**Conic Sections in Polar Coordinates homework**

1. Explain how eccentricity determines which conic section is given.
2. If a conic section is written as a polar equation, what must be true of the denominator?
3. If a conic section is written as a polar equation, and the denominator involves , what conclusion can be drawn about the directrix?
4. If the directrix of a conic section is perpendicular to the polar axis, what do we know about the equation of the graph?
5. What do we know about the focus/foci of a conic section if it is written as a polar equation?
6. For the following exercises, identify the conic with a focus at the origin, and then give the directrix and eccentricity.
   1. .
7. For the following exercises, convert the polar equation of a conic section to a rectangular equation.
8. For the following exercises, find the polar equation of the conic with focus at the origin and the given eccentricity and directrix.
   1. Directrix:  ;,
   2. Directrix:  ;
   3. Directrix:  ;,
   4. Directrix:  ;