Homework #5
phy 5246
due: Monday, October 30 (in class)

P1: Solve for the position vector of the particle moving in the $-|k|/r$ potential on the hyperbolic orbit as a function of time numerically. Measure all positions in units of the closest approach r_0 and all times in units of $\tau \equiv r_0^{\frac{3}{2}}\sqrt{\frac{m}{|k|}}$. Plot your result for $0 \leq t \leq 2\tau$ in steps of $\tau/10$ for the eccentricity $e = 2$.

Goldstein Poole, and Safko, Classical Mechanics (Third Edition)
Chap. 3; Problem 28
Chap. 3; Problem 30
Chap. 3; Problem 31
Chap. 3; Problem 32