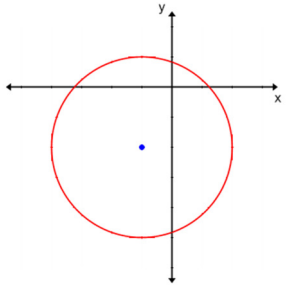
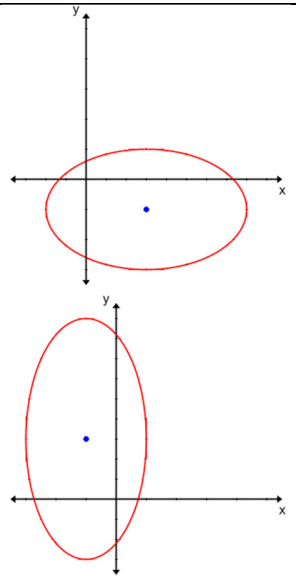
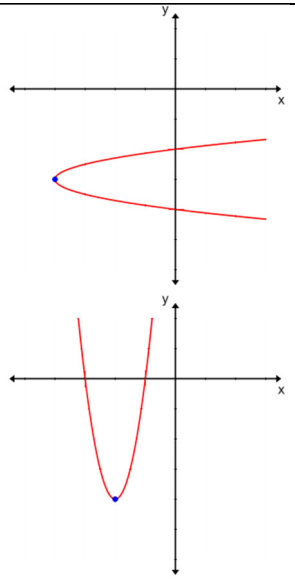
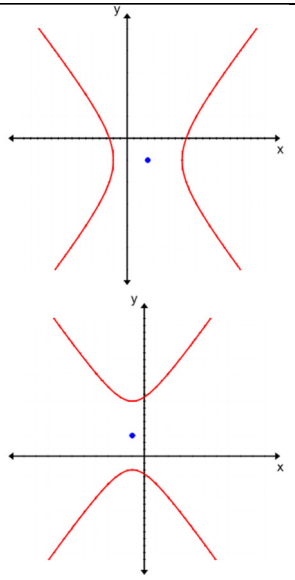
Conic Section →	**Circle**	**Ellipse**	**Parabola**	**Hyperbola**
Standard Form	$(x-h)^2+(y-k)^2=r^2$	$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$ OR $\frac{(y-k)^2}{a^2}+\frac{(x-h)^2}{b^2}=1$	$(y-k)^2=4p(x-h)$ OR $(x-h)^2=4p(y-k)$	$\frac{(x-h)^2}{a^2}-\frac{(y-k)^2}{b^2}=1$ OR $\frac{(y-k)^2}{a^2}-\frac{(x-h)^2}{b^2}=1$
Variables	***r*** = circle radius Center: (***h***, ***k***)	***a*** = major radius (1/2 major axis) ***b*** = minor radius (1/2 minor axis) ***c*** = distance from center to focus Center: (***h***, ***k***)	***p*** = distance from vertex to focus (or directrix) Vertex: (***h***, ***k***)	***a*** = 1/2 length major axis ***b*** = 1/2 length minor axis Center: (***h***, ***k***)
Graph:				
Relation to the focus:	$p=0$	$a>b>0$ $c^2=a^2-b^2$	$p=p$	$c^2=a^2+b^2$
Definition:	distance to the origin is constant	sum of distances to each focus is constant	distance to focus and distance to directrix are the same	difference between distances to each foci is constant