

COST



- Cost is the money spend by a firm on inputs used for the production of a commodity.
- Money spend on four factors of production is cost.
- $\text{Cost} = \text{Rent} + \text{Wages} + \text{Interest} + \text{Normal Profit}$

COST



Implicit Cost
Cost

Explicit

IMPLICIT COST

- It is the value of input owned by the firm.
- The firm need not make any payment for this input



HE OWNS THE SHOP BUILDING . SO, HE NEED NOT PAY RENT

- EXPLICIT COST

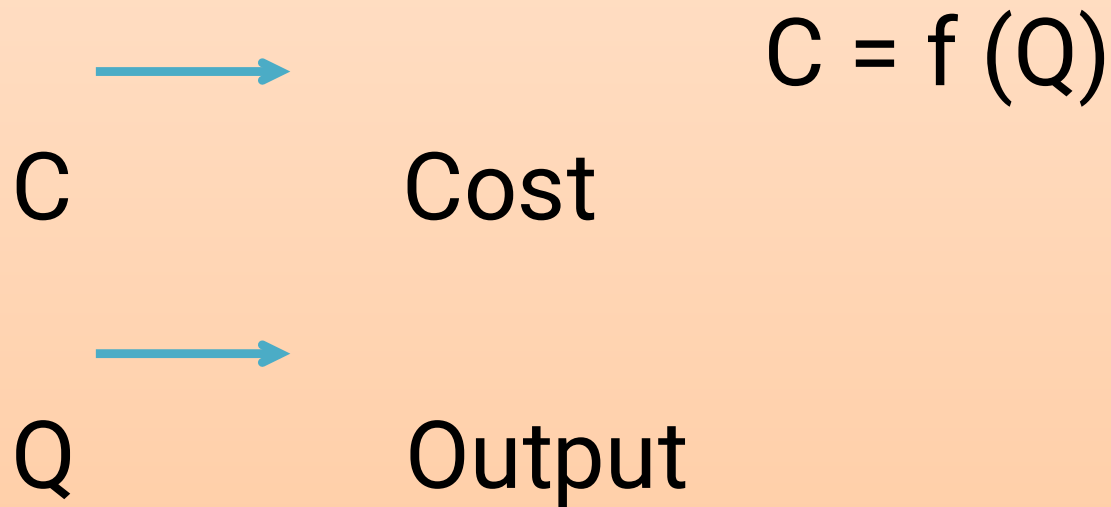
- It is the amount paid by a firm on the inputs hired or purchased for the production of a good.



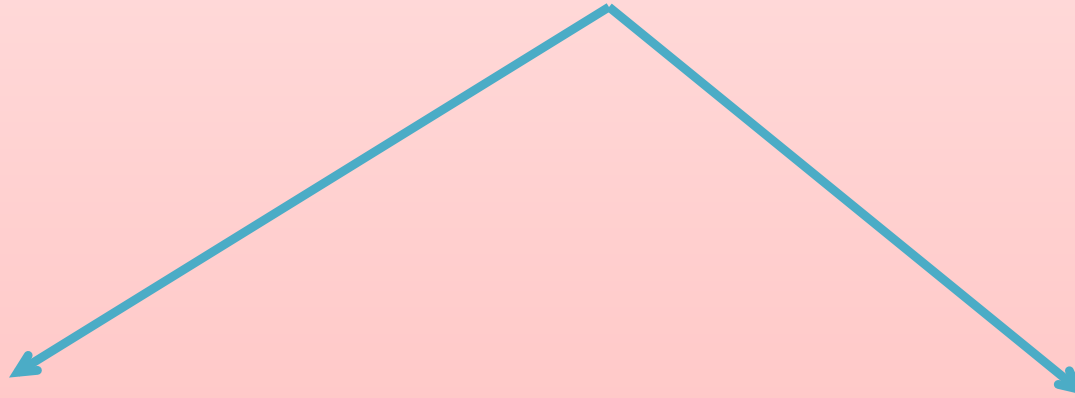
**I HIRED THE SERVICES OF THESE WORKERS
I PAY THEM WAGES**

COST FUNCTION

It is the functional relationship between cost output.



Short Run Total cost



Total Fixed Cost

Total Variable

Cost

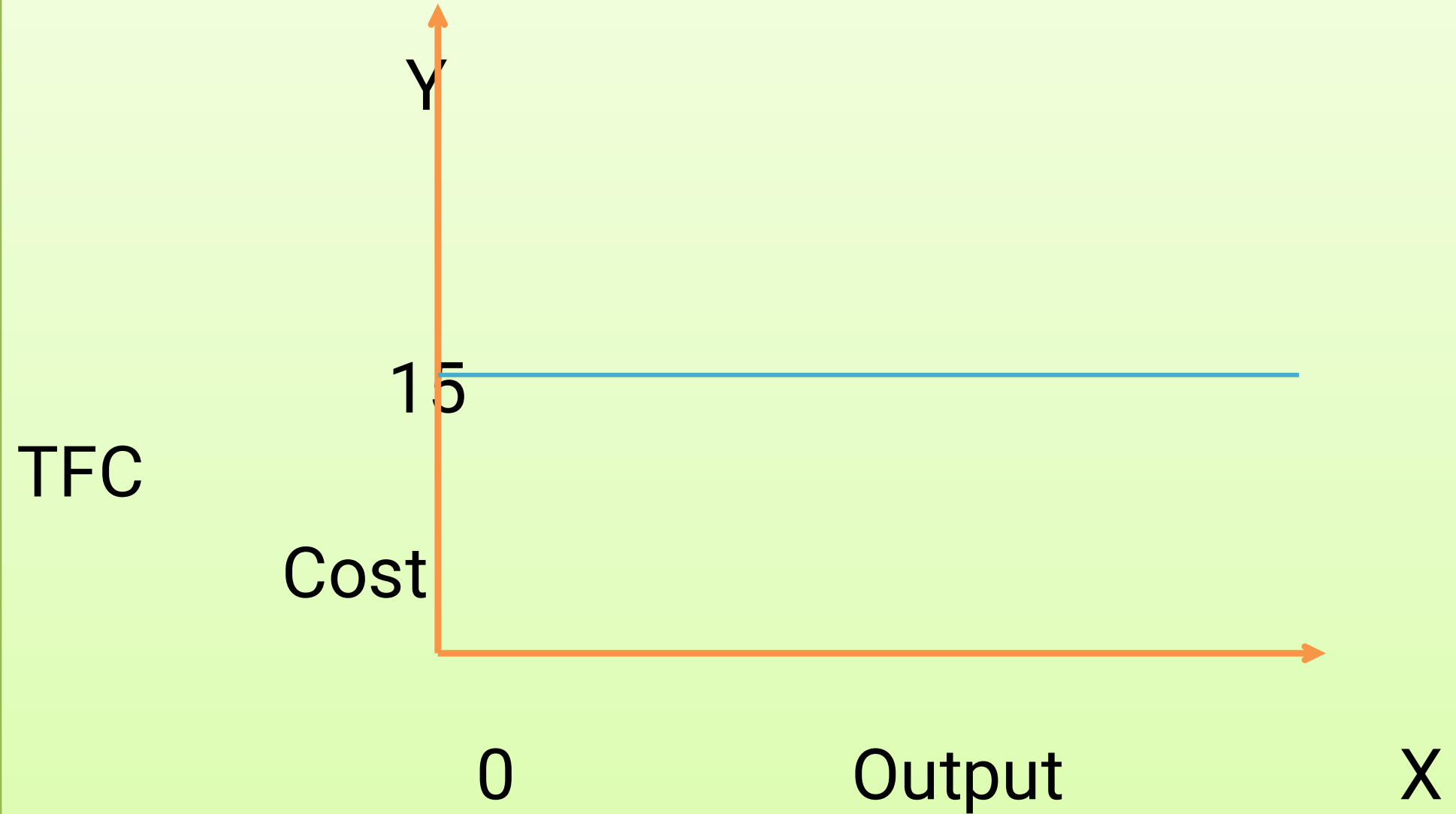
Total Fixed Cost

- *(Secondary Cost, Indirect Cost, supplementary Cost)*
- In the short run, some factors of production such as land building and machinery cannot be changed. Expenditure on these factors is called Fixed Cost.
- Examples: Rent on building, interest on loan, insurance premium etc.
- Fixed cost remains constant at all levels of output including zero.

- **Fixed Cost Schedule:**

Output	TFC
0	15
1	15
2	15
3	15
4	15
5	15

TFC Curve



- TFC Curve starts from Y axis. It shows that there is fixed cost even at zero level of output.
- It is a horizontal line parallel to X axis. It shows that Fixed Cost is constant at all levels of output.

VARIABLE COST

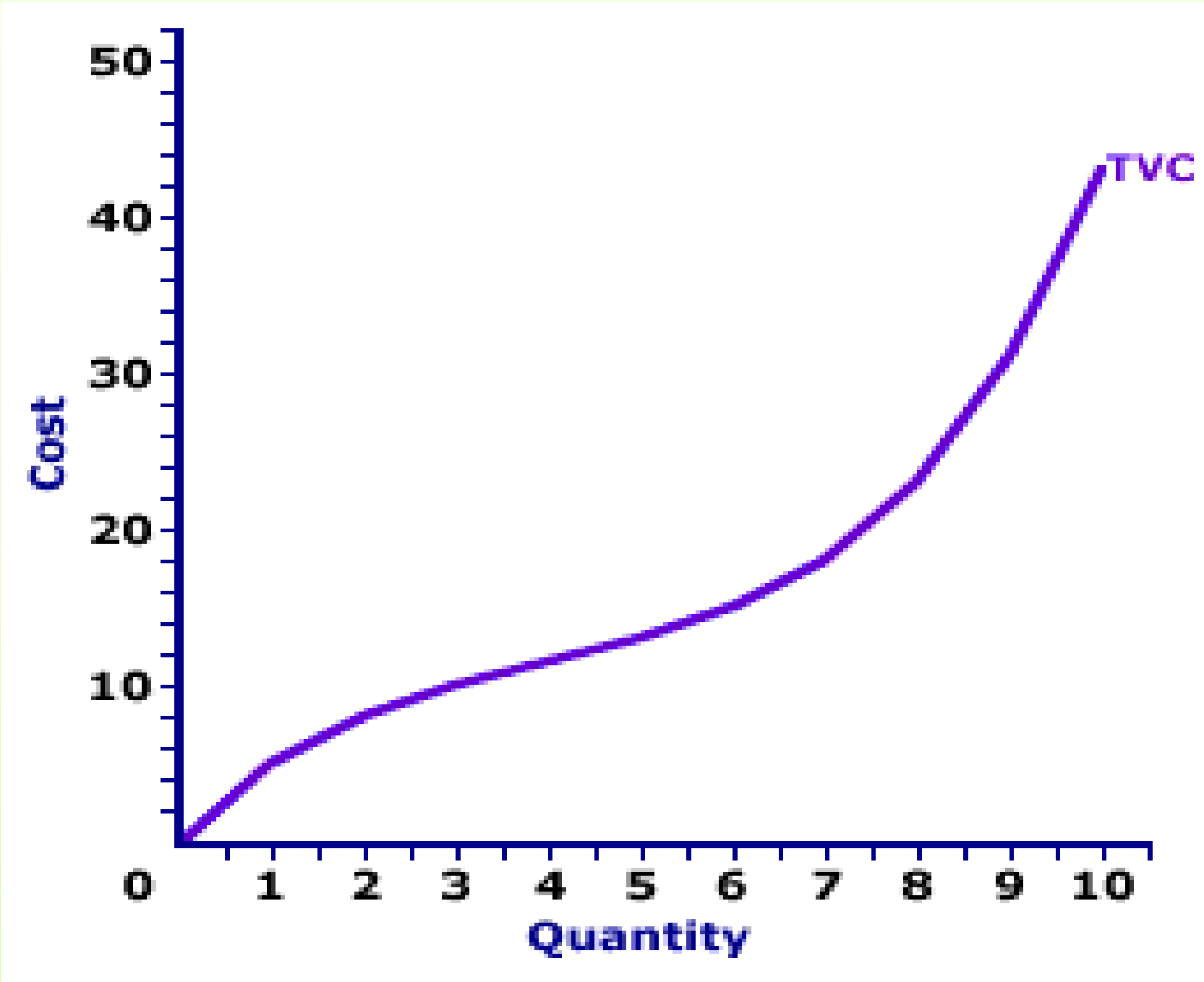
(Primary Cost/ Prime Cost/ Direct Cost)

- The firm can increase its output by changing some factors such as raw materials and labour. They are called variable factors.
- Expenditure on variable factors is called Variable Cost.
- It is zero at zero level of output.
- It increases with increase in output.

TVC schedule

Output	TVC
0	0
1	6
2	10
3	15
4	24
5	36

- TVS CURVE



- TVC curve starts from the origin because the variable cost is zero at zero level of output.
- TVC curve is inverse S shaped.
- It is because the variable cost initially increases at a diminishing rate(the firm is in increasing returns) and later increases at an increasing rate(the firm is in diminishing returns)

TOTAL COST

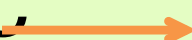
- Total Cost is the amount spend by a firm for producing total quantity of a commodity.
- It is the sum total of Total Fixed Cost and Total variable Cost.

$$TC = TVC + TFC$$

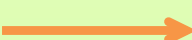
$$TC_n = MC_1 + MC_2 + MC_3 + \dots + MC_n$$

$$TC = \sum MC$$

$$TC = AC \times Q$$

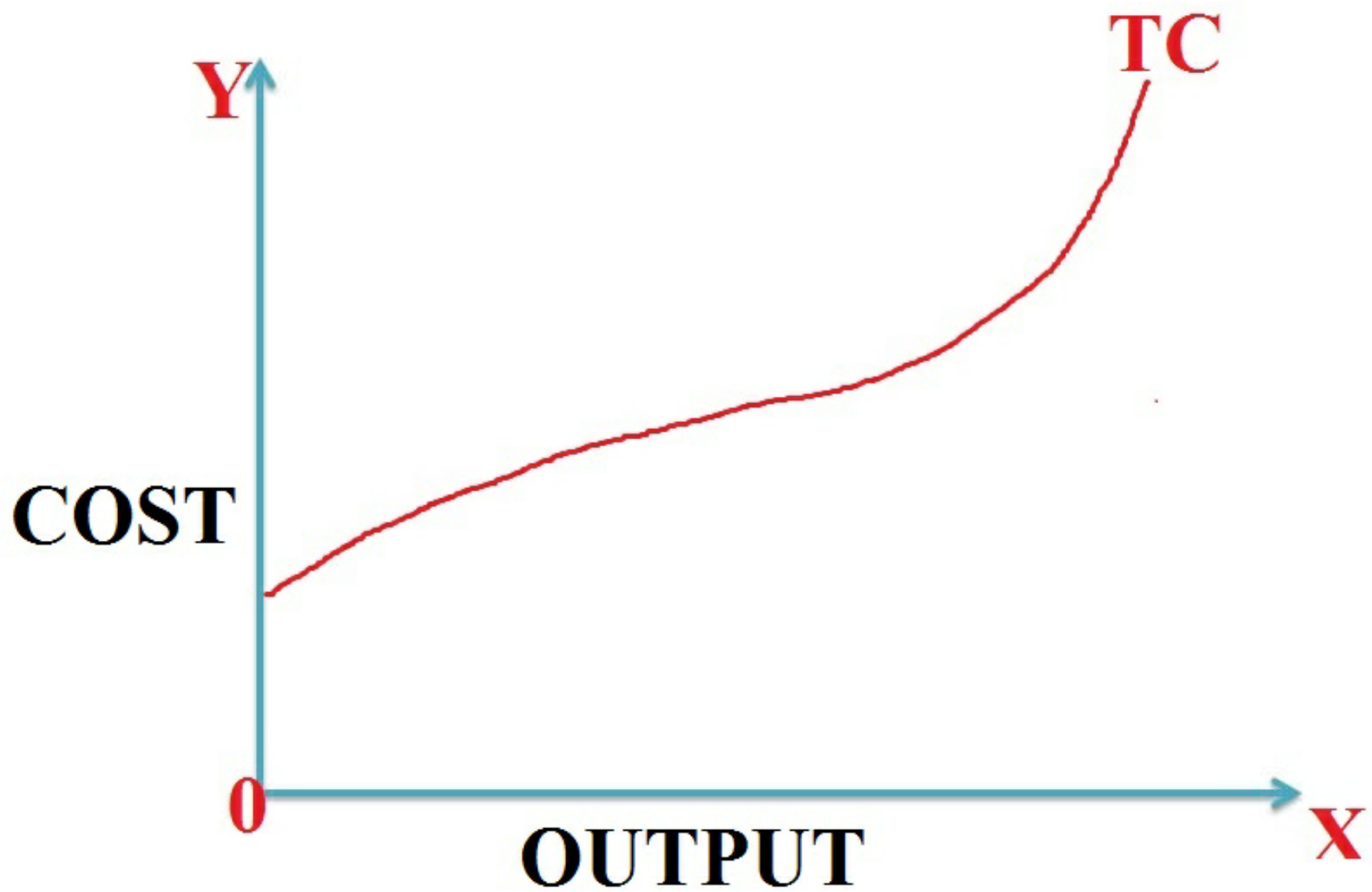
MC  Marginal Cost

AC  Average Cost

Q  Quantity Produced

Total Cost schedule

Output	TFC	TVC	TC
0	10	0	10
1	10	6	16
2	10	10	20
3	10	15	25
4	10	24	34
5	10	35	45



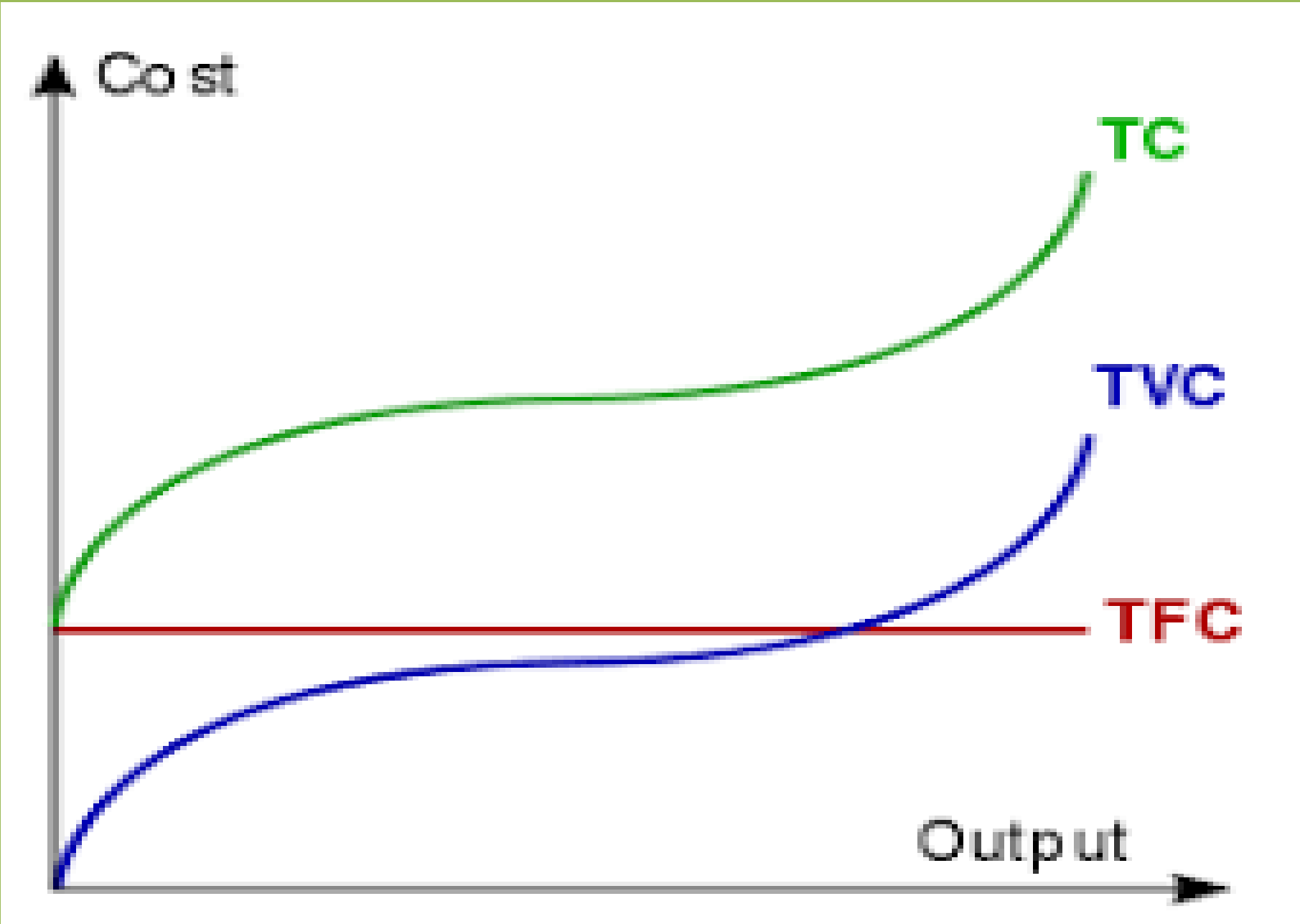
- At zero level of output $TC = TFC$

So, the TC curve starts from the point where TFC curve intercepts the Y axis.

The TC curve is also inverse S shaped.

It is because the cost initially increases at a diminishing rate(firm is in increasing returns) and later increases at a an increasing rate(the firm is in diminishing returns)

- The relationship between TC, TFC and TVC



- TFC is constant at all levels of output including zero.

So, TC at zero level of output is equal to TFC

- TC and TVC curves are inverse S shaped
- TC and TVC curves are parallel to each other and vertical distance between them is TFC.

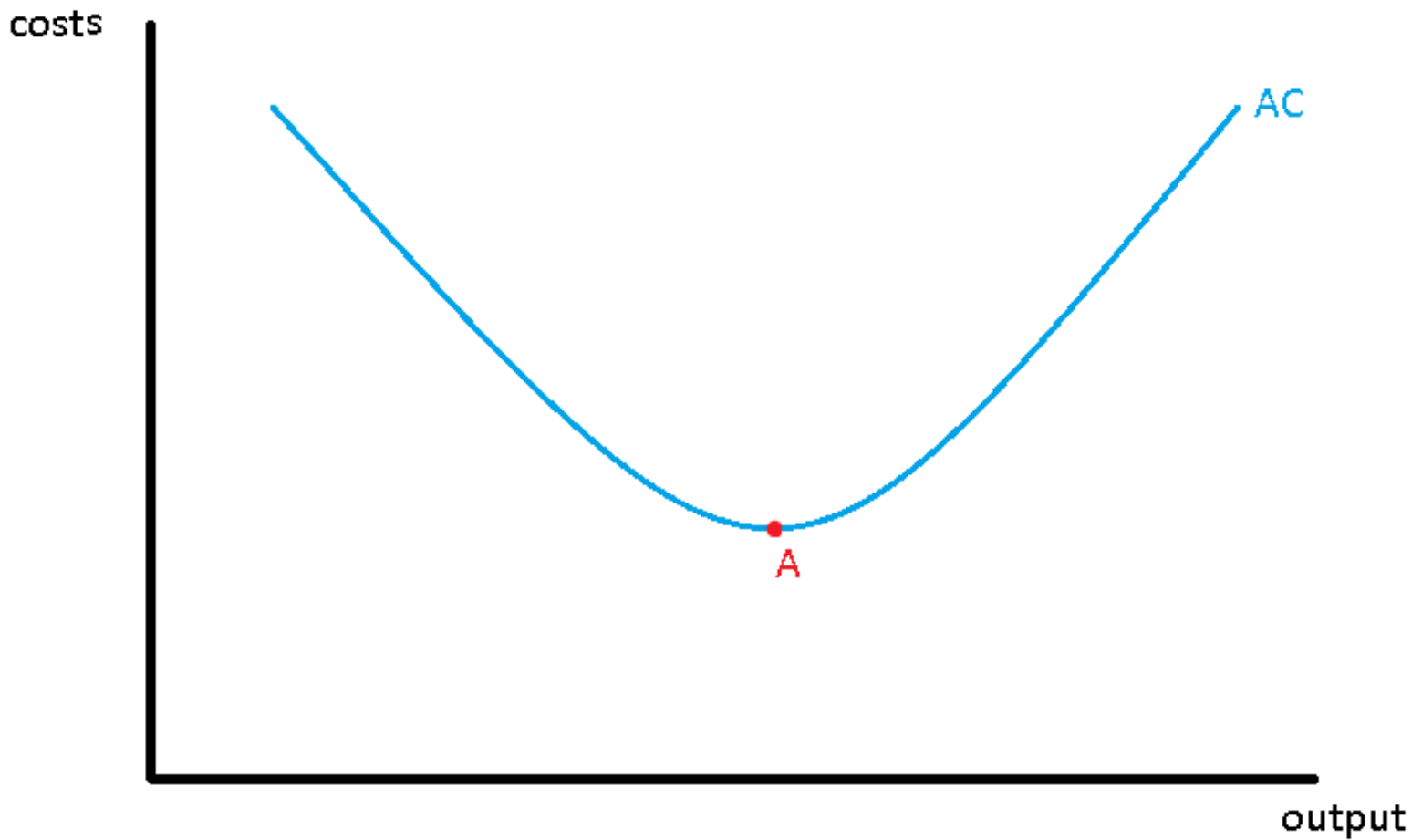
Average Cost (Average Total Cost)

- Average Cost is cost per unit of output.
- It is also called unit cost.
- It can be calculated by dividing Total Cost with the number of units produced.

$$AC = \frac{TC}{Q}$$

- As the firm increases output, Average Cost initially falls(the firm is in increasing returns).
- Later Average Cost starts rising(the firm is in diminishing returns).
- So, the AC(ATC) curve is U shaped.

- Average Cost Curve



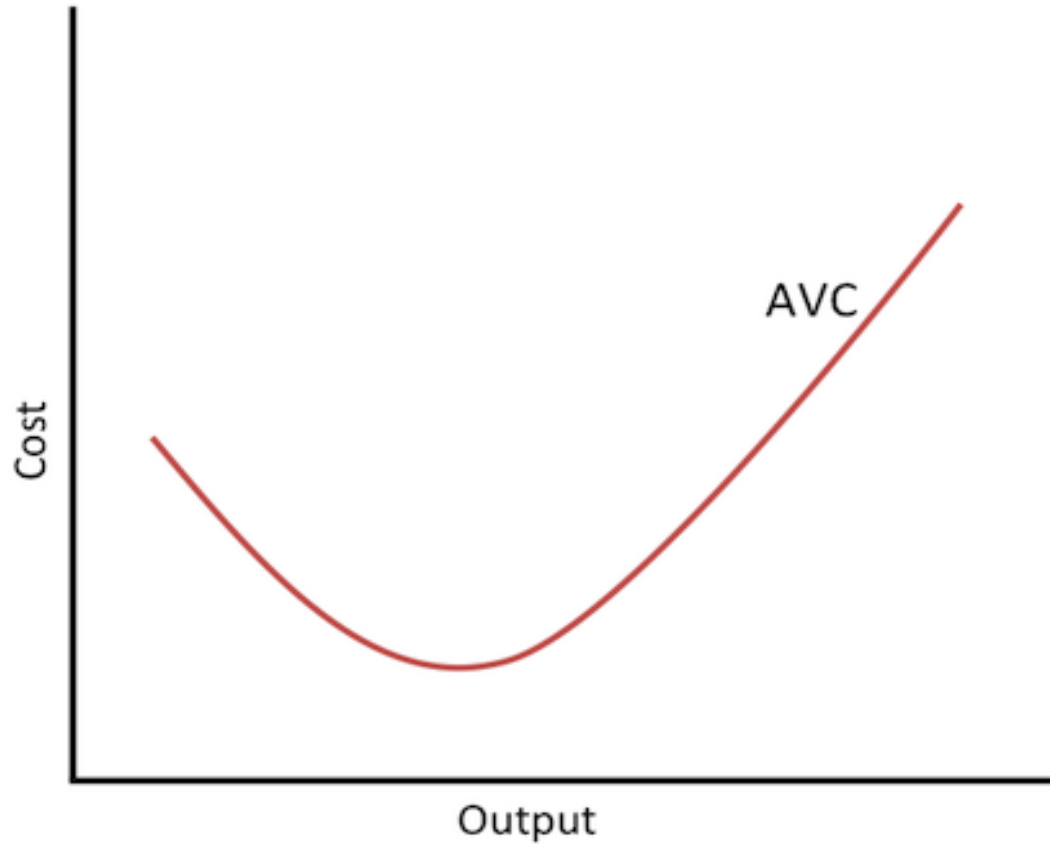
Average Variable Cost

- AVC is the variable Cost per unit of output.
- It is calculated by dividing Total variable Cost with the number of units produced.

$$AVC = \frac{TVC}{Q}$$

AVC Schedule

Output	TVC	AVC
0	0	---
1	6	6
2	10	5
3	15	5
4	24	6
5	35	7



- AVC curve is U shaped.
- As output increases, AVC initially falls (firm is in increasing returns) and later rises (firm is in diminishing returns)

Average Fixed Cost(AFC)

It is the fixed cost per unit of output.

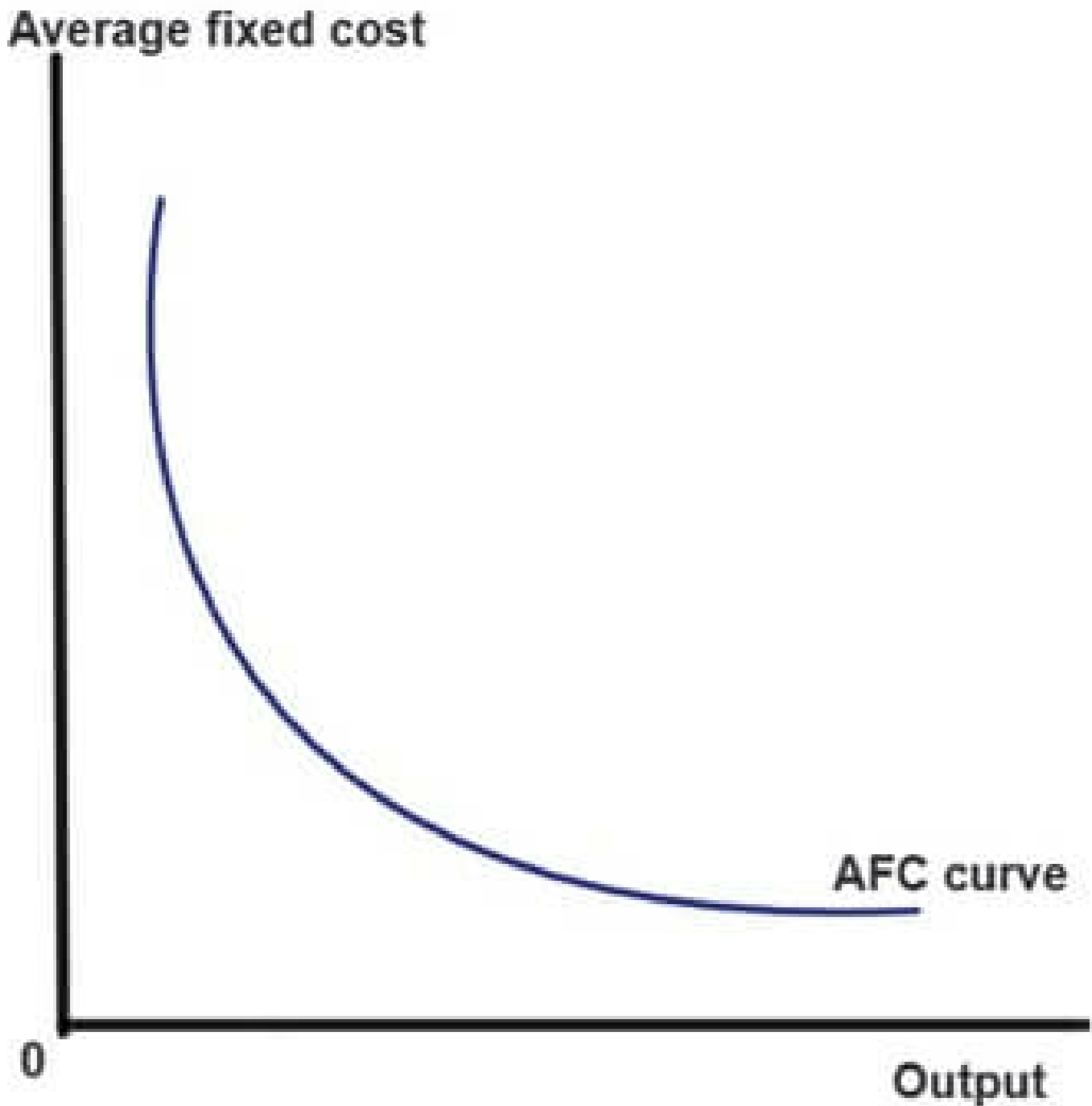
It can be calculated by dividing Total Fixed Cost with output.

$$AFC = \frac{TFC}{Q}$$

AFC SCHEDULE

Output	TFC	AFC
0	12	---
1	12	12
2	12	6
3	12	4
4	12	3
5	12	2.4

- AFC Curve



- AFC curve is a rectangular Hyperbola.
- It shows that AFC decreases as output increases.
- AFC decreases because TFC is constant at all levels of output.
- AFC curve never touches the X axis because AFC can never be zero.

MARGINAL COST

It is the addition to total cost when the firm produces one more unit of output.

$$MC_n = TC_n - TC_{n-1}$$

OR

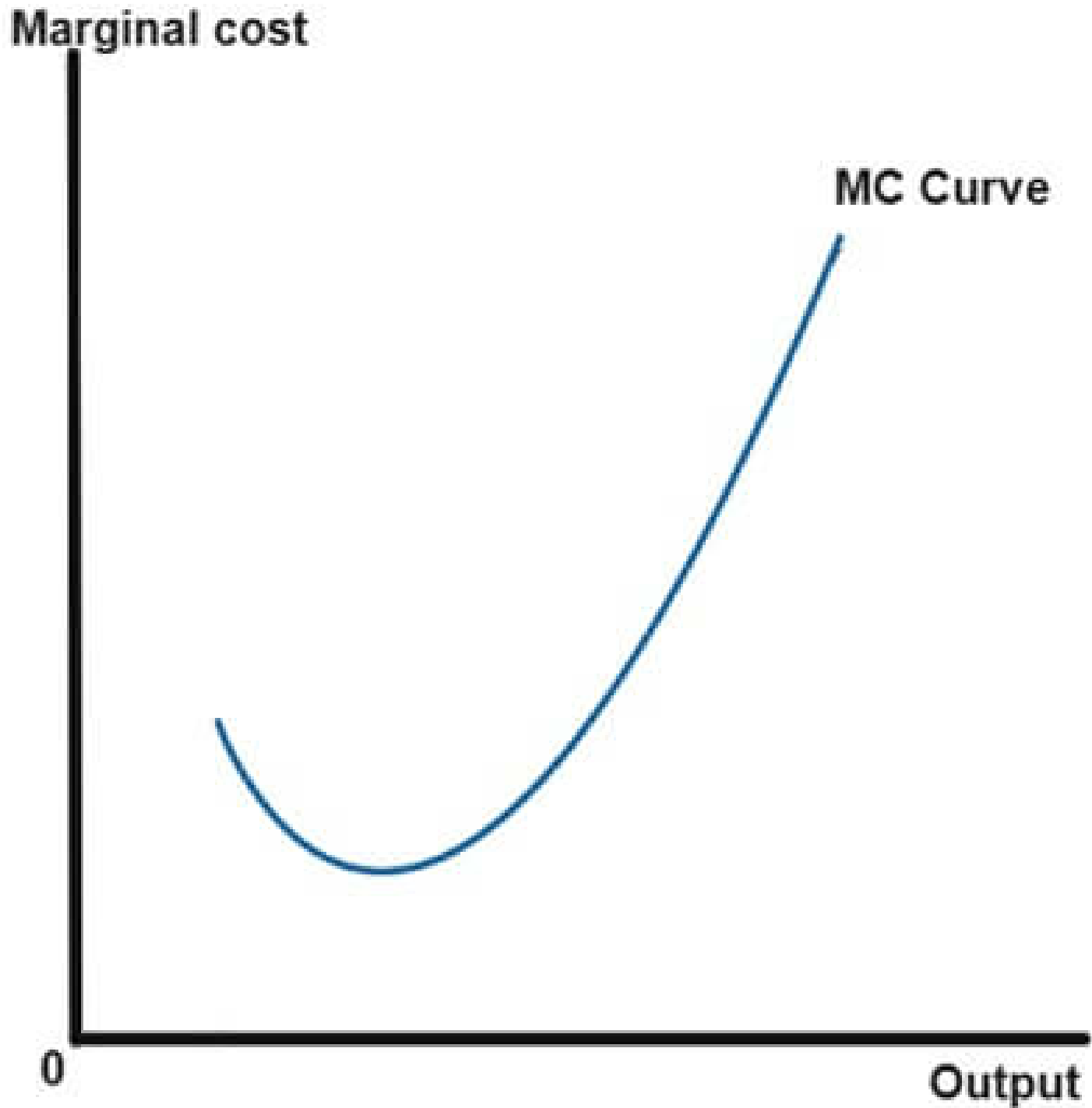
$$MC = \frac{\Delta TC}{\Delta Q}$$

MC is the slope of TVC

Marginal Cost Schedule

Output	TC	MC
0	12	----
1	18	6
2	22	4
3	27	5
4	26	9
5	47	11

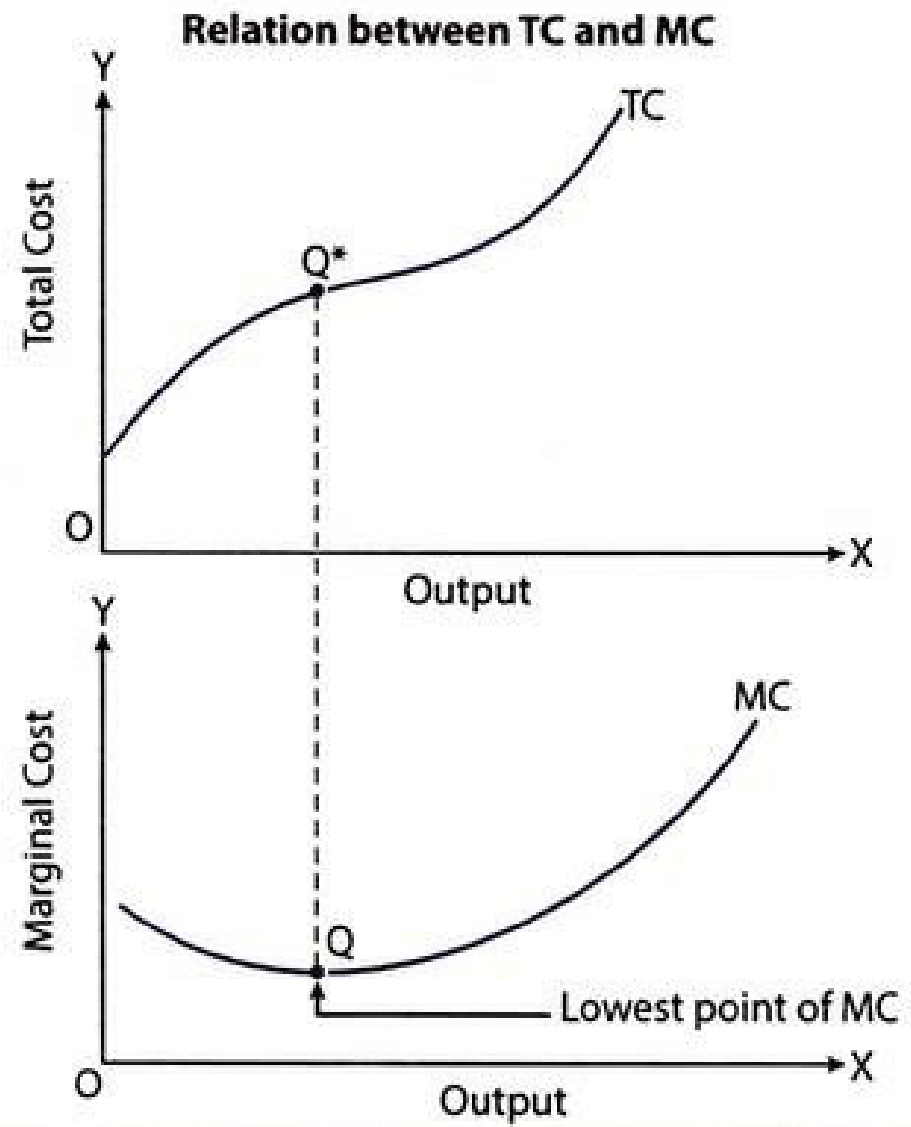
MC Curve



- Marginal Cost Curve is U shaped.
- Initially MC falls as the firm is in increasing returns.
- Later MC rises as firm is in diminishing returns

Relationship between Total Cost and Marginal Cost

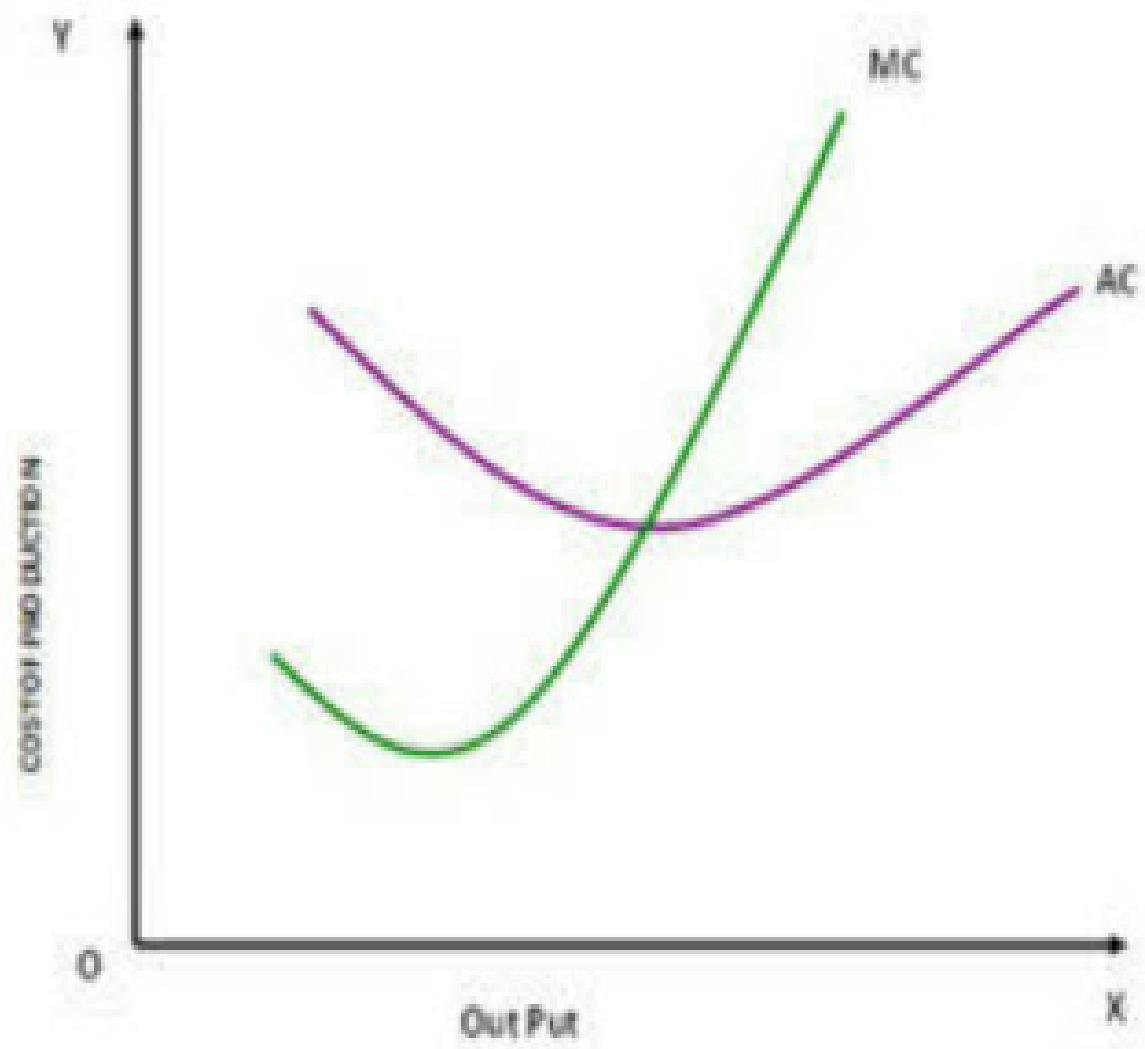
FIGURE 11



- ◆ Up to point Q^* , TC is increasing at a decreasing rate, because MC is decreasing.
- ◆ Beyond point Q^* , TC is increasing at an increasing rate, because MC is increasing.
- ◆ At point Q^* , TC stops increasing at a decreasing rate, because MC touches its lowest point.

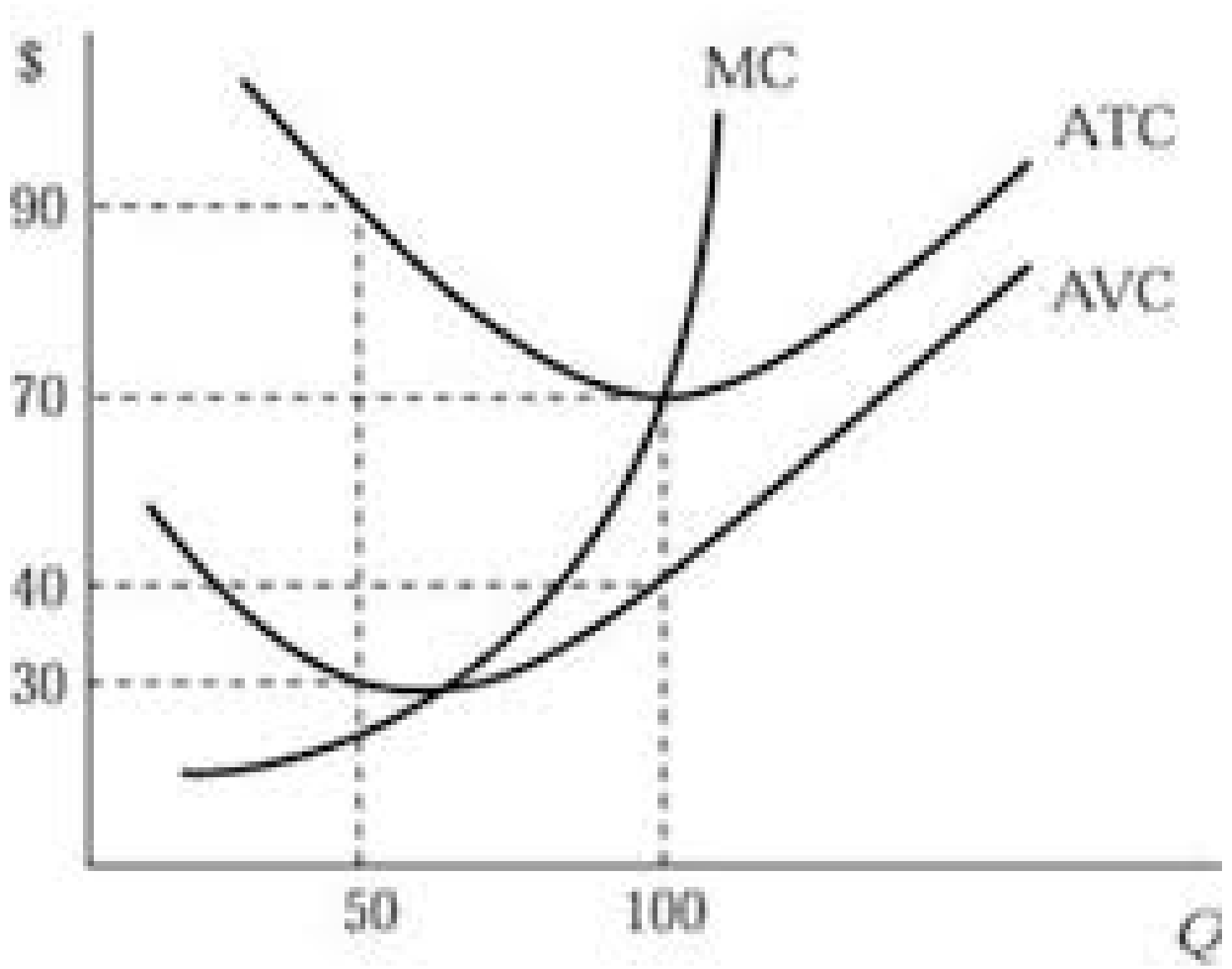
- When MC falls TC increases at a diminishing rate.
- When MC rises TC increases at a diminishing rate.
- When MC is Constant TC also remains constant.

- Relationship between Average Cost and Marginal Cost.



- When MC is less than AC, AC falls.
- When MC is greater than AC, AC rises.
- When MC is equal to AC, AC is at its minimum.
- MC starts rising even when AC is falling.

- Average Total Cost, Average Variable Cost and Marginal Cost Curves in a single diagram.



- The gap between ATC and AVC goes on decreasing.
- This gap is Average Fixed Cost.
- However ATC and AVC never touch each other because AFC can never be zero.
- MC curve cuts both ATC and AVC curves at their lowest points.

THANK YOU