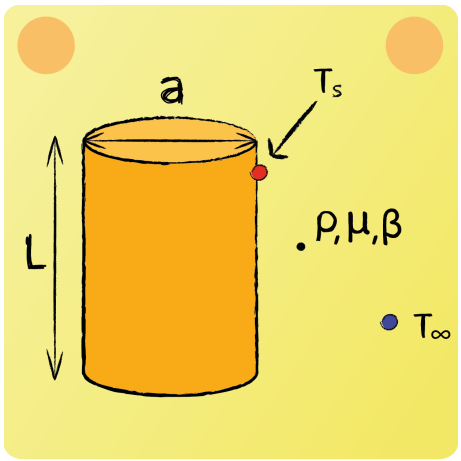
Lecture 04 - Grashof 04

Give an expression for the Grashof number Gr, in terms of the given variables.



Grashof number:

$$\mathrm{Gr} = \frac{g\beta\left(T_\mathrm{s} - T_\infty\right)L_\mathrm{c}^3}{\nu^2}$$

Where the kinematic viscosity can be expressed as:

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

And the characteristic length for the sketched situation:

$$L_\mathrm{c} = L$$

So:

$$\mathrm{Gr} = \frac{\rho^2 g\beta\left(T_\mathrm{s} - T_\infty\right)L^3}{\mu^2}$$