

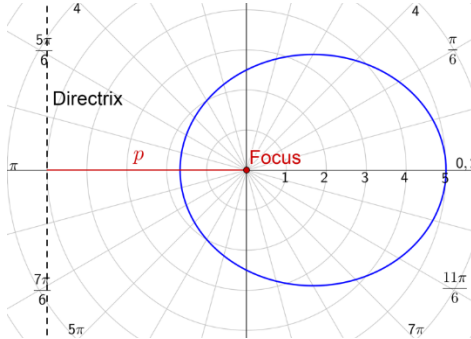
Precalculus

7-09 Polar Graphs of Conics

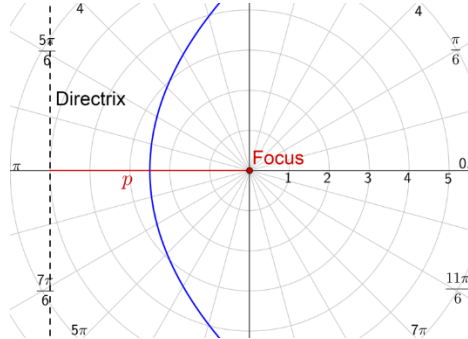
Alternative Definition of a Conic Section

- Locus of a point in the plane that moves so its distance from a fixed _____ (_____) is in a constant ratio to its distance from a fixed _____ (_____).
- The ratio is the _____ (e).

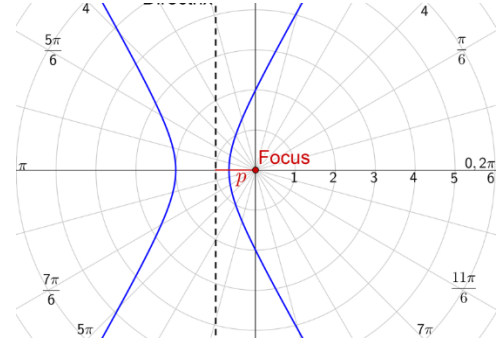
$e < 1$ ellipse



$e = 1$ parabola



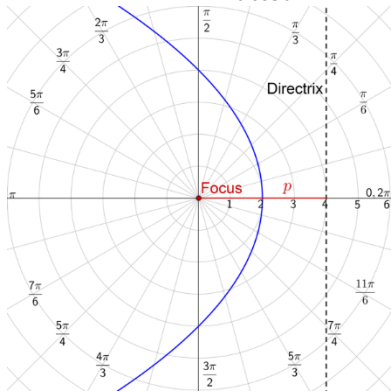
$e > 1$ hyperbola



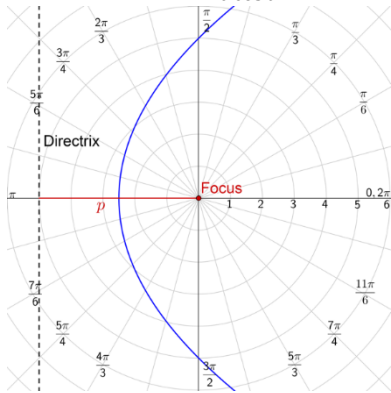
- p = distance from _____ to _____
- One focus is _____
- The conic bends _____ the focus and _____ from directrix

Vertical Directrix

Right of pole: $r = \frac{ep}{1+e \cos \theta}$

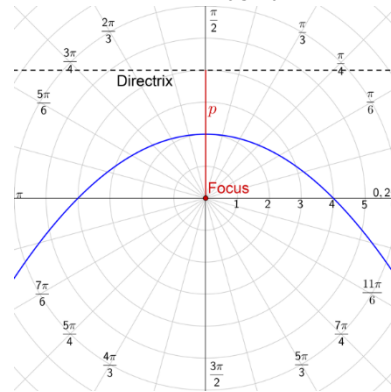


Left of pole: $r = \frac{ep}{1-e \cos \theta}$

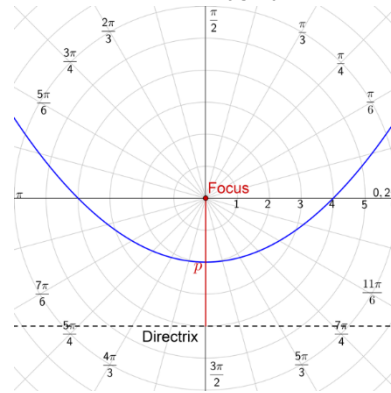


Horizontal Directrix

Above pole: $r = \frac{ep}{1+e \sin \theta}$

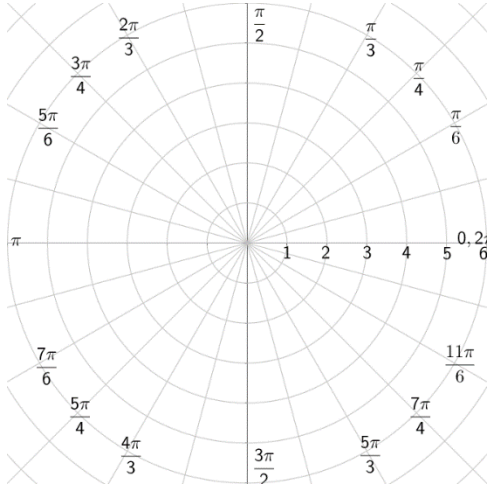


Below pole: $r = \frac{ep}{1-e \sin \theta}$

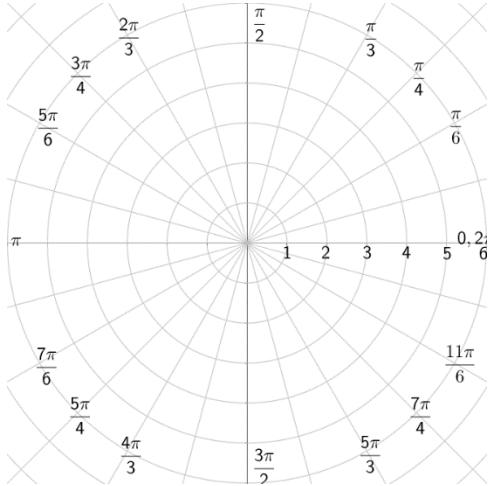


Identify the type of conic $r = \frac{2}{2 + \cos \theta}$

Identify type of conic and graph $r = \frac{3}{2 - 4 \sin \theta}$



Find the polar equation of the parabola whose focus is the pole and directrix is the line $x = -2$.



Find the polar equation of the hyperbola with focus at pole and vertices $(1, \frac{3\pi}{2})$ and $(-9, \frac{\pi}{2})$.

