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Assignment # 10

Consider a function $f(x) = \ln x$ which is continuous on interval $[1, 3]$. Use this function to answer the following two problems:

Problem # A: Use composite Newton-Cotes formula to answer the following:

1. find the numerical integration for $m = 3$ (2 Marks).

2. Also compare the error you found with the actual integral (1 mark).

Problem # B: Use closed Newton-Cotes rule for $n = 2$ and answer the following questions:

1. Find the step size h and the nodal the points (1 mark).

2. Find the Lagrange bases and the weight functions (3 marks).

3. Find the numerical integral (2 marks).

4. Finally, compute the actual relative error for the numerical integral (1mark).

Submission of the Assignment # 10:

- Solve all the problems above.

- Prepare a title page including Your Name, Your ID#, Theory Section #.

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- Prepare a single .pdf or .jpg file containing the tile page and the solution pages.

- To submit your assignment solution, visit the Submission Link (Click here). This will take you to a Google Form link.

- Fill up the Google Form link with correct information and upload the file there. You are done.

❮ Previous

Next ❯

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