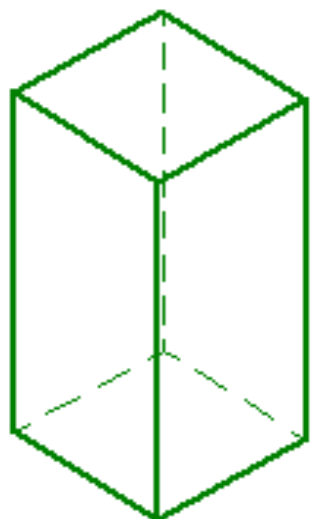NAGARJUNA

COLLEGE OF ENGINEERING & TECHNOLOGY

Department of Mechanical Engineering

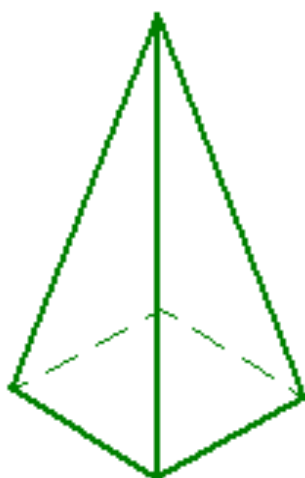# Course: Computer Aided Engineering Drawing

Module 3: Isometric Projections of Solids

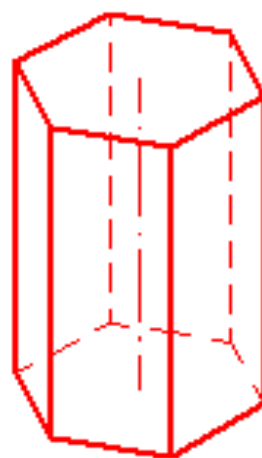Prepared by: Vijaykumar M Patil & Ravi Y V
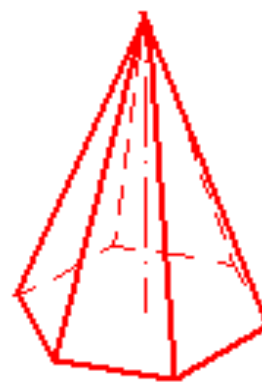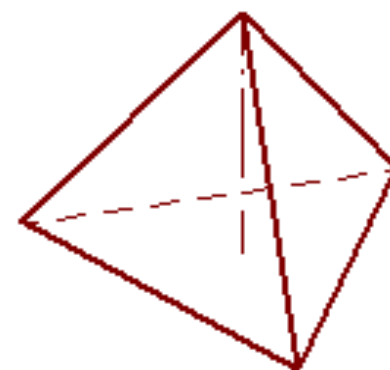
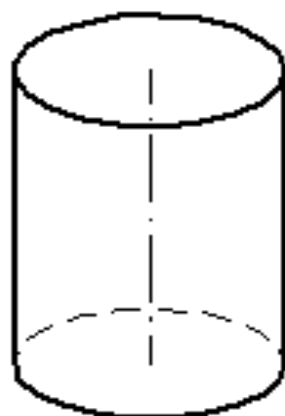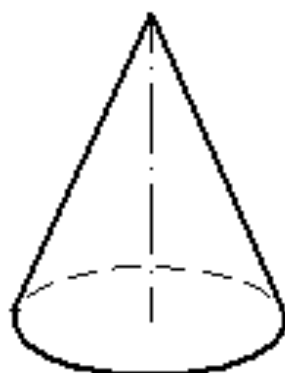# VARIOUS TYPES OF PRISMS AND PYRAMIDS

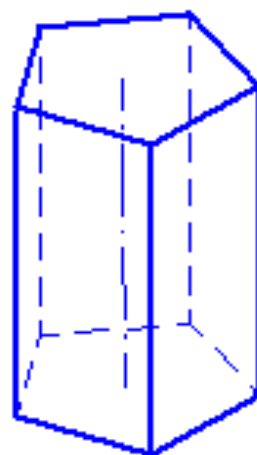Square Prism

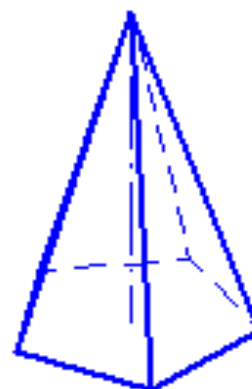Square Pyramid

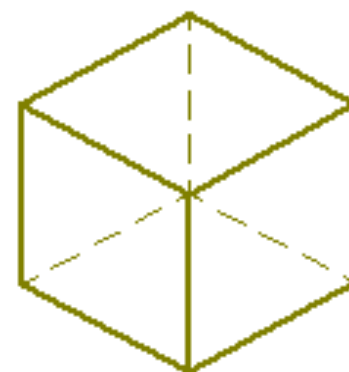Hexagonal Prism

Hexagonal Pyramid
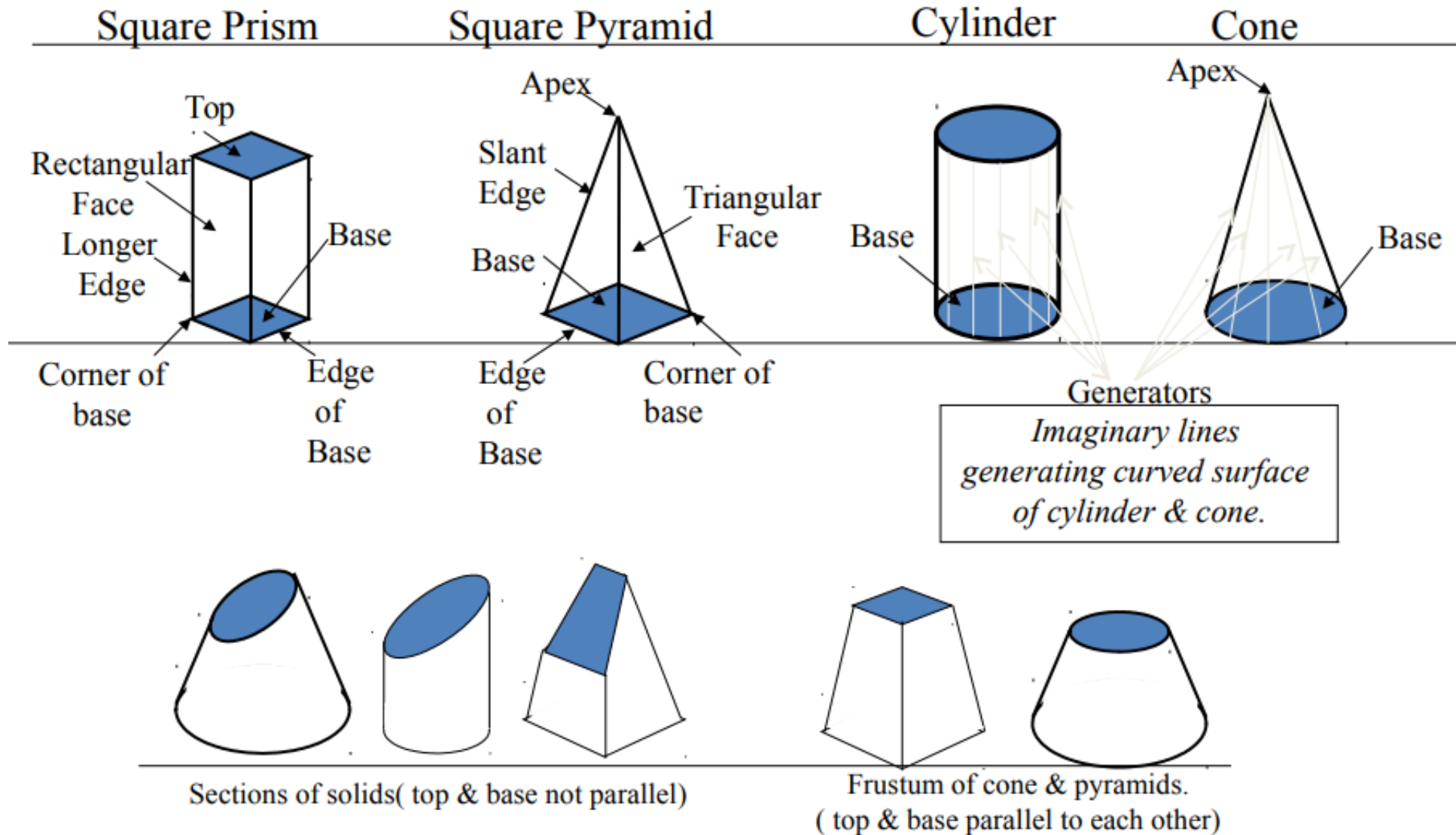
Tetrahedron

Cylinder

Cone

Pentagona Prism

Pentagonal Pyramid

Cube or Hhexahedron or Cuboid

Dimensional parameters of different solids.

Square Prism	Square Pyramid	Cylinder	Cone

Square Prism: Top, Rectangular Face, Longer Edge, Corner of base, Edge of Base, Base

Square Pyramid: Apex, Slant Edge, Triangular Face, Base, Edge of Base, Corner of base

Cylinder: Base

Cone: Apex, Base

Generators
Imaginary lines generating curved surface of cylinder & cone.

Sections of solids(top & base not parallel)

Frustum of cone & pyramids.
(top & base parallel to each other)

A sphere of diameter 50 mm resting centrally on the top of a cube of sides 50 mm. Draw the isometric projections of this combination.

Actual Scale

Isometric projection

ϕ 50

50

50

50

ϕ 50

41

41

41
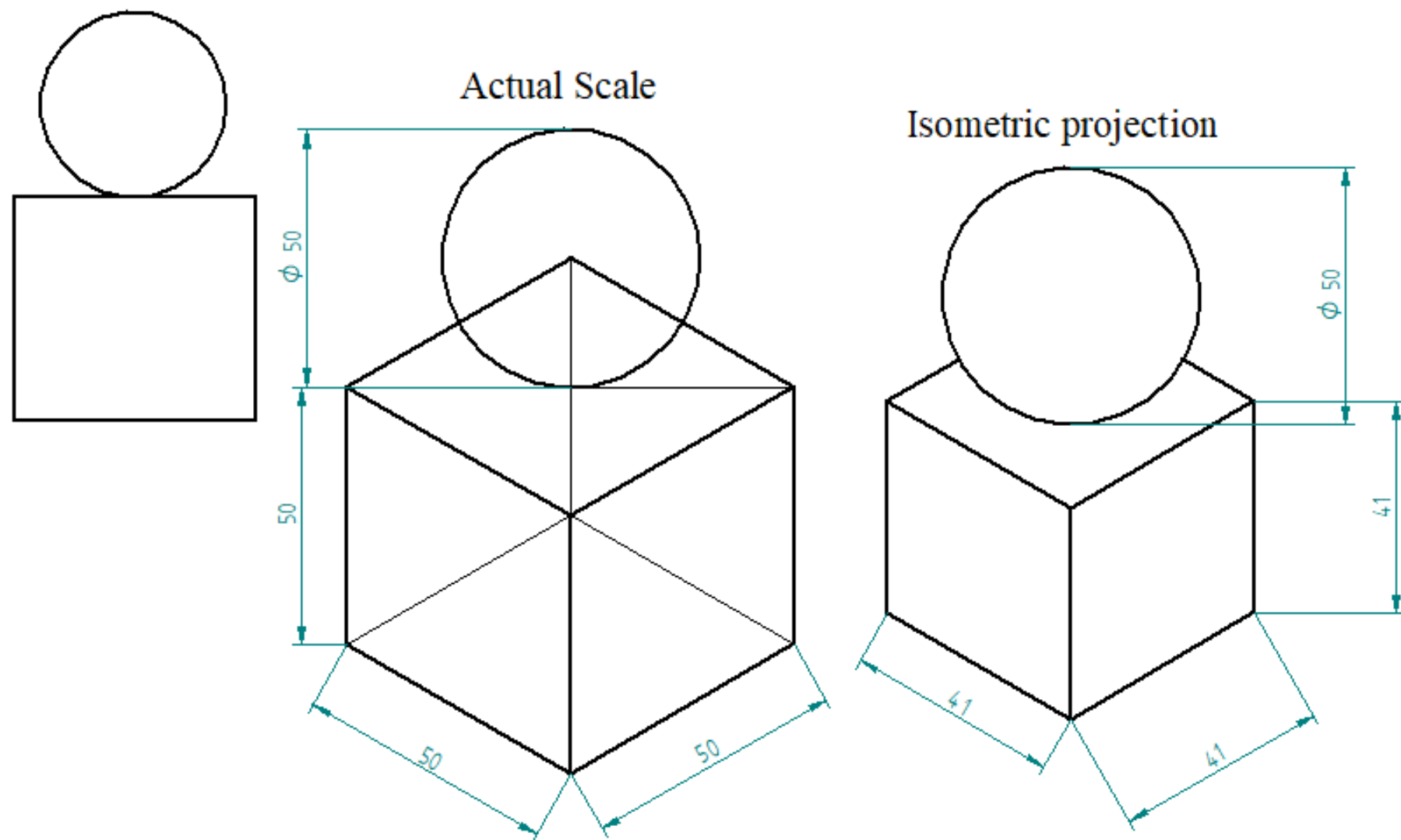
A hemisphere of diameter 50 mm is centrally resting on top of the square prism of base side 60 mm and height 30 mm such that the curve surface of hemisphere is touching the top face of the prism.



Actual Scale

Isometric projections
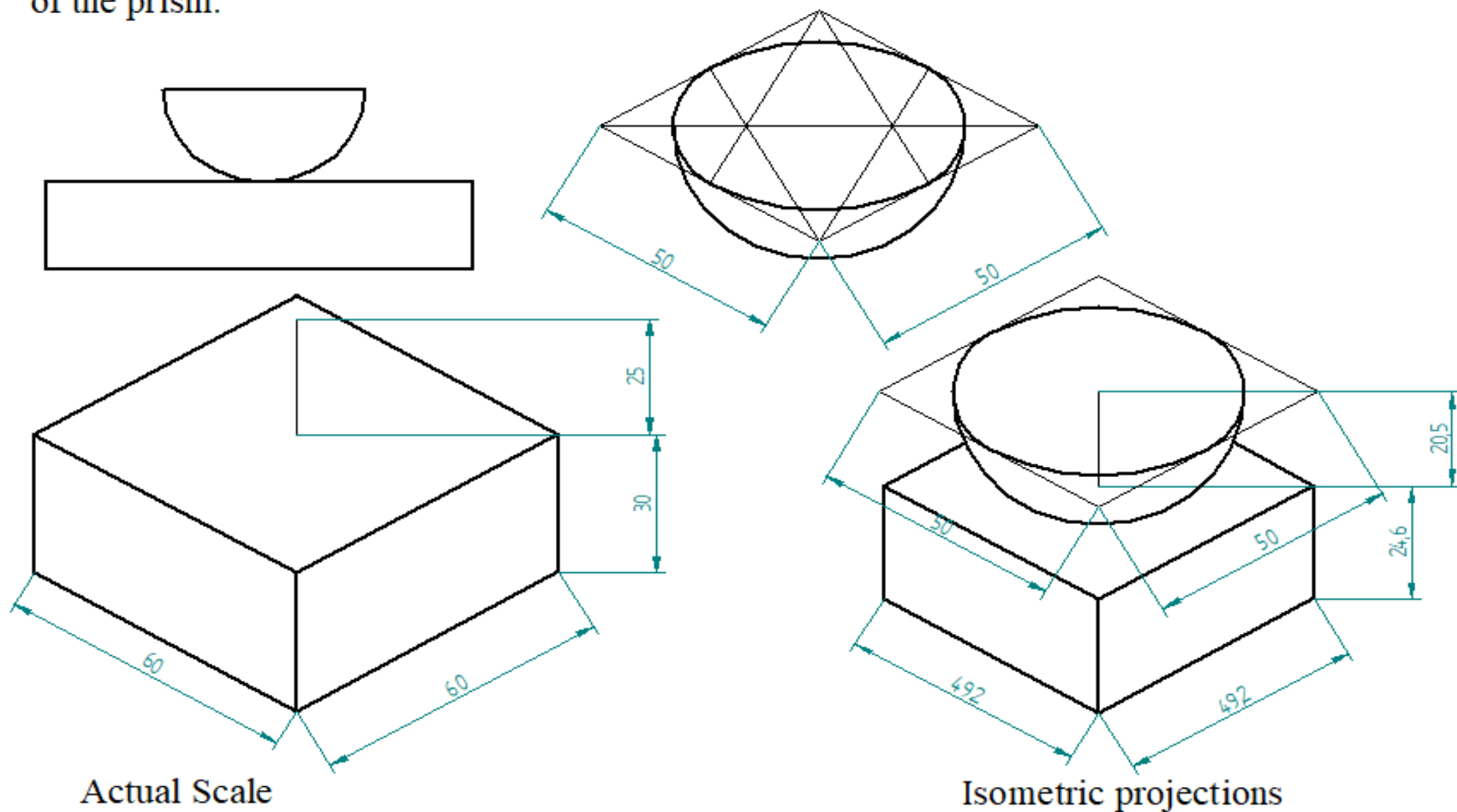
A hemisphere of 40 mm diameter is supported coaxially on the vertex of cone of base diameter 60 mm and axis length 50 mm. The flat circular face of the hemisphere is facing upside.



Actual Scale

Isometric Projections
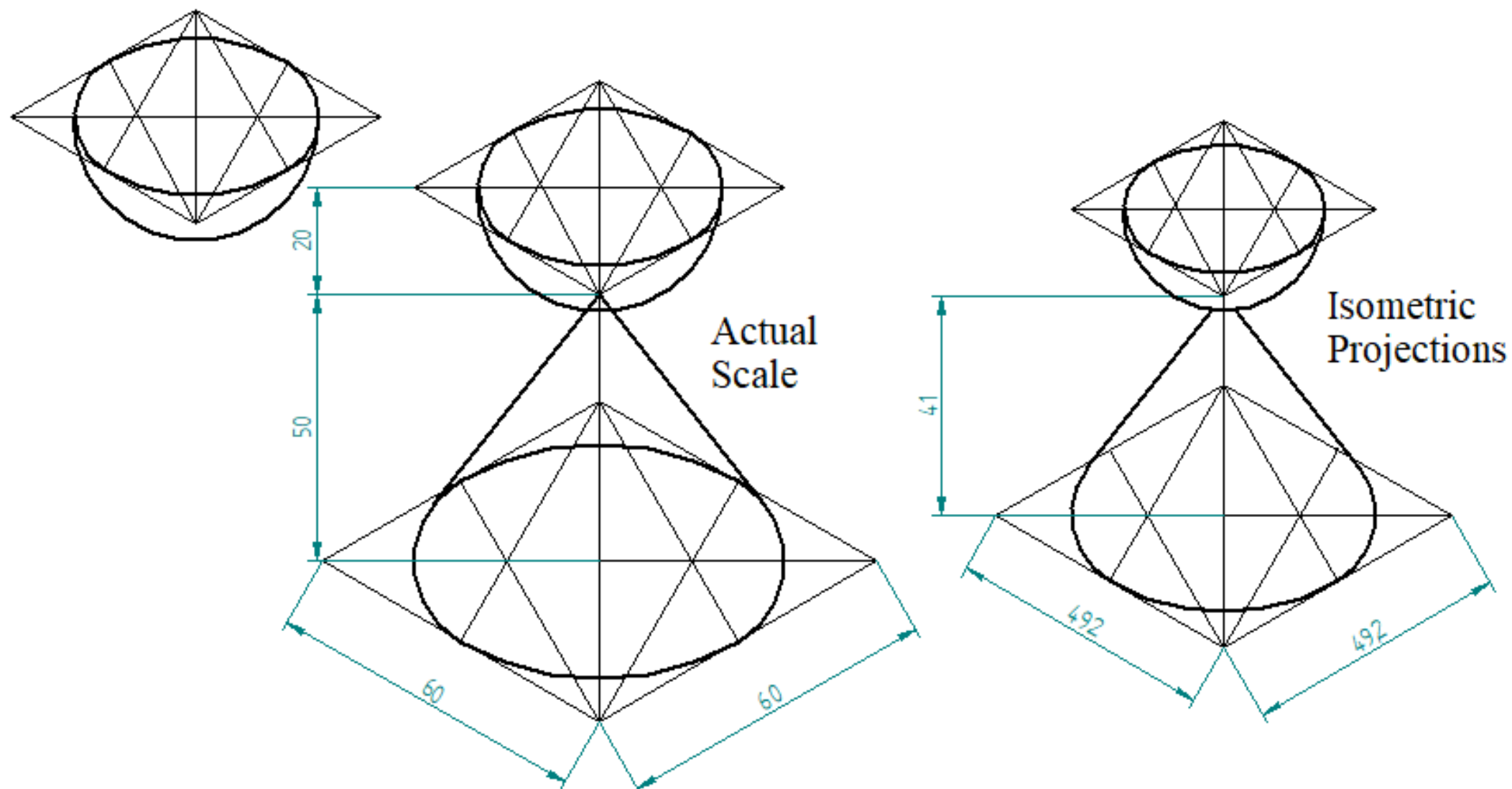
A frustum of square pyramid of sides 40 mm and height 60 mm resting on the centre of the top of square block of sides 60 mm and thickness 20 mm.
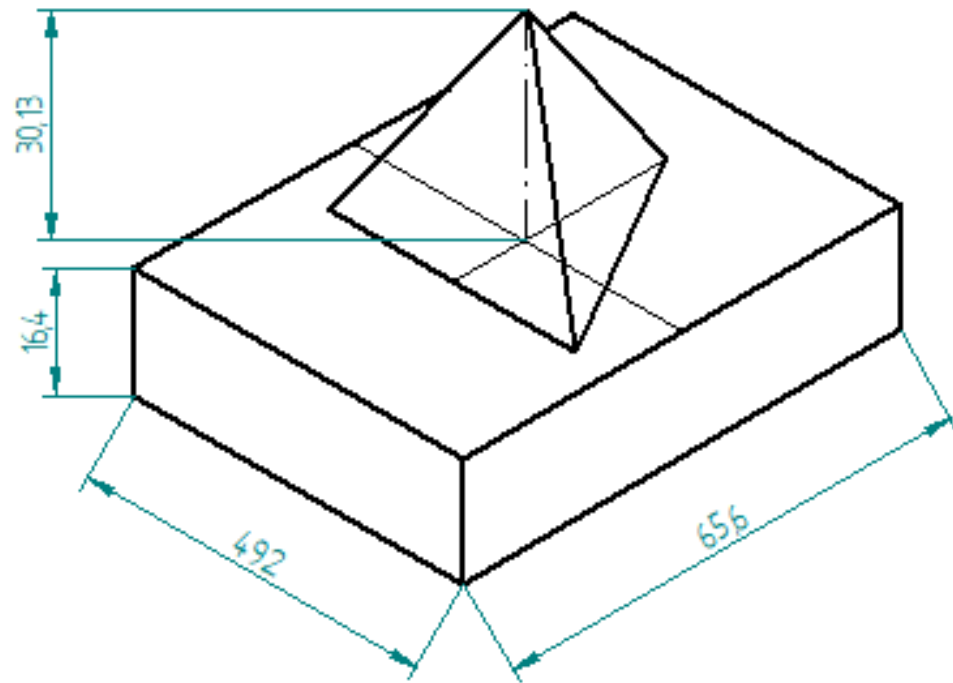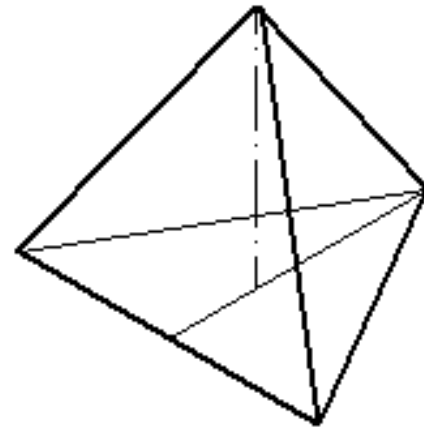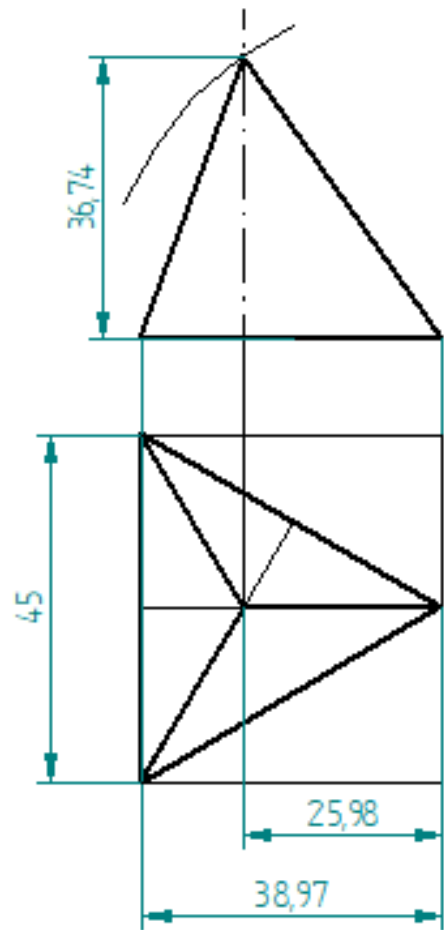

Isometric projection
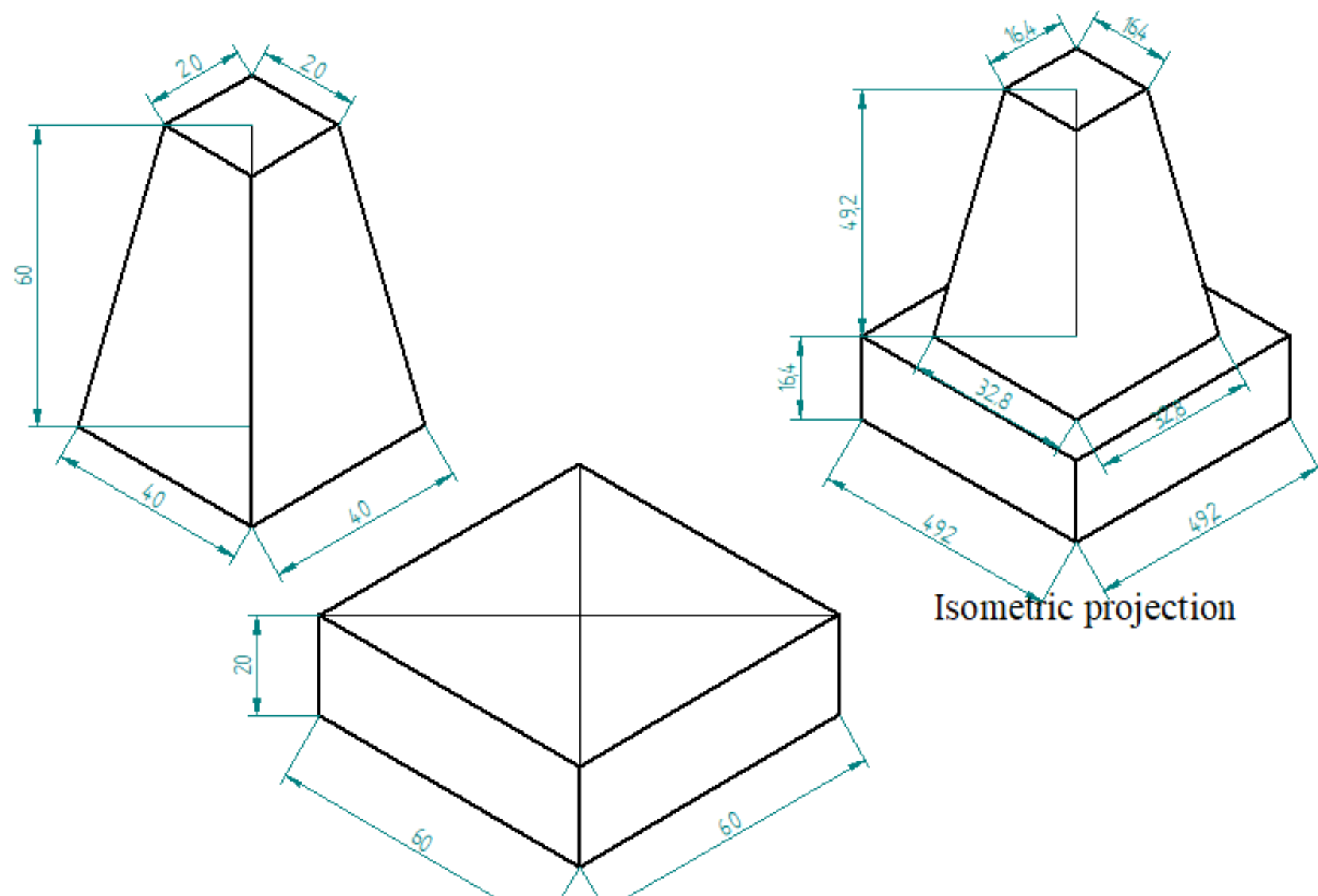
A pentagonal pyramid of base side 25 mm and height 65 mm is placed centrally on a rectangular slab of 100 mm x 60 mm and 20 mm thickness.
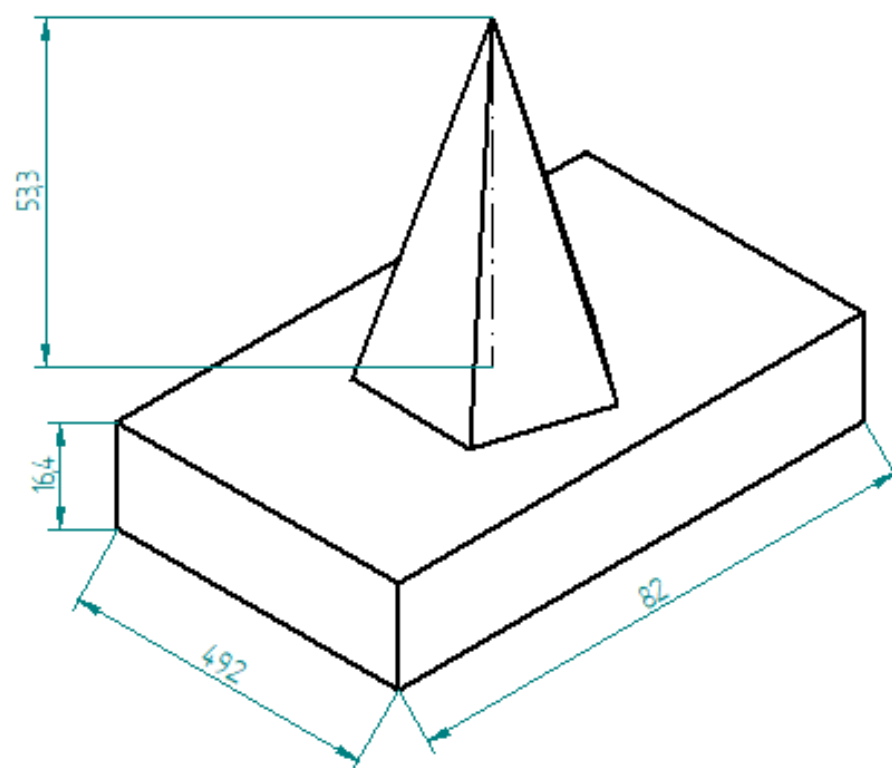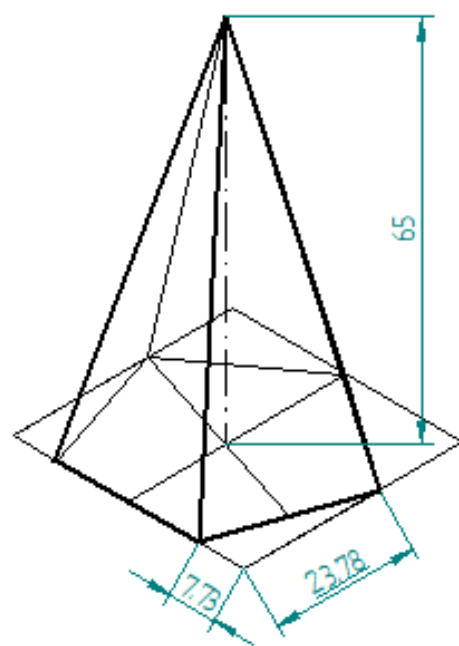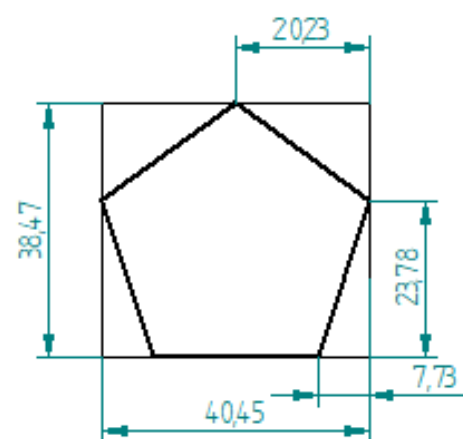
A triangular pyramid base side 40 mm, height 50 mm, placed centrally on a square slab 80 mm and 20 mm thick.
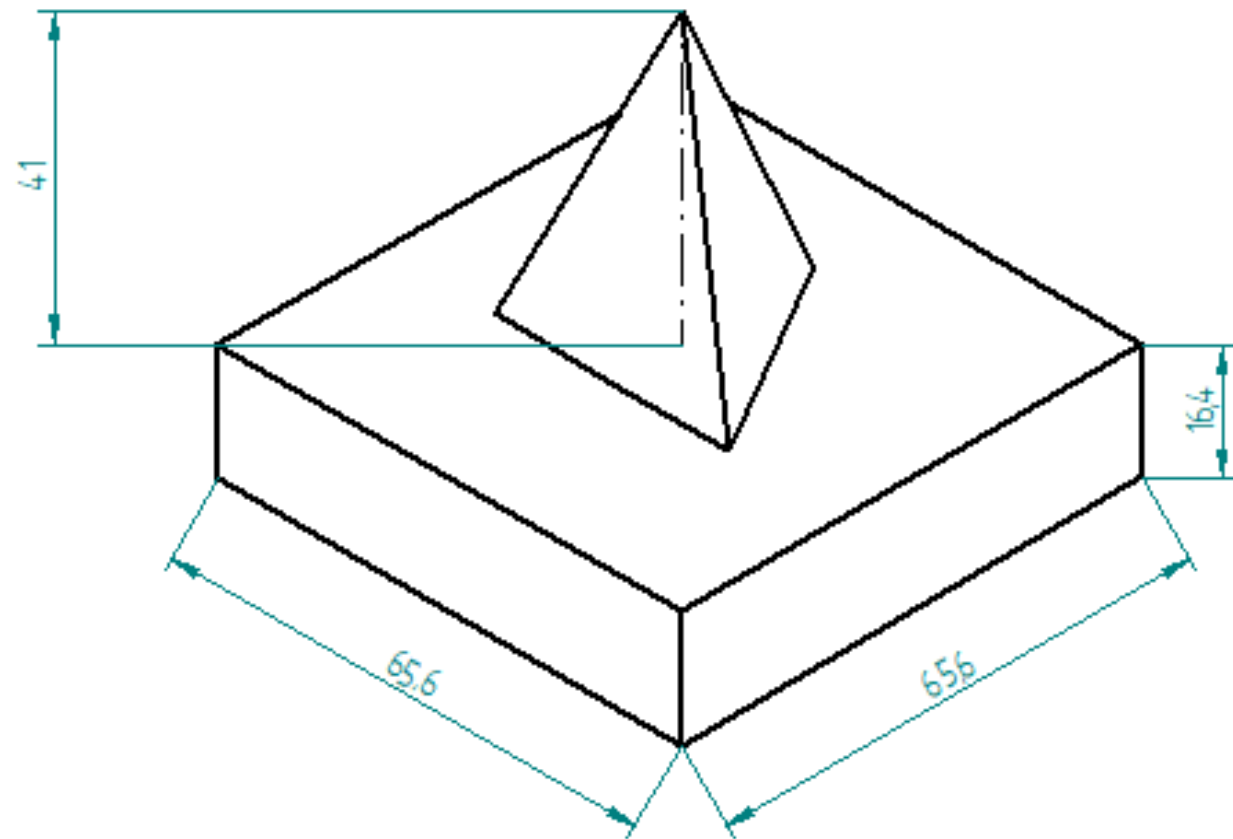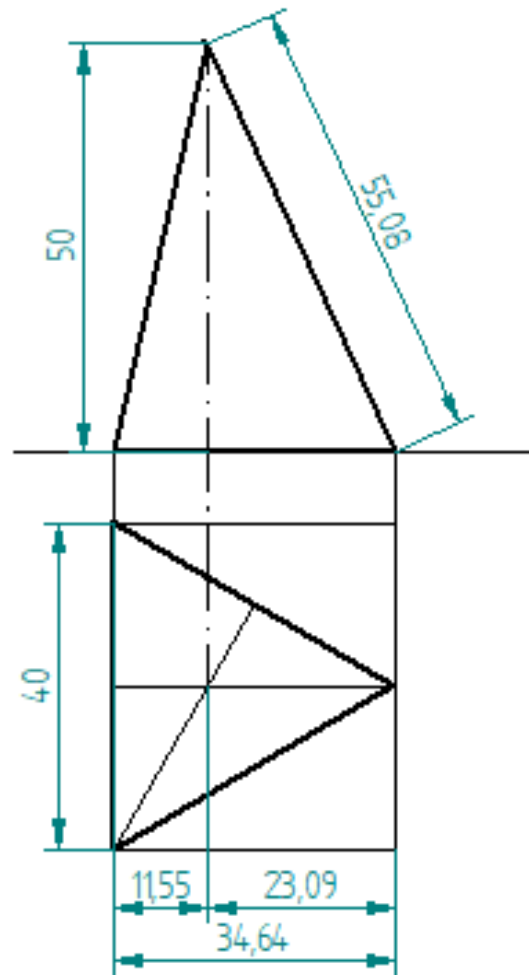
A rectangular prism 60 mm x 80 mm x 20 mm surmounting tetrahedral of sides 45 mm such that the axis of the solids are collinear and atleast one of the edges of both the solids are parallel.
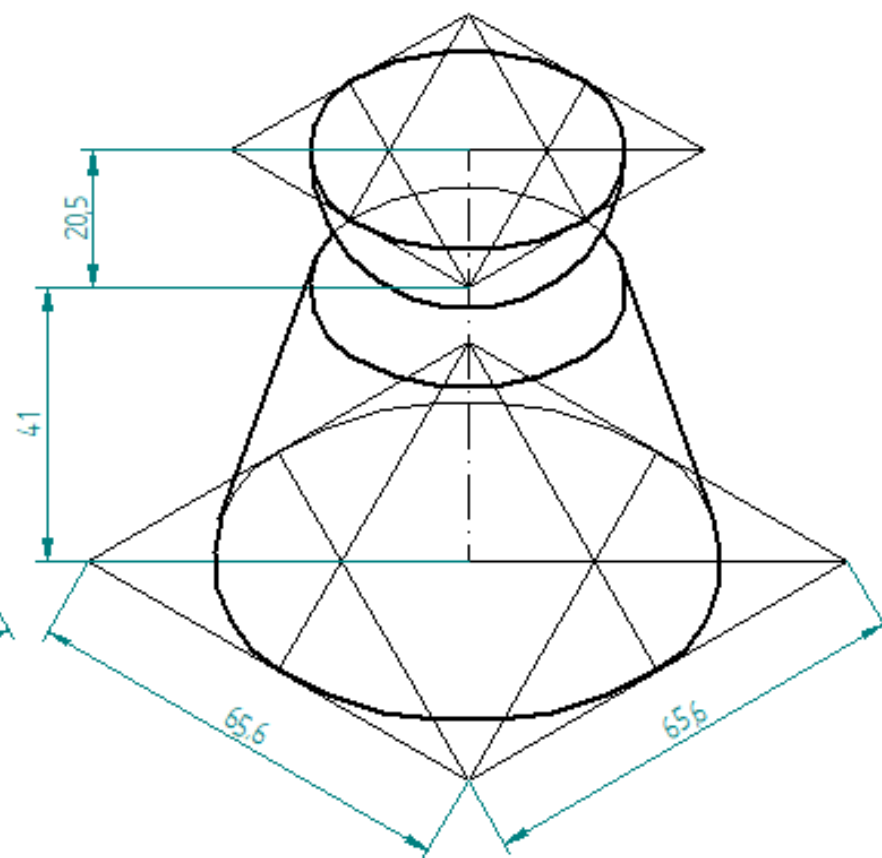
A square prim of 40 mm and height 50 mm is placed on a cylinderical slab of diameter 100 mm and thickness of 30 mm. Draw the isometric projections of the combination solids.
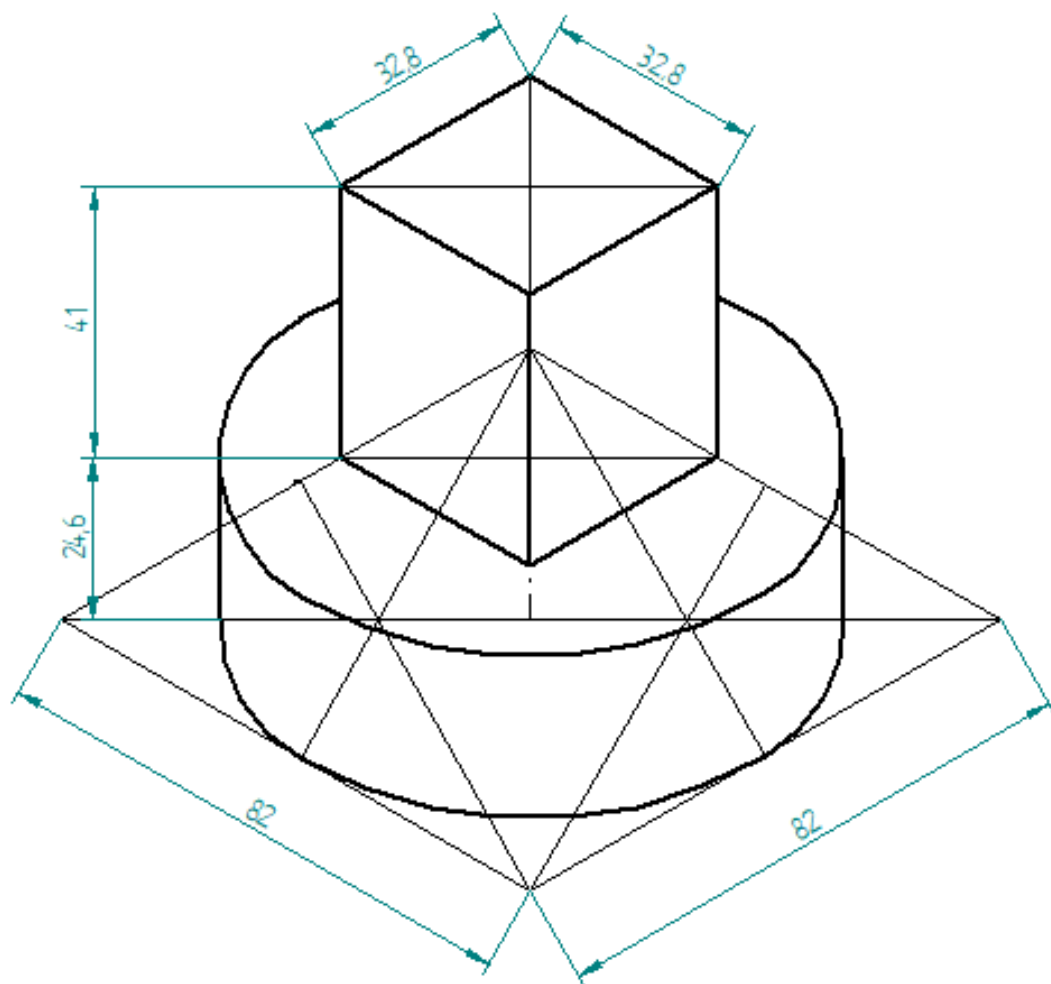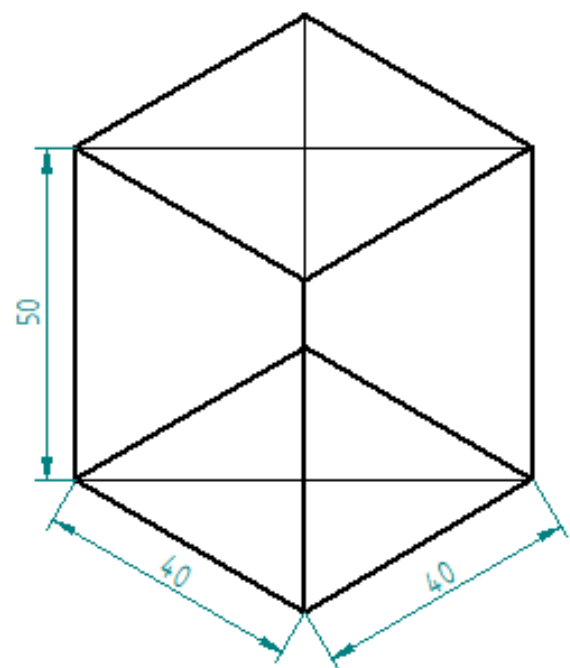
A hemisphere of diameter 50 mm rests centrally over a frustrum of a cone of base diameter 80 mm, top diameter 50 mm and height is 50 mm. Draw the isometric projection of the combination.
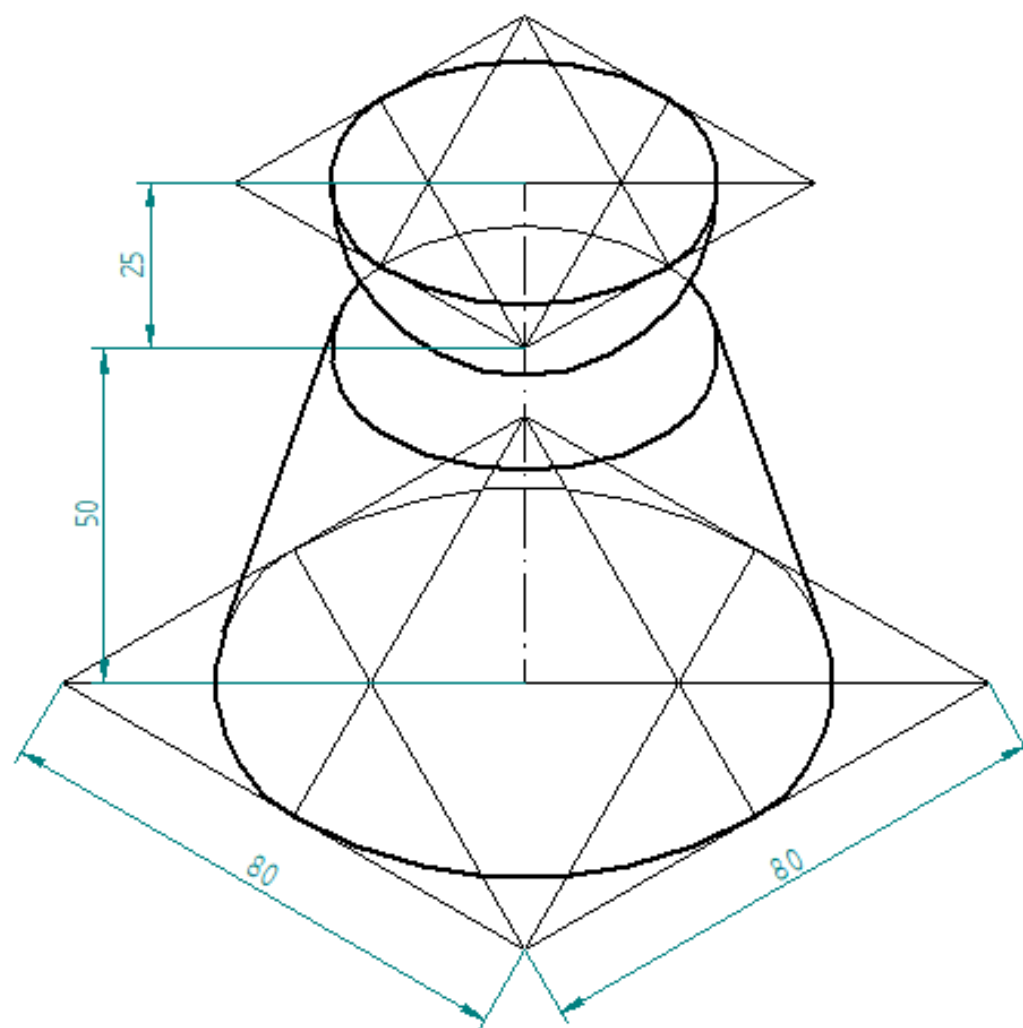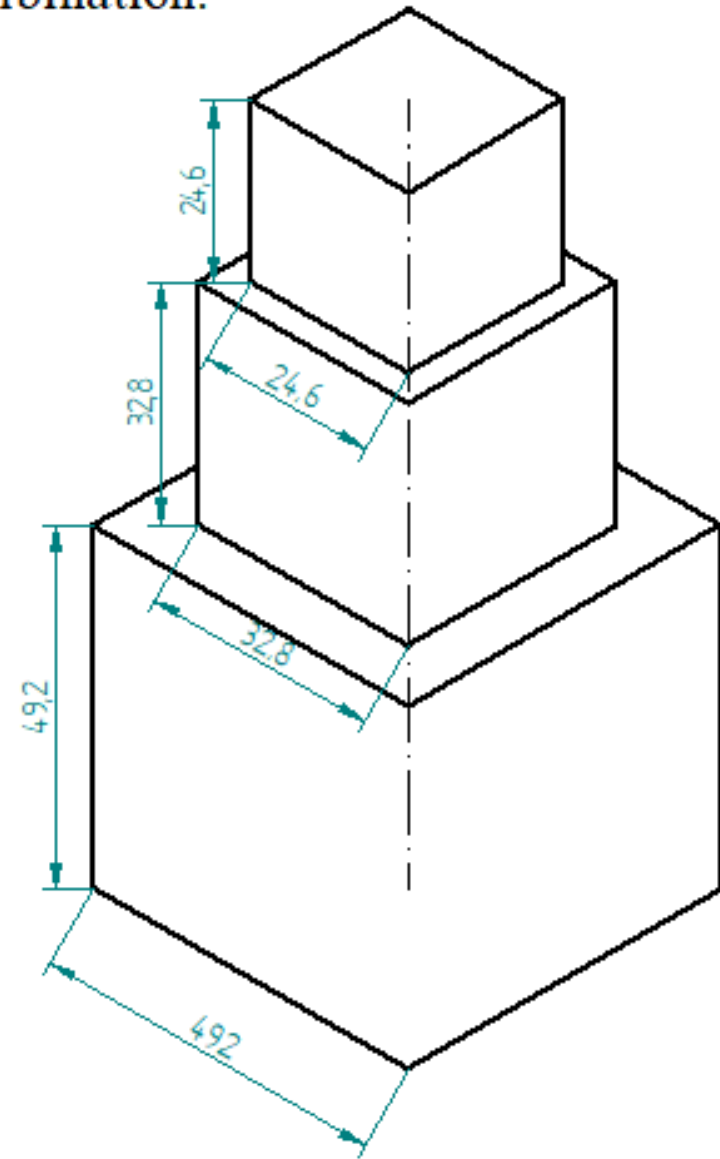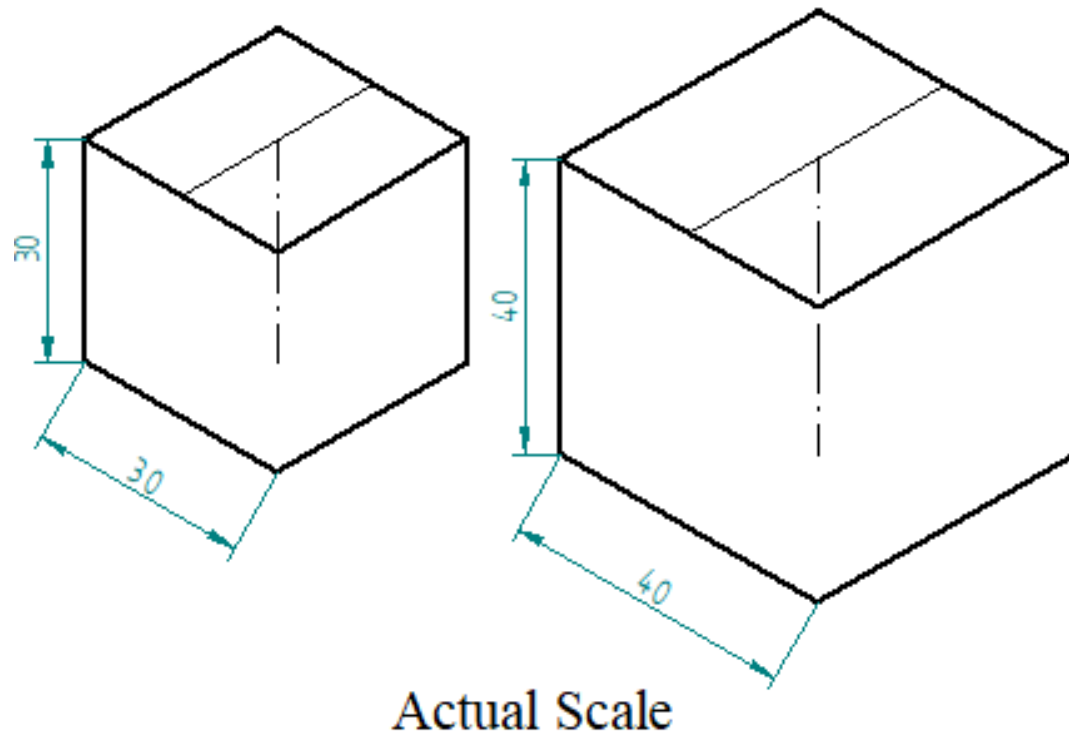

Actual Scale

Isometric Projection

Three cubes of sides 60 mm, 40 mm and 30 mm placed centrally one above the other in such a way that the bigger cube is at the bottom, second bigger cube is at the middle and smaller cube at the top, draw the isometric projections of the combination.

30

40

30

40

Actual Scale

24,6

24,6

32,8

32,8

49,2

49,2

Isometric Projection

A hallow square prism of base side 60 mm, thickness 10 mm and height 50 mm is placed centrally on a cylinder of base diameter 80 mm and thickness 30 mmsuch that the axes of two solids are colinear. Draw the isometric projection of its combination.