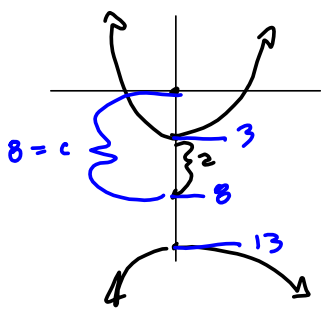


22. + 0/1 points

Find a polar equation of the conic in terms of r with its focus at the pole.Conic
Hyperbola

Vertices

$$(3, 3\pi/2), (13, 3\pi/2) = (-13, \frac{\pi}{2})$$



$$e = \frac{c}{a} = \frac{8}{5} = e$$

$$r = \frac{cp}{1 - e \sin \theta} = \frac{\frac{8}{5}p}{1 - \frac{8}{5} \sin \theta}$$

$$r\left(\frac{3\pi}{2}\right) = 3 = \frac{\frac{8}{5}p}{1 - \frac{8}{5}(-1)} = \frac{\frac{8}{5}p}{\frac{13}{5}} = \frac{8}{13}p = 3 \rightarrow p = \frac{39}{8}$$

$$r = \frac{\left(\frac{8}{5}\right)\left(\frac{39}{8}\right)}{1 - \frac{8}{5} \sin \theta} = \frac{\frac{1}{5}(39)}{\frac{1}{5}(5 - 8 \sin \theta)} = \frac{39}{5 - 8 \sin \theta} = r$$