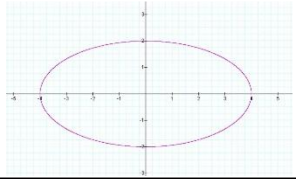
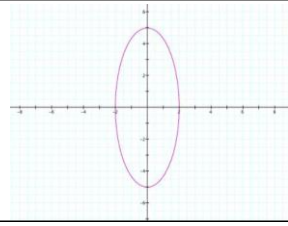
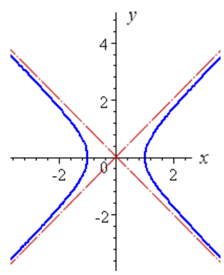
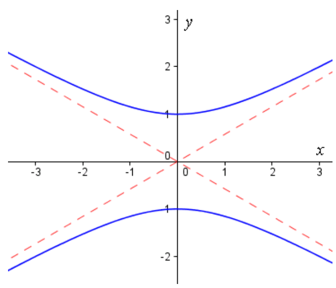
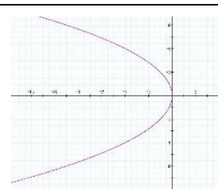
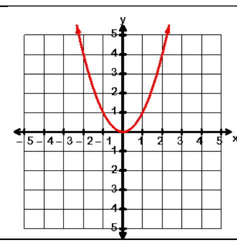
Standard Form for Ellipses	Orientation	Description
$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$		Center: (h, k) Foci: (h ± c, k) Major axis vertices: (h ± a, k) Minor axis vertices: (h, k ± b)
$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=1$		Center: (h, k) Foci: (h, k ± c) Major axis vertices: (h, k ± a) Minor axis vertices: (h ± b, k)
Hint: a^2 is always bigger than b^2 and $c^2 = a^2 - b^2$		

Standard Form for Hyperbolas	Orientation	Description
$\frac{(x-h)^2}{a^2}-\frac{(y-k)^2}{b^2}=1$		Center: (h, k) Foci: (h ± c, k) Vertices: (h ± a, k) Asymptotes: $y-k=\pm\frac{b}{a}(x-h)$ Transverse Axis: y = k (parallel to the x-axis)
$\frac{(y-k)^2}{a^2}-\frac{(x-h)^2}{b^2}=1$		Center: (h, k) Foci: (h, k ± c) Vertices: (h, k ± a) Asymptotes: $y-k=\pm\frac{a}{b}(x-h)$ Transverse Axis: x = h (parallel to the y-axis)
Where $b^2 = c^2 - a^2$		

Standard Form for Parabolas	Orientation	Description
$(y-k)^2=4p(x-h)$		Vertex: (h, k) Focus: (h + p, k) Axis of Symmetry: y = k Directrix: x = h – p Opens: left if p < 0; right if p > 0
$(x-h)^2=4p(y-k)$		Vertex: (h, k) Focus: (h, k + p) Axis of Symmetry: x = h Directrix: y = k – p Opens: down if p < 0; up if p > 0