

Simple MC Integration

Use MC to calculate the integrals

$$I_1 = \int_{x^2 < \sin(y), y^2 < \cos(x)} dx dy .$$

and

$$I_2 = \int_{x^2 < \sin(y), y^2 < \cos(x)} dx dy e^r, \quad r = \sqrt{x^2 + y^2} .$$

Make a scatter plot of the contributing integrand range. E-mail your program, the results for the integrals and the scatter plot (pdf file) before the deadline.