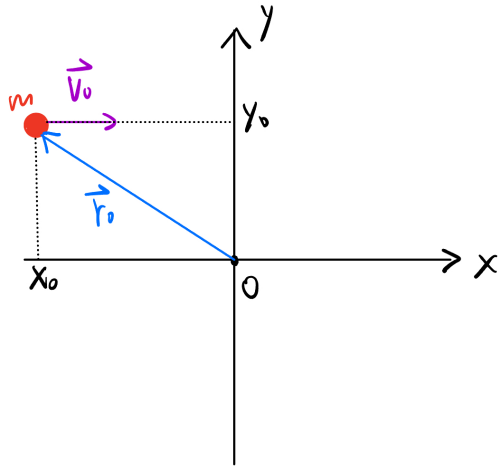


Consider a free particle with mass m , initial position $\vec{r}_0 = x_0\hat{x} + y_0\hat{y}$, and initial velocity $\vec{v}_0 = v_0\hat{x}$.

1. Fill out the table for when the particle is at it's initial position.
2. Sketch the effective potential for this free particle.
3. What is r_{min} for this particle?
4. Fill out the table for when the particle is closest to the origin.



	Initial Position	Closest to Origin
Total Energy		
Angular Momentum		
Radial Velocity		
Tangential Velocity		
Effective Potential		