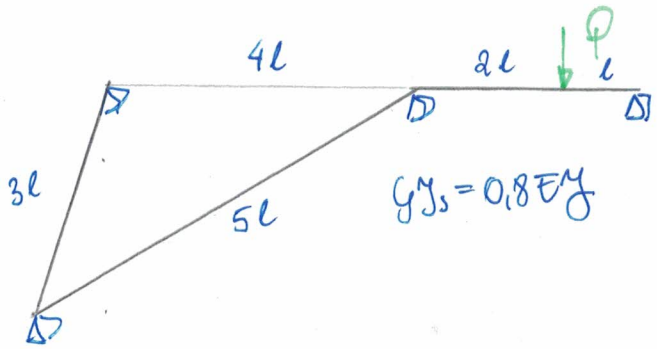
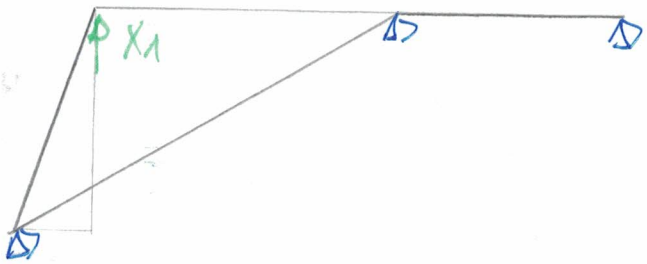
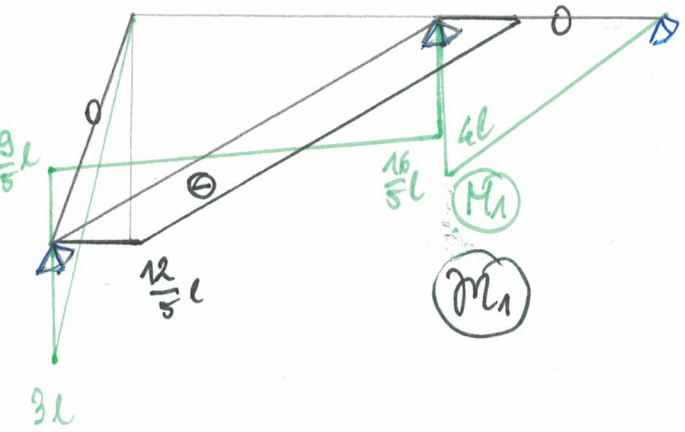
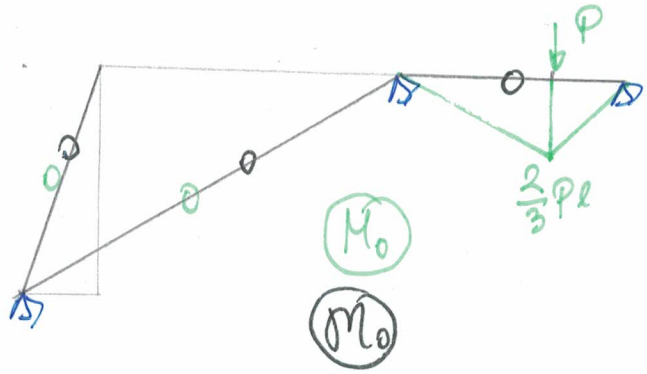
Kolokwium KB NST II 24 III 2018 gr. 1



USW



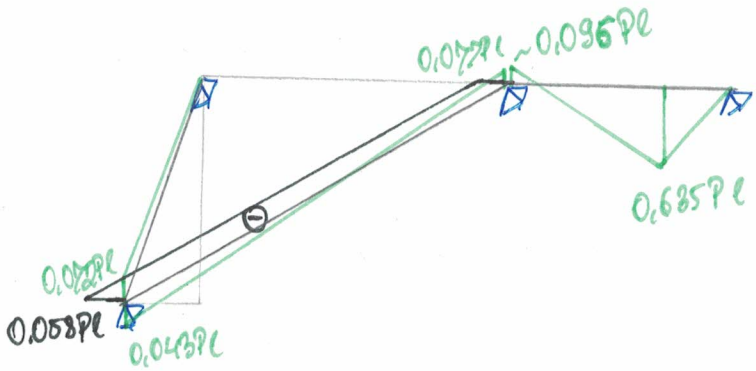




$$\delta_{11} = \frac{1}{EJ}\left[\frac{1}{2}\,3l\,3l\,\frac{2}{3}3l + \frac{1}{2}\,\frac{9}{5}l\cdot 5l\cdot\left(\frac{2}{3}\,\frac{9}{5}l - \frac{1}{3}\,\frac{16}{5}l\right) + \frac{1}{2}\,\frac{16}{5}l\cdot 5l\left(\frac{2}{3}\,\frac{16}{5}l - \frac{1}{3}\,\frac{9}{5}l\right) + \frac{1}{2}\,4l\cdot 3l\cdot\frac{2}{3}\,4l\right] + \frac{1}{0.8EJ}\left[\frac{12}{5}l\cdot 5l\cdot\frac{12}{5}l\right] = 73{,}87\,\frac{l^3}{EJ}$$

$$\delta_{10} = \frac{1}{EJ}\left[\frac{1}{2}\cdot\frac{2}{3}P\cdot l\cdot\left(\frac{2}{3}\,\frac{4}{3}l\right) + \frac{1}{2}\,\frac{2}{3}Pl\cdot 2l\left(\frac{1}{3}\,4l + \frac{2}{3}\,\frac{4}{3}l\right)\right] = \frac{10}{9}\,\frac{Pl^3}{EJ}$$

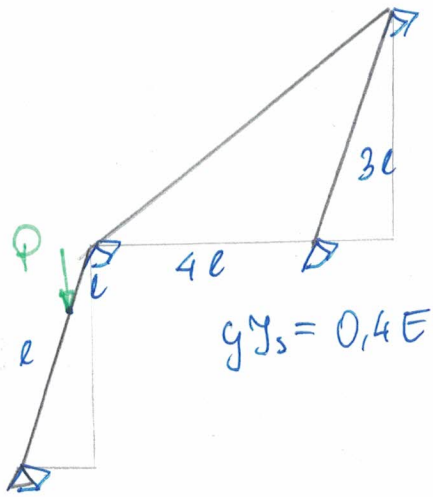
$$X_1 = -\frac{\delta_{10}}{\delta_{11}} = -0{,}024P$$



M

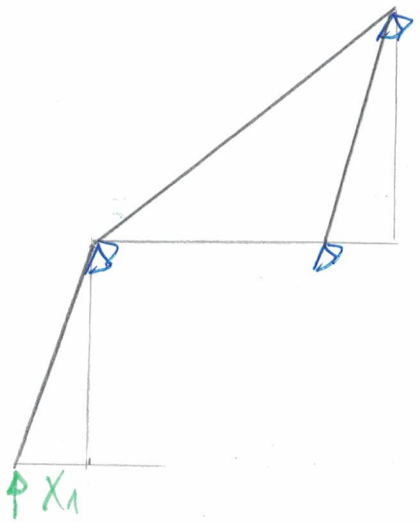
m

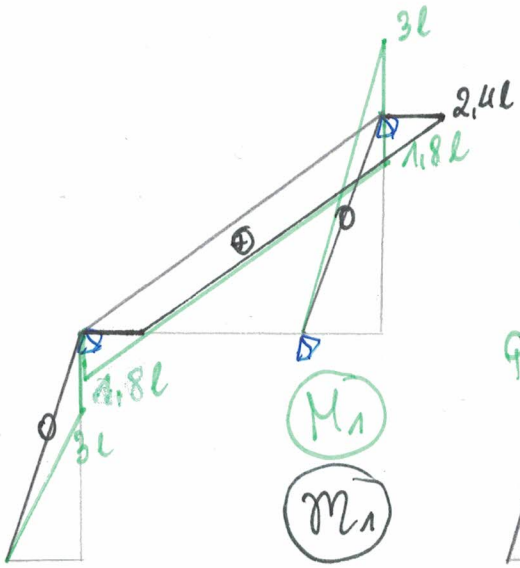
Kolokwium KB NST II 24 III 2018 gr 2

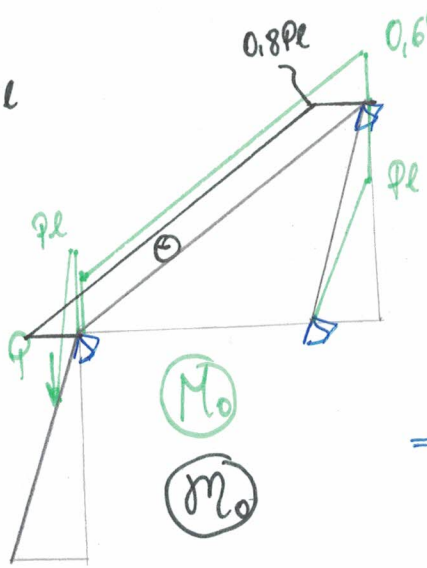


$gY_s = 0{,}4EJ$

USW







$$\delta_{11} = \frac{1}{EJ}\left[2\cdot\frac{1}{2}\,3l\cdot 3l\cdot\frac{2}{3}\,3l + 1{,}8l\cdot 5l\cdot 1{,}8l\right] + \frac{1}{0{,}4EJ}\left[2{,}4l\cdot 5l\cdot 2{,}4l\right] = 106{,}2\,\frac{l^3}{EJ}$$

$$\delta_{10} = \frac{1}{EJ}\left[\frac{1}{2}Pl\cdot l\cdot\left(-\frac{2}{3}3l-\frac{1}{3}2l\right) + 0{,}6Pl\cdot 5l\cdot(-1{,}8l) + \frac{1}{2}Pl\cdot 3l\cdot\left(\frac{2}{3}3l\right)\right] + \frac{1}{0{,}4EJ}\left[0{,}8Pl\cdot 5l\cdot(-2{,}4l)\right] = -33{,}73\,\frac{Pl^3}{EJ}$$

$$X_1 = -\frac{\delta_{10}}{\delta_{11}} = 0{,}318P$$