ECIV 521 – Homework 2

Due on Monday, February 17, 2025

Annotate your script with information on what different sections of the code do, the meaning of each variable and the units used in the calculations.

Annotate figures and codes so that I can understand what you did.

Write your code in different sections (and annotate the code accordingly), first import the packages that you need, then read the input, do the calculations and at the end (if possible) print the results.

Leave empty lines between sections and instructions. It improves the code readability.

If blackboard does not allow you to upload your .py file, change the file extension to .txt and upload your code as a text file.

You can find help using the book and the following online resources
https://matplotlib.org/3.3.1/tutorials/intermediate/legend_guide.html
https://numpy.org/doc/stable/user/

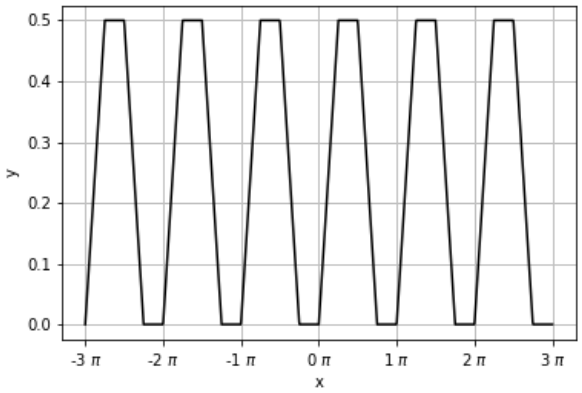
Code 1

Write a function (use *def* and *return*) to compute

$$f(x) = \frac{arcsin(\sin(2\pi x))+\arccos(\cos(2\pi x))}{2\pi}$$

Use this function in an interactive code that plots the function f(x)

You may get something that looks like



Code 2

Write a code to compute the following definite integral with trapezoidal and midpoint methods using vector notation. Compare results and discuss how the result difference vary with the number of intervals n.

$$\int_0^{\pi} \frac{sinx}{x} dx$$