Ex 7. Differential heating of the water surface.
Consider a thin layer of fluid of constant (eddy) viscosity. The bottom \( y = 0 \) is insulated while the top \( (y = h) \) is kept at the variable temperature

\[ T(x, h) = T_o \cos \frac{2\pi x}{L} \]

where \( 2\pi h/L \ll 1 \). Assume that the temperature amplitude \( T_o \) is small so that fluid velocity is very low. Find \( T(x, y) \) in the layer and the induced current within a spatial period. Discuss the result.