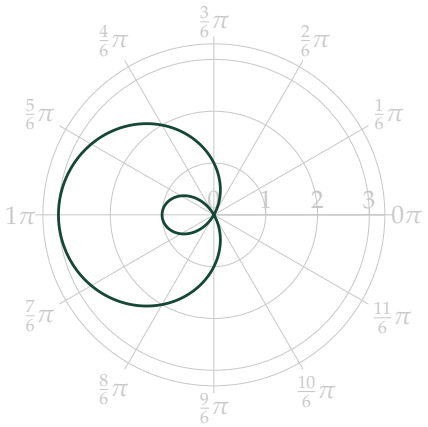
Math 143 Quiz 4

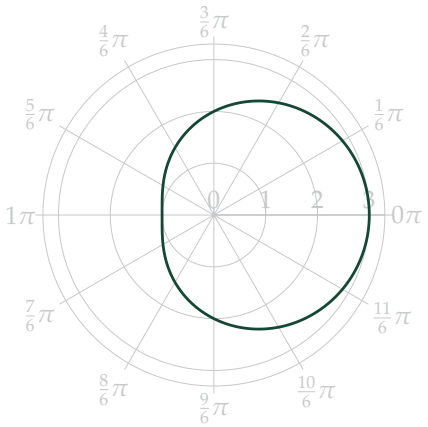
Names: _____



1. Find the area in the little loop of the graph $r = 1 - 2\cos\theta$:

2. Find the value of α such that the arclength of the polar curve $r(\theta) = 1 - \theta^2$ on $[0, \alpha]$ is 2α.

3. When does the polar curve $r = 2 + \cos\theta$ have a vertical tangent?



4. The vector $\mathbf{v}$ below is a unit vector and the vector $\mathbf{w}$ is in the direction of $\langle -1, 3\rangle$. What is $\mathbf{w}$?