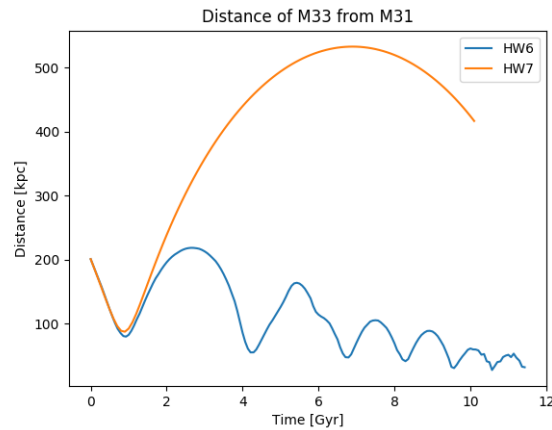


ASTR400B HW7

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1 Output



2 Questions

For the first few million years, the analytic and simulated solutions line up but drastically diverge around 2 billion years.

Since the two galaxies are not point masses they will have tidal effects that will change not only the shape of the galaxies but also the center of mass's location with respect to the galaxy. Also, this simulation was essentially looking at a test particle with the initial conditions of M33, which means that it does not apply a force on M31. Given the relative sizes of the objects, the relative force on M31 by M33 would be small, however it could add up to significant effect.

Also, we are not taking into account the Milky Way's pull on both galaxies. This can have drastic effects on analytic solution (especially starting before the first approach).