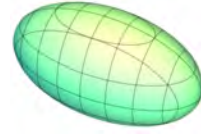


Cuádricas más comunes (01.03.2023)

1.- **Elipsoide** de semiejes a, b, c :

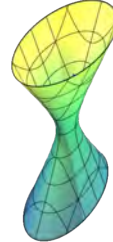
$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} - 1 = 0} \quad (a = b = c \Rightarrow \text{esfera})$$



Cortando por planos perpendiculares a los ejes resultan elipses.

2.- **Hiperboloide de una hoja**:

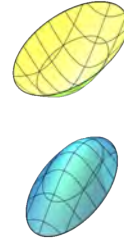
$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} - 1 = 0}$$



Cortando por planos $\perp OZ$ resultan elipses $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1 + \frac{z^2}{c^2} = k, \forall z$

3.- **Hiperboloide de dos hojas**:

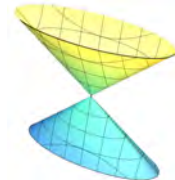
$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} + 1 = 0}$$



Cortando por planos $\perp OZ$ resultan elipses $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{z^2}{c^2} - 1 = k, |z| \geq c$

4.- **Cono elíptico**:

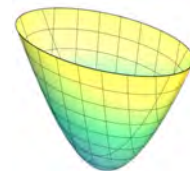
$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} = 0}$$



Cortando por planos $\perp OZ$ resultan elipses $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{z^2}{c^2} = k, \forall z$

5.- **Paraboloide elíptico**:

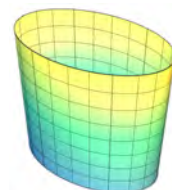
$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} - 2cz = 0}$$



Cortando por planos $\perp OZ$ resultan elipses $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 2cz = k; \forall z \geq 0$

6.- **Cilindro elíptico**:

$$\boxed{\frac{x^2}{a^2} + \frac{y^2}{b^2} - 1 = 0}$$



Cortando por planos $\perp OZ$ resultan elipses $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1; \forall z$