Module 3
Isometric Drawing

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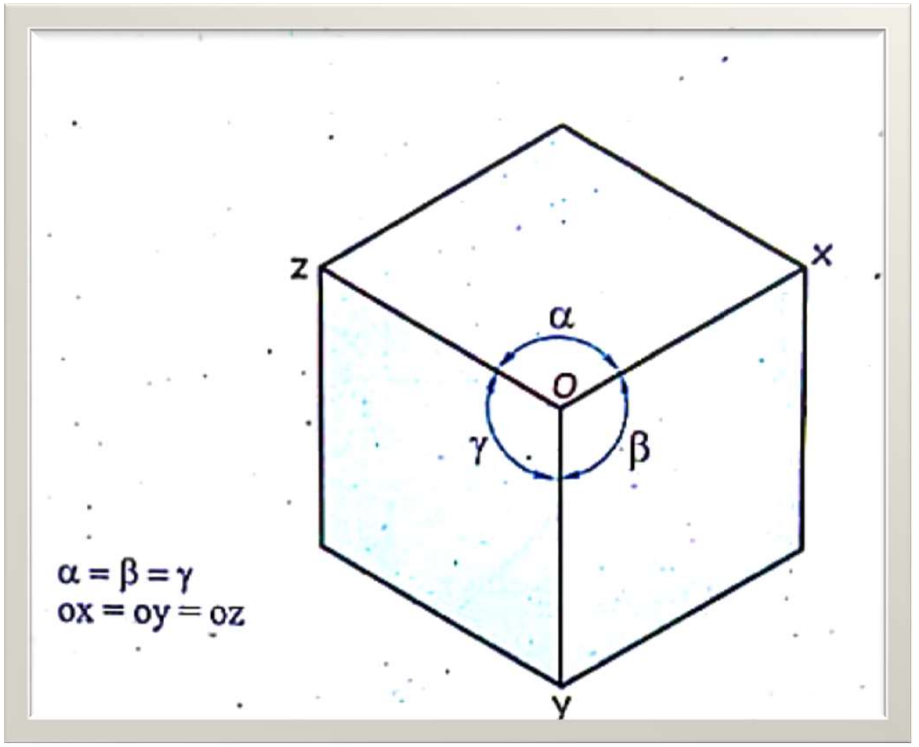
Why Isometric Projections?

- In orthographic two or more principal views are shown.
- Orthographic projection of an object are given in exact dimension but any of the two views shows only two dimensions.
- **In pictorial drawing we can see the three dimensions (length, breadth, and height) of an object.**

Isometric projection

- If the mutually perpendicular edges of a cube make equal inclination with the plane of projection, then the projected edges in the axonometric view will be foreshortened to the same length (i.e. OX = OY = OZ) and also the axonometric angles between them will be equal (i.e. $\angle\alpha = \angle\beta = \angle\gamma$). This projection is called as isometric projection



Isometric Axis

- The three mutually perpendicular edges of cube are, OX, OY and OZ are foreshortened equally and are at equal inclination of 120^0 to each other and are called Isometric axes.

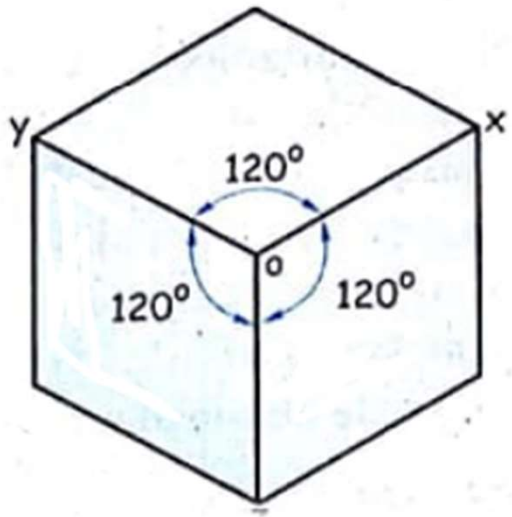


Fig. 2 Isometric axes

Isometric Lines

- The lines which are parallel to isometric axes are called **isometric lines**. We can mark or measure the true dimension on these lines.

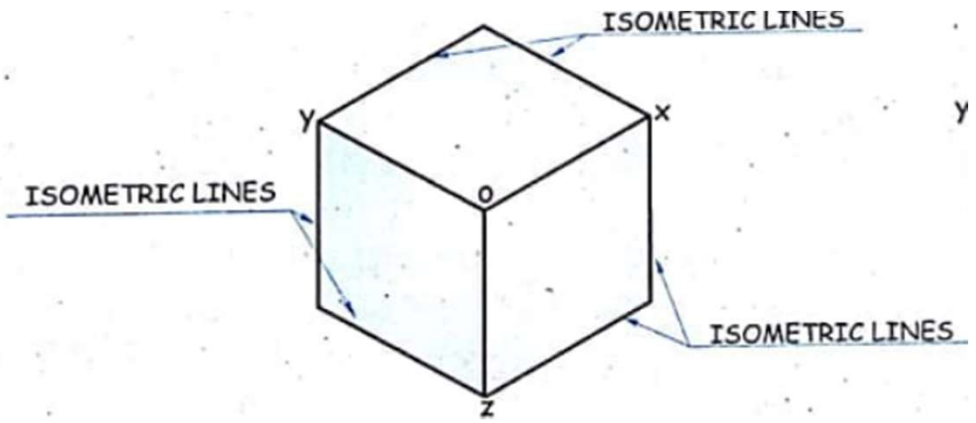


Fig. 3 Isometric Lines

Non Isometric Lines

- The lines which are not parallel to isometric axes are called **Non isometric lines**. The lines XY, YZ, XZ are non-isometric lines.
- Since the non-isometric lines are not parallel to the isometric axes, they are not foreshortened in the same projection as the isometric lines.

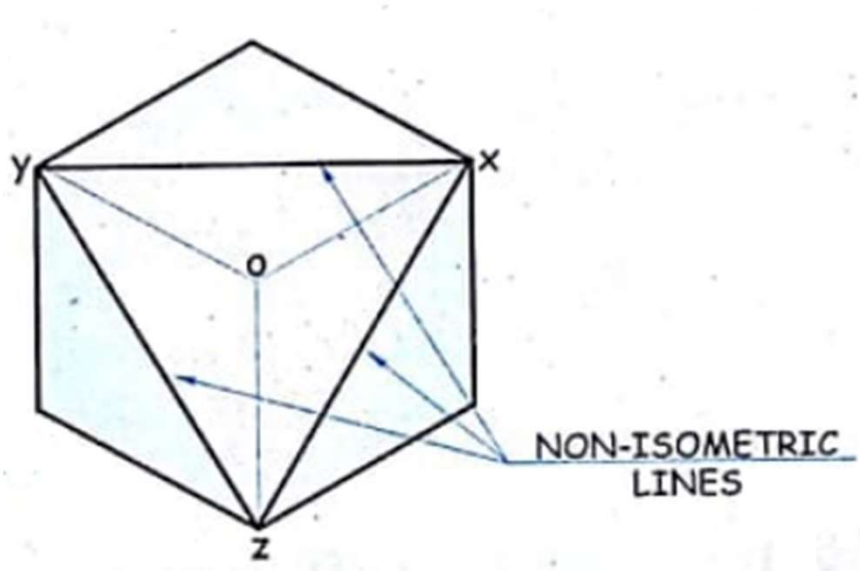


Fig. 4 Non Isometric Lines

Non Isometric Lines

- So cannot mark or measure true dimensions of these lines.
- To draw isometric lines, ends should be located and then joined.

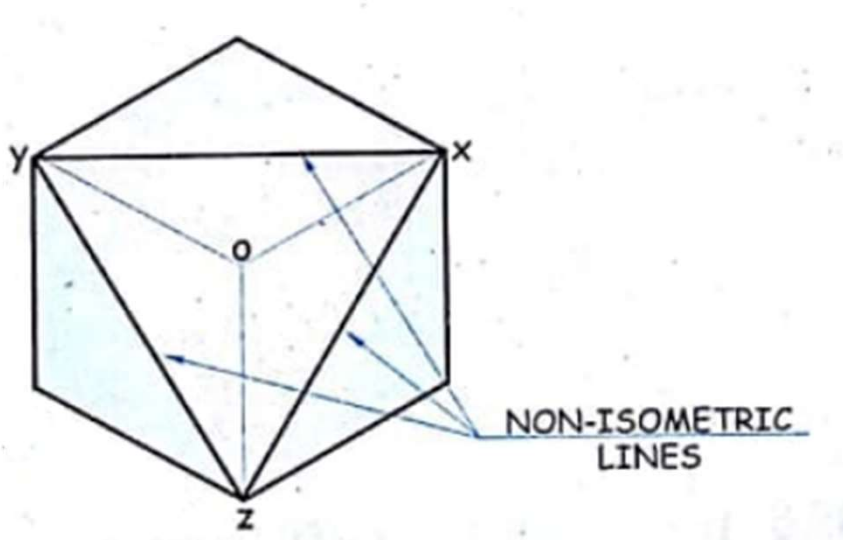


Fig. 4 Non Isometric Lines

Isometric Planes

- The plane formed by isometric lines are called isometric planes.

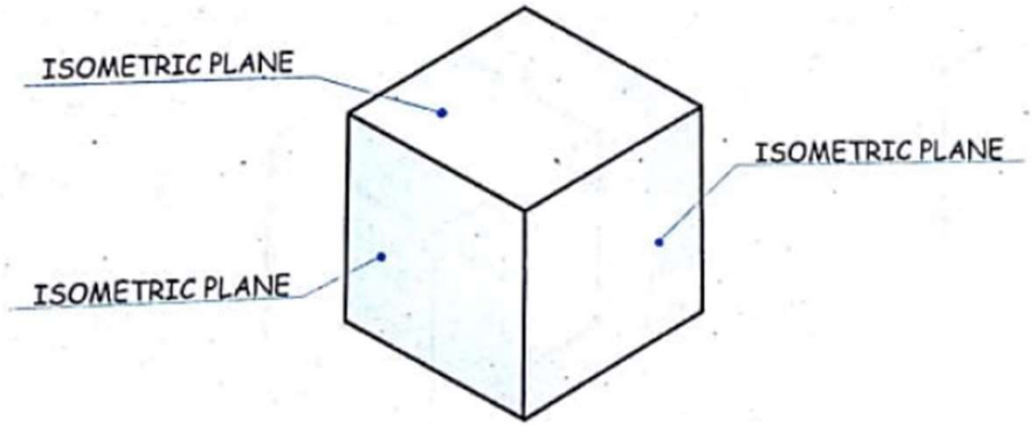


Fig. 5 Isometric Planes

Construction of an Isometric Planes

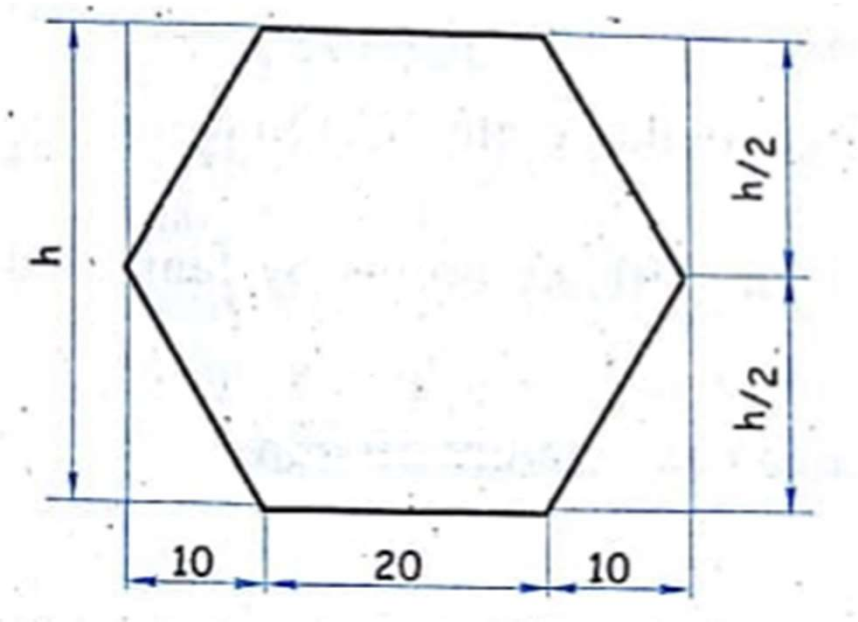


Fig. 6 Isometric Planes

Construction of an Isometric Planes

- Draw the hexagonal pyramid with side of base 20 mm and axis height 50 mm.

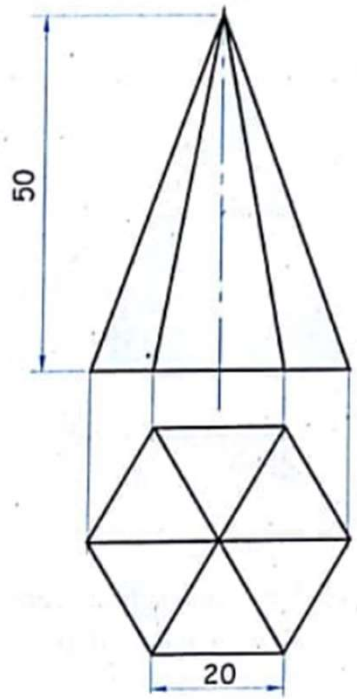


Fig. 7 Isometric Planes

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Construction of an Isometric Drawing

Q.1 Draw isometric drawing for the given orthographic views of an object.

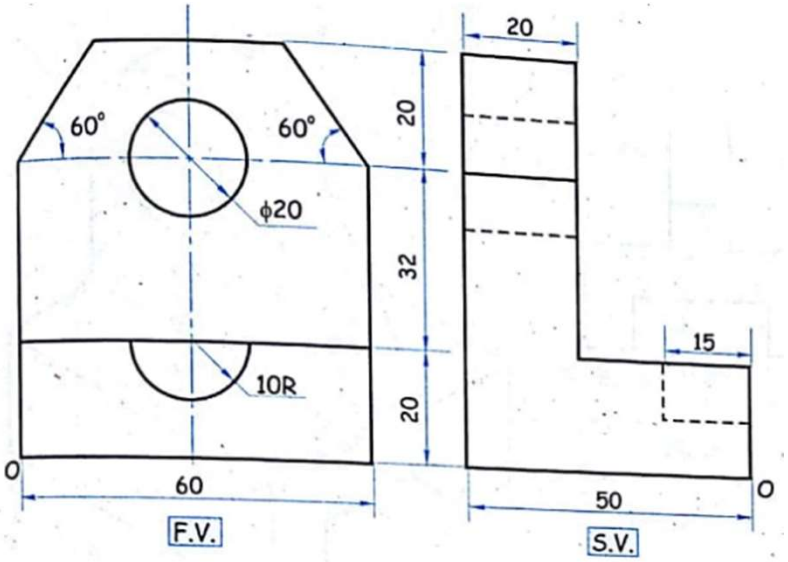

Fig. 8 Orthographic Object[1]

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Construction of an Isometric Drawing

Q. 2 Draw isometric drawing for the given orthographic views of an object.

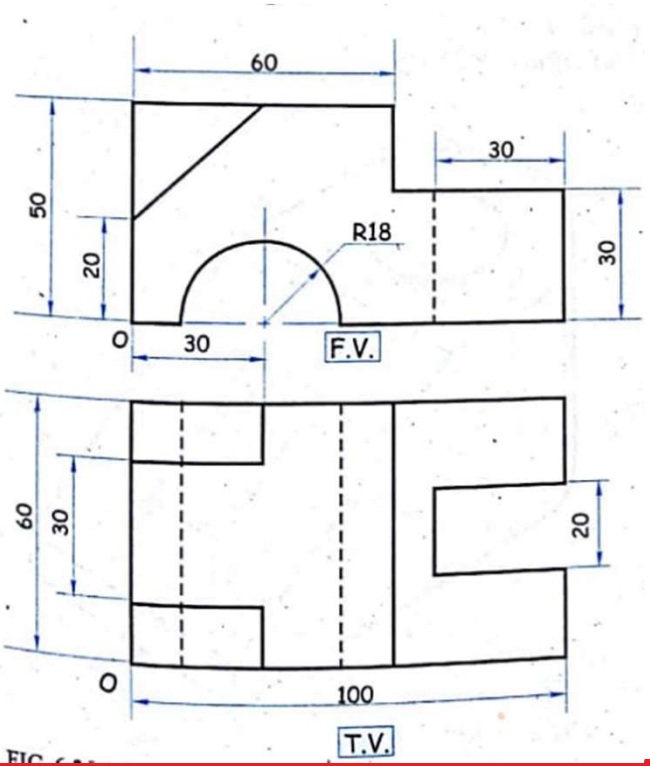

Fig. 9 Orthographic Object[1]

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Construction of an Isometric Drawing

Q. 3 Draw isometric drawing for the given orthographic views of an object.

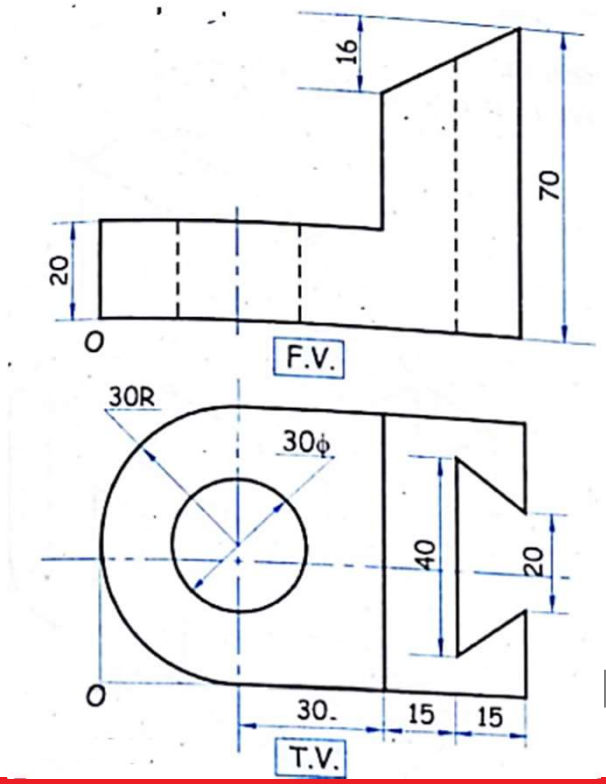

Fig. 10 Orthographic Object[1]

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Construction of an Isometric Drawing

Q. 4 Draw isometric drawing for the given orthographic views of an object.

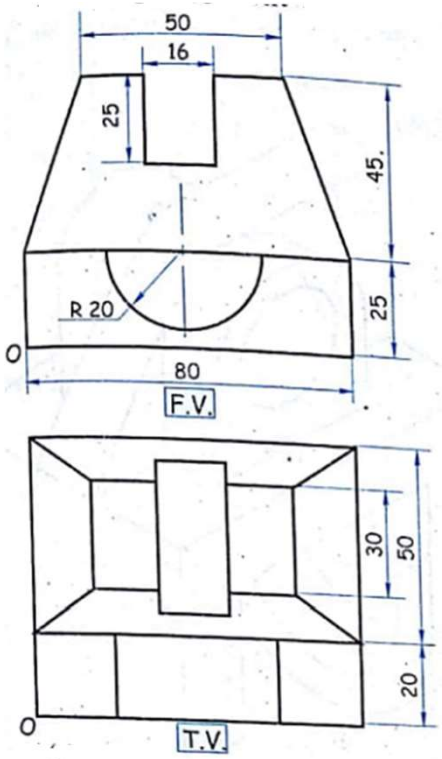

Fig. 11 Orthographic Object[1]

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Construction of an Isometric Drawing

Q. 5 Draw isometric drawing for the given orthographic views of an object.

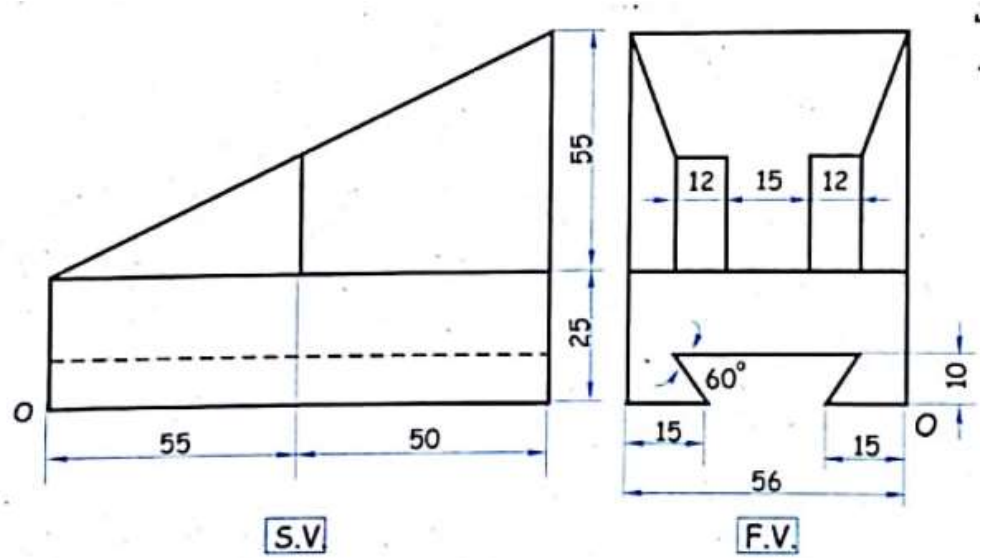

Fig. 11 Orthographic Object[1]

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Construction of an Isometric Drawing

Q. 6 Draw isometric drawing for the given orthographic views of an object.

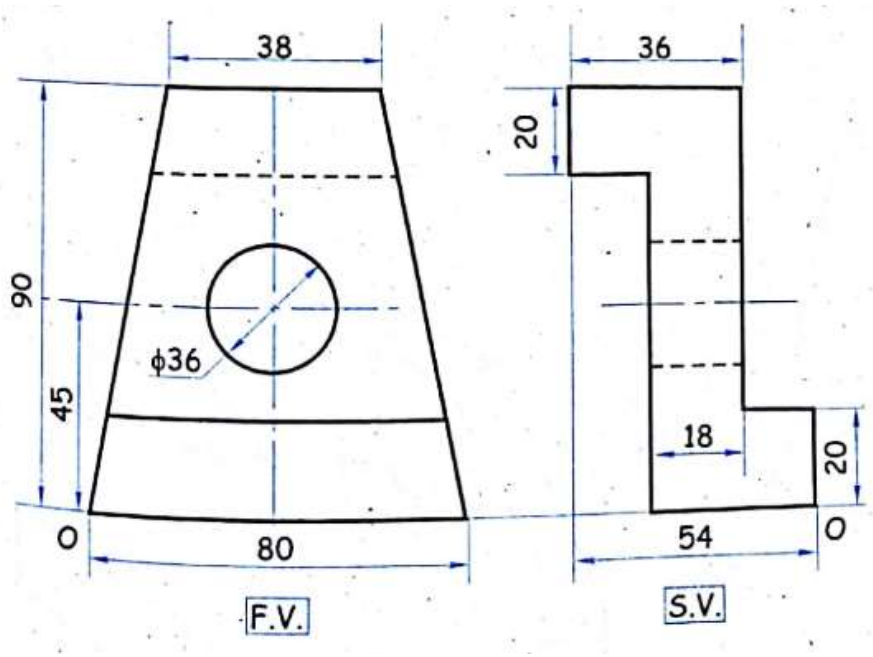

Fig. 13 Orthographic Object[1]