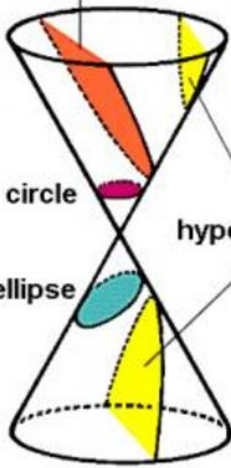


parabola



circle

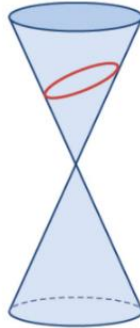
hyperbola

ellipse

Conic Sections

A conic section is formed by the intersection of a plane with a right circular cone. The "kind" of curve produced is determined by the angle at which the plane intersects the surface.

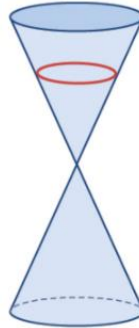
Diagonal Slice



Ellipse



Horizontal Slice



Circle



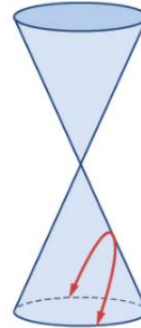
Deep Vertical Slice



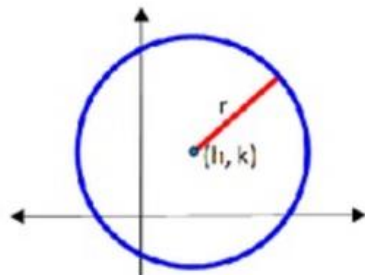
Hyperbola



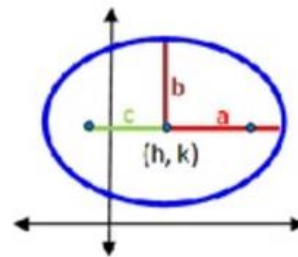
Vertical Slice



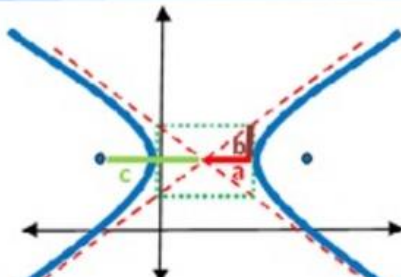
Parabola



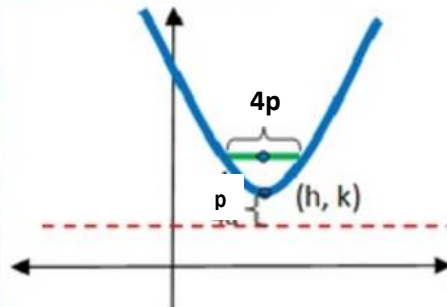
$$(x - h)^2 + (y - k)^2 = r^2$$



$$\frac{(x - h)^2}{a^2} + \frac{(y - k)^2}{b^2} = 1$$



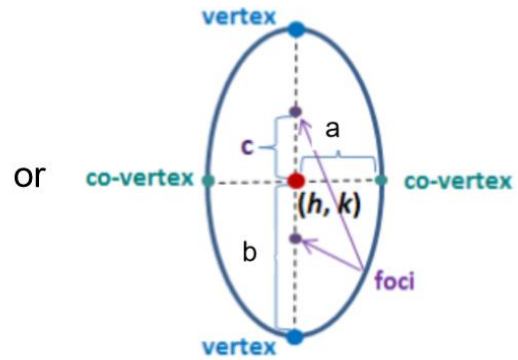
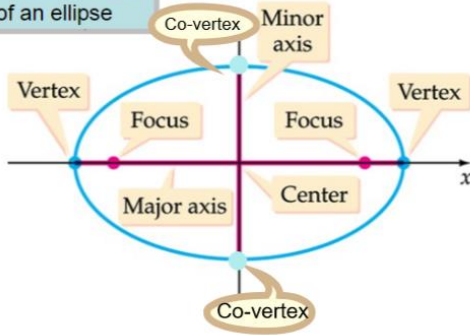
$$\frac{(x - h)^2}{a^2} - \frac{(y - k)^2}{b^2} = 1$$



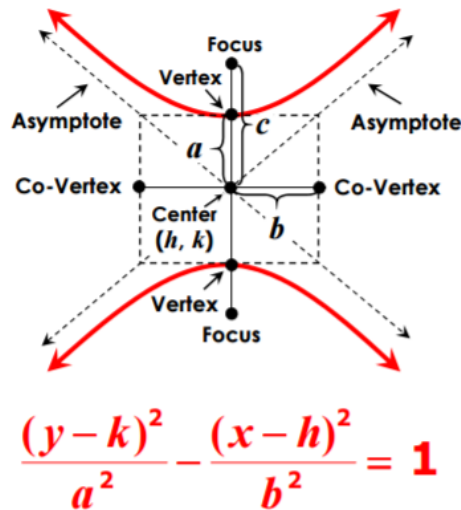
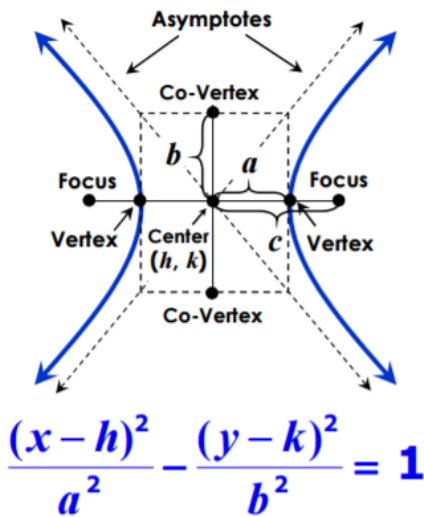
$$(x - h)^2 = 4p(y - k)$$

Graph of an Ellipse

Note various parts of an ellipse



HYPERBOLA



FORMULA FOR C: $c^2 = a^2 + b^2$

How to Identify a Conic Section in General Form

Level 1

- "Is there only one squared term?"
- If 'yes,' it is a **parabola**.
- If 'no,' go to Level 2.

Level 2

- "Are the coefficients of the squared terms equal?"
- If 'yes,' it is a **circle**.
- If 'no,' go to Level 3.

Level 3

- "Are the coefficients of the squared terms opposite in sign?"
- If 'yes,' it is a **hyperbola**.
- If 'no,' go to Level 4.

Level 4

- It is an **ellipse**.

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