

DUE: IN CLASS – FRIDAY, 19 FEB 2010

0. Read and *study* Chapter 4.2 in Bate, Mueller, & White.
1. BM& W Prob 4.2
2. A comet is observed on a course approaching Earth at a speed (in Earth coordinates) of 26 km/s at a radial distance of 500000 km. The flight-path angle at the instant of observation is -86° .
 - a) Find the semi-major axis and eccentricity of the orbit.
 - b) Find the periapse radius.
 - c) Find the propagation time from the point of observation to the Earth periapse passage.
3. A spacecraft receding from Earth is observed at the intersection of the orbit with its semi-minor axis having a radial distance from Earth of 10000 km. As it passed perigee it was observed to have a radial distance of 6800 km. What are the semi-major axis and eccentricity of this orbit? What is the apogee radius? What is the propagation time from the first semi-minor axis crossing to the second one, as the spacecraft is returning to perigee.