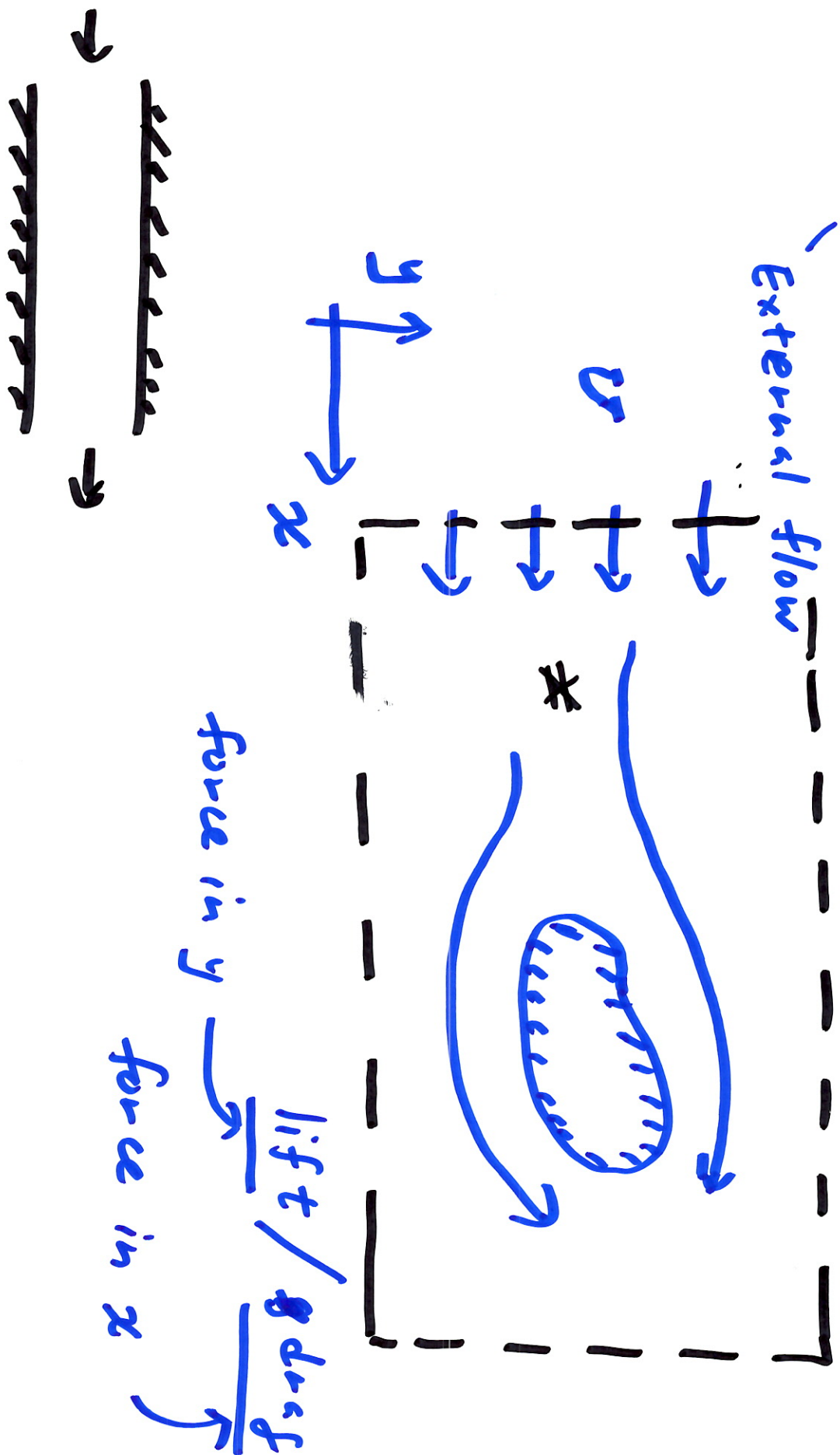
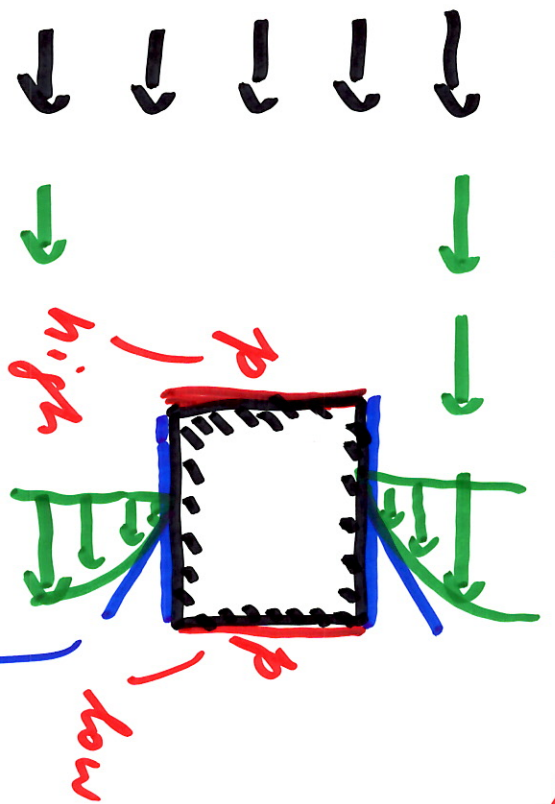


Lecture 23 (?)

\* Project 3 released, due Monday, Nov 29



# 2 Contributions to lift or drag



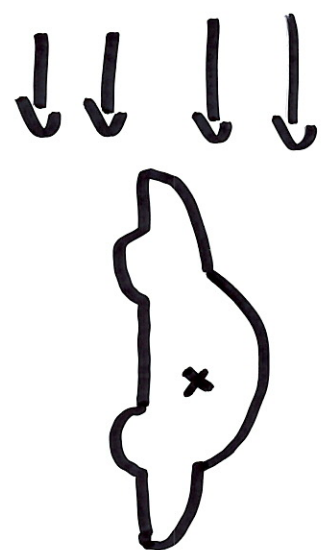
$$\int_{sfc} \mu \frac{\partial u}{\partial y}$$

pressure term  
viscous  
 (shear stresses)

$$\int_{sfc} p_{LEFT} - p_{RIGHT}$$

$$p, u$$

Fluent has built-in functions to compute the forces!

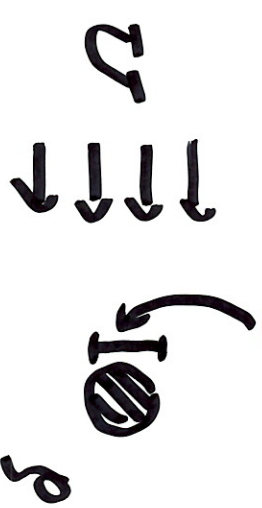


Lift force (N)  $F_L$  } All tasks  
 Drag force  $F_D$  } in Proj 3

Lift coefficient  $C_L$   
 Drag coefficient  $C_D$   
 nondimensional

$$C_D = \frac{F_D}{\frac{1}{2} \rho v^2 \cdot A}$$

*reference values* (arrow pointing to A)



(Only for background knowledge)



Fluent 2-D : \* all vars in the 3rd dim are un:for

\* depth in 3rd dim  
 Ex: Proj 3  
 Task 1



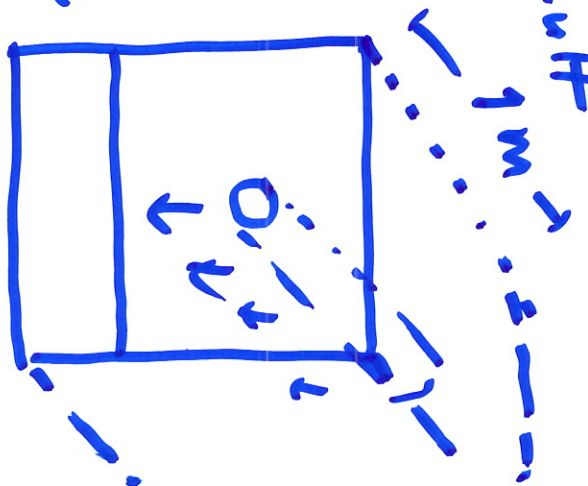
p, u, etc

Lift force

(N)

Can change  
 if in  
 "Reference Values"

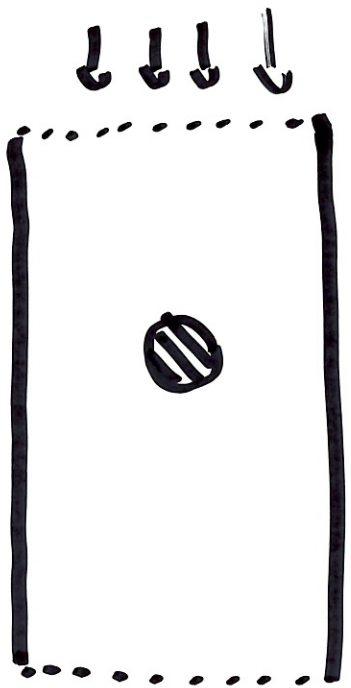
but we will  
 use default



Proj 2  
 Task 2

# Geometry

Proj 3  
Task 1

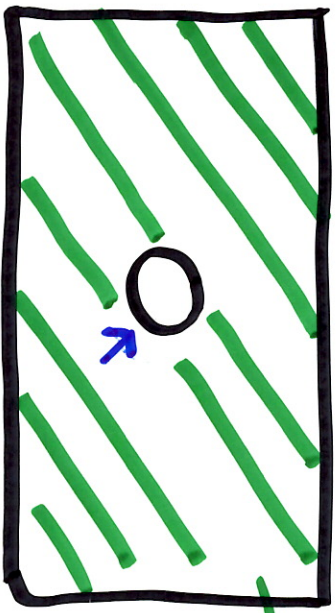


interior of cylinder

the outside domain comp.

DO NOT want to fill it with "solid" bodies

Fluent will put mesh inside it ← waste!  
← waste!



→ fluid body

comp. dom.:-

If all sketch with DM

surface from sketch

( If sketch + edges "boolean" )

