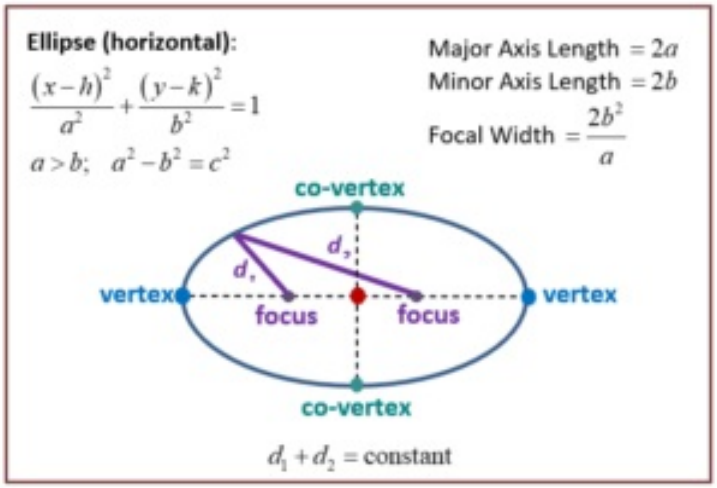
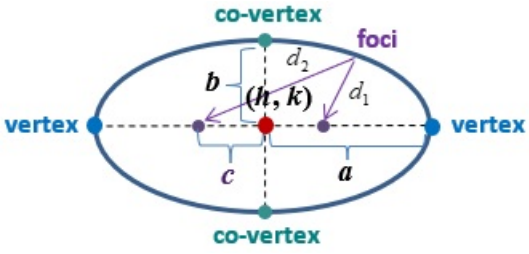
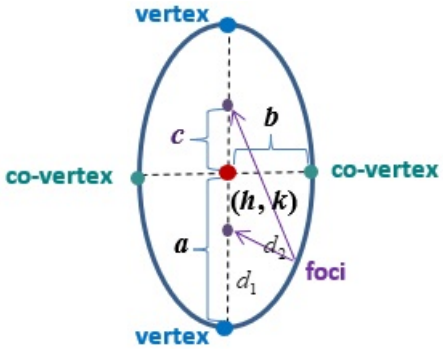
Concepts and Formulas

Conic Section

Ellipse Terminology



Vertical and Horizontal Ellipse

Horizontal Ellipse	**Vertical Ellipse**
At $(0,0)$: $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$	At $(0,0)$: $\frac{x^2}{b^2}+\frac{y^2}{a^2}=1$
General: $\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1;\quad a>b$	**General:** $\frac{(y-k)^2}{a^2}+\frac{(x-h)^2}{b^2}=1;\quad a>b$
$a^2-b^2=c^2$	$a^2-b^2=c^2$
Center: (h,k) **Foci:** $(h\pm c,k)$	**Center:** (h,k) **Foci:** $(h,k\pm c)$
Vertices: $(h\pm a,k)$ **Co-Vertices:** $(h,k\pm b)$	**Vertices:** $(h,k\pm a)$ **Co-Vertices:** $(h\pm b,k)$
	

Notes: a **is always greater than** b**;** $a^2-b^2=c^2$**; Major Axis Length** $=2a$**; Minor Axis Length** $=2b$**; Focal Width** $=\frac{2b^2}{a}$