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All the shapes like circles, polygons, etc. are two dimensional in shape as they have only length and width. In the real world, there are many objects which have length, width and height. Hence they are called three dimensional objects. To understand the concept of solid geometry, we should understand the terms solids and geometry. The bodies occupying space are called solids. The solid bodies occur in various shapes such as: a cuboid, a cube, a cylinder, a cone, a sphere, etc. Study of figures comes under the category of geometry and study of solid figures like cone, sphere, cylinder, etc. is termed as Solid geometry. Solid geometry is basically the geometry of three dimensional objects or the objects which have three dimensions. Three dimensions of any object will be height, width and depth. A three dimensional figure is called solid figure. Examples of solid figures are cube, cuboid, sphere, cylinder, etc.

Solid geometry is the geometry which deals only with solids. There are various solid geometry formulas which are used, such as volume and surface area of the solids. The space occupied by a solid is called its volume. The units of volume are cubic centimetres written as cm^3 or cubic metres written as m^3 . The sum of areas of all the surface of any object is called the surface area of that object.

The solid geometry formulas for some of the solids are given below: -

1. Cuboid – A rectangular solid is known as a cuboid. A matchbox, a brick, a book, etc. are all examples of cuboid. The volume of cuboid of length l , width w and height h is lwh and the surface area is $2(lw + lh + wh)$
2. Cube – A cuboid whose length, breadth and height are all equal is known as cube. Dice, ice cube, sugar cubes, etc. are all examples of cube. The volume of cube of side length a is a^3 and the surface area of cube is $6a^2$.
3. Cylinder – A cylinder is a solid figure which has two parallel sides closed by curved surfaces. Circular pillars, measuring jars, etc. are all examples of cylinder. The volume of cylinder of radius r and height h is $\pi \cdot r^2 h$ and the surface area is $2\pi rh + 2\pi r^2$.
4. Right circular cone – The solid generated by the rotation of a right angled triangle about one of the sides containing the right angle is known as a right circular cone. A clown's caps, ice cream cone, etc. are examples of right circular cone. The volume of cone with radius r and height h and slant height l is $\frac{1}{3} \cdot \pi \cdot r^2 h$ and the surface area is $\pi \cdot r(l+r)$.

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