First exercise: Integration of an orbit in a Plummer potential (resembling a galaxy)

1. Choose a suitable set of initial conditions (pos & vel)
2. Write a code that from the initial conditions integrates the orbit for 5 – 8 Gyr in a Plummer sphere with $M = 10^{11}\ M_{sun}$ and b = 10 kpc.
3. Plot the orbit: x vs. y, y vs z, x vs z, and r as function of time
4. Check the behaviour of the energy and angular momentum, and show that they are conserved.