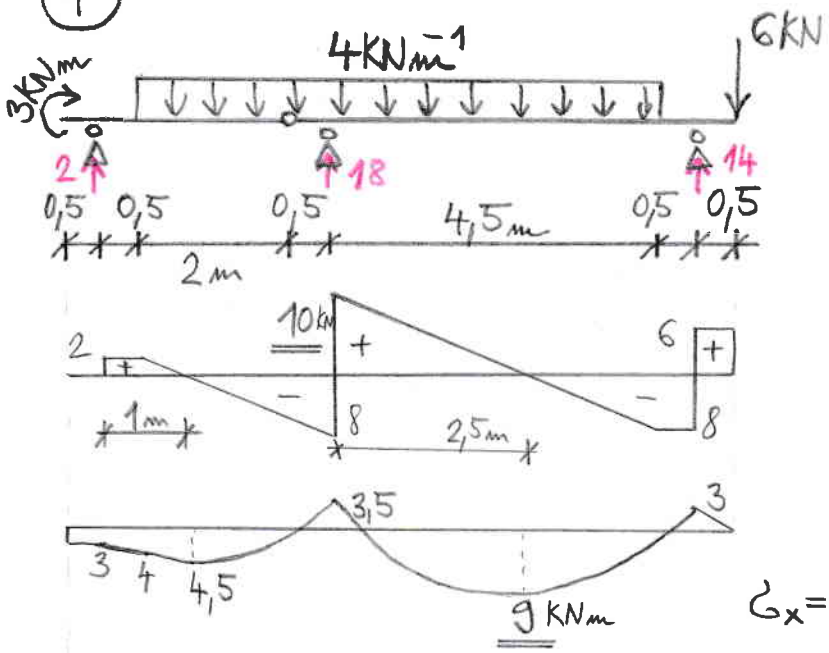
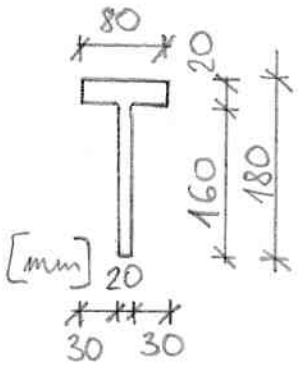
1





$z_1 = 110\ mm$

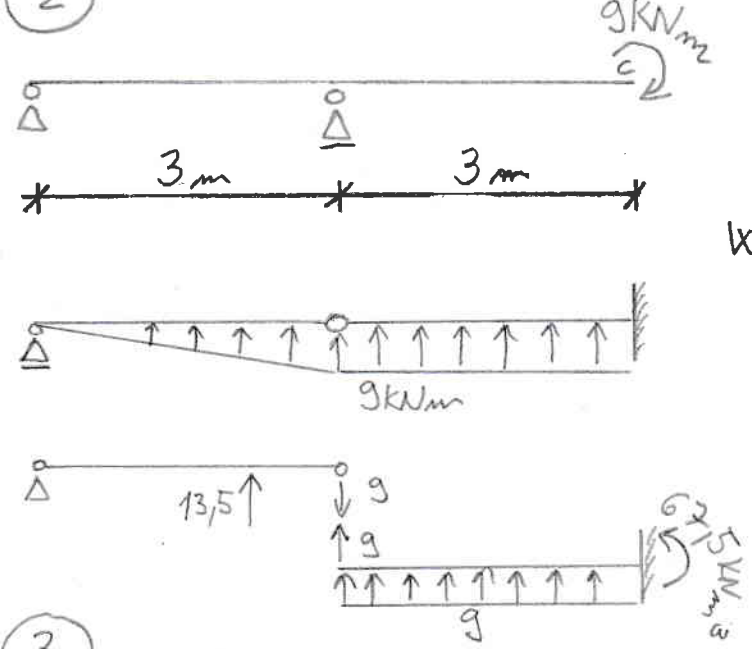
$S_y = 121 \cdot 10^{-6}\ m^3$

$I_y = 15{,}52 \cdot 10^{-6}\ m^4$

$\sigma_x = \frac{9 \cdot 10^3}{15{,}52 \cdot 10^{-6}} \cdot 0{,}11 = \underline{63{,}79\ MPa}$

$\tau_{xz} = \frac{10 \cdot 10^3 \cdot 121 \cdot 10^{-6}}{15{,}52 \cdot 10^{-6} \cdot 0{,}02} = \underline{3{,}9\ MPa}$

2



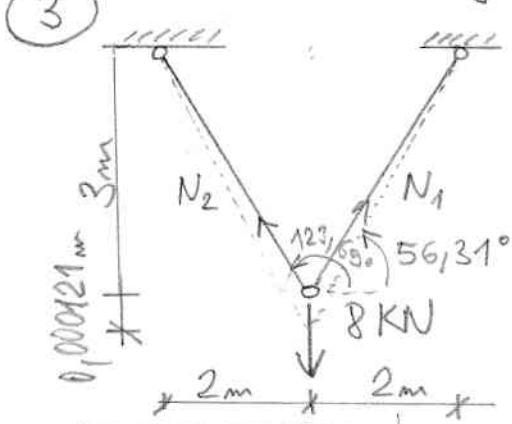
$E = 200\ GPa$

$I = 0{,}000675\ m^4$

$w_c = \frac{67{,}5 \cdot 10^3}{200 \cdot 10^9 \cdot 0{,}000675} = 5 \cdot 10^{-4}\ m$

$= \underline{0{,}5\ mm}$

3



$E = 200\ GPa$

$A = 0{,}00086\ m^2$

$N_1 = N_2$

$N_1 \cdot \sin 56{,}36 + N_2 \cdot \sin 123{,}69° = 8$

$2 \cdot N_1 \cdot \sin 56{,}36 = 8$

$N_1 = \underline{4{,}807\ KN = N_2}$

$yokles = \sqrt{3{,}605652^2 - 2^2} - 3$

$= \underline{0{,}000121\ m}$

$\Delta_2 = \Delta_1 = \frac{4{,}807 \cdot 10^3 \cdot 3{,}606}{200 \cdot 10^9 \cdot 0{,}00086\ m^2} = \underline{1 \cdot 10^{-4}\ m}$