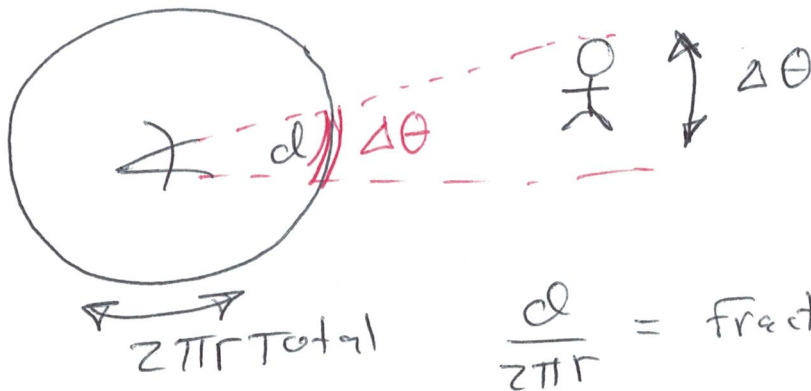


Solid Angle Ω

First, Angular Size in 2-D



$\frac{d}{2\pi r}$ = fraction of circle covered

$$\text{Angular Size} = 2\pi \times \text{fraction} = 2\pi \frac{d}{2\pi r} = \frac{d}{r}$$

If d = whole circle, $d = 2\pi r \Rightarrow \frac{d}{r} = 2\pi$

3-D Example



$$\text{fraction} = \frac{dA}{\text{Total } A}$$

$$\text{Solid Angle} = 4\pi \times \text{fraction}$$



$$A = \pi R^2$$

$$\text{fraction} = \frac{\pi R^2}{4\pi d^2}$$

$$\begin{aligned} \text{Solid Angle } \Omega &= 4\pi \times \text{fraction} \\ &= \frac{\pi R^2}{d^2} \end{aligned}$$

Area of Big Sphere
= $4\pi d^2$