

gesucht: Schnittkräfte N, V, M

1. Auflagerkräfte:

$$\sum F_x \rightarrow A_x = 0$$

$$\sum M_A = 0 = -10 \cdot 1,0 + B \cdot 5,0$$

$$\rightarrow B = \frac{10}{5,0} = 2,0 \text{ kN}$$

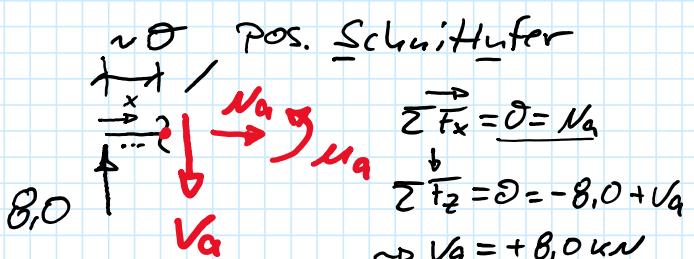
$$\sum F_z = 0 = 10 - 2,0 - A_z$$

$$\rightarrow A_z = 8,0 \text{ kN}$$

Schnitt rechts von A:

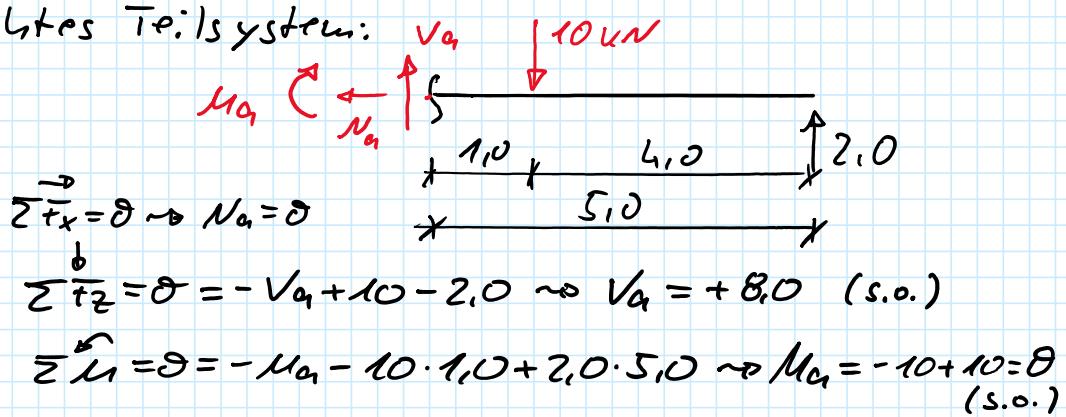
ragt x aus dem SU heraus

↳ pos. Schnittfuß



$$\sum M = 0 = -8,0 \cdot 0 + M_A \rightarrow M_A = 0$$

Alternativ: rechtes Teilsystem:



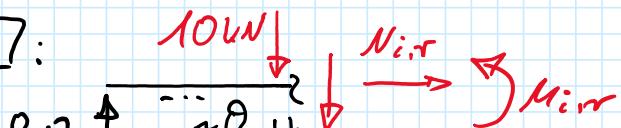
Schnitt links von i:

$$\sum F_x \rightarrow N_{i,l} = 0$$

$$\sum F_z = 0 = -8,0 + V_{i,l} \rightarrow V_{i,l} = +8,0$$

$$\sum M = 0 = -8,0 \text{ kN} \cdot 1,0 \text{ m} + M_{i,l} \rightarrow M_{i,l} = 8,0 \text{ kNm}$$

Schnitt rechts von i:

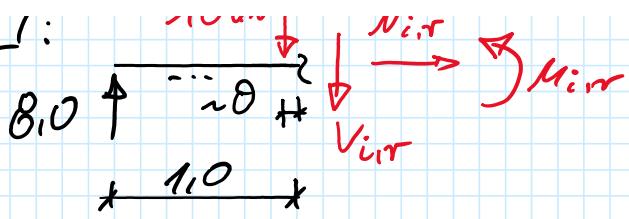


Schnitt rechts vom C:

$$\sum F_x \rightarrow N_{i,r} = 0$$

$$\sum F_z = 0 = -8,0 + 10,0 + V_{i,r}$$

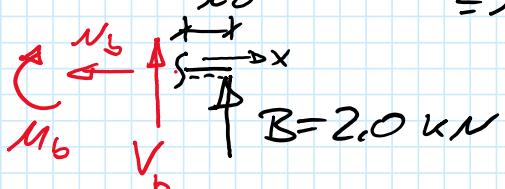
$$\rightarrow V_{i,r} = -2,0 \text{ kN}$$



$$\sum M = 0 = -8,0 \text{ kN} \cdot 1,0 \text{ m} + 10 \text{ kN} \cdot 0 \text{ m} + M_{i,r} \rightarrow M_{i,r} = 8,0 \text{ kNm} = M_{i,l}$$

Schnitt links von b:

rechtes Teilsystem;
x-Achse zeigt in das
Schnittufer hinein
 \rightarrow negatives SU



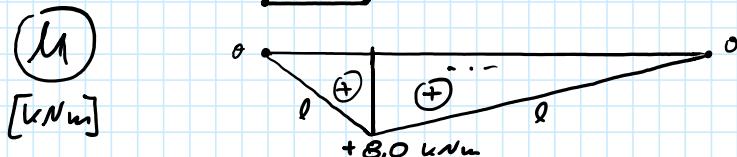
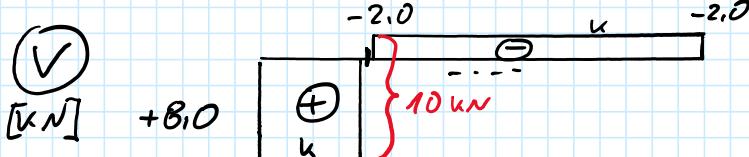
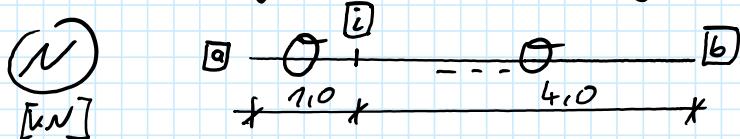
$$\sum F_x \rightarrow N_b = 0$$

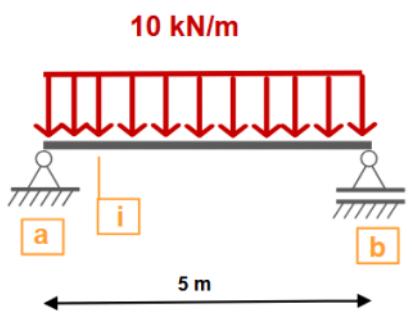
$$\sum F_z = 0 = -V_b - 2,0 \text{ kN}$$

$$\rightarrow V_b = -2,0 \text{ kN}$$

$$\sum M = 0 = -M_b + B \cdot 0 \rightarrow M_b = 0$$

Darstellung der Schnittgrößen:





Beispiel 7.1

