

Chapter 15

Visualising Solid Shapes

Objects having different shapes (dimensions)

One Dimensional Objects

- Objects having length only. For example, line.

Two Dimensional Objects

- Figures having both length and breadth. For example, Rectangle, triangle etc. These figures can be easily represented on a plane. So, they are called plane figures. Plane figures are of two dimensions (2-D) so, they are also called 2-dimensional figure.

Three Dimensional Objects

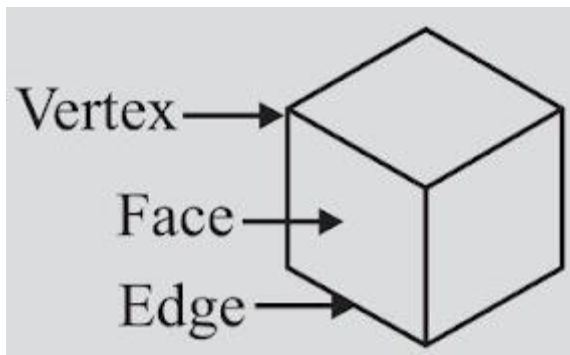
- Objects and shapes having length, breadth and height. Solid figures are of three dimensions (3-D).

Faces, Vertices and Edges of solid shapes

- The flat surfaces of a solid figure are called its faces. The top and bottom faces

are called bases.

- The line segments where the adjacent faces of a solid meet are called edges.
- The point where the edges of a solid intersect is called vertex.



Nets for building 3D shapes

- A net is a skeleton-outline of a solid that can be folded to make the solid.

Drawing Solids on a Flat Surface

- Solid shapes can be drawn on a flat surface. This is called a 2-D representation of 3-D solid shape.

Two types of sketches of a solid are possible:

- (i) An oblique sketch does not have proportional lengths. Still it conveys all

important aspects of the appearance of the solid.

(ii) An isometric sketch is drawn on an isometric dot paper, a sample of which is given at the end of this book. In an isometric sketch of the solid the measurements kept proportional.

Different sections of a solid can be viewed in many ways:

(i) One way is to view by cutting or slicing the shape, which would result in the cross-section of the solid.

(ii) Another way is by observing a 2-D shadow of a 3-D shape.

(iii) A third way is to look at the shape from different angles; the front-view, the side-view and the top-view can provide a lot of information about the shape observed.