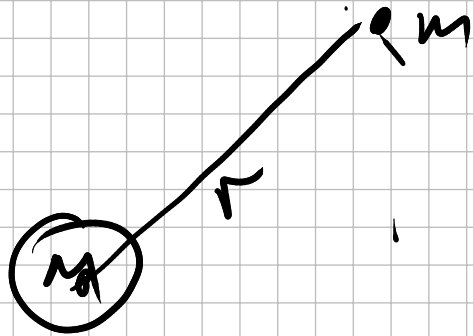


Mass of a heavy (compared to a satellite) star or planet.

Connection to between period of the orbit (T), distance from the central object (r), and mass of the heavy object (M)



$$\cancel{m} a_c = G \frac{\cancel{m} M}{r^2}$$

$$\frac{v^2}{r} = \left(\frac{2\pi r}{T} \right)^2 \frac{1}{r} = G \frac{M}{r^2}$$

$$\frac{(2\pi)^2}{T^2} r = G \frac{M}{r^2}$$

$$M = \frac{(2\pi)^2}{G} \frac{r^3}{T^2}$$