



Plot for assignment 27 set 7.

Calculation of  $r_{\min}$ :

$$U'_{\text{eff}}(r) = \frac{\alpha}{r^2} - \frac{L^2}{\mu r^3}$$

$$0 = \alpha - \frac{L^2}{\mu r^{\min}}$$

$$r^{\min} = \frac{\alpha \mu}{L^2} = 1 \quad \text{for} \quad \alpha = \mu = L = 1 .$$

The orbit is a circle with radius  $r^{\min} = 1$ .