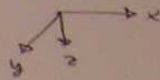
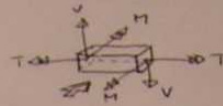
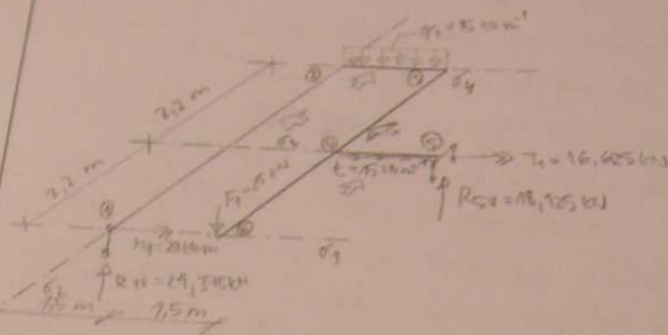


NA PRIEČNE ZATAŽENOM ZALOMENOM NOSNÍKU URČITE REAKCIE
A PRIEBEH VNÚTORNÝCH SÍL.



① REAKCIE

$$\begin{aligned} \sum M_{\sigma_1} = 0 & \quad -M_1 + q_1 \cdot 1,5 \cdot 5,5 - t \cdot 1,5 - R_{2V} \cdot 2,2 - T_1 = 0 \\ & \quad -20 + 15 \cdot 1,5 \cdot 5,5 - 15 \cdot 1,5 - 18,125 \cdot 2,2 - T_1 = 0 \\ & \quad \underline{T_1 = 16,625 \text{ kN}\cdot\text{m}} \end{aligned}$$

$$\begin{aligned} \sum M_{\sigma_2} = 0 & \quad F_1 \cdot 1,5 + q_1 \cdot 1,5 \cdot 0,75 - R_{2V} \cdot 3 = 0 \\ & \quad 25 \cdot 1,5 + 15 \cdot 1,5 \cdot 0,75 = R_{2V} \cdot 3 \\ & \quad R_{2V} \cdot 3 = 54,375 \\ & \quad \underline{R_{2V} = 18,125 \text{ kN}} \end{aligned}$$

$$\begin{aligned} \sum M_{\sigma_3} = 0 & \quad R_{1V} \cdot 2,2 - F_1 \cdot 2,2 + q_1 \cdot 1,5 \cdot 2,2 - M_1 - t \cdot 1,5 - T_1 = 0 \\ & \quad R_{1V} \cdot 2,2 - 25 \cdot 2,2 + 15 \cdot 1,5 \cdot 2,2 - 20 - 15 \cdot 1,5 - 16,625 = 0 \\ & \quad R_{1V} \cdot 2,2 = 64,625 \\ & \quad \underline{R_{1V} = 29,375 \text{ kN}} \end{aligned}$$

KONTROLY

$$\begin{aligned} \sum V = 0 & \quad R_{1V} + R_{2V} - F_1 - q_1 \cdot 1,5 = 0 \\ & \quad 29,375 + 18,125 - 25 - 15 \cdot 1,5 = 0 \\ & \quad 0 = 0 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \sum M_{\sigma_3} = 0 & \quad R_{1V} \cdot 5,5 - F_1 \cdot 5,5 + R_{2V} \cdot 2,2 - M_1 - T_1 - t \cdot 1,5 = 0 \\ & \quad 29,375 \cdot 5,5 - 25 \cdot 5,5 + 18,125 \cdot 2,2 - 20 - 16,625 - 15 \cdot 1,5 = 0 \\ & \quad 129,25 - 110 + 39,875 - 20 - 16,625 - 22,5 = 0 \\ & \quad 0 = 0 \quad \checkmark \end{aligned}$$

$$\textcircled{2} V_{12} = R_{1V} = 29,375 \text{ kN} = V_2$$

$$V_{32} = R_{1V} - q \cdot 1,5 = 29,375 - 15 \cdot 1,5 = 6,875 \text{ kN}$$

$$V_{55}^P = -R_{5V} = -18,125 \text{ kN} = V_{45}$$

$$V_{64}^L = -F_1 = -25 \text{ kN} = V_{46}$$

$$V_{43} = -F_1 + R_{5V} = -25 + 18,125 = -6,875 \text{ kN} = V_{34}$$

$$\textcircled{3} M_{12} = -M_1 = -20 \text{ kN}\cdot\text{m}$$

$$M_2 = -M_1 + R_{1V} \cdot 4,5 = -20 + 29,375 \cdot 4,5 = 109,25 \text{ kN}\cdot\text{m}$$

$$M_{32}^L = R_{1V} \cdot 4,5 - q \cdot 1,5 \cdot 0,75 = 29,375 \cdot 4,5 - 15 \cdot 1,5 \cdot 0,75 = 112,375 \text{ kN}\cdot\text{m}$$

$$M_5^P = \emptyset \text{ kN}\cdot\text{m}$$

$$M_{45} = R_{5V} \cdot 1,5 = 18,125 \cdot 1,5 = 27,1875 \text{ kN}\cdot\text{m}$$

$$M_6^L = \emptyset \text{ kN}\cdot\text{m}$$

$$M_{46} = -F_1 \cdot 2,2 = -25 \cdot 2,2 = -55 \text{ kN}\cdot\text{m}$$

$$M_{43} = M_{46} + M_{45} = -55 + 27,1875 = -27,8125 \text{ kN}\cdot\text{m}$$

$$M_{34} = -F_1 \cdot 4,5 - t \cdot 1,5 + R_{5V} \cdot 2,2 = -25 \cdot 4,5 - 15 \cdot 1,5 + 18,125 \cdot 2,2 = -92,625 \text{ kN}\cdot\text{m}$$

$$\textcircled{4} T_1 = \emptyset \text{ kN}\cdot\text{m} = T_{21}$$

$$T_{32} = -M_1 + R_{1V} \cdot 4,5 = -20 + 29,375 \cdot 4,5 = 109,25 \text{ kN}\cdot\text{m} = T_{23}$$

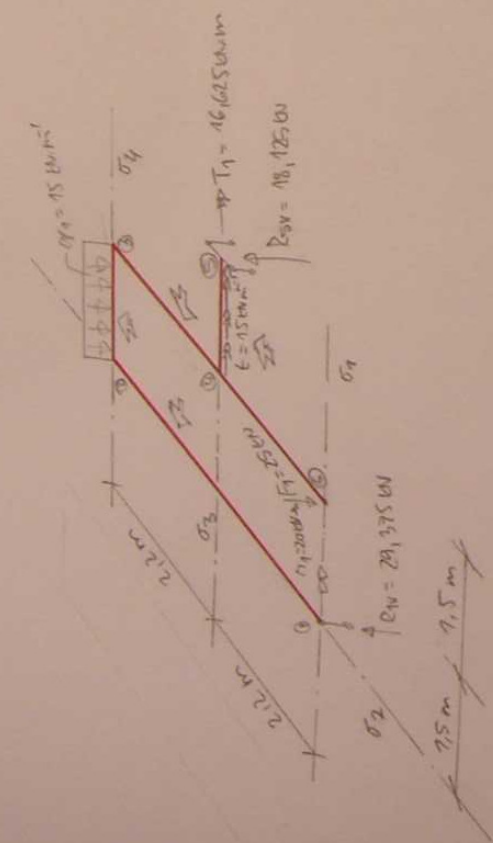
$$T_5^P = T_1 = 16,625 \text{ kN}\cdot\text{m}$$

$$T_{45} = T_1 + t \cdot 1,5 = 16,625 + 15 \cdot 1,5 = 39,125 \text{ kN}\cdot\text{m}$$

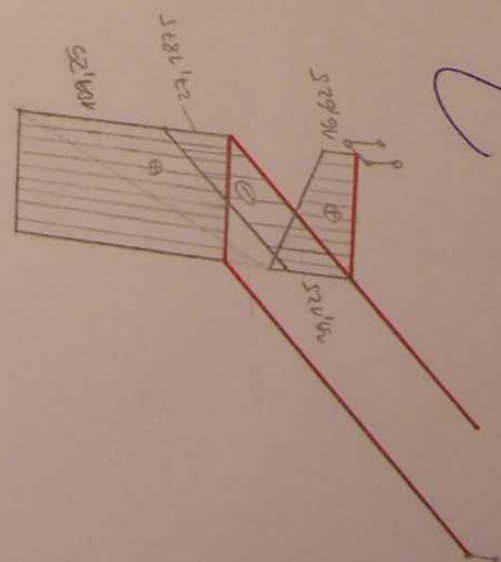
$$T_6 = \emptyset \text{ kN}\cdot\text{m} = T_{46}$$

$$T_{43} = R_{5V} \cdot 1,5 = 18,125 \cdot 1,5 = 27,1875 \text{ kN}\cdot\text{m} = T_{34}$$

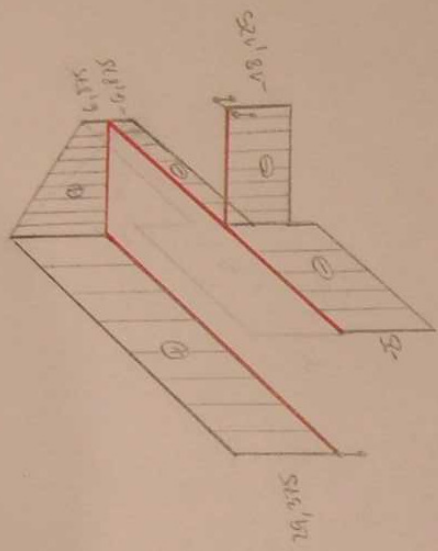
$$M_0 = \frac{1}{8} q l^2 = \frac{1}{8} 15 \cdot 1,5^2 = 4,218 \text{ kN}\cdot\text{m}$$



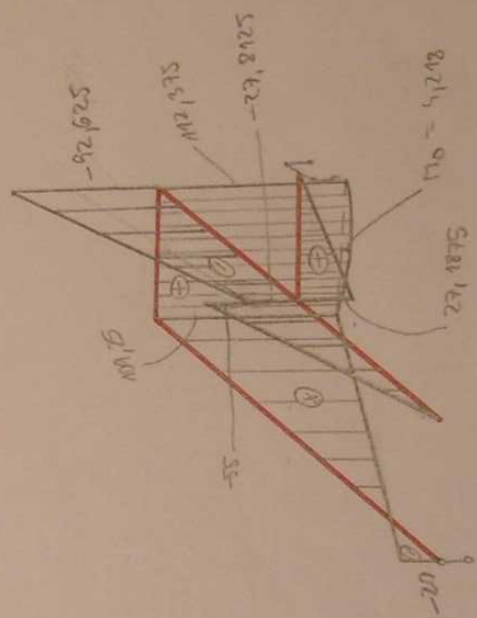
+



① [kN.m]



① [kN]



① [kN.m]