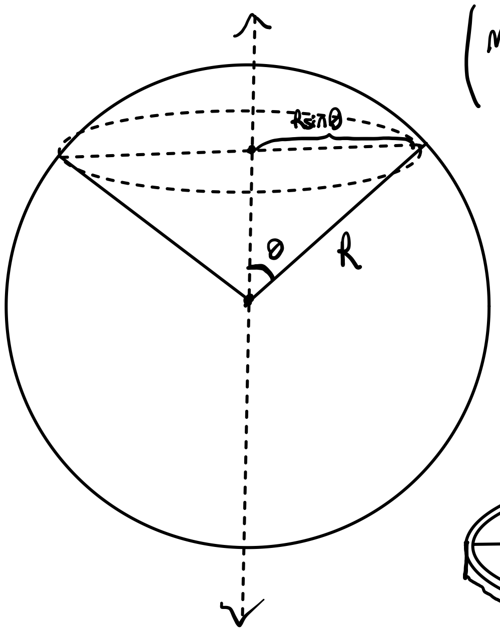
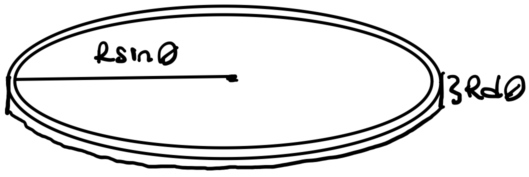


(mass density : σ) $\left(\sigma = \dfrac{M}{4\pi R^2}\right)$

from the I of an uniform hoop

$$\left.\begin{aligned} dI &= dm \cdot [R\sin\theta]^2 \\ dm &= 2\pi\sigma R^2 \sin\theta\, d\theta \end{aligned}\right\} \rightarrow dI = 2\pi\sigma R^4 \sin^3\theta\, d\theta$$



$$\int dI = 2\int_0^{\frac{\pi}{2}} 2\pi\sigma R^4 \sin^3\theta\, d\theta = 2\cdot\frac{4\pi\sigma R^4}{3} = \frac{2}{3}\cdot 4\pi R^4 \cdot \frac{M}{4\pi R^2} = \frac{2}{3}MR^2$$

for each hemispherical shell