

$$F_x = F \cdot \cos \alpha = 15 \cdot \cos 60^\circ = 7,5 \text{ kN}$$

$$F_z = F \cdot \sin \alpha = 15 \cdot \sin 60^\circ = 13 \text{ kN}$$

$$\Sigma F_{ix} = 0: R_{ax} - F_x = 0$$

$$\underline{R_{ax} = F_x = 7,5 \text{ kN}}$$

$$\textcircled{VV1} \Sigma M_{ic} = 0: -F_z \cdot 1 - K_{2z} \cdot 1 = 0$$

$$\underline{K_{2z} = -F_z = -13 \text{ kN}}$$

$$\Sigma M_{ik_2} = 0: R_{cz} \cdot 1 - F_z \cdot 2 = 0$$

$$\underline{R_{cz} = 2F_z = 26 \text{ kN}}$$

$$\textcircled{V1} \Sigma M_{ib} = 0: K_{2z} \cdot 1 + K_{1z} \cdot 2 = 0$$

$$\underline{K_{1z} = -\frac{1}{2} K_{2z} = \frac{13}{2} \text{ kN} = 6,5 \text{ kN}}$$

$$\Sigma M_{ik_1} = 0: R_{bz} \cdot 2 - K_{2z} \cdot 3 = 0$$

$$\underline{R_{bz} = \frac{1}{2} (3K_{2z}) = -19,5 \text{ kN}}$$

$$\textcircled{21} \Sigma M_{ia} = 0: -K_{1z} \cdot 1 + M_a = 0$$

$$\underline{M_a = K_{1z} = 6,5 \text{ kNm}}$$

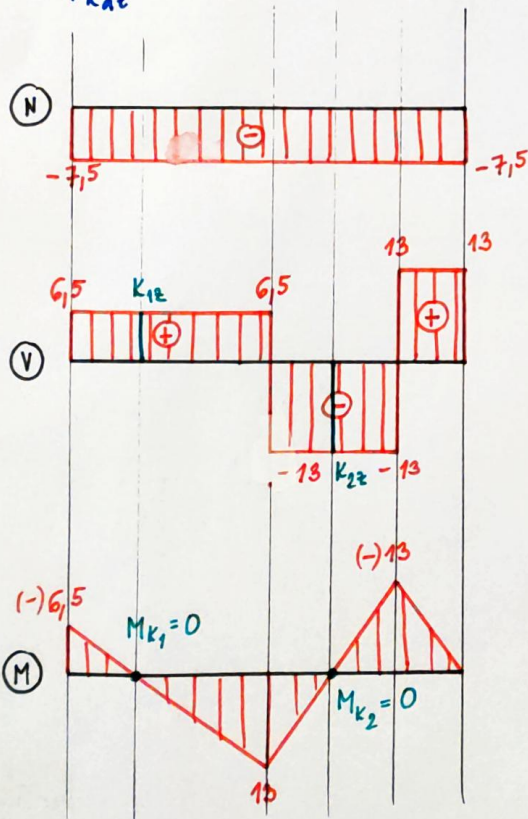
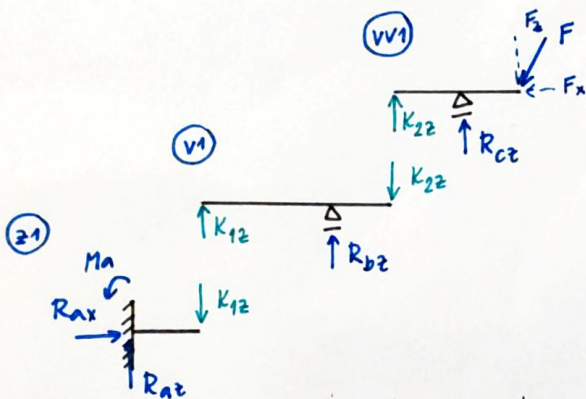
$$\Sigma M_{ik_1} = 0: M_a - R_{az} \cdot 1 = 0$$

$$\underline{R_{az} = M_a = 6,5 \text{ kN}}$$

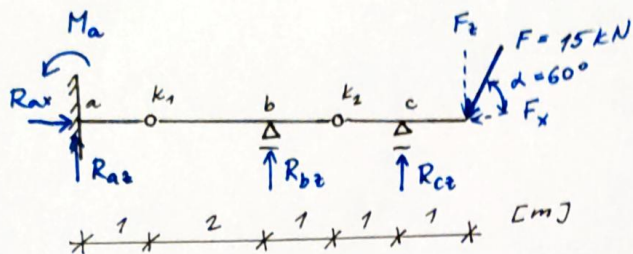
$$K: \Sigma F_{iz} = 0:$$

$$R_{az} + R_{bz} + R_{cz} - F_z = 0$$

$$6,5 - 19,5 + 26 - 13 = 0 \quad \checkmark$$



Výpočet reakcí bez nutnosti počítat interakce:



$$F_x = F \cdot \cos \alpha = 15 \cdot \cos 60^\circ = 7,5 \text{ kN}$$

$$F_z = F \cdot \sin \alpha = 15 \cdot \sin 60^\circ = 13 \text{ kN}$$

$$\sum M_{i, k_2}^{\text{sprava}} = 0 :$$

$$R_{cz} \cdot 1 - F_z \cdot 2 = 0$$

$$\underline{R_{cz}} = 2F_z = 2 \cdot 13 = \underline{\underline{26 \text{ kN}}} \quad (\uparrow)$$

$$\sum M_{i, k_1}^{\text{sprava}} = 0 :$$

$$R_{bz} \cdot 2 + R_{cz} \cdot 4 - F_z \cdot 5 = 0$$

$$\underline{R_{bz}} = \frac{1}{2}(-4R_{cz} + 5F_z) = \frac{1}{2}(-4 \cdot 26 + 5 \cdot 13) = \underline{\underline{-19,5 \text{ kN}}} \quad (\downarrow)$$

$$\sum F_{ix} = 0 :$$

$$R_{ax} - F_x = 0$$

$$\underline{R_{ax}} = F_x = \underline{\underline{7,5 \text{ kN}}}$$

$$\sum F_{iz} = 0 :$$

$$R_{az} + R_{bz} + R_{cz} - F_z = 0$$

$$\underline{R_{az}} = F_z - R_{bz} - R_{cz} = 13 - (-19,5) - 26 = \underline{\underline{6,5 \text{ kN}}}$$

$$\sum M_{ia} = 0 :$$

$$M_a + R_{bz} \cdot 3 + R_{cz} \cdot 5 - F_z \cdot 6 = 0$$

$$\underline{M_a} = 6F_z - 3R_{bz} - 5R_{cz} = 6 \cdot 13 - 3 \cdot (-19,5) - 5 \cdot 26 = \underline{\underline{6,5 \text{ kNm}}}$$

K: např. $\sum M_{i, k_2} = 0 : M_a - R_{az} \cdot 4 - R_{bz} \cdot 1 + R_{cz} \cdot 1 - F_z \cdot 2 = 0$
 $6,5 - 6,5 \cdot 4 - (-19,5) \cdot 1 + 26 \cdot 1 - 13 \cdot 2 = 0 \quad \checkmark$