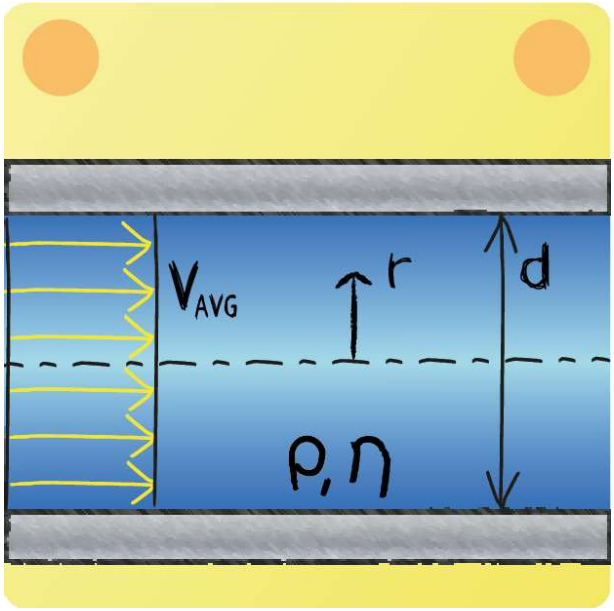
Lecture 7 - Question 2



Consider internal pipe flow of an ideal gas, determine the hydrodynamic entry length.

$$\mathrm{Re_d} = \frac{\rho \cdot V_{\mathrm{avg}} \cdot d}{\eta} = 1500$$

Thus we are dealing with laminar flow, and for that reason the hydrodynamic entry length can be described as:

$$L_{\mathrm{h}} \approx 0.05 \cdot \mathrm{Re_d} \cdot d \approx 1.5 \text{ m}$$