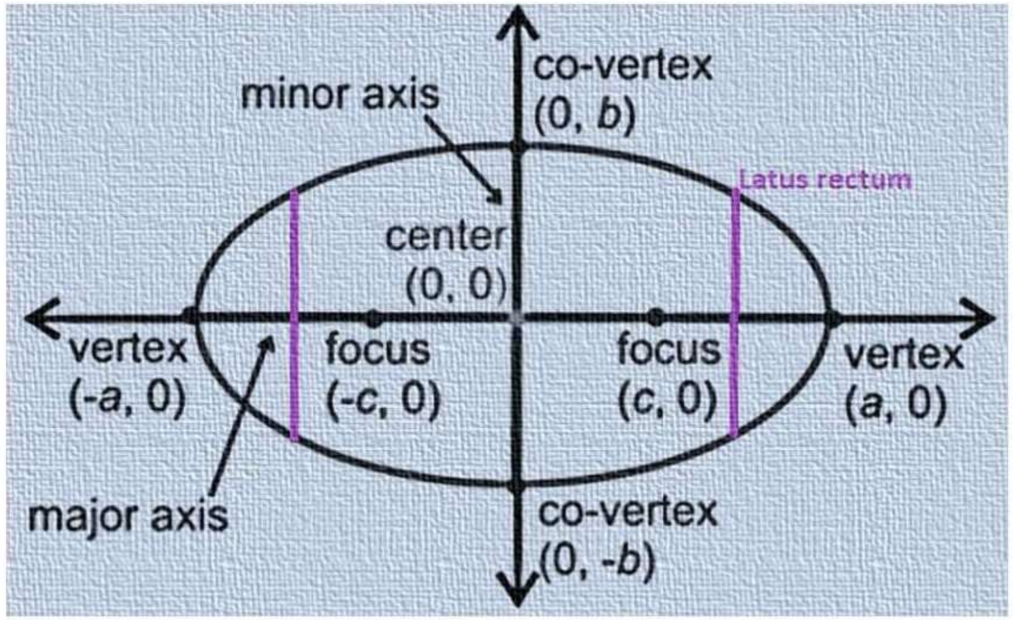
Ellipse Equation



Area of ellipse = πab

Perimeter of ellipse = $2\pi \sqrt{\frac{(a^2+b^2)}{2}}$

The standard form of the equation of an ellipse with center $(0,0)$ is

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

where

- $a > b$
- the length of the major axis is $2a$
- the coordinates of the vertices are $(\pm a, 0)$
- the length of the minor axis is $2b$
- the coordinates of the co-vertices are $(0, \pm b)$
- the coordinates of the foci are $(\pm c, 0)$, where $c^2 = a^2 - b^2$

The standard form of the equation of an ellipse with center $(h,\ k)$ is

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

where

- $a > b$
- the length of the major axis is $2a$
- the coordinates of the vertices are $(h \pm a, k)$
- the length of the minor axis is $2b$
- the coordinates of the co-vertices are $(h, k \pm b)$
- the coordinates of the foci are $(h \pm c, k)$, where $c^2 = a^2 - b^2$