

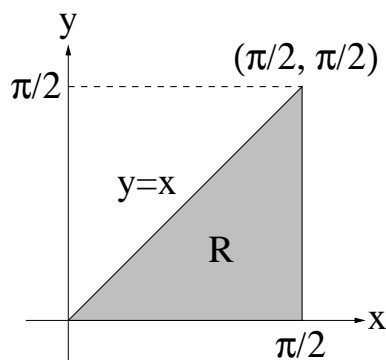
Multiple Integration
Iteration of Double Integrals

Question

Sketch the domain of integration, and calculate the iterated integral for

$$\int_0^{\pi/2} dy \int_y^{\pi/2} \frac{\sin x}{x} dx$$

Answer



$$\begin{aligned} I &= \int_0^{\pi/2} dy \int_y^{\pi/2} \frac{\sin x}{x} dx \\ &= \iint_T \frac{\sin x}{x} dA \\ &= \int_0^{\pi/2} \frac{\sin x}{x} \int_0^x dy \\ &= \int_0^{\pi/2} \sin x dx = 1 \end{aligned}$$