$\dot{q}'' =$ $-x$ direction

a) Biot Number $= \frac{R_{cond,y}}{R_{surr}}$ $\qquad A_c = w \cdot L$

$= \frac{R_{cond,y}}{R_{conv}}$

$R_{cond,y} = \frac{th}{2kwL}$ $\qquad R_{conv} = \frac{1}{\bar{h}_\infty wL}$

$\rightarrow$ Biot $= \frac{\bar{h}_\infty a}{2 \cdot k}$

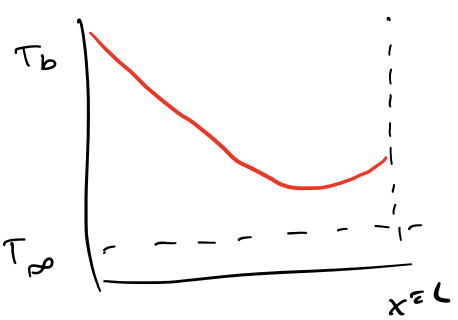
b)

$R_{rad} = \frac{1}{\sigma \varepsilon A_s (T_H^2 + T_C^2)(T_H + T_C)}$

$R_{surr} = \left(\frac{1}{R_{conv}} + \frac{1}{R_{rad}}\right)^{-1} = \left(A_s \bar{h}_\infty + A_s \sigma \varepsilon A_s 4 \bar{T}^3\right)$

$\text{Biot} = \frac{a\left(A_s \bar{h}_\infty + A_s \sigma \varepsilon 4 \bar{T}^3\right)}{2k A_s}$

c)



d)


x = L