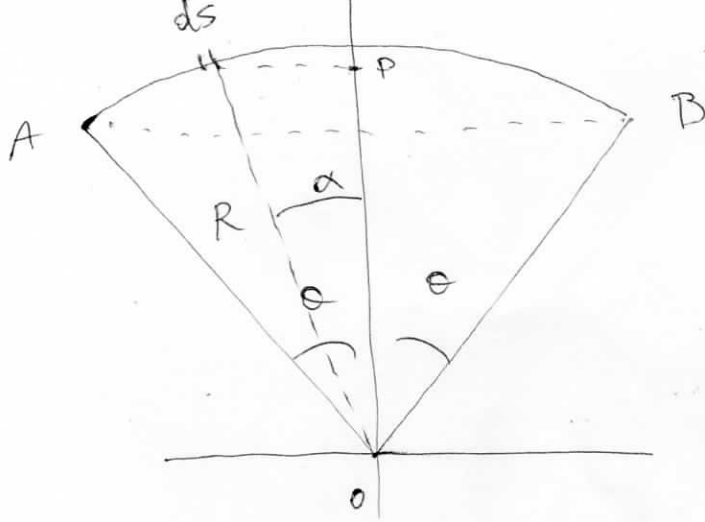


$$ds \cdot \cos \theta = dx$$

$$ds \cdot \sin \theta = dy$$

$$\int ds = 2r\theta$$

$$\overline{AB} = 2r \sin \theta$$

$$y = r \cos \alpha$$

$$y_G = \frac{\int ds y}{\int ds}$$

$$y_G = \frac{\int ds r \cos \alpha}{2r\theta} = \frac{r \int ds \cos \alpha}{2r\theta}$$

$$= \frac{r \int dx}{2r\theta}$$

$$\text{mo } \int dx = \overline{AB} = 2r \sin \theta$$

do cui

$$y_G = \frac{\cancel{r} 2r \sin \theta}{\cancel{2r} \theta} = \frac{r \sin \theta}{\theta}$$