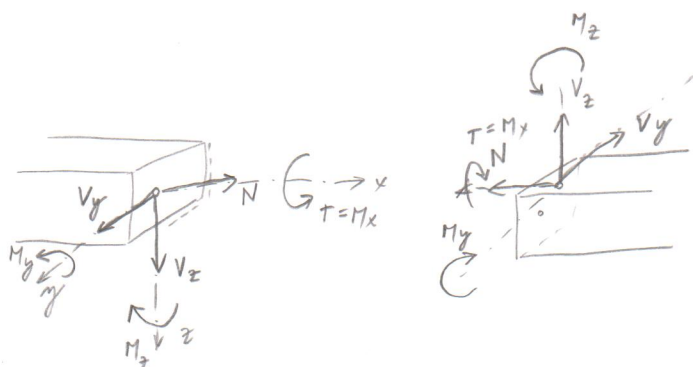


PROSTOROVĚ NAMÁHANÝ PRUT:

- 6 stupňů volnosti $\rightarrow$ 6 stat. podm. rovnováhy

kladné smyčky:

$$\begin{array}{l} 3N + 3M \\ \sum F_{ix} = 0 \\ \sum F_{iy} = 0 \\ \sum F_{iz} = 0 \end{array} \quad \begin{array}{l} (4M + 2N; 5M + 1N; 6M) \\ \sum M_{ix} = 0 \\ \sum M_{iy} = 0 \\ \sum M_{iz} = 0 \end{array}$$



N ... normálová síla

V_y, V_z ... posouvající síly

$T = M_x$... krouticí / točící moment

M_y, M_z ... ohybové momenty

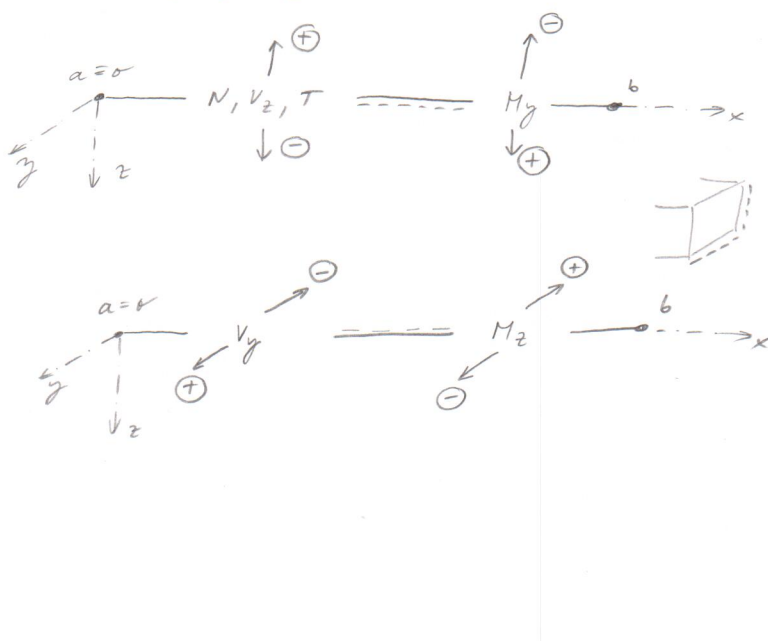
- prostorové namáhání lze rozdělit na 4 částí stuy:

- ovové namáhání - tah, tlak $\rightarrow N$
- ohyb ve smyčce ve svislé rovině $xz \rightarrow V_z, M_z$
- ohyb ve smyčce ve vodorovné rovině $xy \rightarrow V_y, M_y$
- kroutění $\rightarrow T = M_x$

N, V_z, M_y, T vyvážíme ve svislé rovině xz

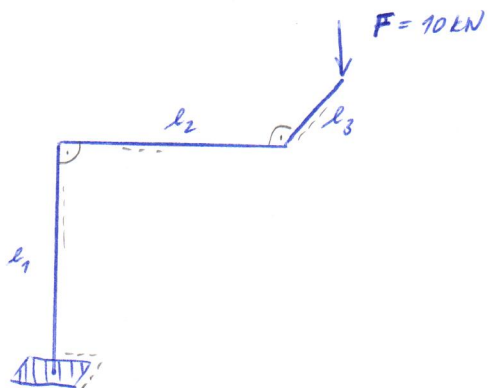
V_y, M_z ve vodorovné rovině xy

ZNAMĚNKOVÁ KONVENCE:



PROSTOROVĚ NATAHANÁ PRAVOUHLÉ LOMENÁ KONZOLA :
 NOVNÍK :

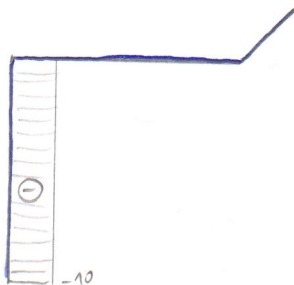
2. PR. :



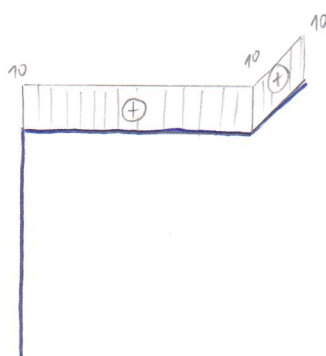
$$l_1 = l_2 = 5 \text{ m}$$

$$l_3 = 2 \text{ m}$$

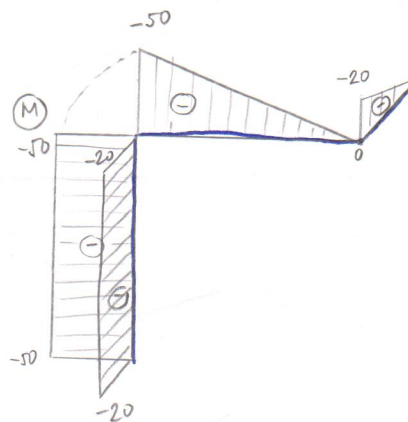
(N)



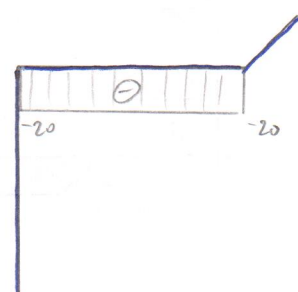
(V_x)



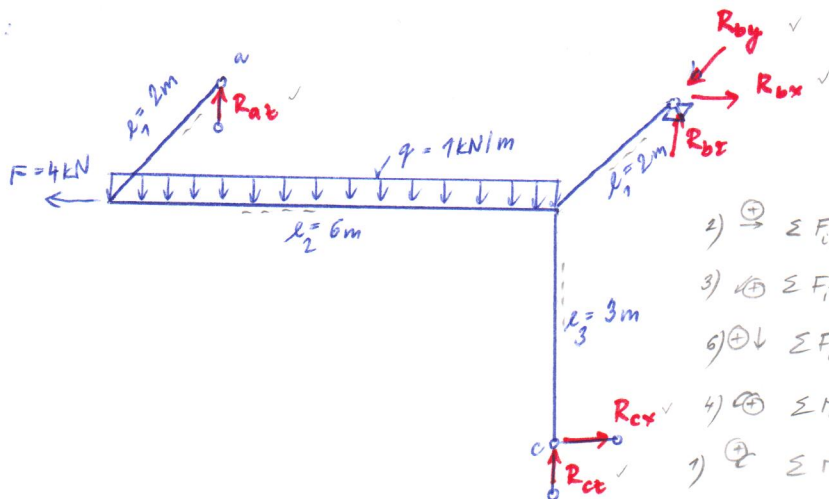
(M)



(T)



* Pr:



$$2) \quad \sum F_{ix} = 0 : R_{bx} + R_{cx} - F = 0 \rightarrow \underline{R_{bx} = 0}$$

$$3) \quad \sum F_{iy} = 0 : \underline{R_{by} = 0}$$

$$6) \quad \sum F_{iz} = 0 : -R_{az} + q \cdot 6 - R_{bz} - R_{cz} = 0 \rightarrow \underline{R_{bz} = -5kN (\downarrow)}$$

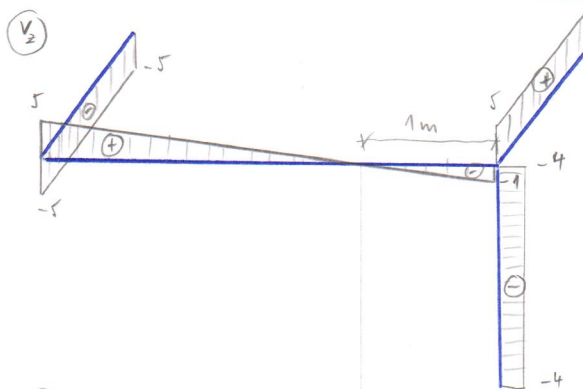
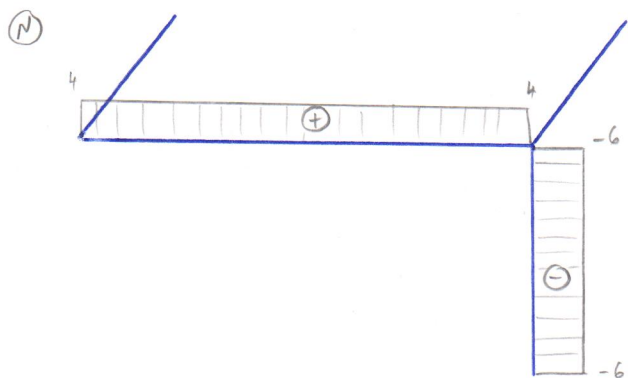
$$4) \quad \sum M_{iy,b} = 0 : -R_{az} \cdot 6 + q \cdot 6 \cdot 3 + R_{cx} \cdot 3 = 0 \rightarrow \underline{R_{az} = 5kN (\uparrow)}$$

$$1) \quad \sum M_{iz,b} = 0 : -F \cdot 2 + R_{cx} \cdot 2 = 0 \rightarrow \underline{R_{cx} = 4kN (\rightarrow)}$$

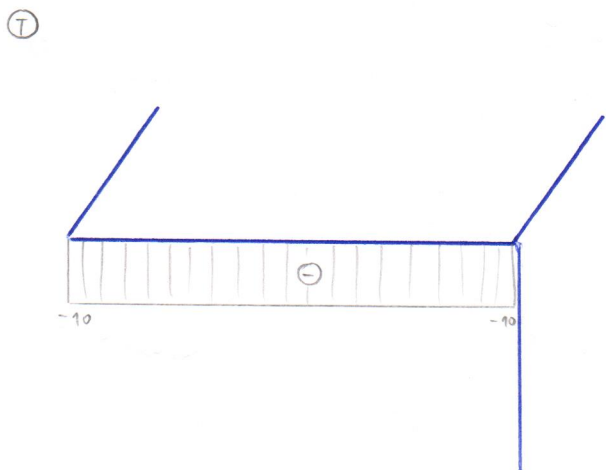
$$\underline{R_{cx} = 4kN (\rightarrow)}$$

$$5) \quad \sum M_{ix,b} = 0 : -q \cdot 6 \cdot 2 + R_{cy} \cdot 2 = 0 \rightarrow \underline{R_{cy} = 6kN (\uparrow)}$$

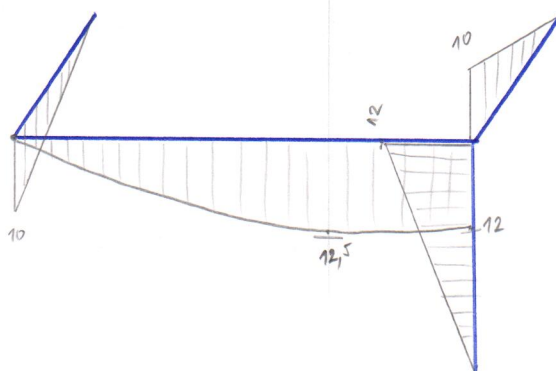
$$\underline{R_{cy} = 6kN (\uparrow)}$$



(Vx) $\emptyset$



(My)



(Mz) $\emptyset$