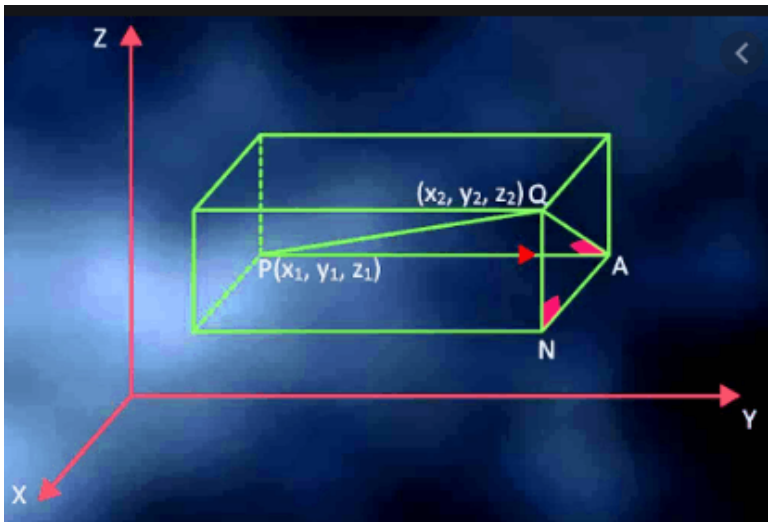
Introduction to 3D Geometry: History, What is Meant by 3 Dimensional

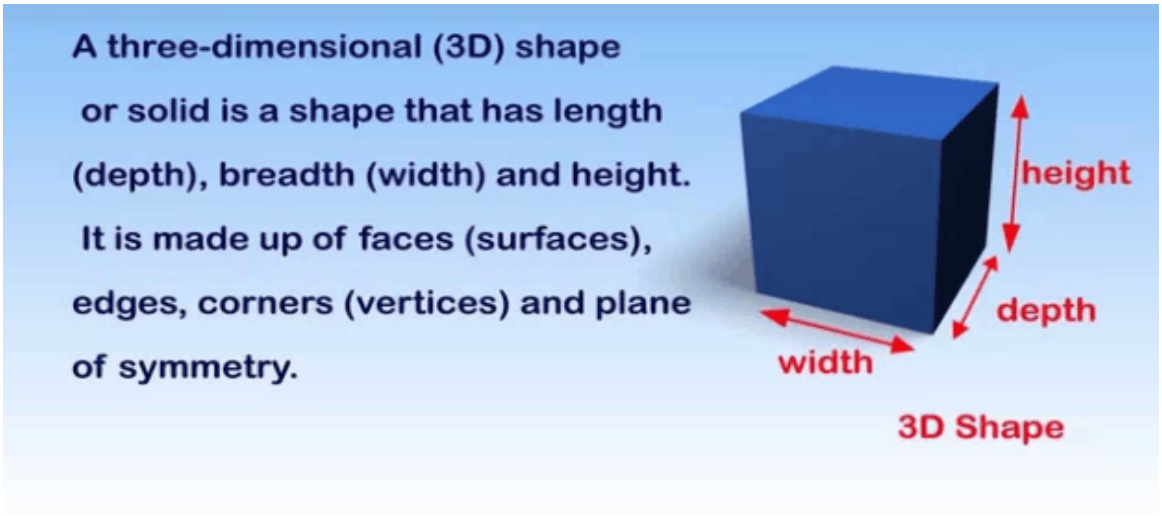


- A line passing through the origin making angles p, q and r with x, y, z-axes then, the cosine of these angles, namely, cos p, cos q, and cos r are known as direction cosines of the line L.
- Any idea what does Geometry mean? This word is actually derived from the Greek word ‘geometron’ . Here, ‘geometron’ is actually made of two words – Geo and Metron.
- Any 3 numbers proportional to the direction cosines are known as the direction ratios of that line.
- So geometry is the mathematical study of all shapes and figures. In this following chapter let us study in detail about three dimensional geometry.
- If x, y, z are direction cosines and p, q, r are direction ratios of a line, then a = λl, b = λm, and c = λn, [where λ belongs to R] .

History

- Euclid of Alexandria, who is said to be a student at the Academy by Plato was the one who wrote a treatise in 13 books.
- He named it 'The Elements of Geometry' , in which he presented geometry in an ideal axiomatic form that we now know as Euclidean geometry.

What is Meant by 3 Dimensional?



- In geometry, one can define a three-dimensional shape as a solid figure or an object or shape having three dimensions.
- They are length, width and height.
- A three-dimensional shape can be defined as a solid figure or an object or shape that has three dimensions – length, width and height. Unlike two-dimensional shapes, three-dimensional shapes have thickness or depth.
- Always remember that unlike two-dimensional shapes, three-dimensional shapes consist of thickness or depth.