Assignment-9

Problem-1: Use the finite difference method and the shooting method to solve the boundary value problem (Example 22.1 of Chapra and Canale)

$$\frac{d^2T}{dx^2} + h'(T_a - T) = 0 \tag{1}$$

for a $10m$ rod with $h' = 0.01m^{-2}$(the heat transfer coefficient), $T_a = 20$℃(sorrounding temperature), and the boundary conditions

$$T(0) = 40℃, \qquad T(10) = 200℃.$$

Consider atleast 10 intermediate points for your solution.

Prepare a detailed note with figures on this and submit the hardcopy in the lab.