1. Consider the curve described by $r = 2 + \cos(\theta)$.
   a.) (3 Points) Sketch a graph.

   b.) (3 Points) Find any points of intersection of this curve with the curve described by $r = 2 + \sin(\theta)$.

2. Consider the conic section described by $r = \frac{1}{1 - \frac{1}{2} \sin(\theta)}$.
   a.) (2 Points)
   Locate one of the foci and the two major vertices. (Polar or cartesian coords is fine).

   b.) (3 Points)
   Sketch a graph of this curve.
3 a.) (2 Points) Sketch a graph of \( r = \frac{2\pi}{\theta} \), where \( \theta \geq 2\pi \). *Hint:* Try plotting some points like \( \theta = 2\pi, 4\pi, 6\pi, \ldots \) What happens to \( r \) in these regions?

b.) (2 Points) Sketch a graph of \( r = \frac{2\pi}{\theta} \), where \( 0 < \theta \leq 2\pi \). *Hint:* Try plotting some points like \( \theta = 2\pi, \frac{2\pi}{3}, \frac{2\pi}{5}, \frac{2\pi}{7}, \ldots \)