We compare

\[ J_{H_2O} = -C_w L_p \Delta p \quad \text{with} \]

\[ j = \sigma E c \quad \frac{\partial c}{\partial x} \]

and see that \( C_w L_p \) plays the role of \( 1/3 \).

So we guess that

\[ D \frac{\partial n}{\partial z} = \hbar T \]

becomes

\[ P_w (C_w L_p)^{-1} = \hbar T \]

which makes sense in that we expect

\[ P_w \Delta c = C_w L_p \Delta p \]

\[ \frac{P_w}{C_w L_p} \frac{N}{V} = \Delta p \]

\[ \frac{P_w N}{C_w L_p} = \Delta p V = N \Delta \kappa T \]
\( P_w (c_w L_p)^{-1} = k T \).

(a) \( L_p = \frac{P_w}{c_w k T} \)

find \( L_p \).