Cobb-Douglas production function:

➢ The Cobb-Douglas production function is based on the empirical study of the American manufacturing industry made by Charles Cobb and Paul Douglas.

➢ This study led to the conclusion that labour contributes about 3/4th and capital about 1/4th of the increase in manufacturing production.

➢ Cobb-Douglas production function states that an input can be substituted by other to a limited extent.

➢ For example, capital and labour can be used as a substitute of each other, however to a limited extent only.

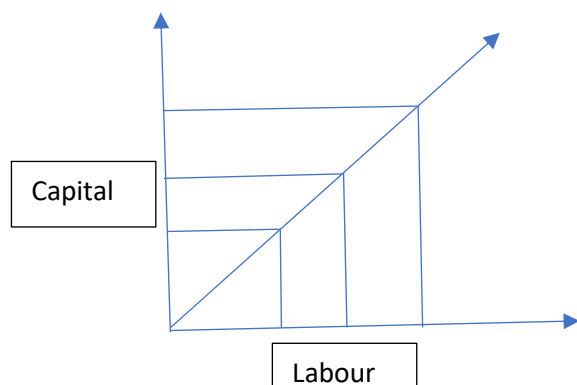The Cobb-Douglas production function is expressed as:

$$Q = AL^a C^b$$

where

Q is output

A is the efficiency parameter. It is an indicator of the state of technology. The higher the value of A, the higher would be the level of output that can be produced by any particular combination of the inputs.

L and **C** are inputs of labour and capital respectively

a and **b** are positive fractions

b = 1−a

- Cobb-Douglas production function is based on constant returns to scale.
- Cobb-Douglas production function is linear homogeneous function of degree one.
- Production is not possible without labour and capital.
- If one factor is kept constant and other factor is increased then the marginal productivity of variable factor is reduced.