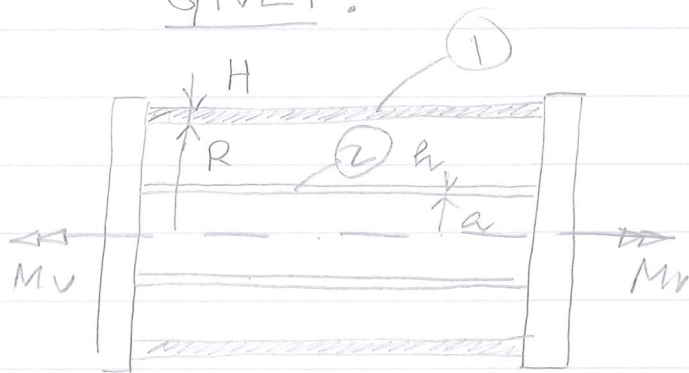


2.6.25

GIVET:

Material  
är elastiskt-  
idealplastiskt

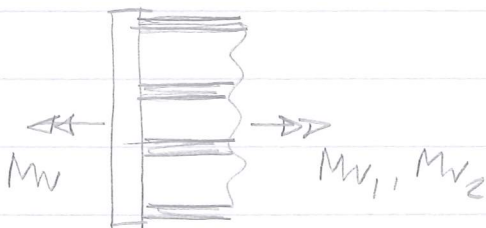
$G, \tau_s$



sökt: Flytlastförhöjningen

LÖSNING:

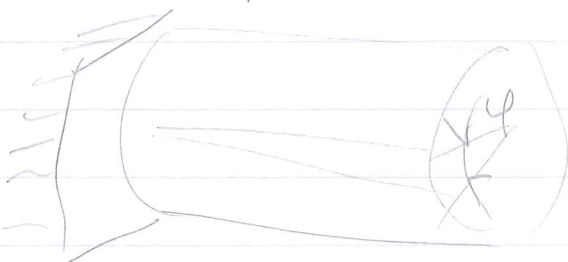
1-snit och gmv



$$M_v = M_{v1} + M_{v2} \quad (1)$$

STATISKT  
OBESTÄMT (2 obek  
1 ekv)

2- Deformations samband.



$$\varphi = \varphi_1 = \varphi_2$$

3- Förvridningsvinkeln

$$\varphi_1 = \frac{M_{v1} L_1}{G K_1} \left\{ \begin{array}{l} M_{v1} = ? \\ L_1 = L \\ K_1 = 2\pi R^3 H \end{array} \right\} \quad \varphi_1 = \frac{M_v L}{G 2\pi R^3 H}$$

↑  
tunnväggigt rör

$$\varphi_2 = \frac{M_{v2} L_2}{G k_2} \left\{ \begin{array}{l} M_{v2} = M_v - M_{v1} \\ L_2 = L \\ k_2 = 2\pi a^3 h \end{array} \right\} \varphi_2 = \frac{(M_v - M_{v1}) L}{G 2\pi a^3 h}$$

$$\varphi_1 = \varphi_2 \Rightarrow \frac{M_{v1} L}{G 2\pi R^3 H} = \frac{(M_v - M_{v1}) L}{G 2\pi a^3 h}$$

$$a^3 h M_{v1} = R^3 H (M_v - M_{v1})$$

$$\left\{ \begin{array}{l} M_{v1} = \left( \frac{R^3 H}{a^3 h + R^3 H} \right) M_v \quad (1) \\ M_{v2} = \left( \frac{a^3 h}{a^3 h + R^3 H} \right) M_v \end{array} \right.$$

#### 4.- Skjuvspänningen

$$\tau_{max1} = \frac{M_{v1}}{W_1} = \frac{R M_v}{(a^3 h + R^3 H) 2\pi}$$

↑  
tunnväggit rör.

$$\tau_{max2} = \frac{M_{v2}}{W_1} = \frac{a M_v}{(a^3 h + R^3 H) 2\pi}$$

Eftersom

$$R > a$$

$$\tau_{max1} > \tau_{max2}$$

① börjar  
placera  
först.

$$\tau_{max1} = \tau_s = \frac{R M_s}{(a^3 h + R^3 H) 2\pi}$$

↑  
 $M_v = M_{vs}$

$$\underline{\underline{M_s = \frac{(a^3 h + R^3 H) 2\pi \zeta_s}{R}}}$$

$M_f \Rightarrow$  vid fullplastisering

$$M_f = M_{vf1} + M_{vf2} \quad (\text{enligt (1)})$$

$$M_f = 2\pi R^2 H \zeta_s + 2\pi a^2 h \zeta_s = 2\pi (R^2 H + a^2 h) \zeta_s$$

$$\underline{\underline{\beta = \frac{M_f - M_s}{M_s} = \frac{a^2 R h - a^3 h}{(a^3 h + R^3 H)} = \frac{a^2 h (R - a)}{a^3 h + R^3 H}}}$$