

PC 8-2 A brief overview of equations and graphs of Ellipse and Hyperbolas

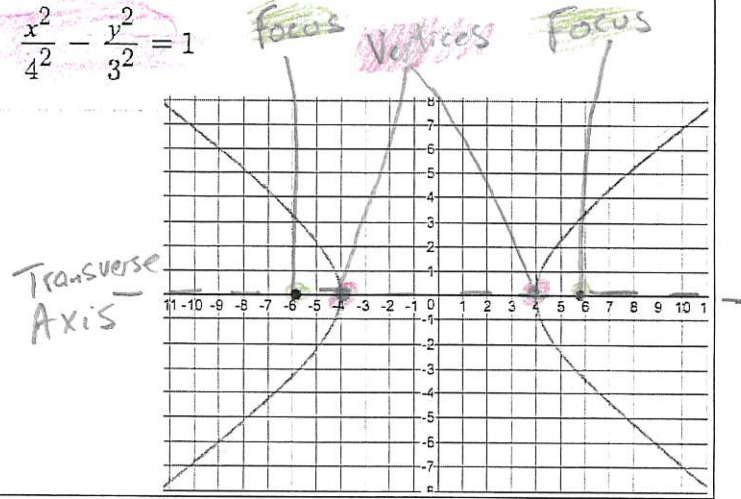
Ellipse

$$\frac{x^2}{5^2} + \frac{y^2}{3^2} = 1$$



Hyperbolas

$$\frac{x^2}{4^2} - \frac{y^2}{3^2} = 1$$



Foci

The Equation (When the major axis is the x-axis)
 $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
 $a > b > 0$

Center: (0,0)
 Vertices: (a,0), (-a,0)
 Foci: (c,0), (-c,0)

$$b^2 = a^2 - c^2$$

The Equation (When the transverse axis is the x-axis)
 $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$

Center: (0,0)
 Vertices: (-a,0), (a,0)
 Foci: (c,0), (-c,0)

$$b^2 = c^2 - a^2$$