ACADEMIC SUPPORT CENTER
SUCCESS STARTS HERE.

Parabolas, Ellipses and Hyperbolas

	Parabolas (Horizontal)	Parabolas (Vertical)	Ellipses (Horizontal)	Ellipses (Vertical)	Hyperbolas (Horizontal)	Hyperbolas (Vertical)
Equation	$(y-k)^2=4p(x-h)$	$(x-h)^2=4p(y-k)$	$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$	$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=1$	$\frac{(x-h)^2}{a^2}-\frac{(y-k)^2}{b^2}=1$	$\frac{(y-k)^2}{a^2}-\frac{(x-h)^2}{b^2}=1$
Center	None	None	(h , k)	(h , k)	(h , k)	(h , k)
Focus(i)	(h + p, k)	(h, k + p)	(h +/- c , k)	(h , k +/- c)	(h +/- c , k)	(h , k +/- c)
Vertex(ices)	(h, k)	(h, k)	(h +/- a , k)	(h , k +/- a)	(h +/- a , k)	(h , k +/- a)
Directrix	x = h - p	y = k - p	None	None	None	None
Major axis	None	None	2a (Horizontal)	2a (Vertical)	2a (Horizontal)	2a (Vertical)
Minor axis	None	None	2b (Vertical)	2b (Horizontal)	None	None
"c" equation	None	None	$c=\sqrt{a^2-b^2}$	$c=\sqrt{a^2-b^2}$	$c=\sqrt{a^2+b^2}$	$c=\sqrt{a^2+b^2}$
Eccentricity	None	None	e = c/a	e = c/a	None	None
Asymptotes	None	None	None	None	$y=k\pm\frac{b}{a}(x-h)$	$y=k\pm\frac{a}{b}(x-h)$