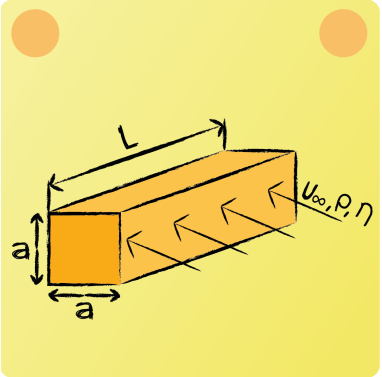
Lecture 6 Question 2.2

Give an expression for the Reynolds number Re, for transverse flow around a square.



The characteristic length/diameter in this case is the height of the square $d = a = \frac{1}{3}L$ of the cylinder, thus:

$$\mathrm{Re_d} = \frac{u_\infty \cdot \rho \cdot d}{\eta} = \frac{u_\infty \cdot \rho \cdot L}{3 \cdot \eta}$$