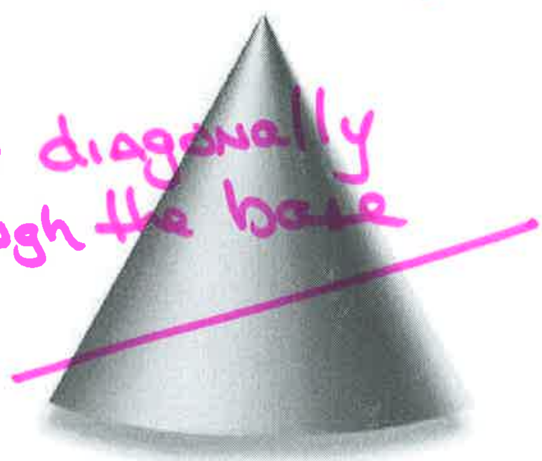
All conic sections can be described as fixed distances from points/lines

Ellipse: the set of all points such that the sum of the distances from the foci is constant

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

Foci: $(c,0)$ & $(-c,0)$	Foci: $(h+c,k)$ & $(h-c,k)$	Foci: $(h,k+c)$ & $(h,k-c)$
Vertices: $(a,0)(-a,0)$	Vertices: $(h\pm a,k)$	Vertices: $(h,k\pm a)$
Co-Vertices: $(0,b)(0,-b)$	Co-Vertices: $(h,k\pm b)$	Co-Vertices: $(h\pm b,k)$
Center: $(0,0)$	Center: (h,k)	Center: (h,k)

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



if you cut a cone diagonally and do NOT go through the base you get an Ellipse.

How does the statement at the top of the page apply to ellipses?

Do ellipses exhibit any symmetry? Describe.