WHAT do I need to know about... COST CURVES?

WHAT DOES THE TOTAL COST (TC) MEAN?

The **sum of all costs** incurred by a firm in **producing a certain level of output.**

It is **expressed as** the combination of:

- **all fixed costs** (e.g., the costs of a building lease and of heavy machinery), which do not change with the quantity of output produced,
- **all variable costs** (e.g., the costs of labour and of raw materials), which do change with the level of output.

Fixed cost (FC):

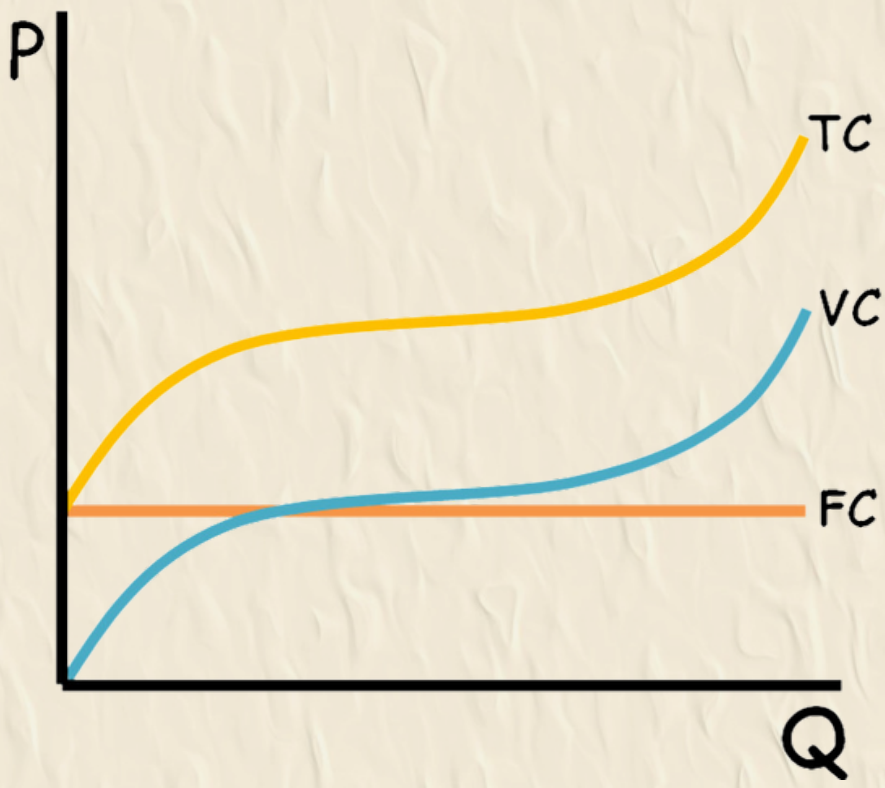
These are **costs** for a firm which **do not change** with **the quantity produced** (they remain fixed).

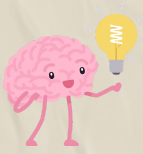
Rent, loan payments, insurance, etc will generally be the same whether a firm produces zero units of output or ten thousand.

Variable cost (VC):

These are the **costs** which **change** with t**he quantity produced**.

Labor, electricity, and raw materials are all examples of variable costs because as more units are produced more money will be spent on labor, electricity, and raw materials.





IMPORTANT NOTES:

1. FC remain constant. Therefore the more you produce, the lower the average fixed costs will be.
2. TC curve is the same shape as the VC. The distance between the two curves is equal to the value of the Fixed costs.
3. If total revenue is greater than total variable costs, the firm will operate and their losses will be less than fixed costs. If total revenue is less than total variable costs, the firm will temporarily shut down.
4. A firm will operate as long as losses are less than fixed costs. Otherwise the firm will temporarily shut down. That is because fixed costs are “sunk costs” meaning they are already lost.

WE CAN CALCULATE ADDITIONAL INDICATORS WITH THE HELP OF QUANTITY AND COSTS.

The **average cost indicator**s are important for firms since it shows them **how much each** unit of **output costs** them.

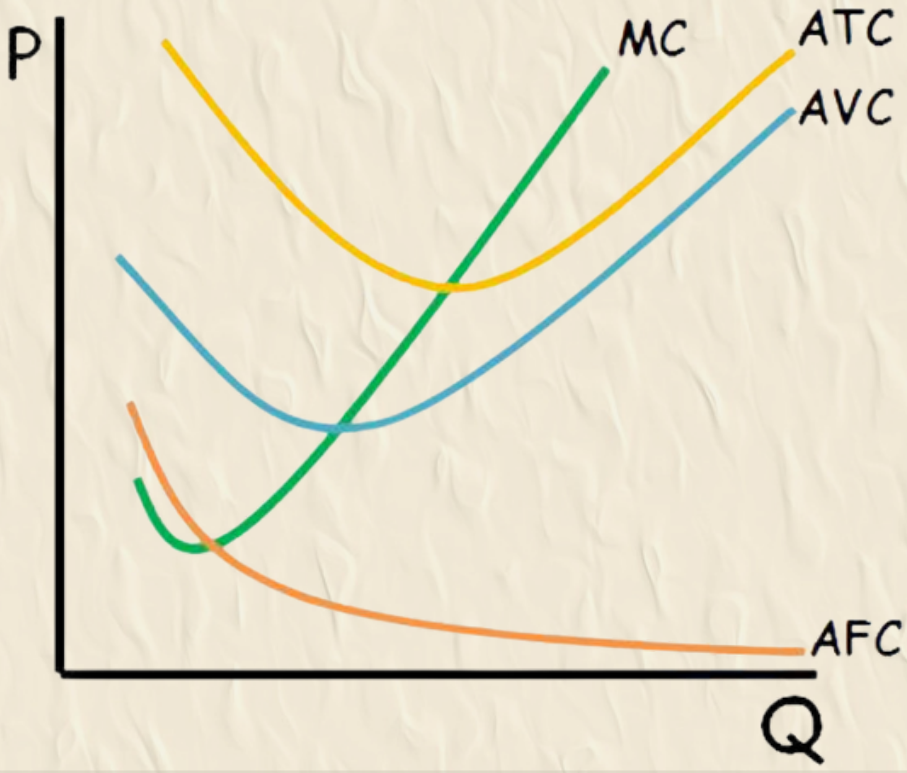
Average total cost (**ATC**) is total cost divided by the quantity of outputs:
ATC=TC/Q.

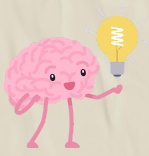
Average fixed cost (**AFC**) is all of the fixed costs divided by the quantity of outputs:
(AFC = FC/Q).

Average variable cost (**AVC**) all of the variable costs divided by the quantity outputs:
(AVC = VC/Q).

Marginal cost (**MC**) is the change in total cost divided by the change in quantity:
(MC = ΔTC/ΔQ).

Usually the change in quantity is just 1 so MC is the cost associated with producing just one more unit of output.





IMPORTANT NOTES:

1. **AFC** continually decrease as output increases.
2. **AVC** decreases until it intersects the **MC** then increases.
3. **ATC** decreases until it intersects the MC then increases.
4. The marginal cost curve intersects the **ATC** and **AVC** at their minimum points.
5. The **MC** curve intersects the **ATC** and **AVC** at their minimum points.
6. That relationship is because as long as the cost of producing one more unit of output (**MC**) is less than the current average the average will fall. Also, as long as the cost of producing one more unit of output is higher than the current average, the average will rise.
7. Firms shut down (temporarily) when price falls below the minimum point on the **AVC**. → Also called as: **Downtime point**
8. Producing the quantity where the **ATC** is at its minimum is productively efficient. → Also called as: **Breakeven point**