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Advanced Convection
HW1

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1 PROBLEM 1

When $u_2 = 0$ and the flow is entirely in the x-direction, the governing equations can be simplified as follows

$$u_1 \frac{\partial u_1}{\partial x_1} + \frac{1}{\rho} \frac{\partial p}{\partial x_1} = 0 \tag{1.1}$$

$$\frac{\partial p}{\partial x_2} = 0 \tag{1.2}$$

where the body-force are neglected.
It can be concluded that pressure doesn't change in y-direction when x is fixed.
Also, pressure gradient in x-direction is the driven force of the fluids.

2 PROBLEM 2

3 PROBLEM 3