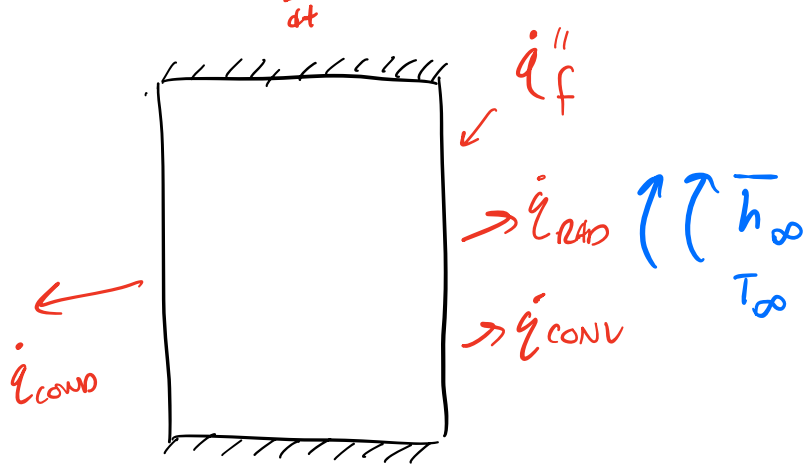
IN + ~~GEN~~ = OUT + ~~DES~~ + ~~ST~~

$\frac{dU}{dt} = 0$



a)

$$\dot{q}_{RAD} = \sigma \varepsilon A_s (T_s^4 - T_\infty^4)$$

$$\dot{q}_{CONV} = h A_s (T_s - T_\infty)$$

$$\dot{q}_{COND} = -k A \frac{dT}{dx}$$

$$= -kA (T_{IN} - T_s)$$

E-BAL: $\dot{q}''_f = \dot{q}_{COND} + \dot{q}_{RAD} + \dot{q}_{CONV}$

b) $T_s = 50°C = 323.15K$

c) $\dot{q}''_{SUN}$ REQ'D TO MAINTAIN $T_s = 50°C = 323.15K$