

# ASSIGNMENT #2

Consider a rocket in an elliptical orbit with semi major axis,  $a = 25$ units, and eccentricity,  $e = 0.6$ . If the rocket is travelling with an average angular speed of  $\frac{\pi}{3600}$  radians/second, calculate the position of the rocket 10 minutes after periapsis passage.

Let  $a = 25,512\text{km}$ ,  $e = 0.625$ ,  $f(0) = 0$ , find  $\vec{r}$  and  $\vec{v}$  at  $t = 4\text{hr}$

A satellite in an elliptical orbit with eccentricity  $e = 0.25$  and semi-major axis  $a = 1000$  kilometers is at true anomaly  $\theta = 94^\circ$ . Find distance to the satellite from the center of the planet. If the planet has a radius of 600 kilometers, calculate the satellite's altitude above the surface of the planet.