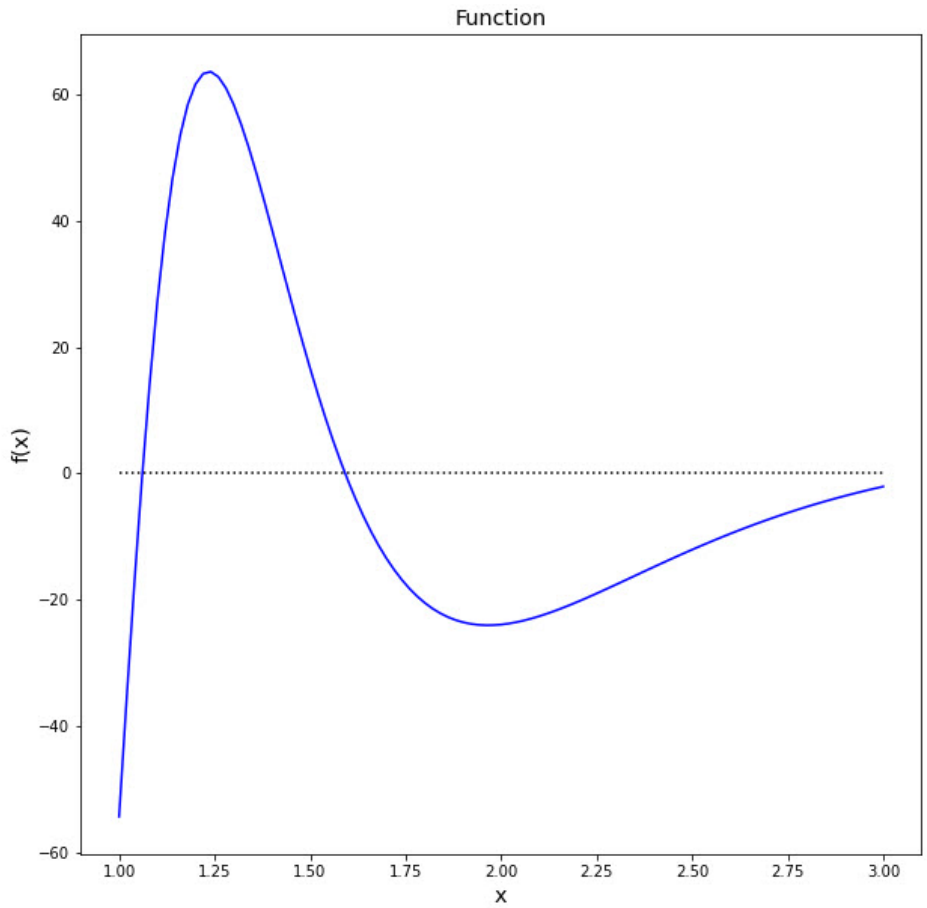
CSc 30100

Assignment due November 1, 2021

Consider the function $f(x) = \frac{100}{x^2} \sin\left(\frac{10}{x}\right)$



Calculate the definite integral of this function,

$$I = \int_{a=1.0}^{b=2.5} f\left(x\right)\, dx$$

for an error bound of 10^{-8} using both

- Composite Simpson's Rule (see Section 4.4 in the text)
- Adaptive Quadrature (see Secton 4.6, esp. Algorithm 4.3)

Include all of your analysis and discussion in an .ipynb file and submit the file through Blackboard. The name of the file you submit should be lastname_firstname_AS04.ipynb.

Do not clear your results after your last run so that I will be able to see your results without rerunning your file.

If you collaborate with anyone on this assignment, be sure to follow the collaboration guidelines in the syllabus including listing with whom you collaborated in your ipynb file.

While collaboration is fine, DO NOT submit exactly the same file as your collaborations. Your code and your discussion must be your own. It is fine if you base your code on pseudocode in the textbook.