

$$\begin{cases} u(x, y) = U_0 \sin\left(2\pi \frac{x}{L}\right) \cos\left(2\pi \frac{y}{L}\right) \\ v(x, y) = -U_0 \cos\left(2\pi \frac{x}{L}\right) \sin\left(2\pi \frac{y}{L}\right) \\ p(x, y) = \frac{\rho U_0^2}{4} \left[\cos\left(4\pi \frac{x}{L}\right) + \cos\left(4\pi \frac{y}{L}\right) \right] \end{cases}$$