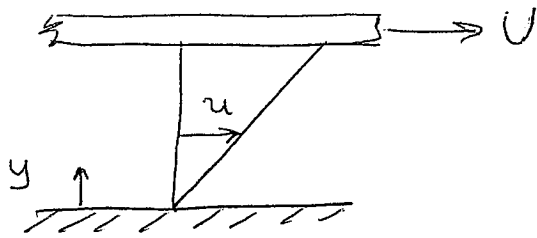


SHEAR STRESS (τ) IN FLUIDS

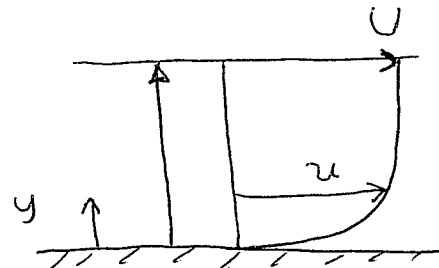


$$\tau = \mu \frac{du}{dy}$$

SINCE u IS
A LINEAR FN
OF y ,

$$\frac{du}{dy} = \text{constant}$$

$\tau = \text{constant}$
throughout fluid



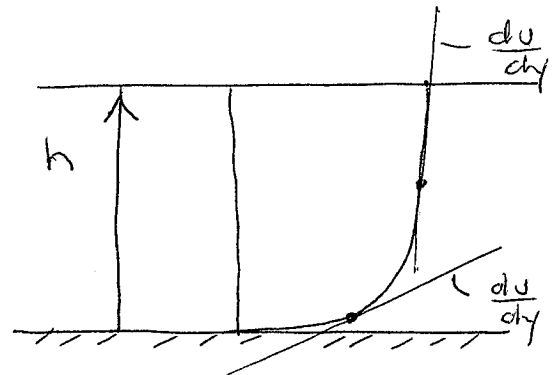
$$\frac{u}{U} = \frac{2y}{h} - \frac{y^2}{h^2}$$

$$\tau = \mu \frac{du}{dy}$$

$$= \mu \frac{d}{dy} \left[\frac{2Uy}{h} - \frac{Uy^2}{h^2} \right]$$

$$\tau = \mu \left[\frac{2U}{h} - \frac{2Uy}{h^2} \right]$$

$\tau = \text{function of } y! \text{ Not constant}$



τ is proportional to $\frac{du}{dy}$.

On right, τ is a maximum at the lower plane. τ is responsible for movement of sediment along streambeds.