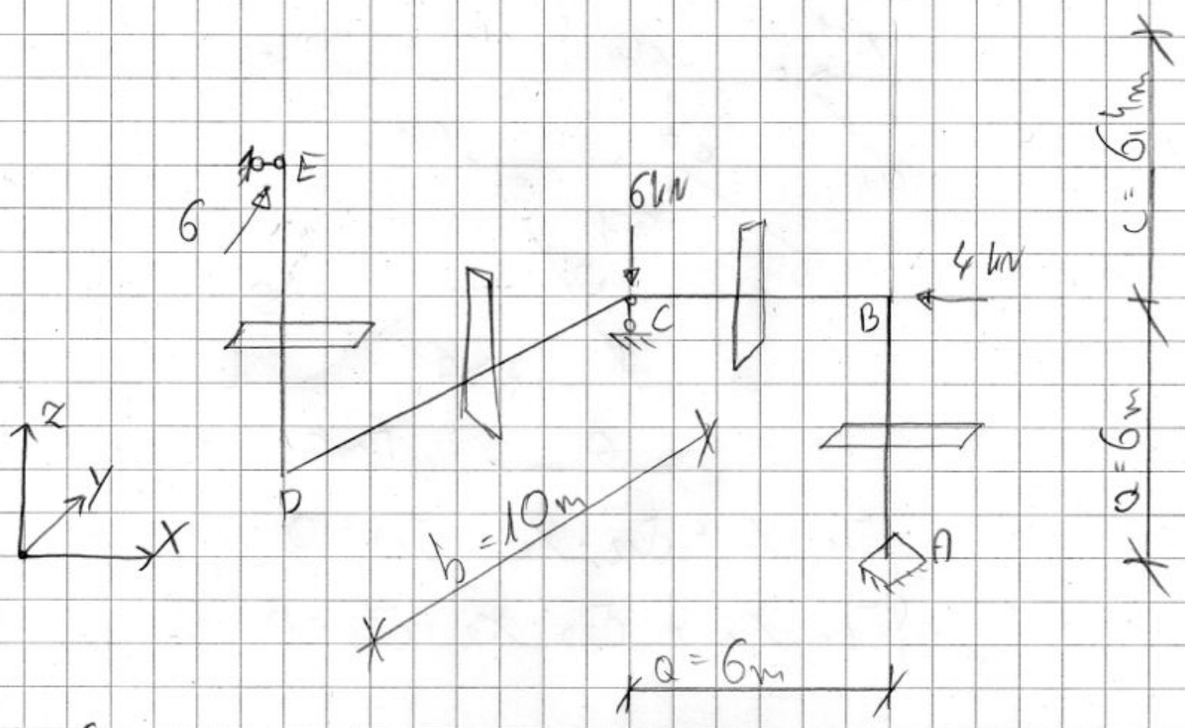
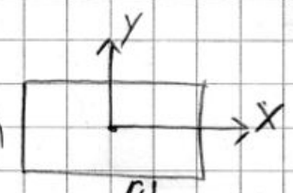
$a = 6m$; $b = 10m$; $c = 6,4m$; $h_1 = 36cm$; $P_1 = 6kN$; $P_2 = 6kN$
$P_3 = 4kN$; $E = 200GPa$; $\nu = 0,3$; $h_1/h_2 = 6$; $G = 76,92GPa$



$h_1/h_2 = 6 \rightarrow h_1 = 4h_2 = 4h$

1 Obliczenie momentów bezwładności

AB

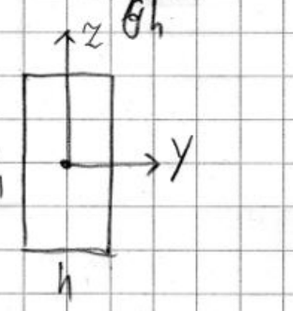


$$J_x = \frac{6h \cdot h^3}{12} = 0,5h^4$$

$$J_y = \frac{h \cdot 6h^3}{12} = 18h^4$$

$$J_s = 0,2929 \cdot 6h \cdot h^3 = 1,754\,h^4$$

BC

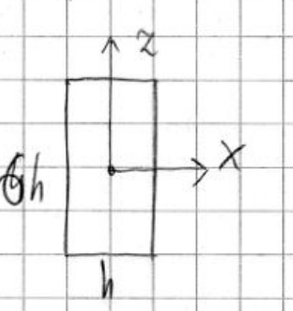


$J_x = 18h^4$

$J_z = 0,5h^4$

$J_s = 1,754\,h^4$

CD

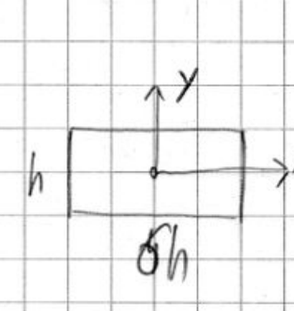


$J_x = 18h^4$

$J_z = 0,5h^4$

$J_s = 1,754\,h^4$

DE



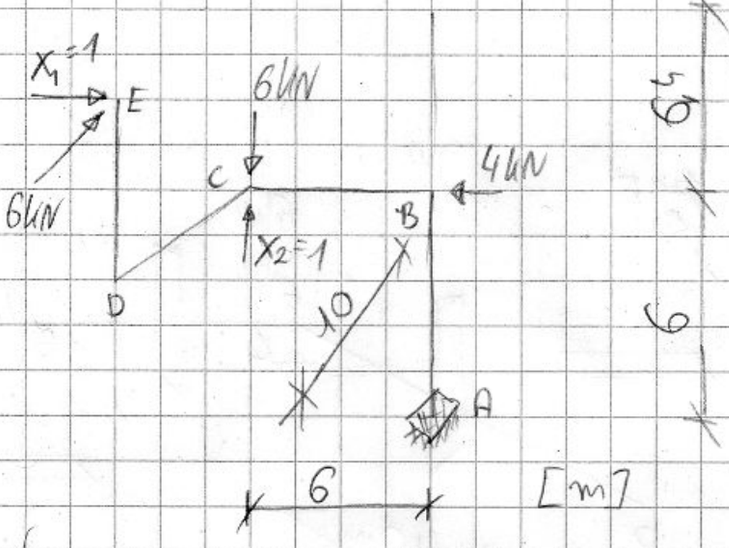
$J_x = 0,5h^4$

$J_y = 18h^4$

$J_s = 1,754\,h^4$

2. SSN; układ podstawowy i układ zastępczy

$$SSN = w - 6t = 8 - 6 \cdot 1 = 2$$

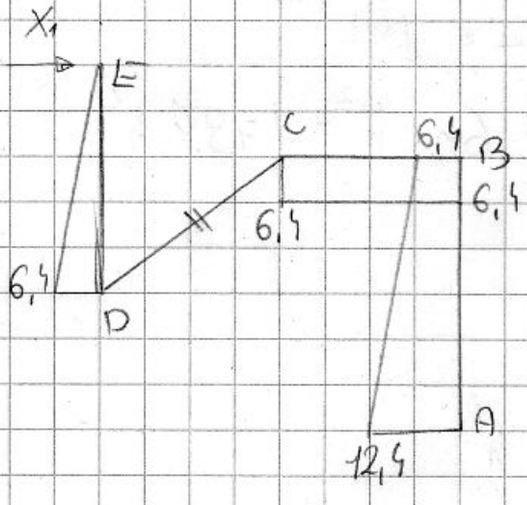


$$\begin{cases} \delta_{11} \cdot X_1 + \delta_{12} \cdot X_2 + \delta_{1p} = 0 \\ \delta_{21} \cdot X_1 + \delta_{22} \cdot X_2 + \delta_{2p} = 0 \end{cases}$$

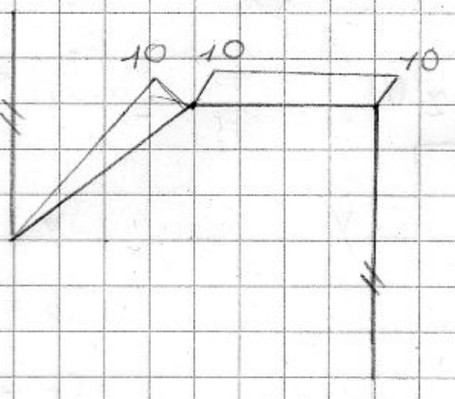
3. Obliczenie przemieszczeń

Stan $X_1 = 1$; $M_x = 0$

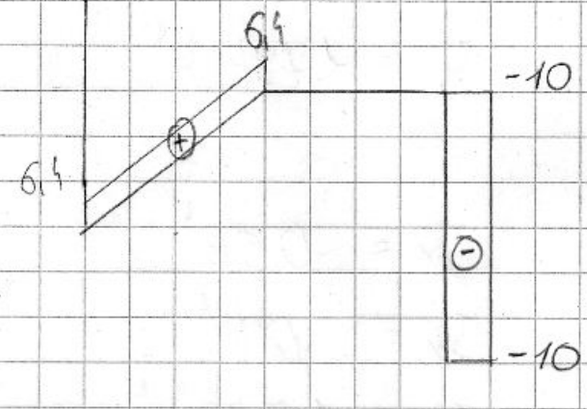
M_y:



M_z:



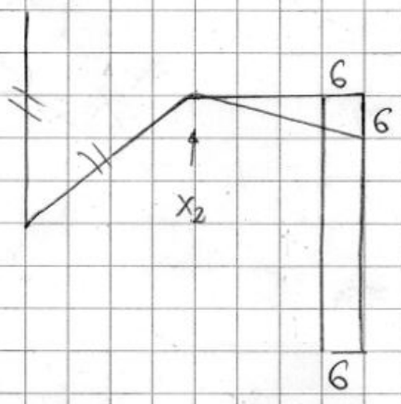
M_S:



Stan $X_2 = 1$

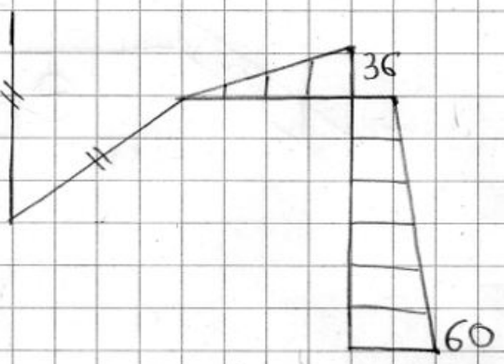
$M_z = M_s = M_x = 0$!

M_y:

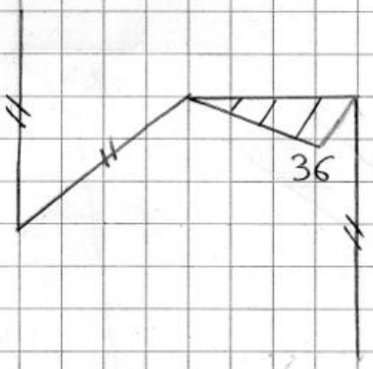


Stan P:

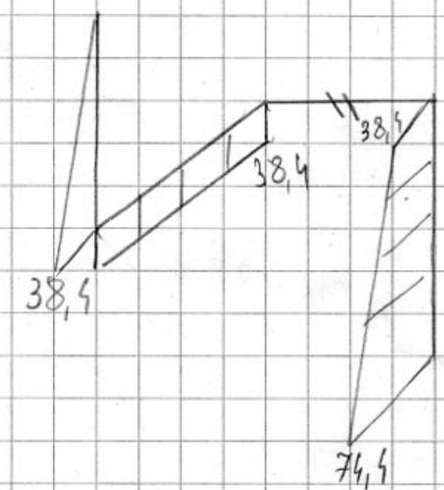
M_y:



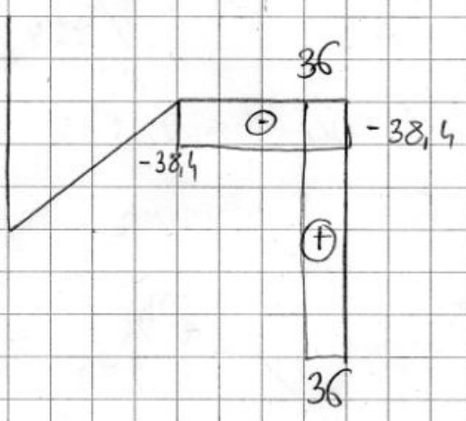
M_z:



M_x:



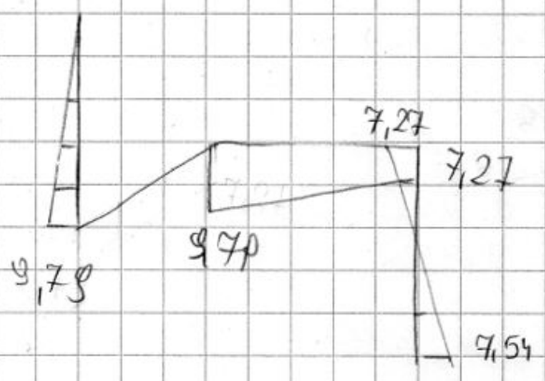
M_s:



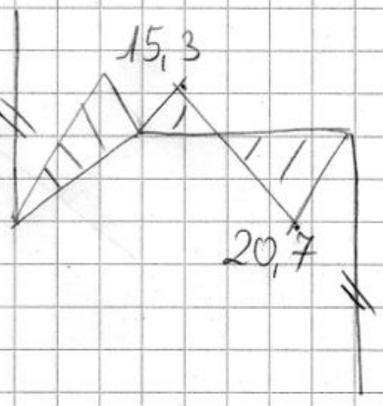
④ Pozostałą część projektu w Załącznik 1 !

⑤ Wykresy:

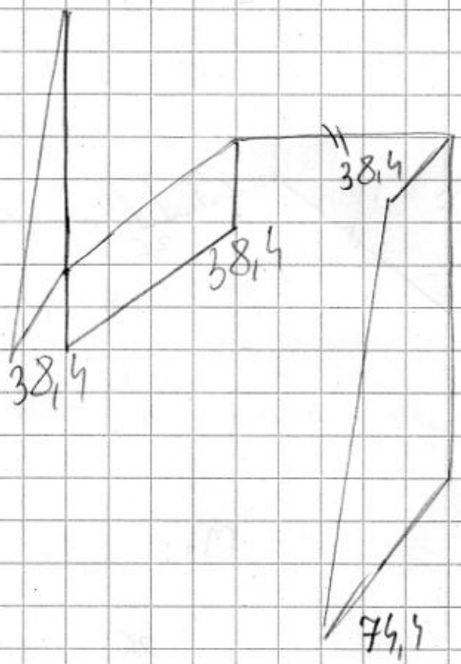
M_y:



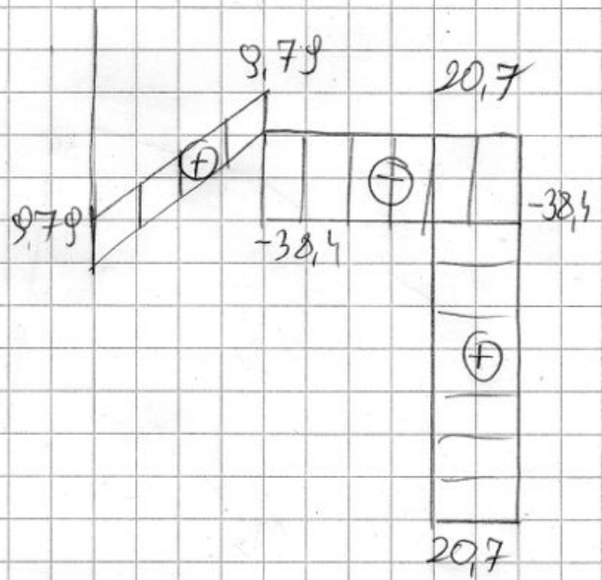
M_z:



M_x

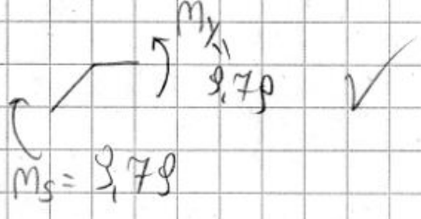


M_S:

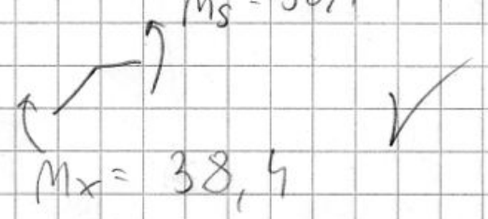


⑥ Sprawdzenie:

6.1 Statyczne wpływ C

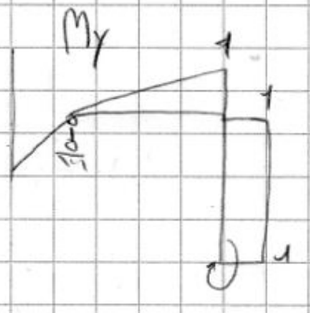


✓



✓

6.2 Kinematyczne



$$\varphi_A = \frac{1}{200\times10^6 \cdot 18h^4}\left[\left(7,54 \cdot 6 \cdot \tfrac{1}{2} \cdot 1\right) - \left(7,27 \cdot 6 \cdot \tfrac{1}{2} \cdot 1\right)\right] +$$

$$+ \frac{1}{200\times10^6 \cdot 18h^4}\left[\left(7,27 \cdot 6 \cdot \tfrac{1}{2} \cdot 1\right) + \left(2,52 \cdot \tfrac{1}{2} \cdot 6 \cdot \tfrac{1}{3} \cdot 1\right)\right] = -\frac{6,53 \cdot 10^{-8}}{h^4}$$

✓