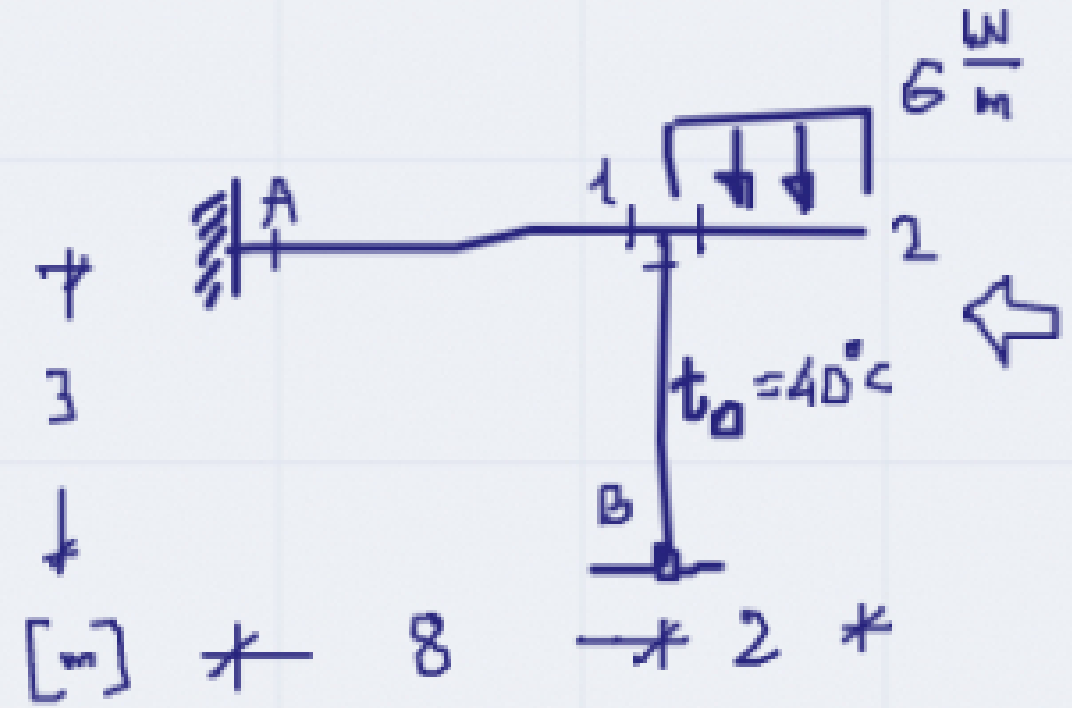
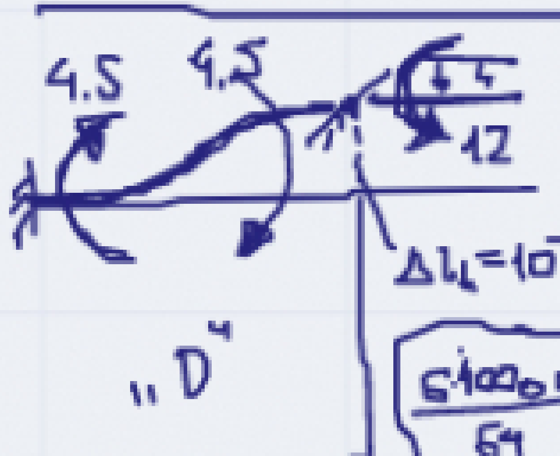
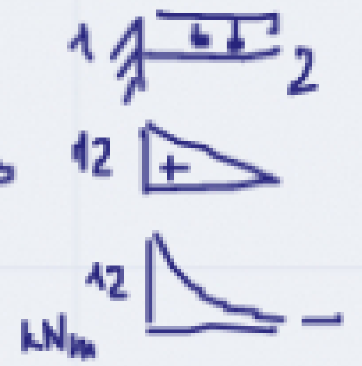
$\alpha_t = 10^{-5}\ \frac{1}{°C}$ $EI = 40000\ kNm^2$

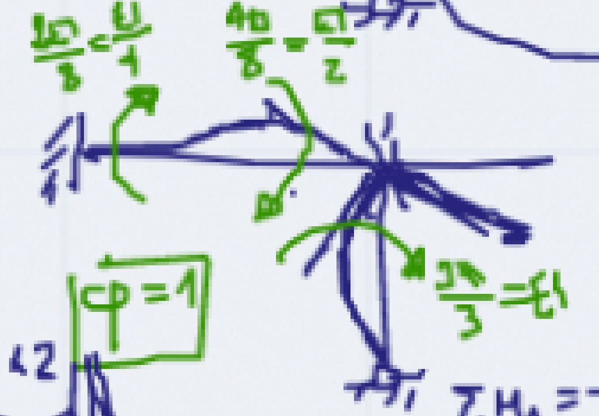




$\Delta l_1 = 10^{-5}\cdot 40\cdot 3 = 1{,}2\cdot 10^{-3}$

$\frac{6\cdot 40000}{64}\cdot 1{,}2\cdot 10^{-3} = 4.5$





$M_{1A} = 4.5 + \frac{EI}{2}\varphi$

$M_{1B} = EI\varphi$

$M_{12} = -12$

$M_{A1} = 4.5 + \frac{EI}{4}\varphi$

$\Sigma M_1 = -7{,}5 + \frac{3}{2}EI\varphi = 0 \Rightarrow \varphi = \frac{5}{EI}$

$M_{1A} = 7\ kNm$

$M_{1B} = 5\ kNm$

$M_{12} = -12\ kNm$

$M_{A1} = 5{,}75\ kNm$