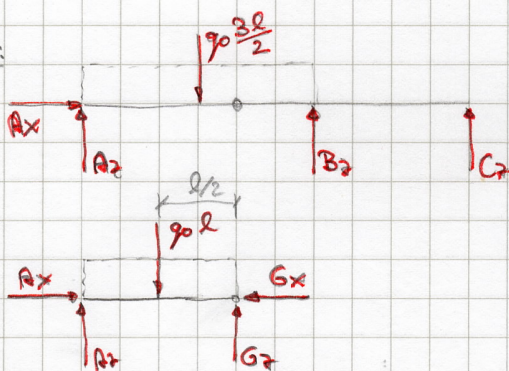


Aufgabe 12:

Auflöser:

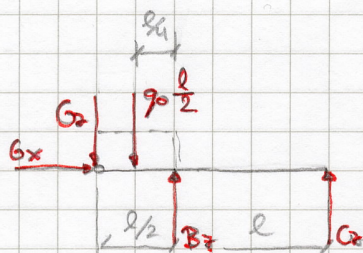


Glb. $\rightarrow$: $A_x = 0$

Glb. $\rightarrow$: $G_x = A_x = 0$

$\uparrow$: $q_0 l - A_z - G_z = 0 \quad (1)$

$\odot$: $q_0 l \frac{l}{2} - A_z \cdot l = 0 \quad (2)$



Glb. $\rightarrow$: $G_x = 0 \quad \checkmark$

$\uparrow$: $G_z + q_0 \frac{l}{2} - B_z - C_z = 0 \quad (3)$

$\odot$: $G_z \cdot \frac{l}{2} + q_0 \frac{l}{2} \cdot \frac{l}{4} + C_z l = 0 \quad (4)$

aus (2): $A_z = q_0 \frac{l}{2}$

aus (1): $G_z = q_0 l - A_z = q_0 l - q_0 \frac{l}{2} = q_0 \frac{l}{2}$

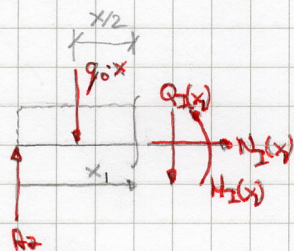
aus (4): $C_z = -G_z \frac{1}{2} - q_0 \frac{l}{8} = -q_0 \frac{l}{4} - q_0 \frac{l}{8} = -q_0 \frac{3l}{8}$

aus (3): $B_z = G_z + q_0 \frac{l}{2} - C_z = q_0 \frac{l}{2} + q_0 \frac{l}{2} + q_0 \frac{3l}{8} = q_0 \frac{11l}{8}$

Schnittgrößen:

Bereich I:

$(0 \leq x_1 \leq \frac{3l}{2})$



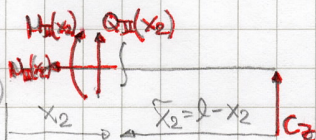
Glb. am Schnitt:

$\underline{Q_I(x)} = A_z - q_0 x_1 = q_0 \left(\frac{l}{2} - x_1 \right)$

$\underline{H_I(x)} = A_z \cdot x_1 - q_0 x_1 \cdot \frac{x_1}{2} = q_0 \frac{x_1}{2} (l - x_1)$

Bereich II:

$(\frac{3l}{2} \leq x_2 \leq \frac{5l}{2})$



$\underline{Q_{II}(x_2)} = -C_z = q_0 \frac{3l}{8}$

$\underline{H_{II}(x_2)} = C_z \cdot (l - x_2) = -q_0 \frac{3l}{8} (l - x_2)$

$\underline{M_{II}(x_2)} = q_0 \frac{3l}{8} (x_2 - l)$

Alternativer Rechenweg: direkte Integration!