Assignment # 6

Problem # A : Here we are going to find x by numerical method such that $x \approx \tan x$ by answering the following:

1. [2 marks] Sketch the graphs of $y = x$ and $y = \tan x$ on the same graph/sketch for the first positive value of x, and identify the nearest positive integer interval that contain the intersection of the graphs of $y = x$ and $y = \tan x$.
2. [4 marks] Use Bisection method and the interval found in the previous part to find an approximation to the first positive value of x with $x = \tan x$. (Do 10 iterations).

Problem # B: Consider the function $f(x) = x - \tan x$ with $x \in I = [4, 5]$.

1. [2 marks] Construct a possible $g(x)$ for the above function such that $g(x) \in I$ for $x \in I$.
2. [2 marks] By using $g(x)$ from the previous part and for $x \in [4, 5]$, use fixed point method to determine a solution accurate to within 10^{-4}.

Submission of the Assignment # 6:

- Solve all the problems above.
- Prepare a title page including Your Name, Your ID#, Theory Section #.

- 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.

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