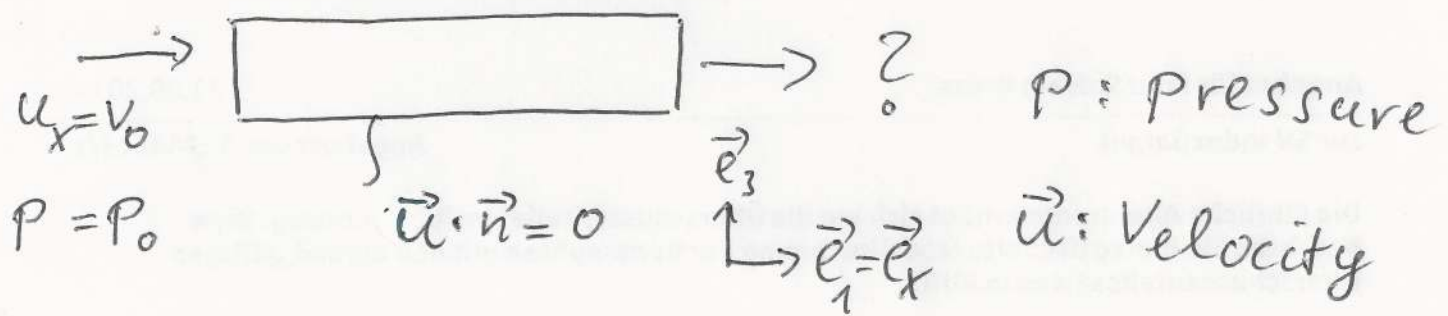


# Problem: 1-dim. pipe flow



Keywords in Elmer:

Flow Model = Stokes

Viscosity =  $1E-15$

Density = 1000

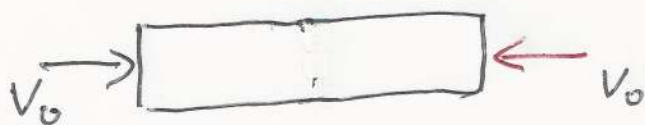
Compressibility Model = Incompressible

Equations in 1-dim:

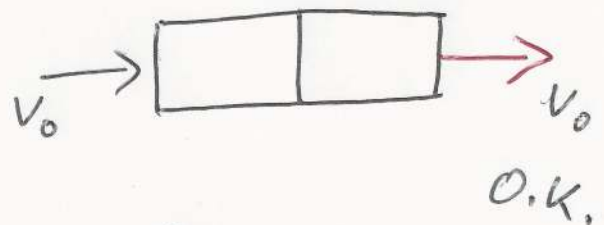
$$(\nabla p = 0) \frac{\partial p}{\partial x} = 0$$

$$(\nabla \cdot \vec{u} = 0) \frac{\partial u_1}{\partial x} = 0$$

Result after ELMER calculation depends of Mesh:



one element  
also three elements



two elements  
also four elements

direction of Velocity vector switches from element to element ( $\nabla \cdot \vec{u} \neq 0$ )

