Lab Assignment (Numerical Integration)

First, you have to make a subroutine or a function to calculate an integral numerically based on the trapezoidal rule. Your input should be a function, an interval and the number of partitions. Second, you also need to make the same for the Simpson's Rule using a 2nd-order polynomial.

1. Compute the trapezoidal approximation for $\int_0^2 \sqrt{x}dx$ using a regular partition with n=4.
2. Use the Simpson's rule to approximate $\int_0^2 \sqrt{x}dx$ using a regular partition with n=4.