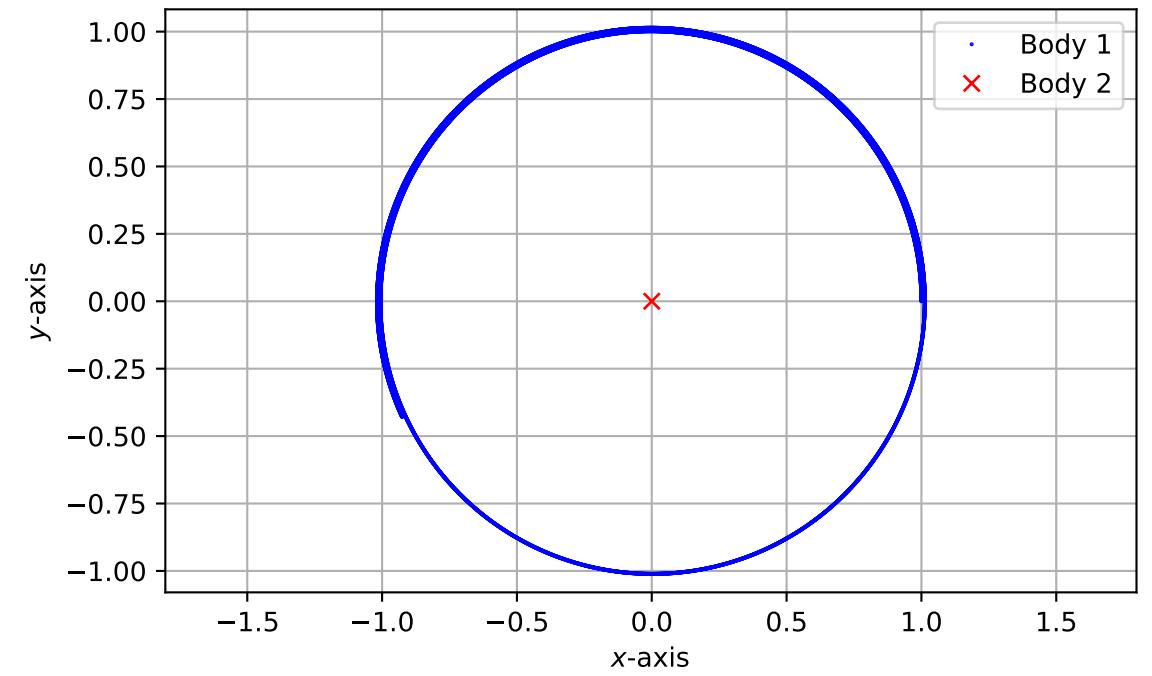
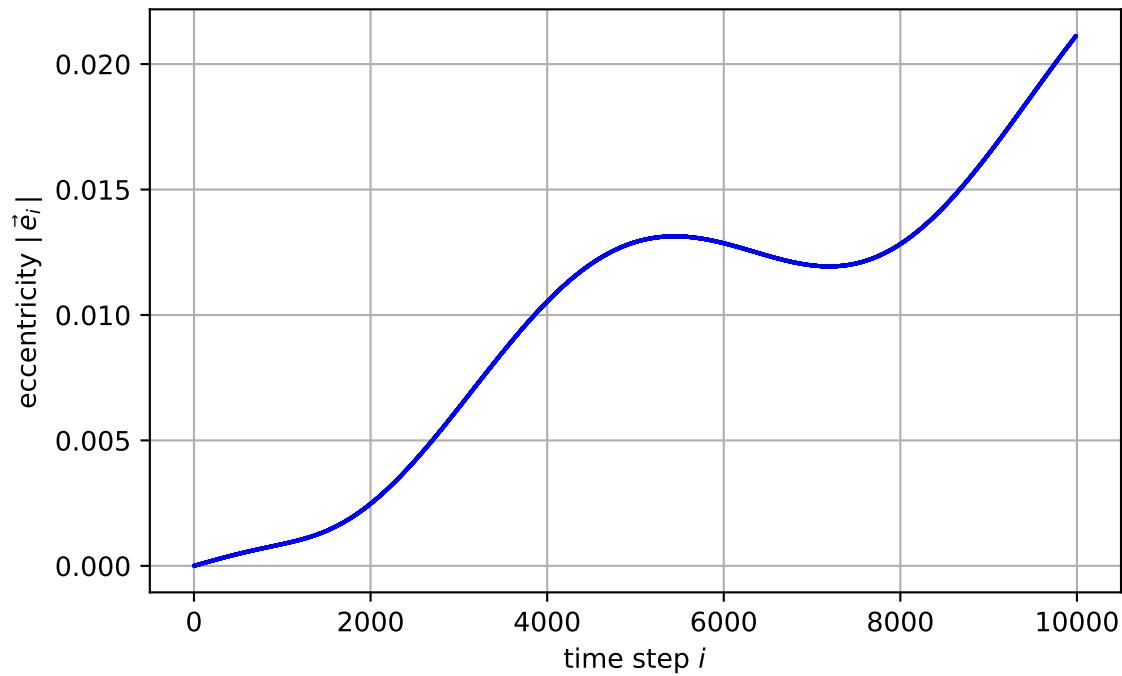


# Forward Euler Method: Numerical Simulation of the Two-Body Problem

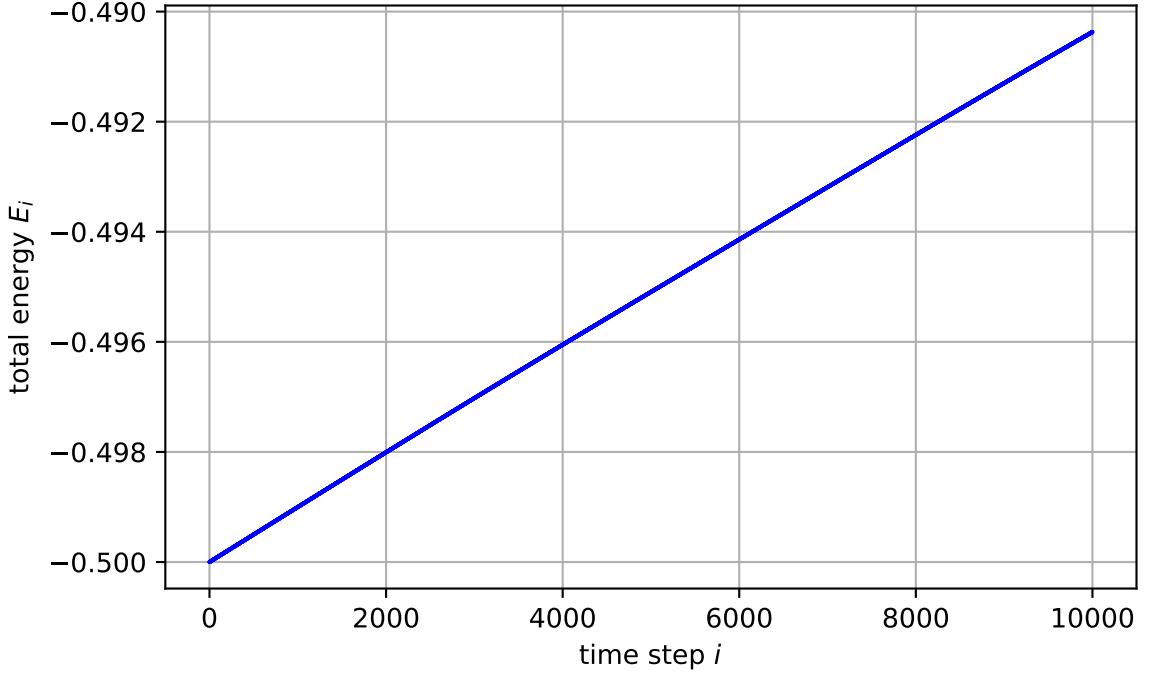
Relative Motion  $\vec{s}$  (Orbits)



Eccentricity  $|\vec{e}_i| = |\vec{w}_i \times (\vec{s}_i \times \vec{w}_i) - \vec{s}_i|$  of the Orbit



Total Energy  $E_i = (w_i^2 / 2) - (1/s_i)$



Relative Error  $\varepsilon_i(h) = |E_i - E_0| / |E_0|$  in the Total Energy  $E_i$

