

## Physics 341 Sage Assignment 3

S1. In this assignment, you will plot the function

$$r(\theta) = \frac{1 + e}{1 + e \cos \theta}$$

for various values of the eccentricity  $e$ , in polar coordinates.

Use the command `polar_plot` which you will find in the Sage help documentation.

In the elliptic case, you can plot  $r(\theta)$  between  $-\pi$  and  $+\pi$ . But this won't work in the other two cases, because  $r$  diverges for certain values of  $\theta$ . So you will have to choose an appropriate range for  $\theta$  to avoid convergence issues.