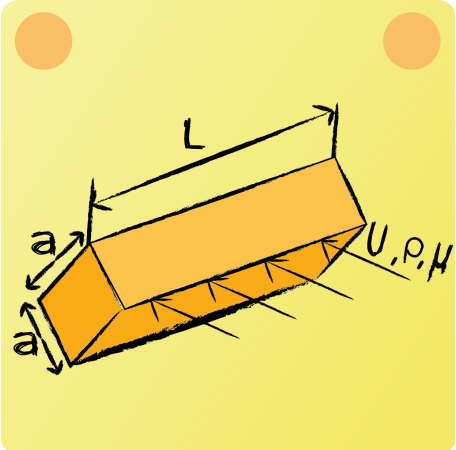
Lecture 03 - Reynolds 05

Give an expression for the Reynolds number Re, in terms of the given variables.



Reynolds number:

$$\mathrm{Re} = \frac{uL_\mathrm{c}}{\nu}$$

Where the kinematic viscosity can be expressed as:

$$\nu = \frac{\rho}{\mu}$$

And the length of the sketched situation:

$$L_\mathrm{c} = 2 \cdot sin\left(45^\mathrm{o}\right) \cdot a = \frac{2}{\sqrt{2}} \cdot a = \sqrt{2} \cdot a$$

So:

$$\mathrm{Re} = \frac{u\rho\sqrt{2} \cdot a}{\mu}$$