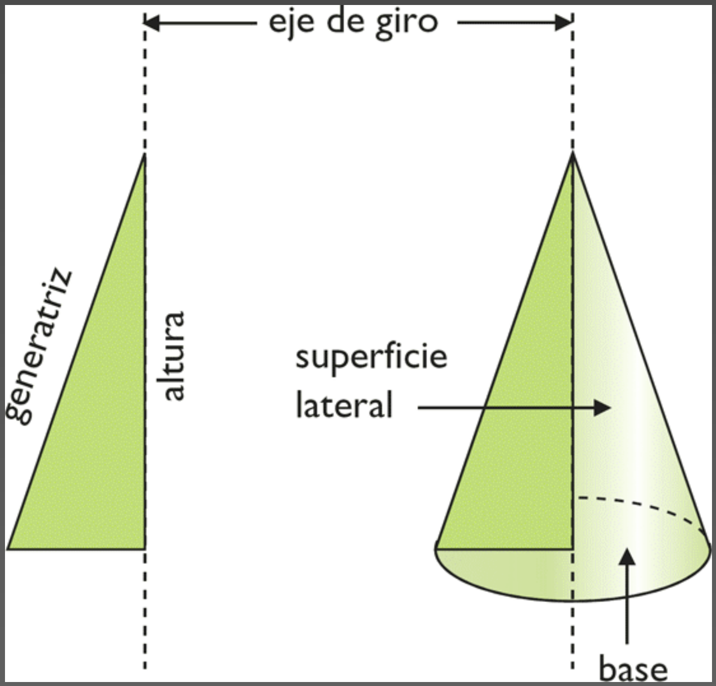
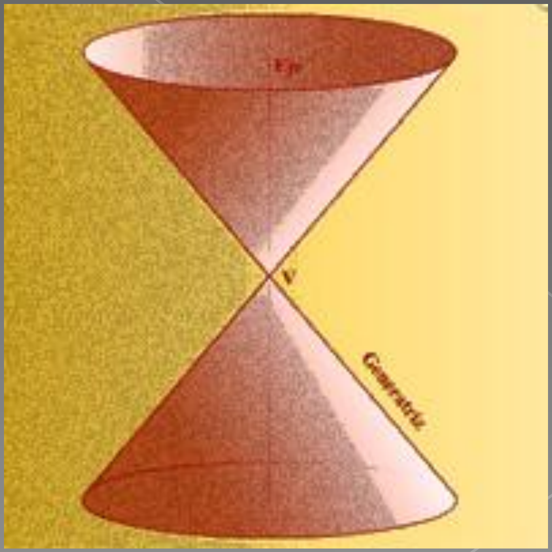
6.4 CONIC CURVES

Conic Curves

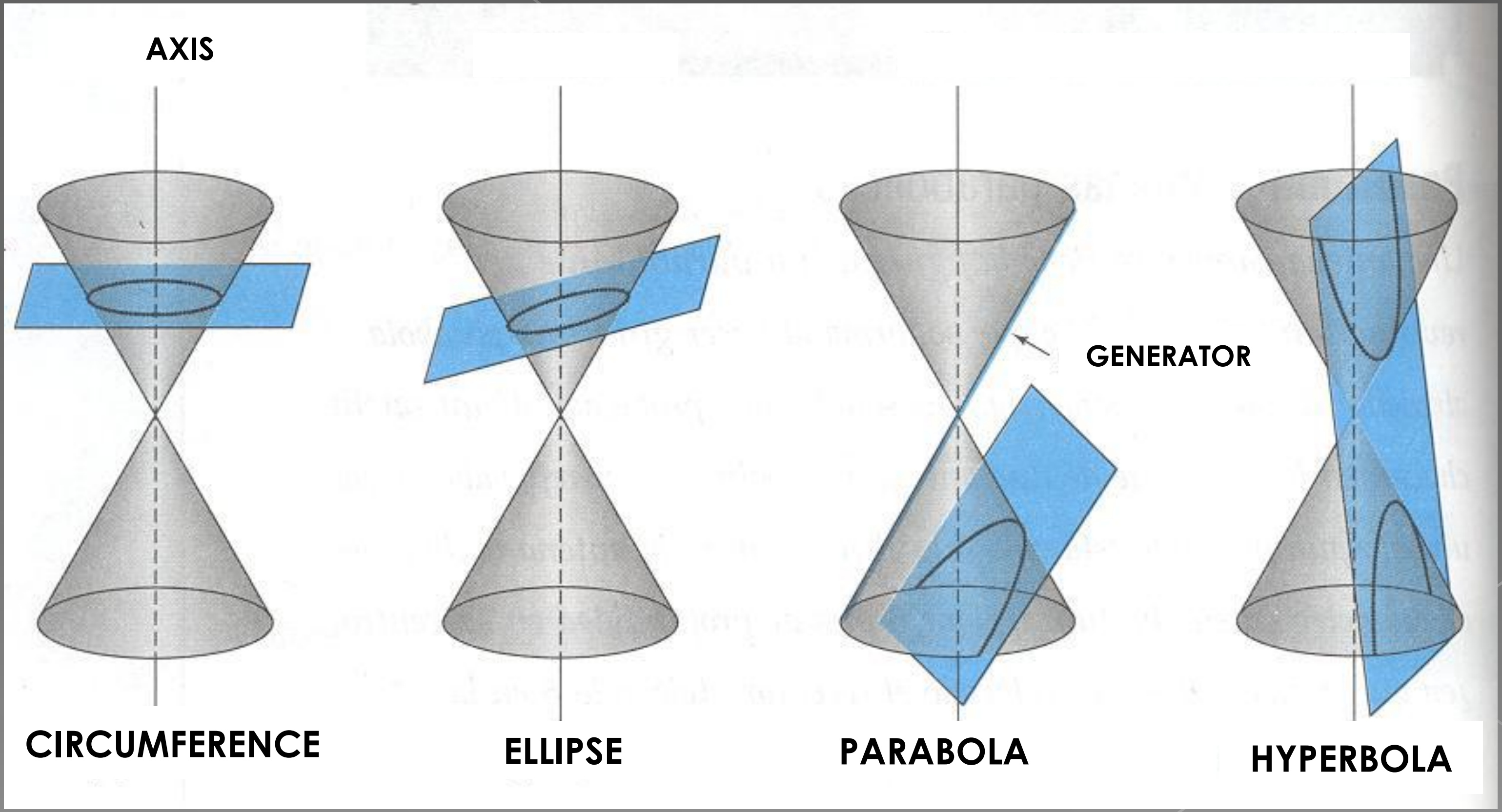
- A revolution conic surface is generated when a line called "**generator**" (g) rotates around the surface´s axis.





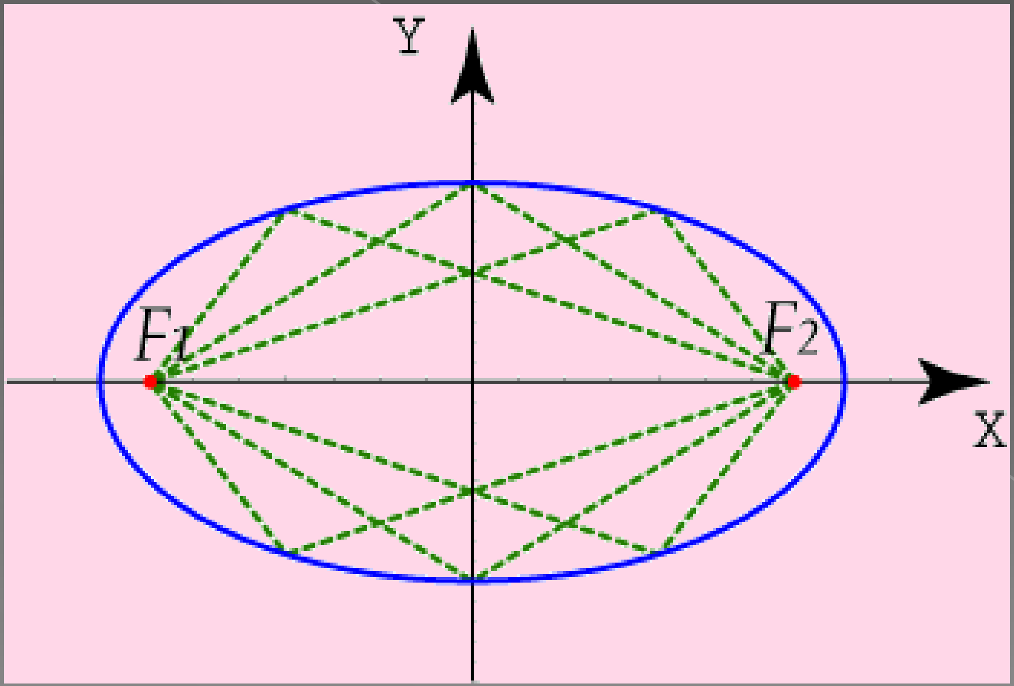
Revolution cone

- A plane can cut a cone to produce the four conic curves .
- Depending on how a plane cuts the cone, the section produced can be a circumference, ellipse, parabola, or hyperbola.



ELLIPSE

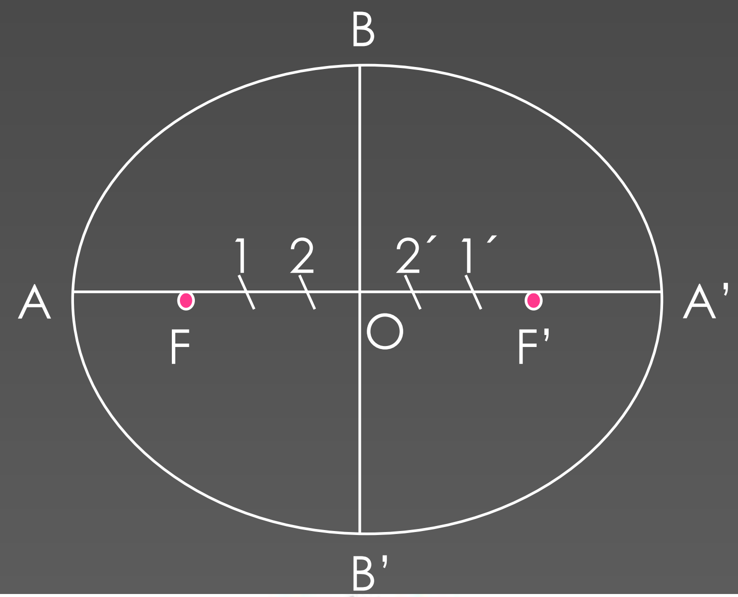
- It is a closed and plane curve formed by a set of points, its ratio of the distance to other two fixed points F1and F2 called focal point is constant and equal to the major axis.

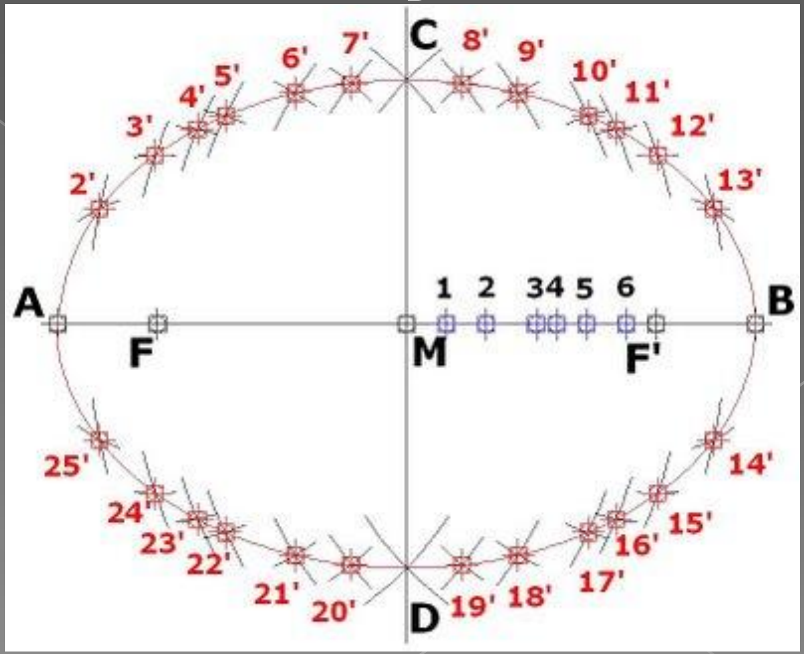


http://www.educacionplastica.net/zirkel/elipse.html

Construction of an ellipse

- Draw the perpendicular axes.
- With distance AO and center at B, trace an arc to cut the horizontal axis at points F and F'.
- Divide any equal divisions between FO and OF'.
- With distance A1 and from F, trace an arc , and trace another arc with distance A' 1 which cuts the first
- Repeat the same way with successive points 2, 3, 4…..
- Join the obtained points to draw the ellipse.

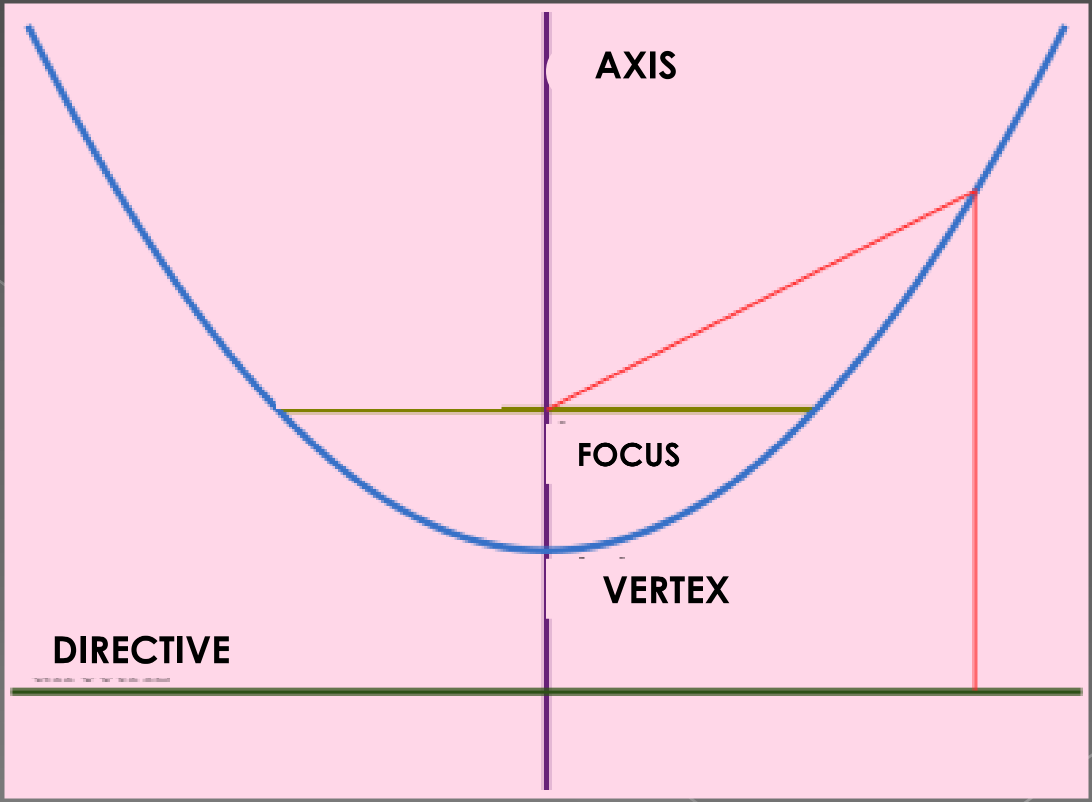




•http://www.educacionplastica.net/zirkel/elipse.html

PARABOLA

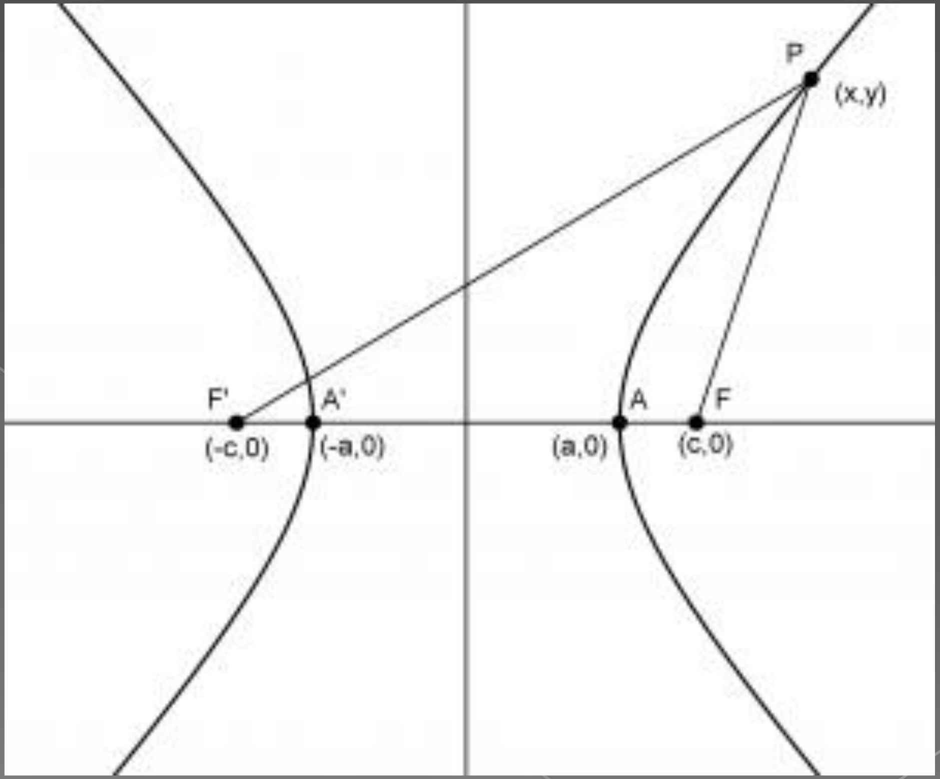
- It is an opened, plane and symmetric curve, whose points are equidistant on an immovable line called **directive** (d), and from an immovable point F called **focus**.
- The symmetry **axis** (x) is perpendicular to the directive.
- The point of maximum curve is called **vertex** (V).



http://www.educacionplastica.net/zirkel/parabola.html

HYPERBOLA

- Its a symmetric, plane and open double curve, its distance difference (or ratio distance)to two fixed points F and F' (focal points) is constant and equal to the distance between the A and A' points (vertices), which is the real length of the hyperbole.



PF – PF'= AA'

http://www.educacionplastica.net/zirkel/hiperbola.html