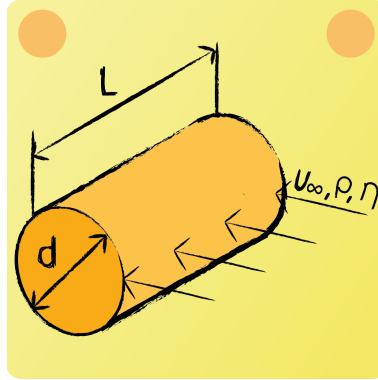# Lecture 6 Question 2

An ideal gas is flowing over a flat plate. Give an expression for the distance where the transition from laminar to turbulent flow will occur.

The characteristic length in this case is the diameter $d = \frac{1}{4}L$ of the cylinder, thus:

$$\mathrm{Re_d} = \frac{u_\infty \cdot \rho \cdot d}{\eta} = \frac{u_\infty \cdot \rho \cdot L}{4 \cdot \eta}$$