PROBLEM STATEMENT

Starting from the momentum theory result for the inflow ratio at the rotor disk in forward flight, program numerical solutions to this inflow equation using both the fixed-point iterative method and the Newton-Raphson method for disk angle of attack (α) of 2◦, μ = 0.2 and CT = 0.006. Plot the % error for each iteration step for both the methods vs iteration number on the same graph. Describe all the steps and state the convergence criteria used. Check if final answer is affected by choice of initial guess for the inflow ratio on the numerical solution. For the given CT and α plot λ vs μ using one of the methods and compare it with the approximate solution of λ valid for $\mu > 0.2$ which is $\lambda = \mu \tan(\alpha) + CT/2\mu$ by plotting it on the same graph using different line types.