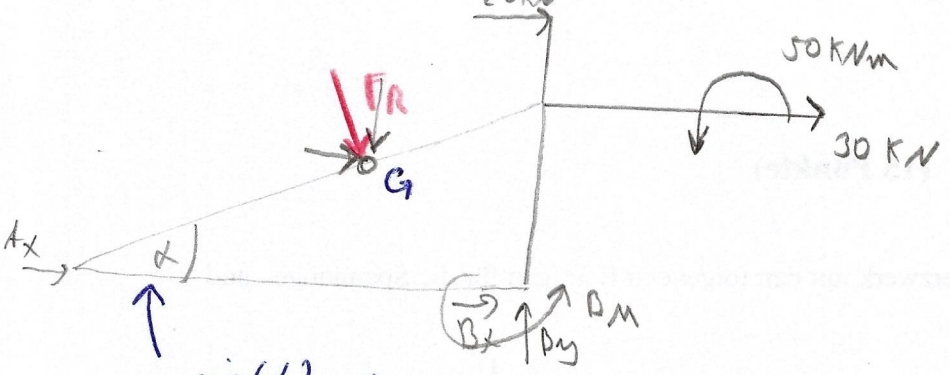
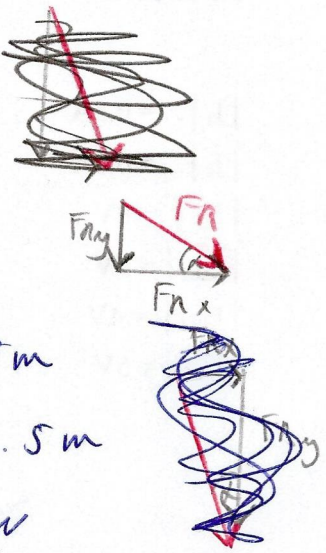


$\sin(\alpha) = \frac{4m}{8m} \Leftrightarrow \arcsin\left(\frac{4m}{8m}\right) =$

$\Leftrightarrow \alpha = 30°$

Gesamtsystem:



$\uparrow$: $\sum F_{iy} = 0 \Leftrightarrow B_y - F_{Ry} = 0$

$B_y = 37{,}5\,kN$

$\Rightarrow F_{Ry}$

$F_R = q_0 \cdot 5m$

$F_R = 15\frac{kN}{m} \cdot 5m$

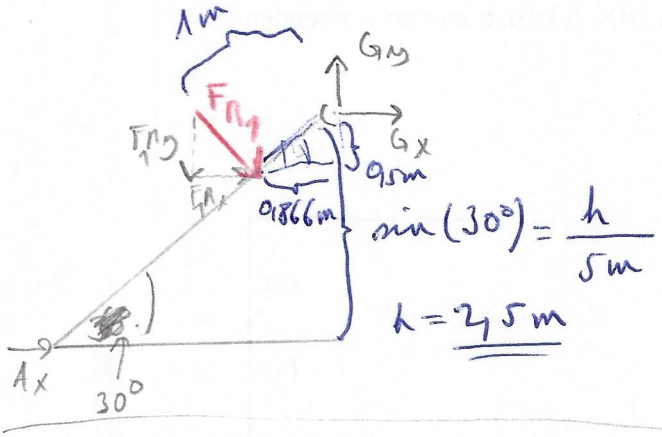
$F_R = 75\,kN$

$F_{Ry} = \sin(30°) \cdot 75\,kN$

$F_{Ry} = 37{,}5\,kN$

$F_{Rx} = 64{,}95\,kN$

Teilsystem I:



$\sin(30°) = \frac{h}{5m}$

$h = 2{,}5m$

$F_{R_1} = 2m \cdot 15\frac{kN}{m}$

$F_{R_1} = 30\,kN$

$F_{R_{1x}} = \cos(30°) \cdot 30\,kN$

$F_{R_{1x}} = 25{,}98\,kN$

$F_{R_{1y}} = \sin(30°) \cdot 30\,kN$

$F_{R_{1y}} = 15\,kN$

$+(G\circlearrowleft)$: $\sum M_i^{(G)} = 0 \Leftrightarrow A_x \cdot 2{,}5m + F_{R_{1x}} \cdot 0{,}5m + F_{R_{1y}} \cdot 0{,}866m = 0$

$A_x = \frac{-25{,}98\,kN \cdot 0{,}5m - 15\,kN \cdot 0{,}866m}{2{,}5m}$

$A_x = -10{,}39\,kN$

$\uparrow$: $\sum F_{iy} = 0 \Leftrightarrow G_y - F_{R_{1y}} = 0$

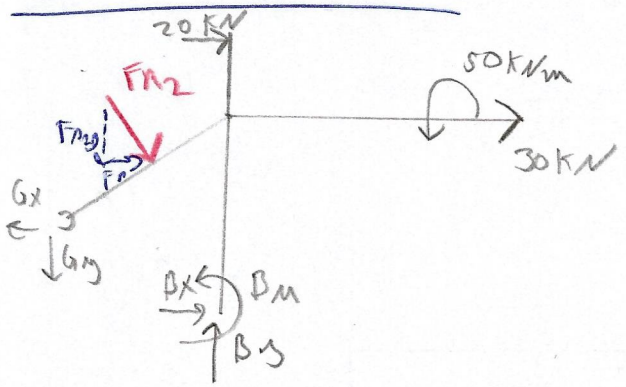
$G_y = 15\,kN$

$\rightarrow$: $\sum F_{ix} = 0 \Leftrightarrow A_x + F_{R_{1x}} + G_x = 0$

$G_x = -A_x - F_{R_{1x}}$

$G_x = -15{,}59\,kN$

Teilsystem II:



$F_{R2} = 3\,m \cdot 15\,\frac{kN}{m} = 45\,kN$

$F_{R2x} = 45\,kN \cdot \cos(30°) = 38,97\,kN$

$F_{R2y} = 45\,kN \cdot \sin(30°) = 22,5\,kN$

$A_X = -10,39\,kN$

$B_X = -73,38\,kN$

$B_Y = 37,5\,kN$

$B_M = 287,38\,kN\,m$

gegeben: $G_X = -15,59\,kN$

$G_Y = 15\,kN$

$\rightarrow$: $\sum F_{ix} = 0 \Leftrightarrow B_X + F_{R2x} + 20\,kN - G_X + 30\,kN = 0$

$B_X = -38,97\,kN - 20\,kN + 15,59\,kN - 30\,kN$

$B_X = -73,38\,kN$

$+\uparrow$: $\sum F_{iy} = 0$

$\Leftrightarrow B_Y - G_Y - F_{R2y} = 0$

$\Leftrightarrow B_Y = 15\,kN + 22,5\,kN$

$\Leftrightarrow B_Y = 37,5\,kN$

$+\circlearrowleft(B)$: $M_i^{(B)} = 0$

$\Leftrightarrow B_M - 6\,m \cdot 20\,kN - 4\,m \cdot 30\,kN + 50\,kN\,m + 1,3\,m \cdot 22,5\,kN - 3,25\,m \cdot 38,97\,kN + 2,6\,m \cdot 15\,kN + 2,5\,m \cdot (-15,59\,kN) = 0$

$B_M = 287,38\,kN\,m$