

2x)

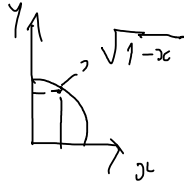
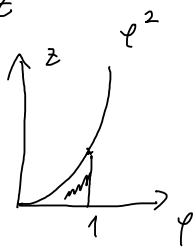
$$A = \{(x, y, z) \in \mathbb{R}^3 : 0 \leq z \leq x^2 + y^2 \leq 1, x, y \geq 0\}$$

$$\rho = \sqrt{x^2 + y^2}$$

$$\begin{cases} x = \rho \cos(\theta) \\ y = \rho \sin(\theta) \end{cases} \Rightarrow A = \{(\rho, \theta, z) \in \mathbb{R}^3 : 0 \leq z \leq \rho^2 \leq 1, \frac{\rho \cos(\theta), \rho \sin(\theta) \geq 0\}$$

$$\theta = [0, \frac{\pi}{2}]$$

$$z = z$$



$\int_A f(x, y, z) dx dy dz$  {

$$\int_0^1 \int_0^{\sqrt{1-x}} \int_0^{x^2+y^2} f(x, y, z) dz dy dx$$

$$\int_0^1 \int_0^{\sqrt{1-y}} \int_0^{x^2+y^2} f(x, y, z) dz dx dy$$

$$\int_0^1 \left[ \int_0^{\sqrt{z}} \int_{\sqrt{z}}^{\sqrt{1-y^2}} f(x, y, z) dx dy + \int_{\sqrt{z}}^1 \int_0^{\sqrt{1-y^2}} f(x, y, z) dx dy \right] dz$$

