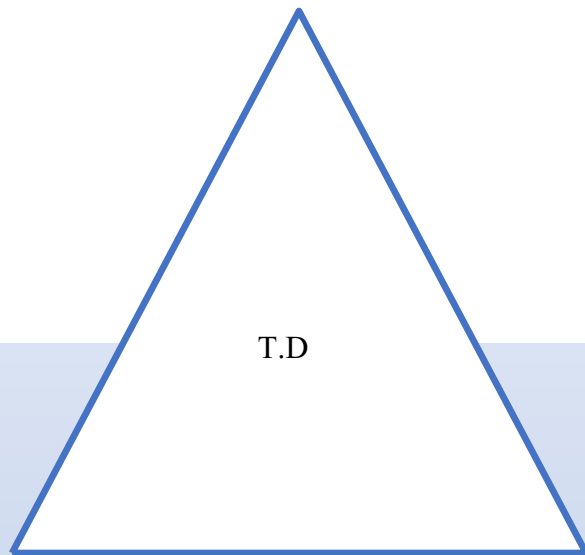
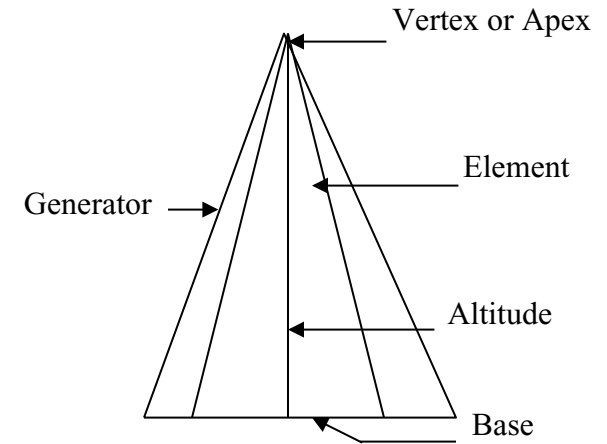


BA SANGAM COLLEGE
 YEAR 12
 TECHNICAL DRAWING
 WORKSHEET 1



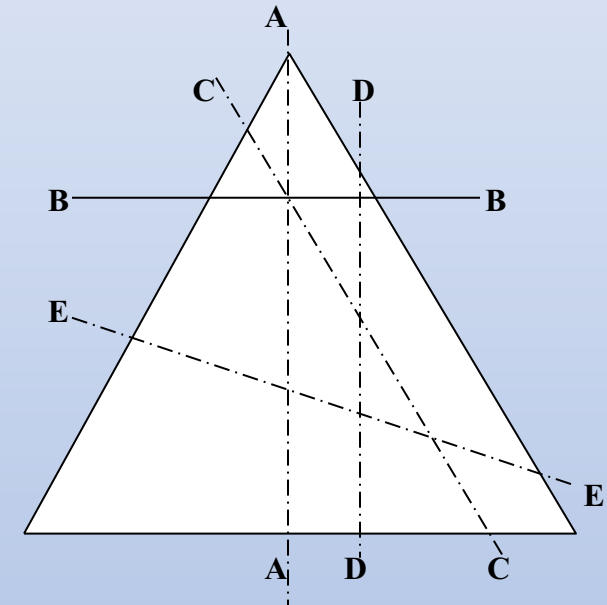
CONICS WEEK 1

Conics - is that part of geometry that deals with the cone and the several curves formed by truncation of it.

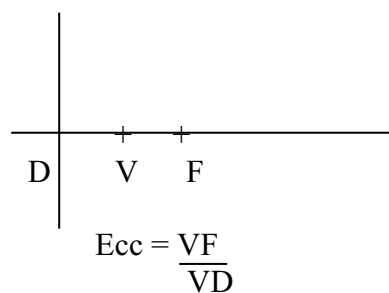
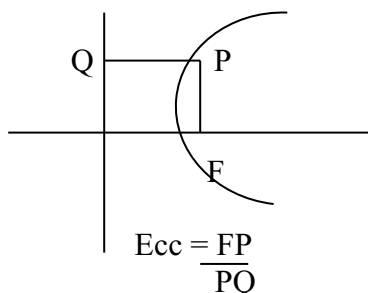


The element of a cone – is a line drawn from the apex to a point on the circumference of the base.

Conic sections produced by the different cutting planes.



- AA – Triangle** – formed when a cutting plane cuts along the axis.
- BB - Circle** - formed when the cone is cut at right angles to the axis.
- CC - Parabola** - formed when a right cone is cut by a cutting plane parallel to a generator of a cone.
- DD - Hyperbola** – formed when a right cone is cut by a plane which makes a greater angle with the base than a generator of a cone makes.
- EE - Ellipse** - formed when a right cone is cut by a plane which goes right through a cone; in other words, it cuts through every generator.
- Eccentricity** - is the ratio of the distances from the focus to a point on the curve and the directrix to the same point on the curve.



Ecc < 1 Ellipse

Ecc > 1 hyperbola

Ecc = 1 parabola

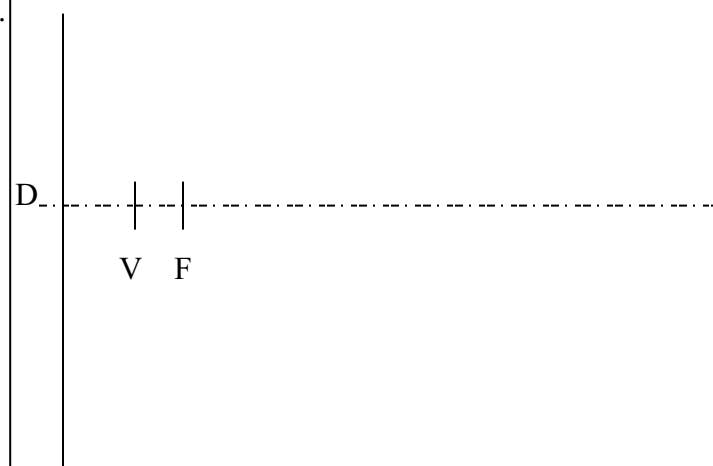
Example: VF = 12 and VD = 10.

$$Ecc = \frac{VF}{VD} = \frac{12}{10} = 1.2$$

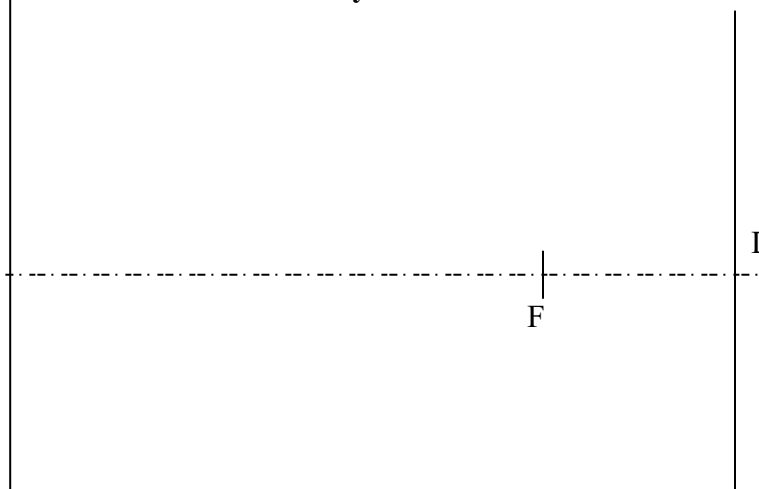
1.2 > 1 therefore curve will be a hyperbola.

Focal sphere - is a sphere dropped into a cone that is also tangential to the cutting plane in question.

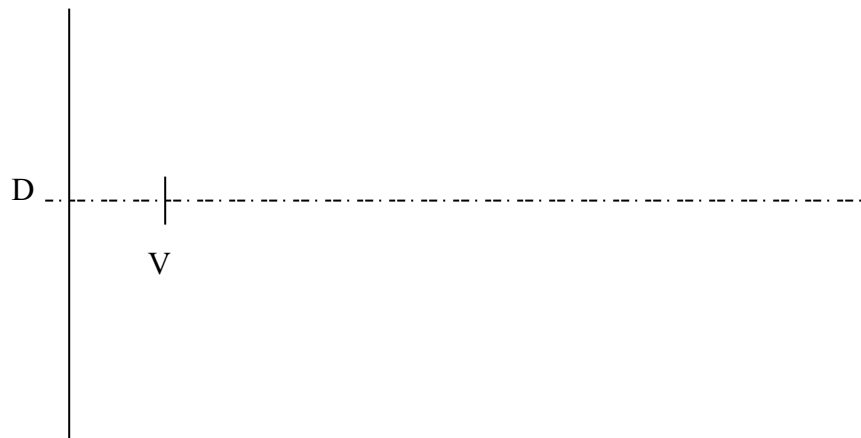
Given the **axis**, a **directrix**, a **vertex** and a **focal point** construct the **ellipse**.



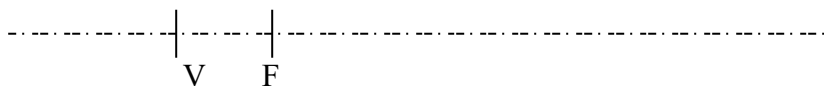
Given the **axis**, a **directrix** and a **focal point**, construct an **ellipse** with a **ratio of eccentricity of 3:4**.



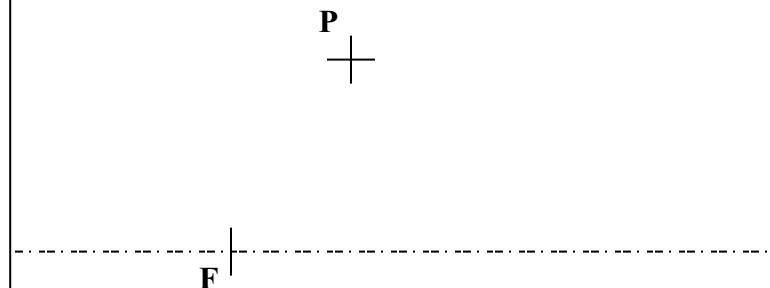
Given the **axis**, a **directrix** and a **vertex**, construct an **ellipse** with a **ratio of eccentricity of 2:3**.



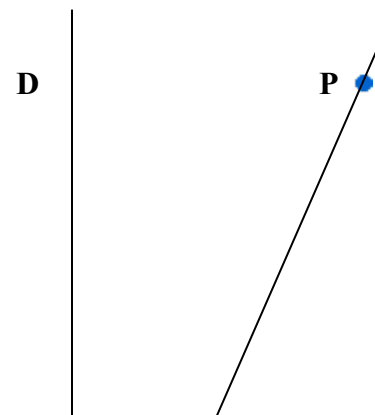
Given the **axis**, a **vertex** and a **focal point**, construct an **ellipse** with a **ratio of eccentricity of 2:3**.



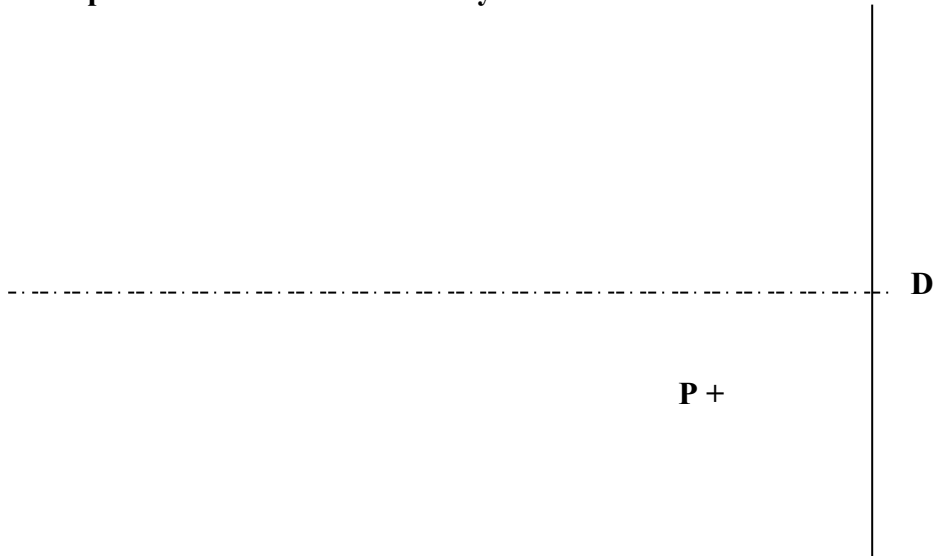
Given the **axis**, a **point P** on the curve and a **focal point**. Construct an **ellipse** with a **ratio of eccentricity of 2:3**.



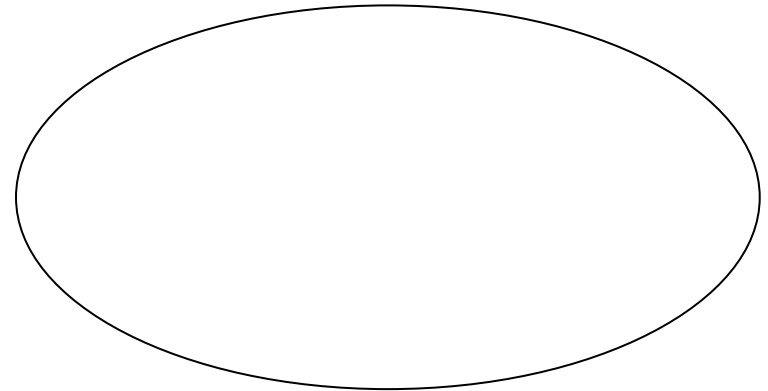
Given the **directrix** and a **focal chord** with a **point P** on the curve, construct an **ellipse** with a **ratio of eccentricity of 2:3**.



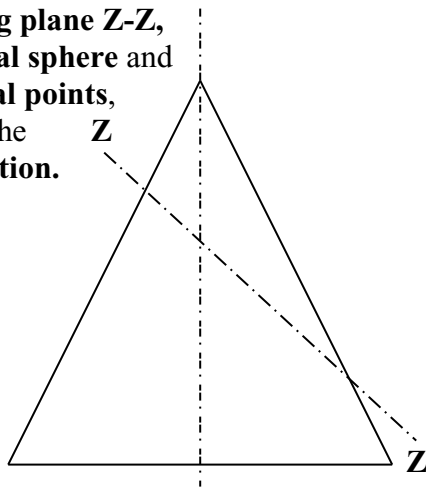
Given the **axis**, a **point P** on the curve and the **directrix**, construct an **ellipse** with a **ratio of eccentricity of 3:4**.



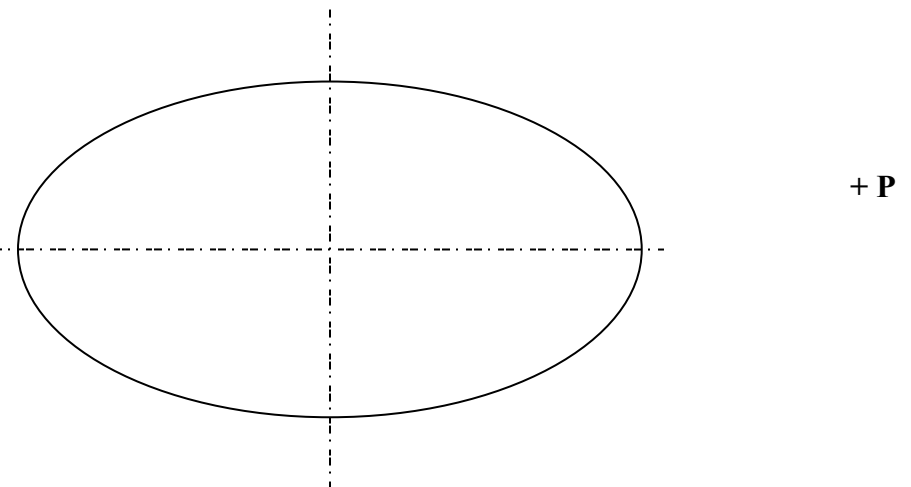
(a) Find the **centre of the ellipse** and draw the **major** and the **minor axis**. Draw a **tangent** and a **normal** at **point X**.



Given the elevation of a **cone** cut by a **cutting plane Z-Z**, construct a **focal sphere** and project the **focal points**, **directrix** and the **true shape section**.

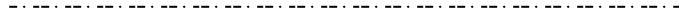


(c) **Method 2**



(b) Draw a tangent to point P – Method 1

+ P



(d) Method 3

+P

