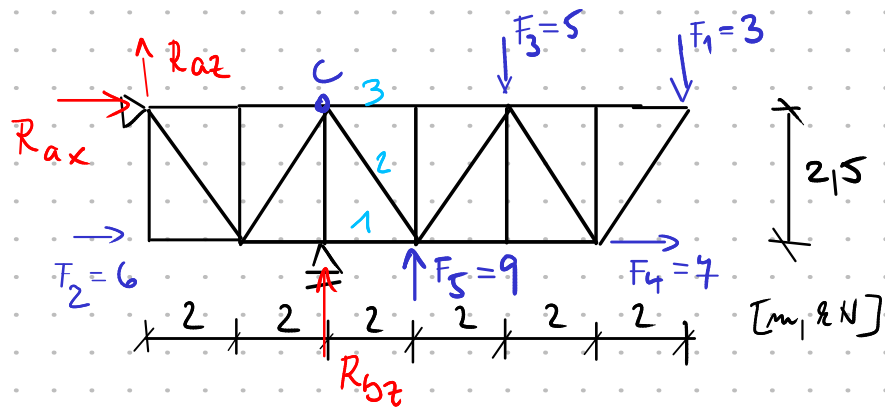


JMÉNO:



$$\oplus \rightarrow \sum F_{xi} = 0: R_{ax} + F_2 + F_4 = 0 \Rightarrow R_{ax} = -13 \text{ kN}$$

$$\oplus \uparrow \sum M_{ai} = 0: +F_2 \cdot 2.5 + R_{bz} \cdot 4 + F_5 \cdot 6 - F_3 \cdot 8 + F_4 \cdot 2.5 - F_1 \cdot 12 = 0$$

$$4 \cdot R_{bz} = -6 \cdot 2.5 - 9 \cdot 6 + 5 \cdot 8 - 7 \cdot 2.5 + 3 \cdot 12$$

$$R_{bz} = -2.625 \text{ kN}$$

$$\oplus \rightarrow \sum M_{ci} = 0: R_{az} \cdot 4 - F_2 \cdot 2.5 - F_5 \cdot 2 + F_3 \cdot 4 - F_4 \cdot 2.5 + F_1 \cdot 8 = 0$$

$$4 \cdot R_{az} = 6 \cdot 2.5 + 9 \cdot 2 - 5 \cdot 4 + 7 \cdot 2.5 - 3 \cdot 8$$

$$R_{az} = 1.625 \text{ kN}$$

$$\oplus \uparrow \sum F_{zi} = 0: R_{az} + R_{bz} + F_5 - F_3 - F_1 = 0$$

$$-2.625 + 1.625 + 9 - 5 - 3 = 0 \quad 0 = 0 \checkmark$$

$$\sum F_{zi} = 0 \quad \oplus \uparrow$$

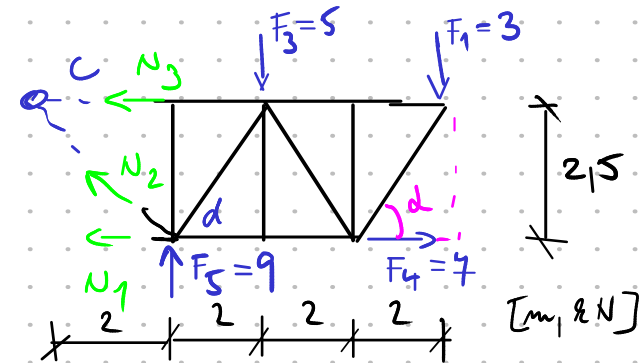
$$N_2 - F_3 - F_1 + F_5 = 0$$

$$N_2 \cdot \sin d = F_3 + F_1 - F_5$$

$$N_2 = \frac{5 + 3 - 9}{\sin d} = \frac{-1 \cdot \sqrt{10.25}}{2.5} = -1.281 \text{ kN}$$

$$l = \sqrt{2^2 + 2.5^2} = \sqrt{10.25}$$

$$\sin d = \frac{2.5}{\sqrt{10.25}}$$



$$\sum M_{ci} = 0 \quad \oplus \downarrow$$

$$N_1 \cdot 2.5 - F_5 \cdot 2 + F_3 \cdot 4 - F_4 \cdot 2.5 + F_1 \cdot 8 = 0$$

$$2.5 \cdot N_1 = 9 \cdot 2 - 5 \cdot 4 + 7 \cdot 2.5 - 3 \cdot 8$$

$$N_1 = -3.4 \text{ kN}$$

$$\sum M_{di} = 0 \quad \oplus \uparrow$$

$$N_3 \cdot 2.5 - F_3 \cdot 2 - F_1 \cdot 6 = 0$$

$$2.5 N_3 = 5 \cdot 2 + 3 \cdot 6$$

$$N_3 = 11.2 \text{ kN}$$

10 min

$$\oplus \rightarrow \sum F_{xi} = 0: R_{ax} + F_2 + F_4 = 0$$

$$R_{ax} = -13 \text{ kN}$$

$$\oplus \uparrow \sum M_{ai} = 0: R_{bz} \cdot 4 + F_2 \cdot 3 + F_5 \cdot 6 - F_3 \cdot 8 + F_4 \cdot 3 - F_1 \cdot 12 = 0$$

$$4 R_{bz} = -6 \cdot 3 - 5 \cdot 6 + 3 \cdot 8 - 7 \cdot 3 + 9 \cdot 12$$

$$R_{bz} = 15,75 \text{ kN}$$

$$\oplus \curvearrowright \sum M_{ci} = 0: R_{az} \cdot 4 - F_2 \cdot 3 - F_5 \cdot 2 + F_3 \cdot 4 - F_4 \cdot 3 + F_1 \cdot 8 = 0$$

$$4 R_{az} = 6 \cdot 3 + 5 \cdot 2 - 3 \cdot 4 + 7 \cdot 3 - 9 \cdot 8$$

$$R_{az} = -8,75 \text{ kN}$$

$$\oplus \uparrow \sum F_{zi} = 0: R_{az} + R_{bz} + F_5 - F_3 - F_1 = 0$$

$$-8,75 + 15,75 + 5 - 3 - 9 = 0 \quad \underline{0 = 0 \checkmark}$$

$$\sum M_{di} = 0 \quad \oplus \downarrow$$

$$N_1 \cdot 3 + F_3 \cdot 2 - F_4 \cdot 3 + F_1 \cdot 6 = 0$$

$$3 N_1 = -3 \cdot 2 + 7 \cdot 3 - 9 \cdot 6$$

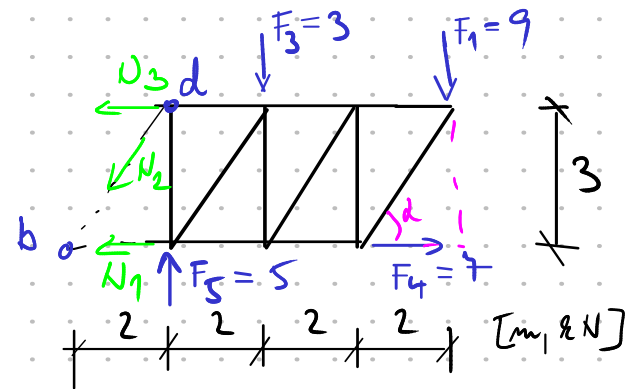
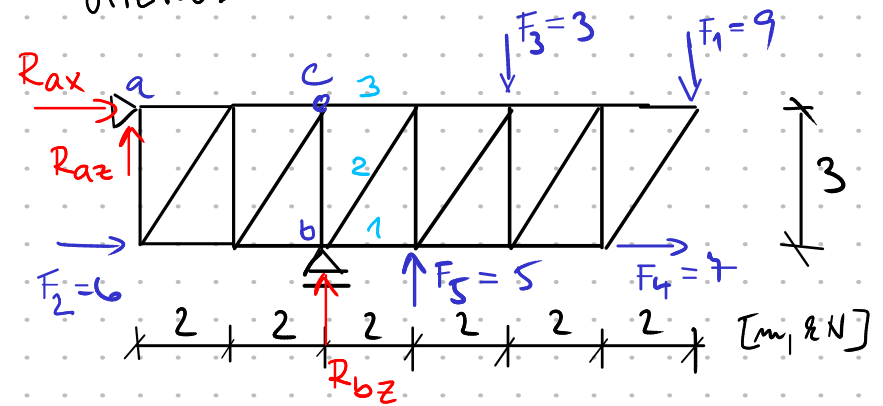
$$N_1 = -13 \text{ kN}$$

$$\sum F_{zi} = 0 \quad \oplus \downarrow$$

$$N_{2z} + F_3 + F_1 - F_5 = 0$$

$$N_2 \sin \alpha = F_5 - F_1 - F_3$$

JMENO:



$$\sum M_{di} = 0 \quad \oplus \uparrow$$

$$N_3 \cdot 3 + F_5 \cdot 2 - F_3 \cdot 4 - F_1 \cdot 8 = 0$$

$$3 N_3 = -5 \cdot 2 + 3 \cdot 4 + 9 \cdot 8$$

$$N_3 = 24,6 \text{ kN}$$

$$l = \sqrt{2^2 + 3^2} = \sqrt{13} \quad \sin \alpha = \frac{3}{\sqrt{13}}$$

$$N_2 = \frac{(5 - 9 - 3) \cdot \sqrt{13}}{3} = -8,413 \text{ kN}$$