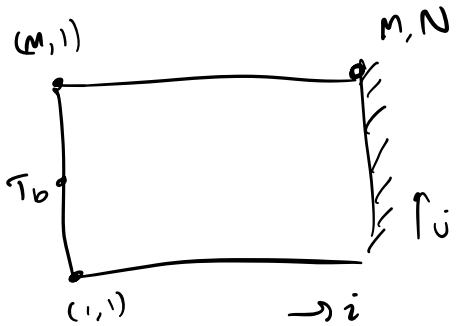
a) $Bi = \frac{th \cdot \bar{h}}{k} = 0.1667$, > 0.1, CANNOT MODEL AS 1D

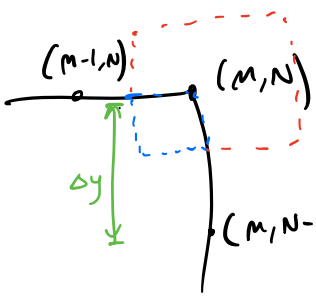
b) Left boundary:



$T[i,j] = T_b$

$i = 1, \quad j = 1:N$

Corner - upper right:



SMALLER CV!

CV area: $\frac{\Delta x \cdot w}{2}, \quad \frac{\Delta y \cdot w}{2}$

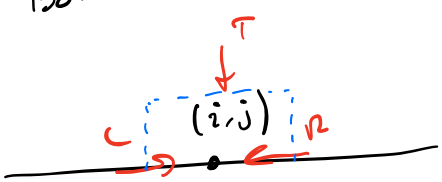
$$\dot{q}_L = k \frac{\Delta y \cdot w}{2} \left(\frac{T[M-1,N] - T[M,N]}{dx} \right)$$

$k \quad A_c \quad \frac{dT}{dx}$

$$\dot{q}_{conv} = \bar{h} \frac{\Delta x \cdot w}{2} \left(T_{inf} - T[M,N] \right)$$

$$\dot{q}_{bot} = k \frac{\Delta x \cdot w}{2 \Delta y} \left(T[M,N-1] - T[M,N] \right)$$

BOTTOM BOUNDARY:



$$\dot{q}_L = k \frac{dy \cdot w}{2 dx} \left(T[i-1,1] - T[i,1] \right)$$

$$\dot{q}_R = k \frac{dy \cdot w}{2 dx} \left(T[i+1,1] - T[i,1] \right)$$

$$\dot{q}_{Top} = k \frac{dx \cdot w}{dy} \left(T[i,2] - T[i,1] \right)$$