SOLID OBJECT

An object having three dimensions, i.e., length, breadth and height or thickness is called a **SOLID**. To represent a solid in the orthographic projection, at least two views are necessary; one view to represent length and height, called **FRONT VIEW** and the other view to represent length and breadth, called **TOP VIEW**.

Sometimes the above two views may not be sufficient to explain the details. Hence a third view called **View from the Right** (Right Side View) or **View from the Left** (Left Side View) becomes necessary.



Polyhedron

The solid which is bounded by plane surfaces or faces is called polyhedron. The polyhedron are further sub-divided into three groups:

- Regular Polyhedra
- Prisms
- Pyramids

Regular Polyhedra

A polyhedron is regular if each of its plane surfaces is a regular polygon. The regular plane surfaces which form the surfaces of the polyhedra are called Faces. The lines at which two faces intersect are called Edges.

The three important regular polyhedra are:

- Tetrahedron ------ 4 equal regular squares
- Cube or Hexahedron ----- 6 equal regular squares
- o Octahedron ----- 8 equal equilateral triangles



Tetrahedron



Cube or Hexahedron



Octahedron

If the solids are not composed of similar surfaces, then such polyhedra may be classified into Prisms and Pyramids.

Prism:

A prism is a polyhedron having two equal and similar end faces called top face and bottom face (base) joined by other faces which may be Rectangles or Parallelograms. The imaginary line joining the centers of the faces is called the Axis.



Pyramids:

A pyramid is a polyhedron having a plane figure for its base and equal number of isosceles triangular faces meeting at a point called Vertex or Apex.



Frustum:

When a pyramid or a cone is cut by a cutting plane parallel to its base, the remaining portion thus obtained after removing the top portion is called the Frustum.



Frustum of Pyramid



Truncated:

When a solid (prism/cylinder/pyramid/cone) is cut by a cutting plane inclined to its base (not parallel), the remaining portion thus obtained after removing the top portion is called the Truncated Solid.



Truncated Pyramid



Truncated Cone



Typical Section of a stair