

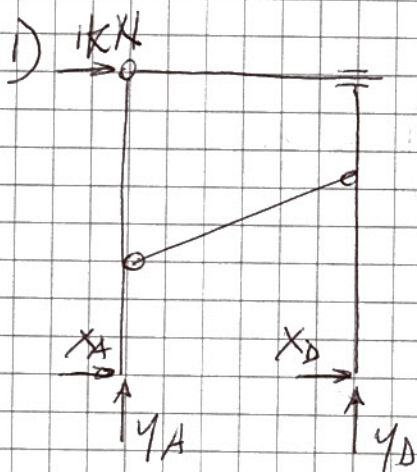
$$= \left(7,5 \cdot 10^{-5} + \frac{0,0045}{A_{BE}} \right) \text{ mm/N}$$

5

$$-1,4 + 400 A_{BE} \left(7,5 \cdot 10^{-5} + \frac{0,0045}{A_{BE}} \right) = 2$$

$$-1,4 + 0,03 A_{BE} + 1,8 = 2$$

$$A_{BE} = \frac{1,6}{0,03} = 53,3 \text{ mm}^2$$



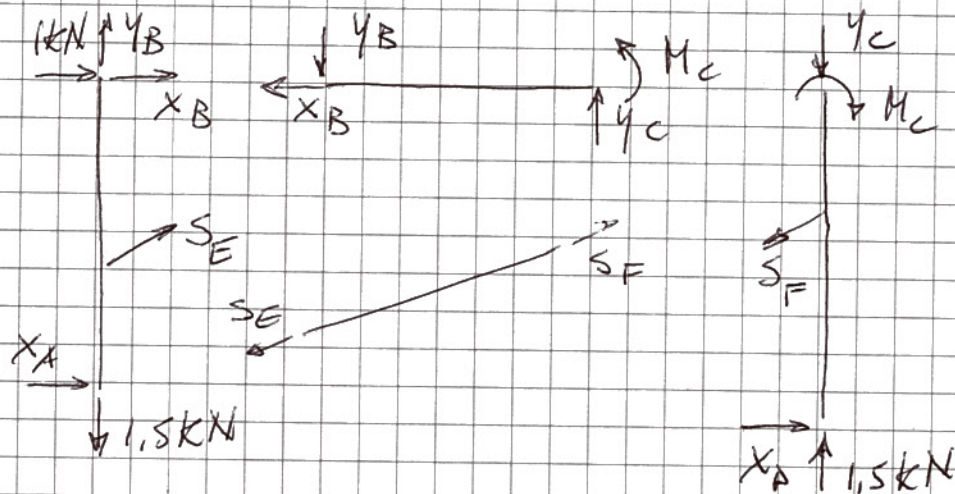
Eq. globale

$$(M_A) \quad Y_D \cdot 1m - 1,5 \text{ kNm} = 0$$

$$\rightarrow Y_D = 1,5 \text{ kN}$$

$$(Y) \quad Y_A + Y_D = 0 \rightarrow Y_A = -1,5 \text{ kN}$$

$$(X) \quad X_A + X_D + 1 \text{ kN} = 0$$



Eq. BC

$$(X) \quad X_B = 0$$

$$(Y) \quad -Y_B + Y_C = 0$$

$$\rightarrow Y_C = 3 \text{ kN}$$

$$(M_C) \quad M_C + Y_B \cdot 1m = 0$$

$$\rightarrow M_C = -3 \text{ kNm}$$

Eq. AB

$$(M_A) \quad -S_E \frac{1}{\sqrt{1+0,5^2}} \cdot 0,5m - 1,5 \text{ kNm} = 0$$

$$\rightarrow S_E = -3,35 \text{ kN}$$

$$(X) \quad X_A + S_E \frac{1}{\sqrt{1+0,5^2}} + 1 \text{ kN} = 0$$

$$\rightarrow X_A = 2 \text{ kN} \rightarrow X_D = -3$$

$$(Y) \quad Y_B + S_E \frac{0,5}{\sqrt{1+0,5^2}} - 1,5 \text{ kN} = 0$$

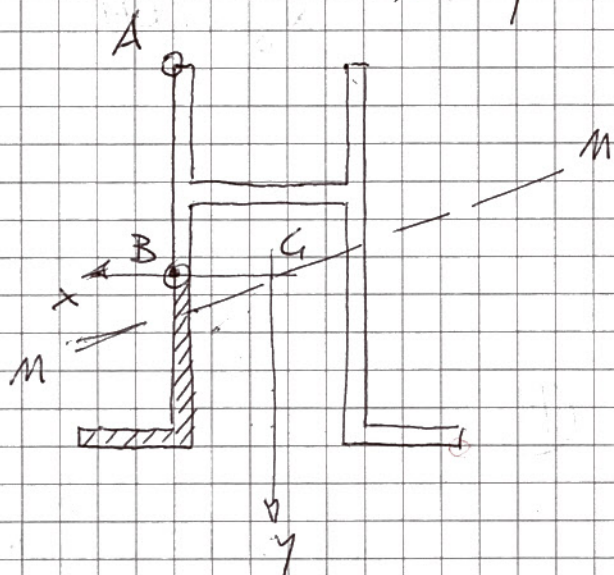
$$\rightarrow Y_B = 3 \text{ kN}$$

Eq. EF

$$S_F = S_E$$

2) $J_y = 8.996 \cdot 10^5 \text{ mm}^4$ (v. altra versione)

d.n. $y = \frac{M_y}{M_x} \frac{J_x}{J_y} x = \frac{5 \cdot 10^5}{2 \cdot 10^6} \frac{1.411 \cdot 10^6}{8.996 \cdot 10^5} x = 0.39x$



$A = (25, -55.8)$

$\sigma_{z_{\max}} = \frac{M_x}{J_x} y_A - \frac{M_y}{J_y} x_A$
 $= -93 \text{ MPa}$

$\sigma_{z_0} = \frac{3 M_z}{\sum a_i b_i^2} = 20.7 \text{ MPa}$ (v. altra v.)

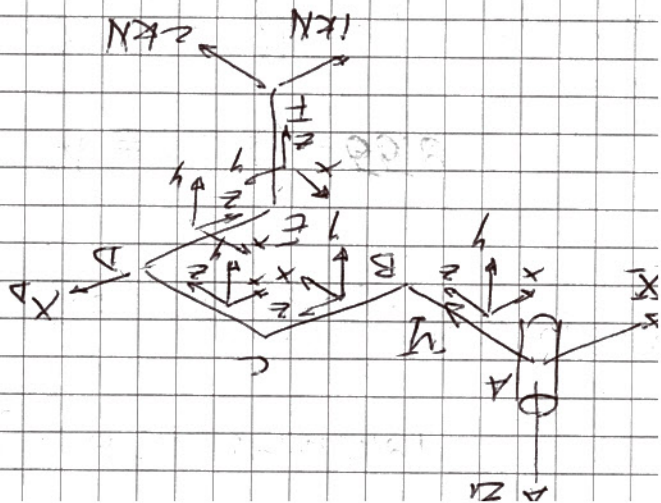
$\sigma_{z_{y_{\max}}} = \sigma_{z_{y_B}} = \frac{T_y S_x^*}{J_x b} = \frac{5000 \cdot (30 \cdot 44.2^2 / 2 - 25 \cdot 39.2^2 / 2)}{1.411 \cdot 10^6 \cdot 5}$
 $= 7.15 \text{ MPa}$

$\sigma_{\max} = 27.8 \text{ MPa}$

σ_{eqmax} in pross. di A $\rightarrow \sigma_{z_{\max}}, \sigma_{z_0}$

$\sigma_{\text{eqmax}} = \sqrt{93^2 + 4 \cdot 20.7^2} = 102 \text{ MPa}$

$csic = \frac{\sigma_{\text{amm}}}{\sigma_{\text{eqmax}}} = \frac{300}{102} = 2.95$

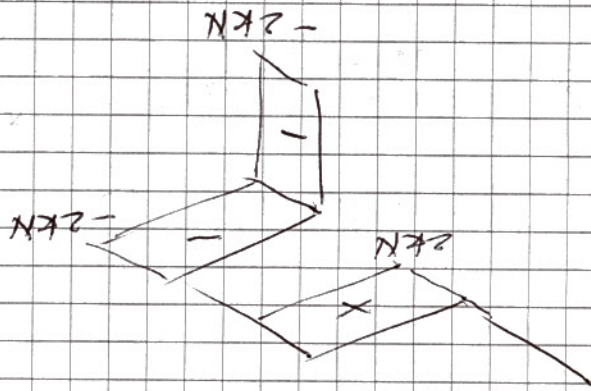


$$(M_z)$$

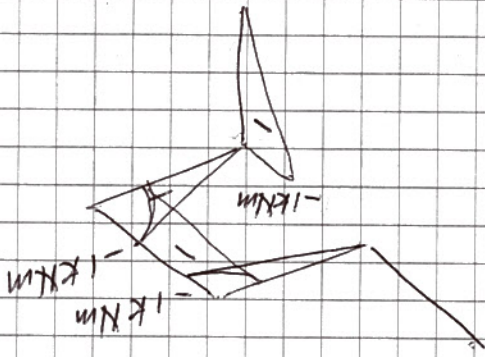
$$x_D \cdot m - 1kNm = 0$$

$$x_D = 1kN$$

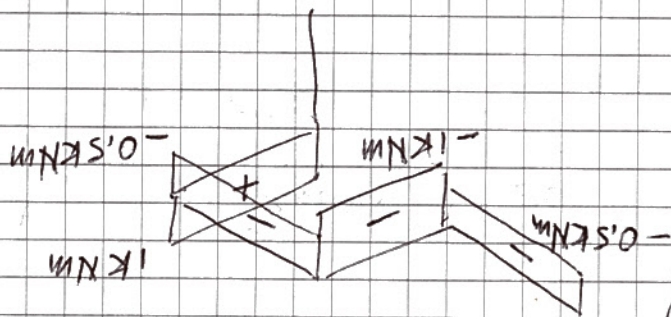
(x)



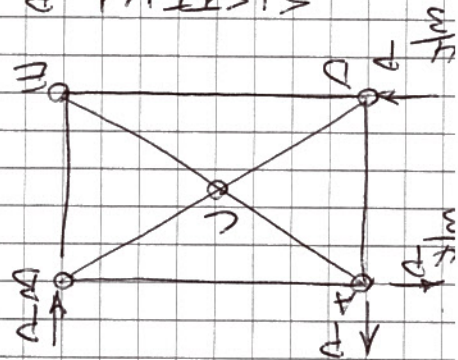
(M_y)



(z)

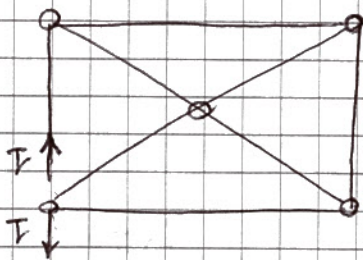


SISTEMA P



+ X₁

SISTEMA I



V. altra versione
con segno opposto

NODO E $N_{CE} = N_{DE} = 0$

NODO B $N_{CB} = -5P$
 $N_{AB} = \frac{4}{3}P$

NODO C $N_{AC} = 0$
 $N_{CD} = -\frac{5}{3}P$