{unit}$$

Total Cost



Example 1:

The following information is available:

Direct material = 2kg/unit @ \$4/kg

Direct labour = 45 minutes/unit @ \$8/hour

Variable production overheads = \$4/unit

Variable sales overheads = \$3/unit

Fixed production overheads = \$80000

Fixed admin. Overheads = \$15000

Advertising = \$5000

Required:

Calculate:

i. Variable cost/unit

	\$
Direct material [2kg x \$4]	8
Direct labour [45/60 hrs x \$8]	6
variable production overhead	4
variable sales overheads	<u>3</u>
Variable cost/unit	<u>21</u>

ii. Total fixed Cost

	\$
Fixed production Overheads	80000
Fixed admin. Overheads	15000
Advertising	<u>5000</u>
Total fixed Cost	<u>100000</u>

iii. Calculate total cost at output level of:

- a. 12000 units c. 26000 units
 b. 20000 units d. 40000 units

	12000 units	20000 units	26000 units	40000 units
	\$	\$	\$	\$
Variable cost/unit	21	21	21	21
x output (units)	x 12000	x 20000	x 26000	x 40000
= total variable cost	252000	420000	546000	840000
+ total fixed cost	+ 100000	+ 100000	+ 100000	+ 100000
= total cost	352000	520000	646000	940000

iv. If the selling price is \$25/unit, calculate profit/loss at output level of:

- a. 10000 units c. 25000 units
 b. 18000 units d. 36000 units

$$\text{Profit/loss} = \text{Total Revenue} - \text{Total Cost}$$

↓

$$\text{Quantity sold} \times \text{Selling price}$$

	10000 units	18000 units	25000 units	36000 units
	\$	\$	\$	\$
Revenue (\$25)	250000	450000	625000	900000
(-) Total Cost				
Total Variable Cost (\$21)	(210000)	(378000)	(525000)	(756000)
Total Fixed Cost	(100000)	(100000)	(100000)	(100000)
= Profit / loss	(60000)	(28000)	0	44000

v. Explain what happened to profit and loss at output level of 25000 units.

At output level of 25000 units profit/loss is zero because total revenue is equal to total cost and it is called the breakeven point.

Breakeven point \rightarrow total revenue = total cost

vi. Calculate the output level at which profit is \$50000.

$$\text{Profit} = \text{Total Revenue} - \text{Total Cost}$$

$$\begin{array}{ccc} \downarrow & & \downarrow \\ \text{selling price} \times \text{units} & & \text{variable cost/unit (units)} + \text{total fixed cost} \end{array}$$

$$50000 = 25x - (21x + 100000)$$

$$50000 = 25x - 21x - 100000$$

$$50000 = 4x - 100000$$

$$x = \frac{50000 + 100000}{4}$$

4

$$x = 37500 \text{ units}$$

Example 2:

Selling Price = \$30

Variable Cost/unit = \$20

Fixed Cost = \$100000

Required

a. Calculate output level where profit/loss is equal to zero (breakeven in units).

b. Calculate profit/loss at output level of

i. 8000 units

iii. 26000 units

ii. 14000 units

iv. 50000 units

c. Calculate the output level at which profit is \$200000

a. Profit/loss = Total Revenue (-) Total Cost

$$0 = 30(x) - (20x + 100000)$$

$$0 = 30x - 20x - 100000$$

$$100000 = 10x$$

$$x = \frac{100000}{10} = 10000 \text{ units breakeven point}$$

	8000 units	14000 units	26000 units	50000 units
	\$	\$	\$	\$
Total Revenue (\$30)	240000	420000	780000	1500000
Total Cost				
Total Variable Cost (\$20)	(160000)	(280000)	(520000)	(1000000)
Total Fixed Cost	(100000)	(100000)	(100000)	(100000)
Profit / (Loss)	(20000)	40000	160000	400000

c. Profit = Total Revenue - Total Cost

$$200000 = 30(x) - (20x + 100000)$$
$$200000 = 10x - 100000$$
$$300000 = 10x$$
$$x = \frac{300000}{10}$$

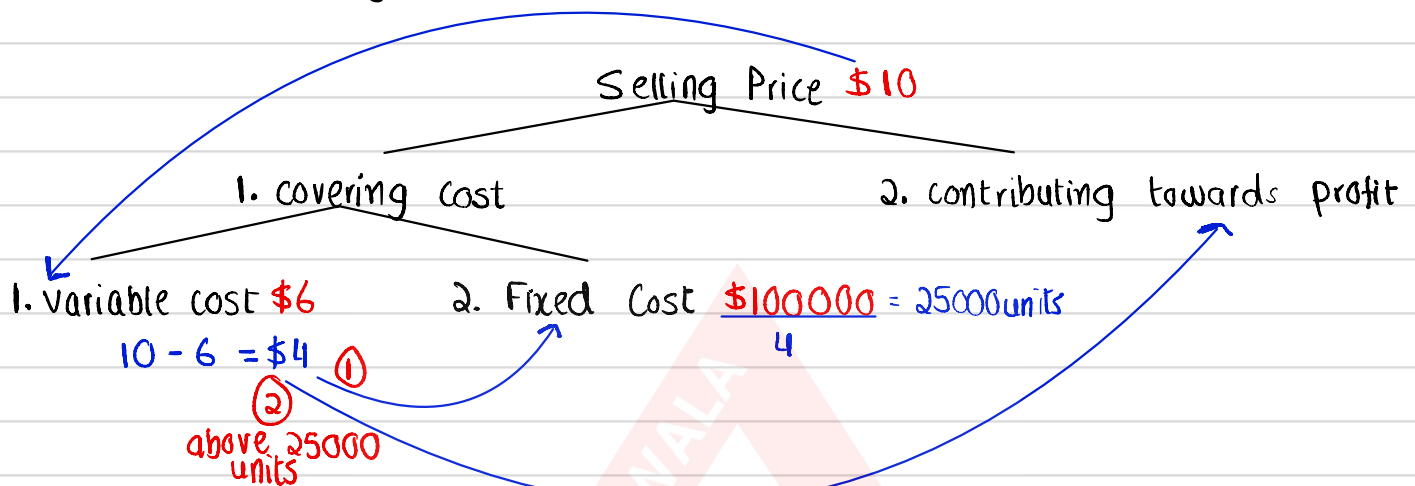
$x = 30000$ units



Contribution ∴ It is the difference between the selling price of the product and its variable cost

- How much the selling price is contributing towards covering of fixed cost after it has already covered the variable cost.

contribution / unit = Selling Price (-) Variable cost / unit



Note: 1. Contribution is the surplus in selling price which helps towards covering fixed cost and which later contribute towards making profit, after it has already covered the variable cost

2. The contribution of the product needs to cover the fixed cost and therefore needs support from sufficient number of units to cover the entire fixed cost

3. The point where the contribution is sufficient to cover the entire fixed cost is called the breakeven point.

Breakeven Point: A breakeven point is a condition / activity or output level where the firm is neither making profit nor loss, that is a point where:

1. Total revenue = Total cost, and
2. Total contribution = Total fixed cost

4. Any activity before the breakeven point results in business operating at a loss.

5. Any activity beyond the breakeven point results in business operating at a profit

INTRODUCTION TO COST AND MANAGEMENT ACCOUNTING

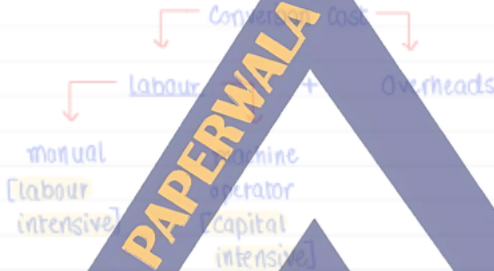
Cost/Expense: Outflow of resources.

For full content

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Stages of Manufacturing

1. Input [raw material] → 2. Process → 3. Output [finished goods]



Labour intensive business: Business organisations dependant on manual labour rather than technology or machinery.

Capital intensive business: Business organisations which are more dependant on machines rather than manual labour.