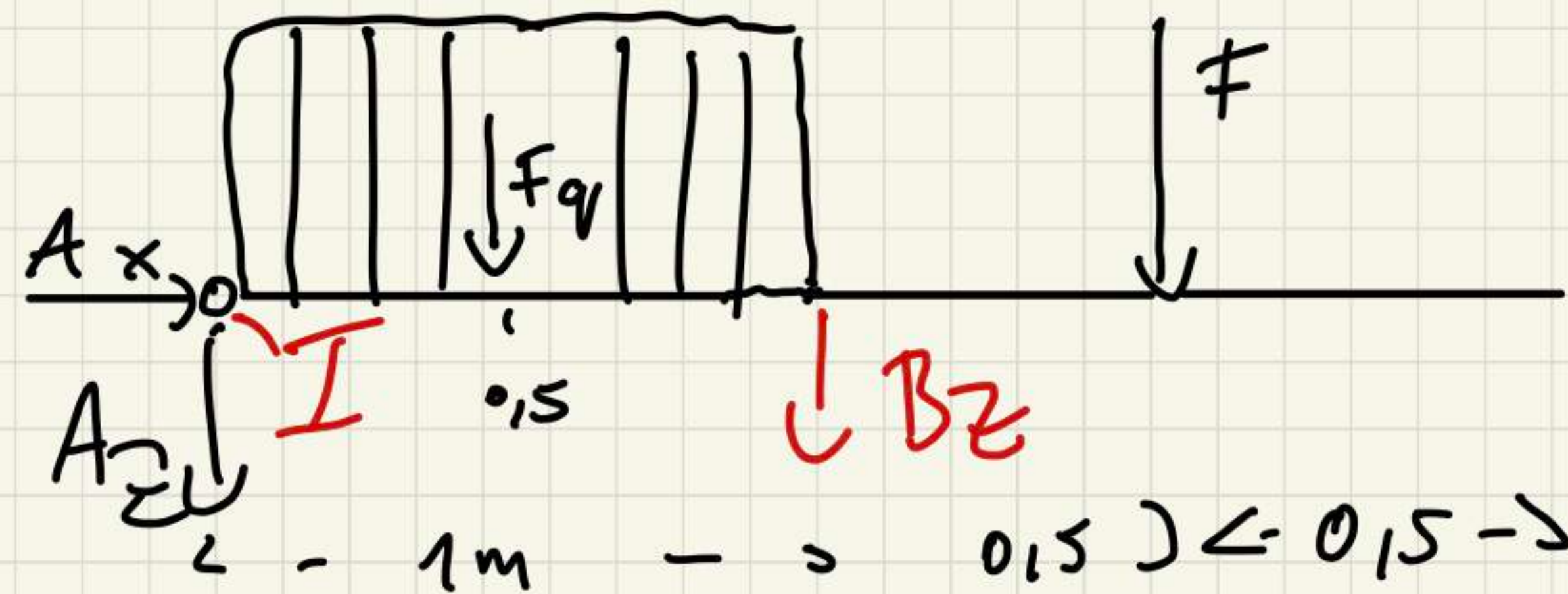




$$q_0 = 2\text{ kN/m}$$

$$F = 3\text{ kN}$$

$$F_q = 2\text{ kN/m} \cdot 1\text{ m} = 2\text{ kN}$$

$$\sum F_x = 0 \quad A_x = 0$$

$$\sum F_y = 0 \quad A_z + F_q + B_z + F = 0$$

$$\sum \overset{\curvearrowright}{M} = 0 \quad - 0.5\text{ m} \cdot F_q - 1\text{ m} \cdot B_z - F \cdot 1.5\text{ m}$$

$$B_z = \frac{-0,5 \cancel{\text{m}} F_q - F \cdot 1,5 \cancel{\text{m}}}{1 \cancel{\text{m}}}$$

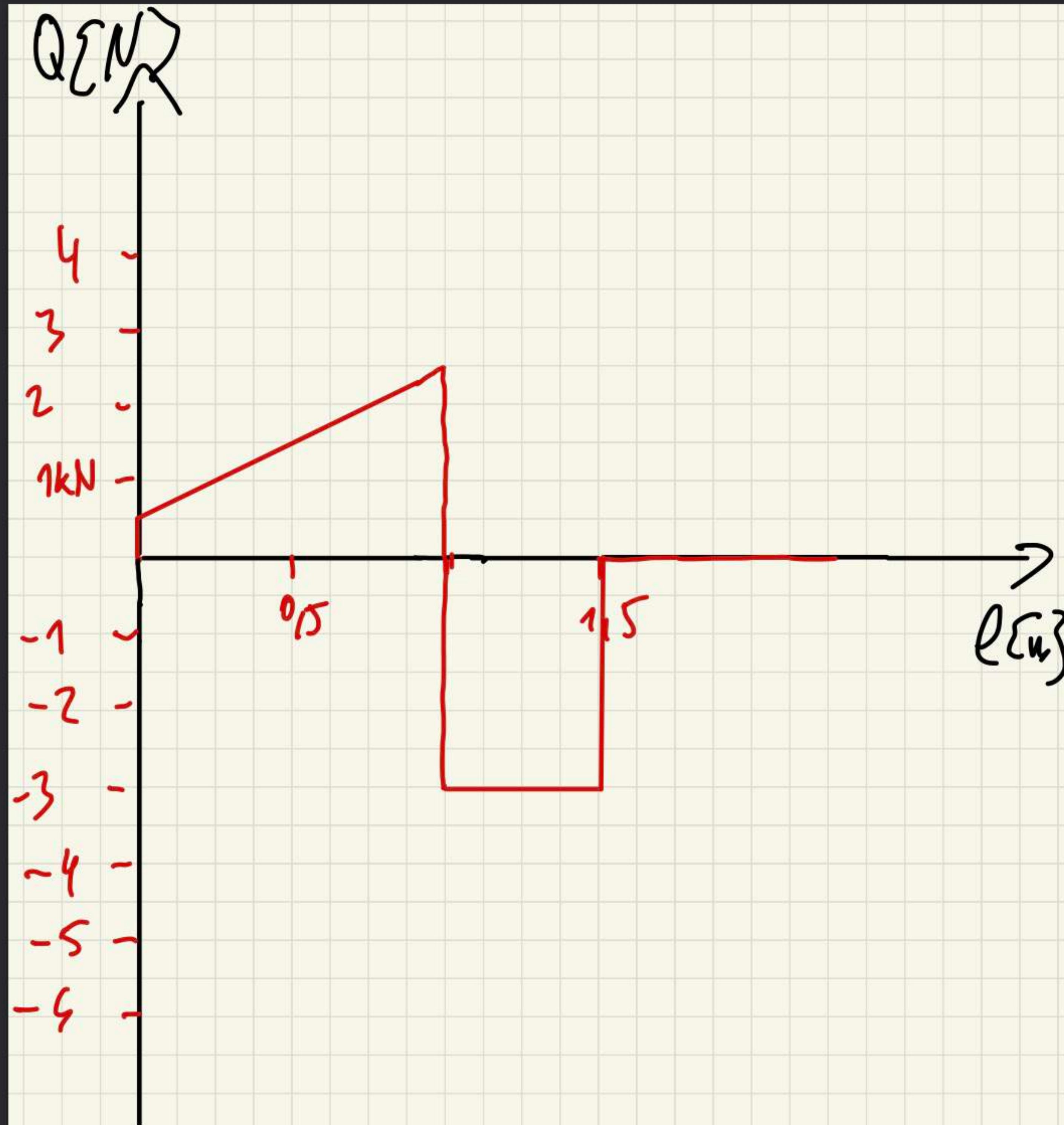
$$B_z = -5,5 \text{ kN}$$

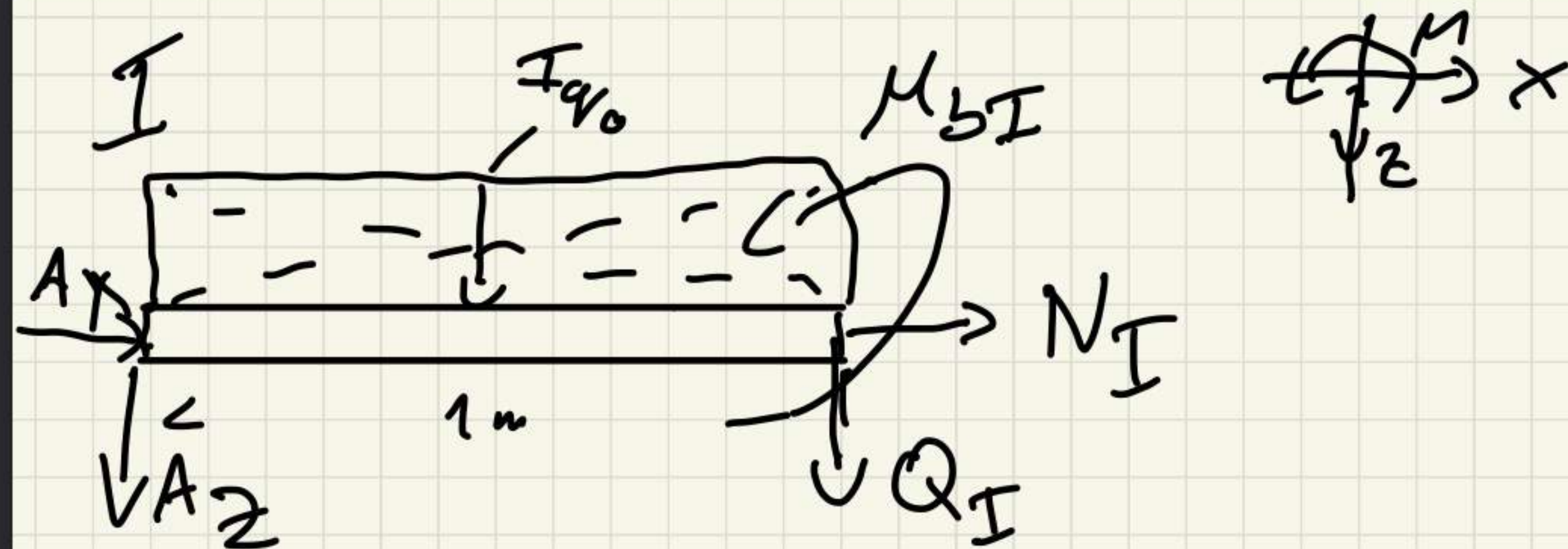
$$\textcircled{2} \quad A_z + F_q + B_z + F = 0$$

$$A_z = -F_q - B_z - F = 0$$

$$A_z = -2 \text{ kN} + 5,5 \text{ kN} - 3 \text{ kN}$$

$$A_z = 0,5 \text{ kN}$$





$$0 \leq l_I \leq 1 \text{ m}$$

$$F_{q_0} = q_0 \cdot l_I$$

$$\sum F_x = 0$$

$$A_x + N_I = 0$$

$$N_I = 0$$

$$\sum F_z = 0 \quad A_z + Q_I + F_{q_0} = 0$$

$$Q_I = -A_z - F_{q_0}$$

$$= -0,5 \text{ kN} - 2 \text{ kN}$$

$$Q_I = -0,5 \text{ kN} - q_0 \cdot l_I$$

$$\sum M_y^{(SI)} = 0$$

$l_I = 0 \quad -0,5 \text{ kN}$
 $l_I = 1 \text{ m} \quad -2,5 \text{ kN}$

$$M_{bI} + A_z \cdot l_I + F_{q_0} \cdot \frac{l_I}{2}$$

$$= 0$$

$$M_{bI} + A_z \cdot l_I + q_0 \cdot \frac{l_I^2}{2}$$

$$= 0$$

$$M_{bI} = -A_z \cdot l_I - 2 \text{ kN/m} \cdot \frac{l_I^2}{2}$$

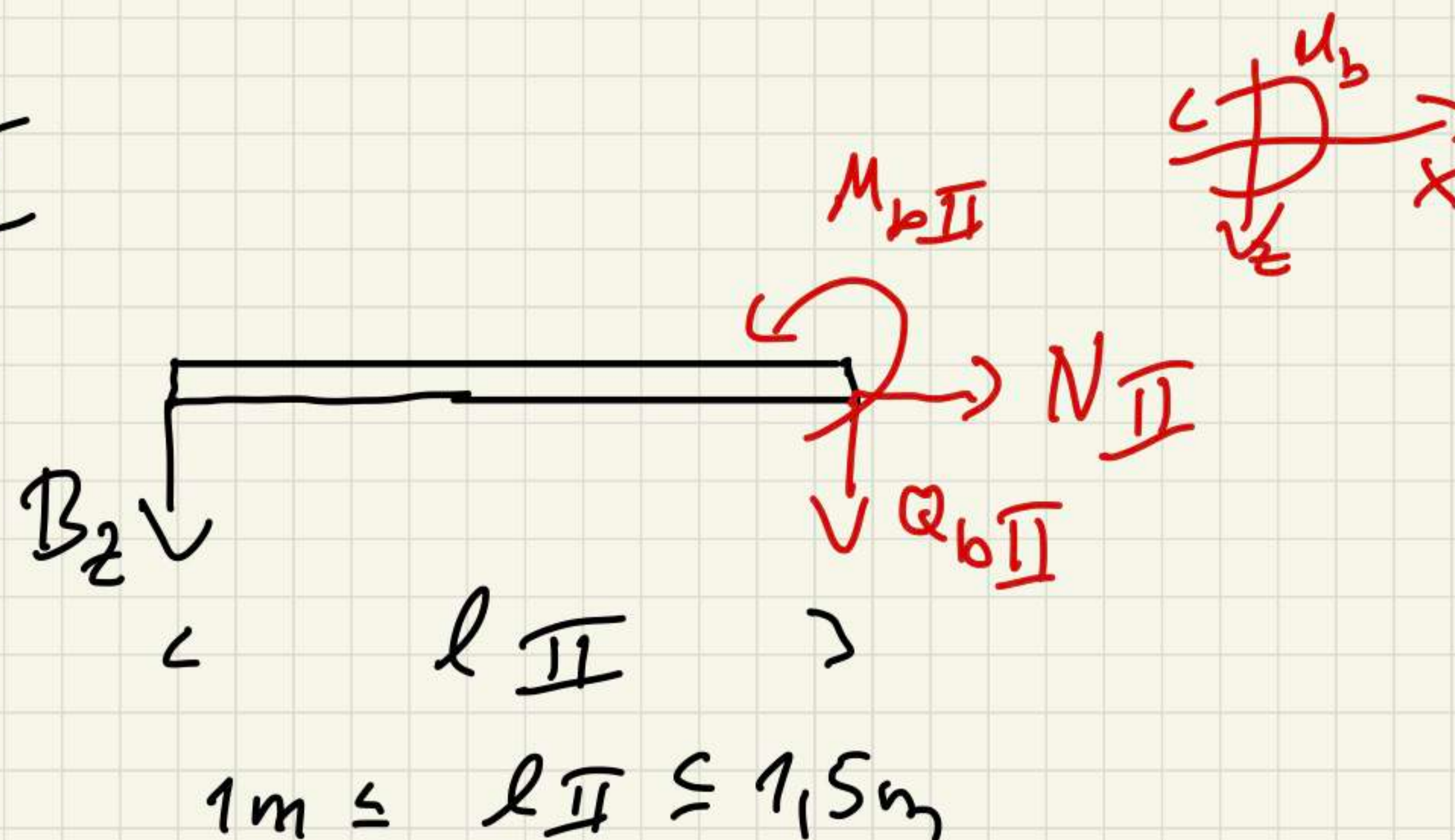
$$l_I = 0 \text{ m} \rightarrow M_{bI} = 0$$

$$l_I = 1 \text{ m} \rightarrow -0,5 \text{ kN} \cdot 1 \text{ m} - 2 \text{ kN/m} \cdot \frac{1 \text{ m}^2}{2}$$

$$= -0,5 \text{ kNm} - 1 \text{ kNm}$$

$$= -1,5 \text{ kNm}$$

II



$$\sum F_x = 0 \quad N_{II} = 0$$

$$\sum F_z = 0 \quad B_z + Q_{bII} = 0$$

$$-5,5 \text{ kN} + Q_{bII} = 0$$

$$Q_{bII} = 5,5 \text{ kN}$$

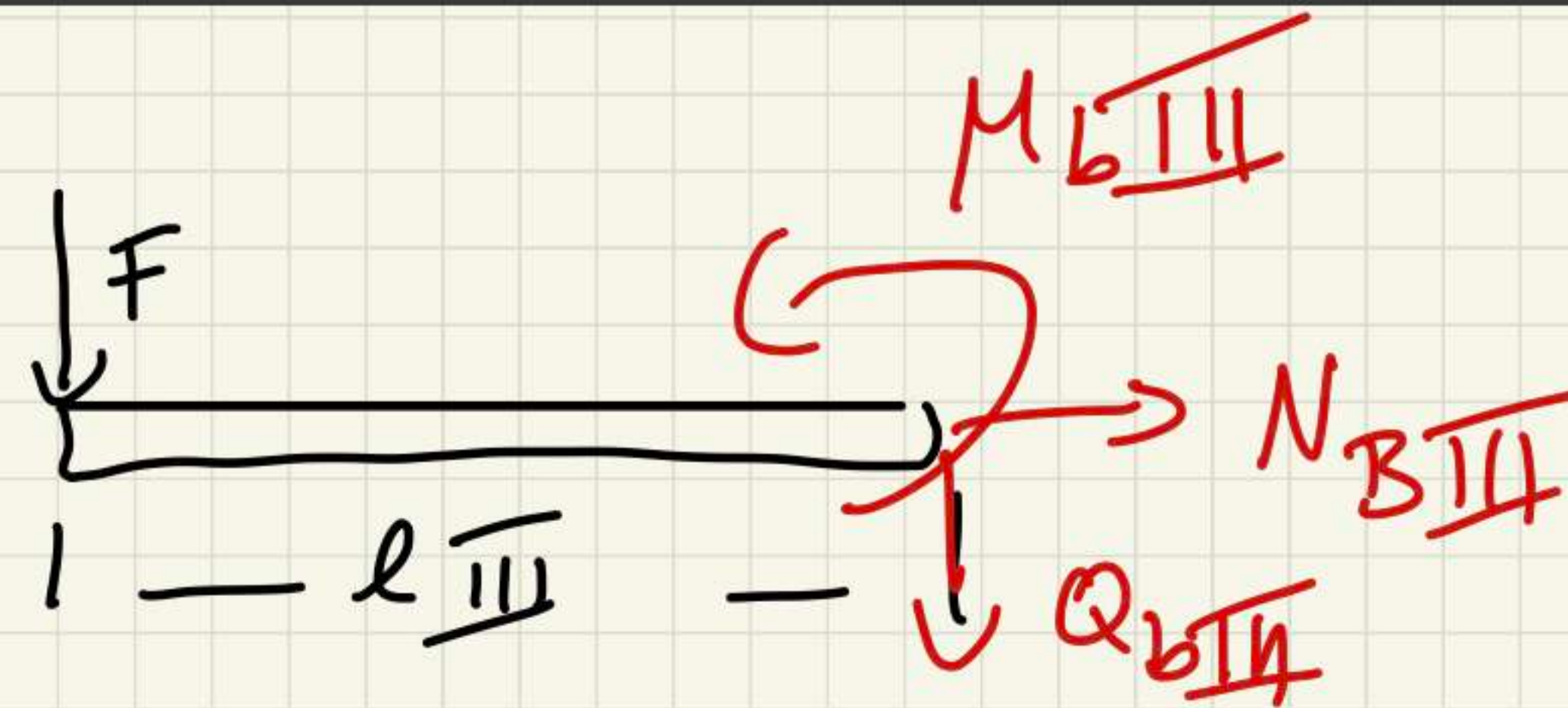
$$\sum M_y^{S(II)} = 0 \quad M_{bII} + l_{II} \cdot B_z = 0$$

$$M_{bII} = -l_{II} \cdot (-5,5 \text{ kN})$$

$$M_{bII} = l_{II} \cdot 5,5 \text{ kN}$$

$$l_{II} = 4 \text{ m} \quad M_{bII} = 5,5 \text{ kNm}$$

$$l_{II} = 1,5 \text{ m} \quad M_{bII} = 8,25 \text{ kNm}$$



$$1,5 \text{ m} \leq l_{III} \leq 2 \text{ m}$$

$$\sum F_x = 0 \quad N_{bIII} = 0$$

$$\sum F_z = 0 \quad F + Q_{bIII} = 0$$

$$Q_{bIII} = -3 \text{ kN}$$

$$\sum M_y^{(s_{III})} = 0 \quad M_{bIII} + F \cdot l_{III} = 0$$

$$M_{bIII} = -3 \text{ kN} \cdot l_{III}$$

$$l_{III} = 1,5 \text{ m} \quad M_{bIII} = 4,5 \text{ kNm}$$

$$l_{III} = 2 \text{ m} \quad M_{bIII} = 6 \text{ kNm}$$

