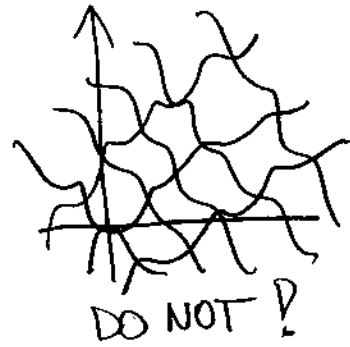
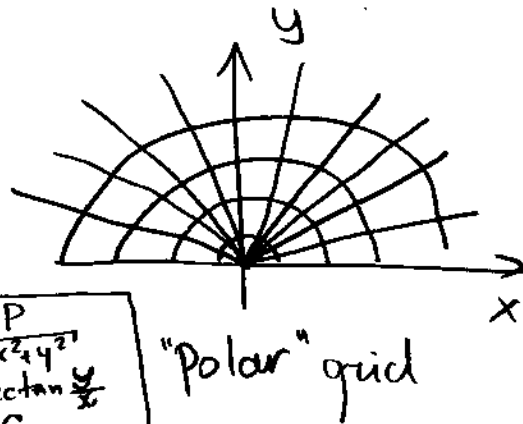
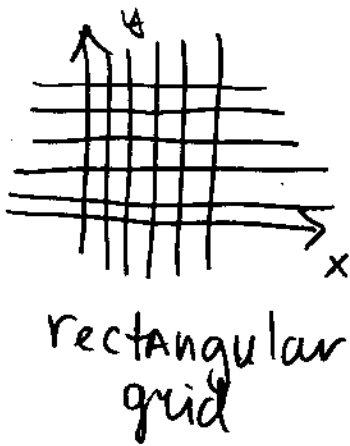
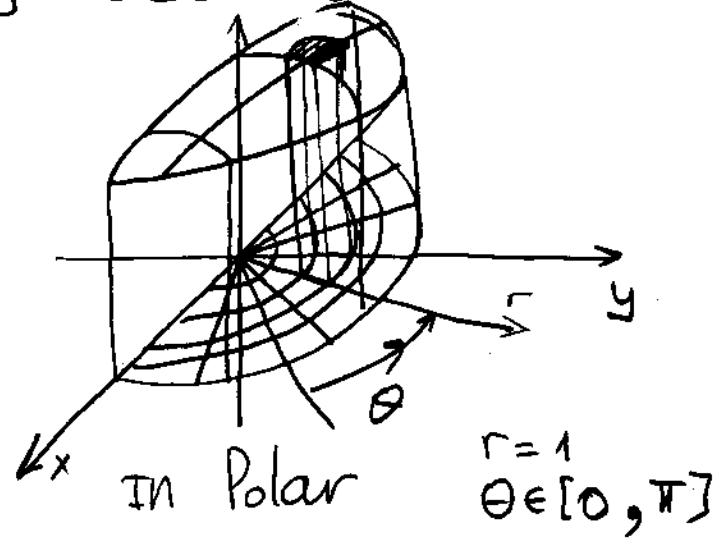
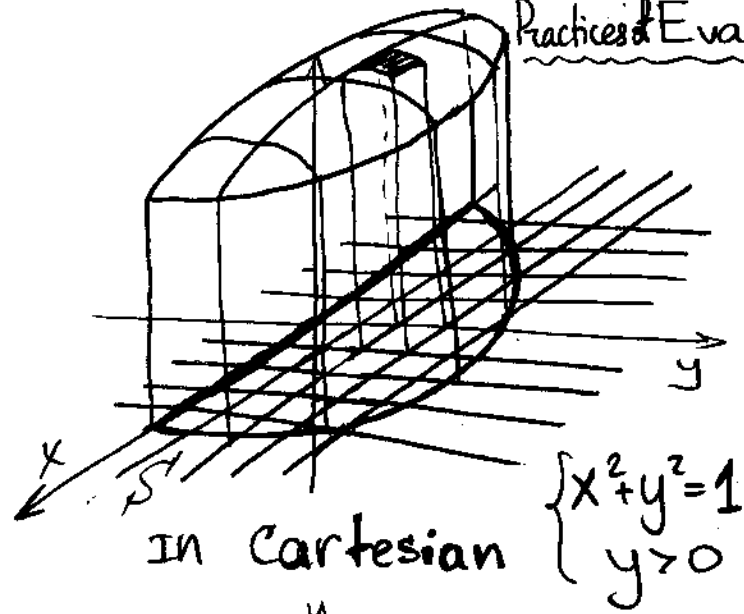


# Double Integrals in Polar Coordinates

## Practices of Evaluating Double Integrals

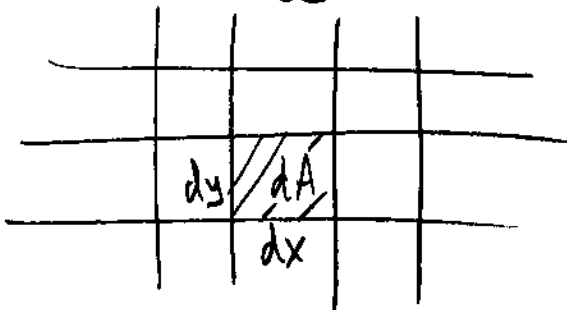


$C \rightarrow P$
$r = \sqrt{x^2 + y^2}$
$\theta = \arctan \frac{y}{x}$
$P \rightarrow C$
$x = r \cos \theta$
$y = r \sin \theta$

$$\iint_S f(x, y) dA$$

$$dA = dx \cdot dy$$

since



$$\iint_S f(r \cos \theta, r \sin \theta) r dr d\theta$$

$$dA = r dr d\theta$$

since

