

28/02/2019
1

WED

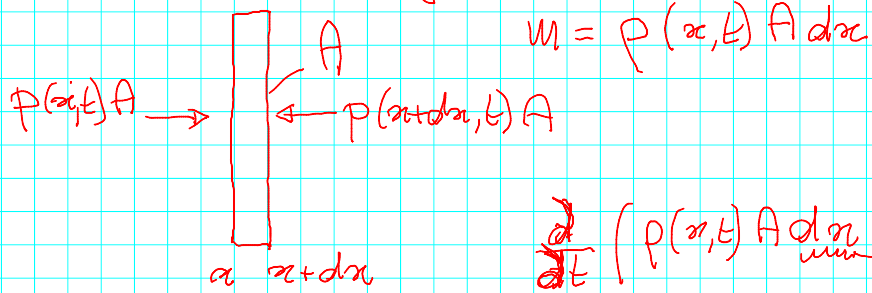
$$14^{15} - 16^{15} \rightarrow 15^{15} \times 17^{15} (18^{15})$$

THU

$$16^{15} - 18^{15}$$

5 st and FC course

2

→ velocity $v(x, t)$ 

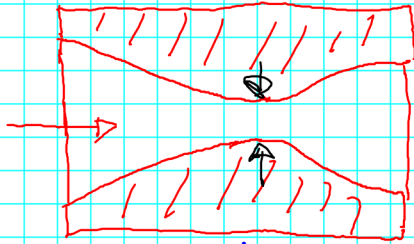
mass flow rate

$$\frac{\partial \rho A v}{\partial t} + \frac{\partial \rho A}{\partial x} = 0$$

$$\frac{d}{dt} (\rho(x, t) A dx v(x, t)) = (\rho(x) - \rho(x+dx)) A$$

$$\frac{\partial w}{\partial t} + \frac{\partial \rho A}{\partial x} = 0$$

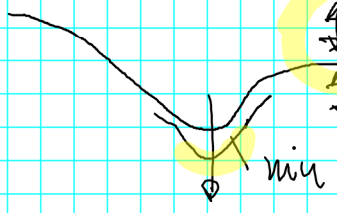
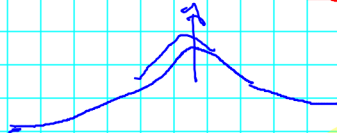
3



$$\frac{1}{2} \rho v^2 + \frac{p}{\rho} + \cancel{\frac{\rho}{2} \frac{dv}{dt}}$$

velocity

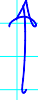
pressure



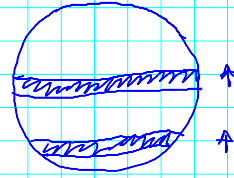
pressure recovery

min or "vena contraction" pressure

$$q_r = C_r \phi(x) \sqrt{p \Delta \phi}$$

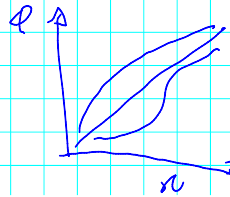


opening = $K \sigma$ (linear value)

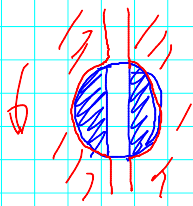


$$\phi(0) = 0$$

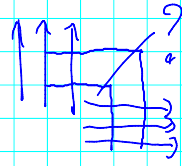
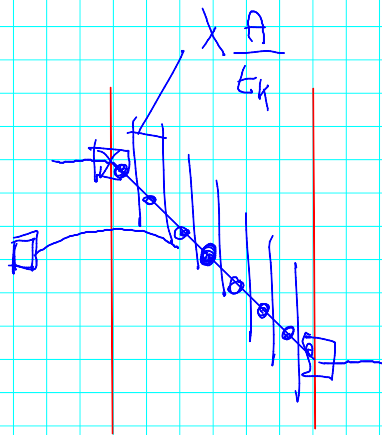
$$\phi(1) = 1$$



5



$$c \frac{\partial T}{\partial t} + \frac{\partial^2 \phi}{\partial x^2} = 0$$



6

