All conic sections can be described as fixed distances from points/lines

Hyperbola: the set of all points such as the differences from the foci is constant (or fixed)

Standard Form:	**Translated Forms:**	
$\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$	$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$	$\frac{(y-k)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1$

Foci: $(0, \pm c)$ Foci: $(h \pm c, k)$ Foci: $(h, k \pm c)$

Vertices: $(0, \pm a)$ Vertices: $(h \pm a, k)$ Vertices: $(h, k \pm a)$

~~Co-Vertices:~~ ______   ~~Co-Vertices:~~ ______   ~~Co-Vertices:~~ ______

Center: $(0,0)$ Center: (h,k) Center: (h,k)

Asymptotes: $y=\frac{a}{b}x$ & ______   Asymptotes: $y=\frac{b}{a}x$ & $y=\frac{a}{b}x$

Why is a hyperbola called a conic section?
(use diagram to right)

If you draw a line through 2 cones + go through both bases then you get a hyperbola.

How does the statement at the top of the page apply hyperbolas?

Do Hyperbolas exhibit any symmetry? Describe?