

$\frac{x^2+y^2}{1+x^2} = 1$

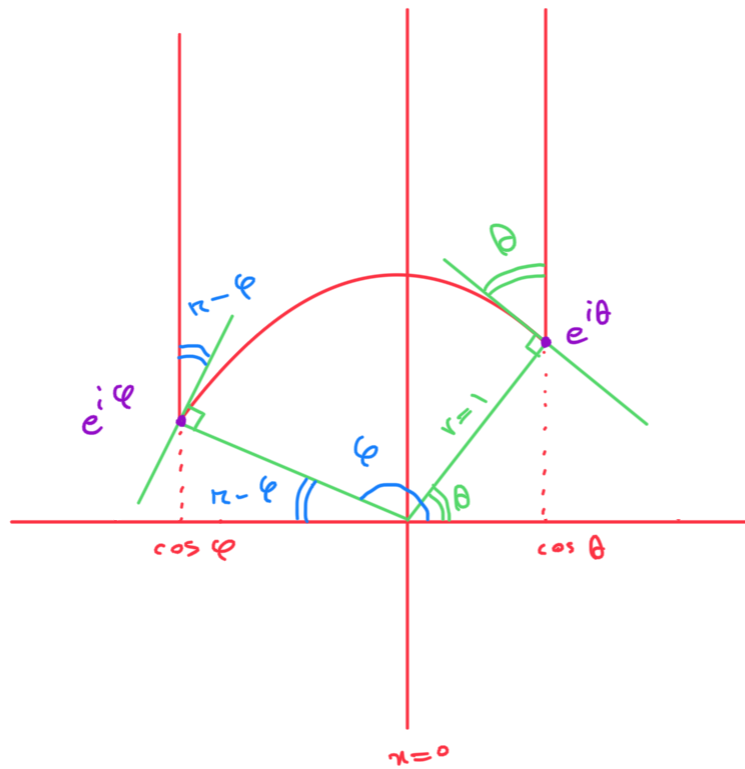
$\text{area}(D) = \int_D \frac{1}{y^2} dA$

$= \int_{\phi}^{\theta} \int_{\sqrt{1-x^2}}^{\infty} \frac{1}{y^2} dy dx$

$= \int_{\phi}^{\theta} \left. \frac{-1}{y} \right|_{\sqrt{1-x^2}}^{\infty} dx = \int_{\phi}^{\theta} \frac{1}{\sqrt{1-x^2}} dx$

$= \pi - (\theta + \phi)$

$= \pi - (\text{angle of the sector})$



تصحیح شکل :

$$\text{area}(D) = \int_{\cos \phi}^{\cos \theta} \int_{\sqrt{1-x^2}}^{\infty} \frac{1}{y^2} dy dx = \int_{\cos \phi}^{\cos \theta} \frac{1}{\sqrt{1-x^2}} dx = \sin^{-1} x \Big|_{\cos \phi}^{\cos \theta}$$

$$= \left(\frac{\pi}{2} - \theta \right) - \left(\frac{\pi}{2} - \phi \right) = \phi - \theta = \pi - (\theta + \pi - \phi)$$

انها صحیح