

Problem 3:

③ Use simple summation of Forces and torques.

$$\sum F = F_{es} + F_{ms} = \frac{\tau}{r}$$

$\uparrow$                        $\uparrow$                        $\uparrow$   
 earth on                      moon on                      net torque / radius  
 satellite                      satellite

$$= \frac{G M_m}{r^2} + \frac{G M_m}{(R-r)^2} = I \alpha$$

$$= \frac{G M_m}{r^2} + \frac{G M_m}{(R-r)^2} = \frac{m r^2 \alpha}{r}$$

$$= \frac{G M}{r^2} + \frac{G M}{(R-r)^2} = \omega^2 r$$

A)

Above is the derivation for the formula provided.

```
C:\Users\lab\Dropbox\Computational Physics\Computational-Physics-Python\Jinesh_H
w4>python -i Prob3.py
326045071.665
>>>
```

B)

This is the value retrieved for the lagrange point between the moon and the earth.