

School Projects:

Pseudoscience – Takes user input of a positive double value (μ). Takes user input of four corresponding special positive double values not equal to one and represents values with w , x , y , and z . Then, determines the exponents, a , b , c , and d , from the de Jager formula, $\{-5, -4, -3, -2, -1, -1/2, -1/3, -1/4, 0, 1/4, 1/3, 1/2, 1, 2, 3, 4, 5\}$, that will approximate μ within the smallest relative error when all combinations of $(w^a)(x^b)(y^c)(z^d)$ are tested.

Monte Carlo Estimation – Estimate the value of π by determining the number of pseudo-random points generated in square $(0.0, 2.0) \times (0.0, 2.0)$ that fall in the circle of radius 1.0 centered at the points $(1.0, 1.0)$.

Password Checker – Checks whether user entered password satisfies the OSU criteria for a valid password. Prints an appropriate message to the given output stream.

Newton Iteration – Compute estimate of the square root of entered double value to within a relative error of 0.01% using Newton Iteration.

Hailstone Series – Generate series that starts with any integer value greater than 0. If the value is even, the next value in the series is the value divided by two; however, if the value is odd, the next value is $3x + 1$. Output the Hailstone Series until it converges to 1.