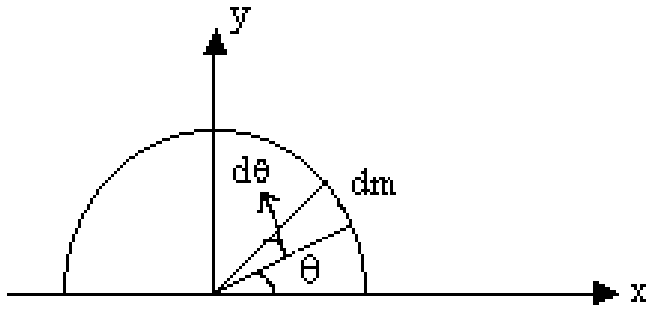


Total length of semi circular wire = πR

Elemental length = $Rd\theta$



$$dm = \frac{mRd\theta}{\pi R} = \frac{md\theta}{\pi}$$

$$\begin{aligned} \text{So, } y &= \int_0^{\pi} \frac{1}{m} y dm \\ &= \frac{1}{m_0} \int_0^{\pi} R \sin \theta \frac{m}{\pi} d\theta \\ &= \frac{2R}{\pi} \end{aligned}$$

