

Homework Assignment

Prepare a report on the following problem:

Given a function

$$f(x) = \frac{\sin(x)}{1 + x^2} ,$$

draw the graphs of its first and second derivatives for $x \in [-5, 5]$. By direct inspection of the function values with the resolution $\Delta x = 0.1$ find the point x_0 for which the function $f(x)$ attains its global maximum value in the range $x \in [-5, 5]$.

The report should contain (at least):

- Author's name, matric. card number.
- The problem statement with the formulae for the first and the second derivatives.
- The graph of the function and its derivatives (in single figure).
- The value of x_0 which should also be clearly marked on the function graph.
- The source code of all Octave scripts used for preparing the report.

Important

- Reports should be prepared as PDF files and sent by e-mail to the respective tutor.
- For grading information, hints and additional materials please visit <http://www.15.pk.edu.pl/~putanowr/iten> .