M353 9.1 MC (S. Zhang) .

1. (9.1:a1) Find the random numbers x_i and u_i by

$$x_i = 2x_{i-1} \mod 17, \quad u_i = x_i/m, \ x_0 = 3.$$

Approximate $\int_0^1 \sqrt{x}dx$ by the Monte Carlo method with N=5 points.

2. (9.1:a2) Find the random numbers x_i and u_i by

$$x_i = 3x_{i-1} \mod 19, \quad u_i = x_i/m, \ x_0 = 2.$$

Approximate the area of the region

$$0 \le x \le 1, \ y \le \sqrt{x}, \ \text{ and } y \ge 1 - x^2$$

by the Monte Carlo method with N=5 points.