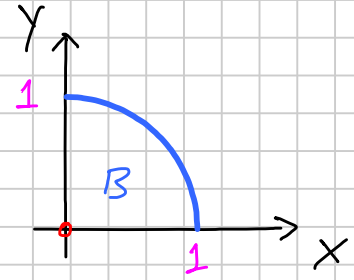


$$B: \{(x, y): x^2 + y^2 \leq 1, x \geq 0, y \geq 0\}$$



$$\int_B \frac{1 - \cos(xy)}{x^2 + y^2} dx dy$$

$$0 \leq xy \leq \frac{1}{2} < 1 \quad \leadsto \quad \cos(xy) \geq 1 - \frac{1}{2}(xy)^2 \quad 1 - \cos(xy) \leq \frac{1}{2}(xy)^2$$

$$\int_B \frac{1 - \cos(xy)}{x^2 + y^2} dx dy \leq \frac{1}{2} \int_B \frac{x^2 y^2}{x^2 + y^2} dx dy =$$

$$= \frac{1}{2} \int_0^{\pi/2} \int_0^1 \frac{\overset{3}{\cancel{\rho^3}} \cos^2 \theta \cancel{\rho^2}}{\cancel{\rho^2}} \cancel{\rho} d\rho d\theta = \frac{1}{8} \int_0^{\pi/2} \int_0^1 \overbrace{\rho^3 \cos^2 \theta}^{\text{LIMITATA IN } B} d\rho d\theta < +\infty$$

CONVERGE

$$\left[ = \frac{1}{8} \int_0^{\pi/2} \cos^2 \theta d\theta \int_0^1 \rho^3 d\rho = \frac{1}{8} \cdot \frac{\pi}{4} \cdot \frac{1}{4} = \frac{\pi}{128} \right]$$