Assignment 10. Simpson's and Monte Carlo method Marks 10

Posted on 09.10.2025 @ 2:30 pm and due on 09.10.2025 @ 6:00 pm

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1. Evaluate the following integrals using Midpoint and Simpson's 1/3-rule accurate up to 6 places in decimal. Use the error bound formulae to determine N.

$$\int_1^2 \frac{dx}{x} = 0.69314718, \qquad \int_0^{\pi/2} x \, \cos \, dx = \frac{\pi}{2} - 1$$

2. Use Monte Carlo integration scheme (using your own pRNG) to estimate the integral accurate up to 4 places in decimal

$$\int_{-1}^1 \sin^2 x \, dx$$