**MY CODE:** [**https://github.com/AmuletIndustries/ae\_502**](https://github.com/AmuletIndustries/ae_502)

1. For the first question I got the following parameters:

a = 20.3074e+003

e = 656.7752e-003

i = 2.5708e+000

asc\_node\_rate = 90.4956e-009

The lowest drift rate is: Omega\_dot = (9.0496e-08 rad/sec, which is far less than 1.

1. For the second question I got the following parameters:

amars = 20.4467e+003

e = 813.3685e-003

i = 2.5708e+000

asc\_node\_rate = 23.4743e-009

The lowest drift rate is: Omega\_dot = (2.3474e-08 rad/sec, which is far less than 1.

1. For the third question I got charts that look like this:

Graphical user interface

Description automatically generated with medium confidence

I am not clear on why the J2 perturbation equations of motion I am using seem to not converge and have odd step-like behavior. I’ve used this exact code to do this successfully in the past.