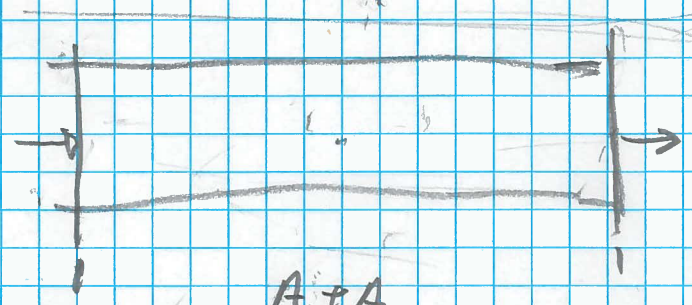
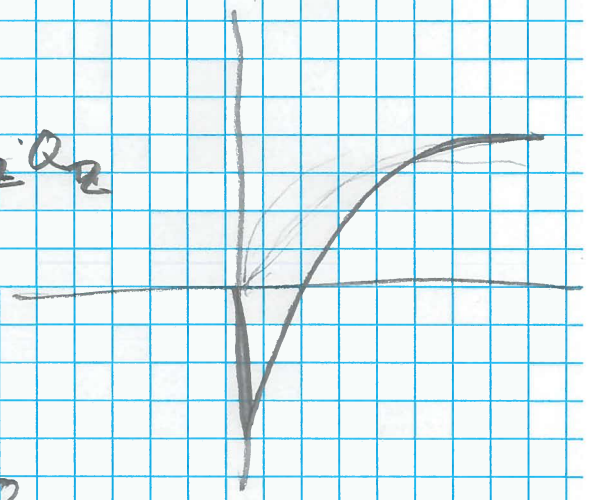
$$C\frac{dQ}{\partial x} + C\frac{\partial A}{\partial t} = C_q$$

$$\frac{dC\cdot Q}{\partial x} + \frac{dCA}{dt} = C_i q_i$$

$$C\frac{dQ}{dx} + Q\frac{dC}{dx} + C\frac{dA}{dt} + A\frac{\partial C}{\partial t} = C_i \cdot q$$

$$Q\frac{dC}{\partial x} + A\frac{\partial C}{\partial t} = (C_i - C)\,q$$





$C_q Q_1$ $\quad \frac{A_1+A_2}{2}$ $\quad C_2 Q_2$

$\frac{C_1+C_2}{2}$

$$\frac{A_1+A_2}{2}\frac{d(C_1+C_2)}{dt\,2} = C_1Q_1 - C_2Q_2$$

$$\frac{1}{2}A\cdot\frac{dC_1}{dt} + \frac{1}{2}A\frac{dC_2}{dt} = C_1Q - C_2Q$$

$$\frac{1}{2}A\,sC_1 + \frac{1}{2}A\,sC_2 = C_1Q - C_2Q$$

$$\left(\frac{1}{2}AS + Q\right)C_2 = \left(\frac{1}{2}AS\frac{C_1}{C_2} + Q\right)C_1$$

$$\frac{\frac{1}{2}AS\frac{C_1}{C_2} + Q}{\frac{1}{2}AS + Q}$$