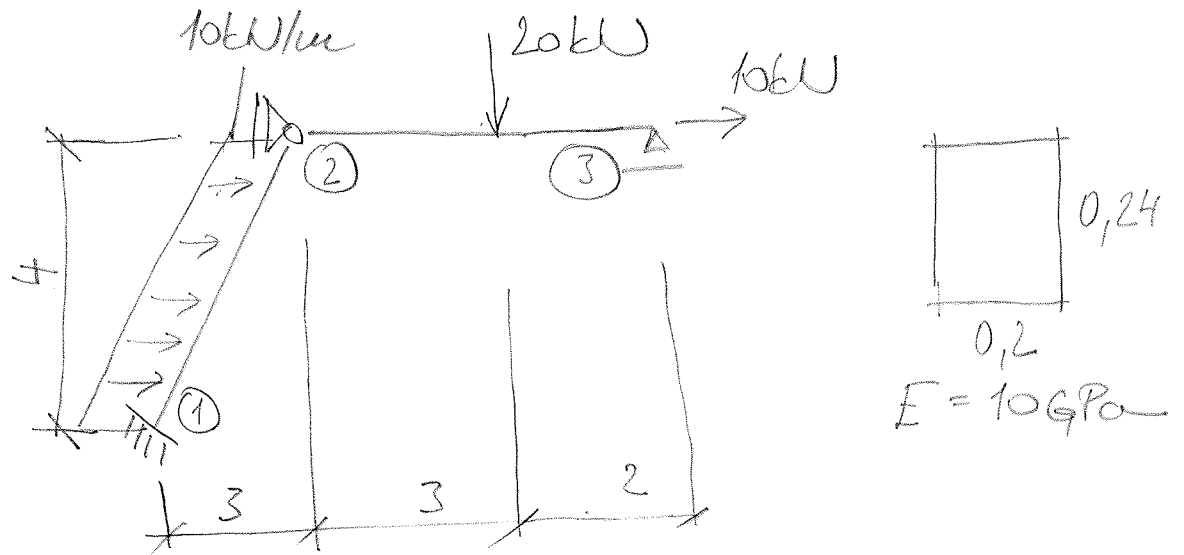


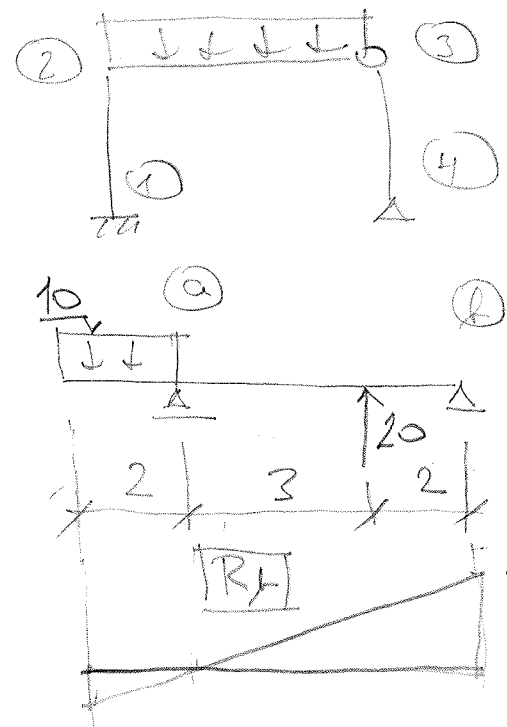
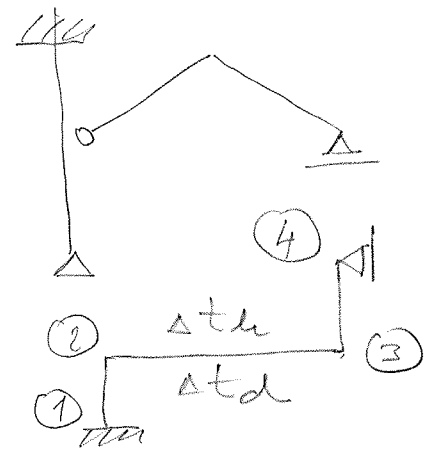
ZADÁNÍ ZKOUSKY BD004 - STATIKA II, 15.6.2019,
KOMBINOVANÉ STUDIUM, ZKOUSKJCI: B. ŽIDEK

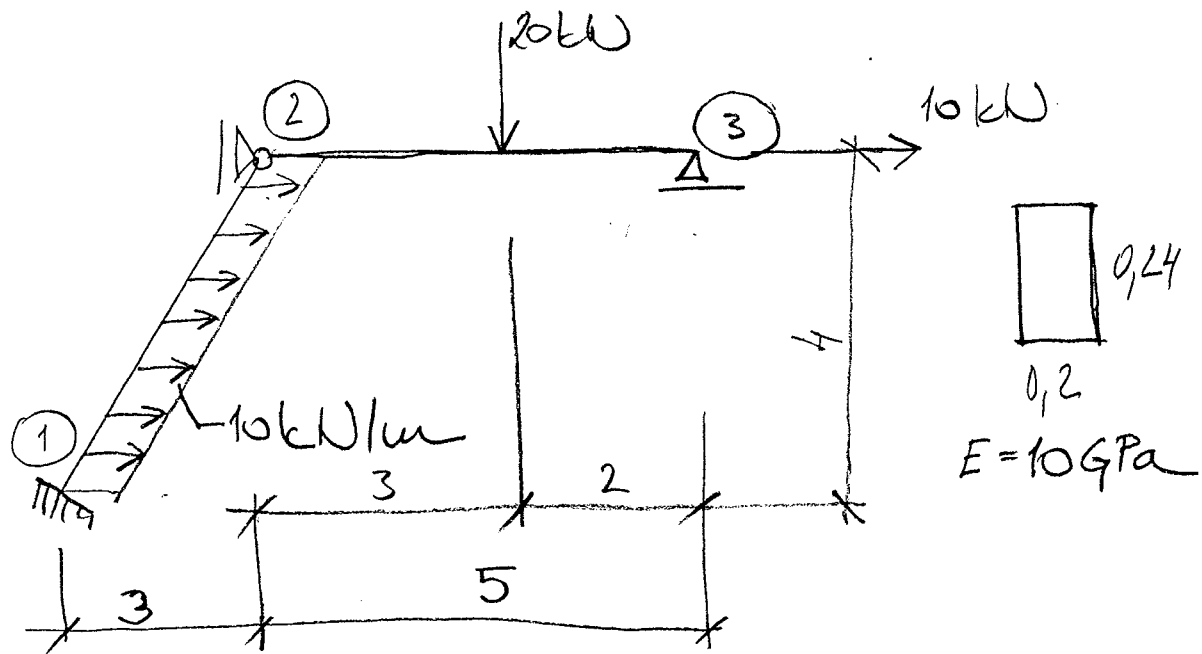


ODM VYPOČTETE POSUNY u_2 A u_3 .

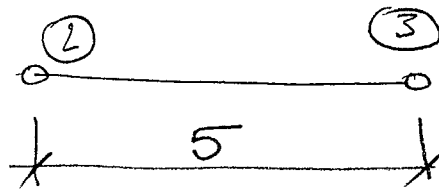
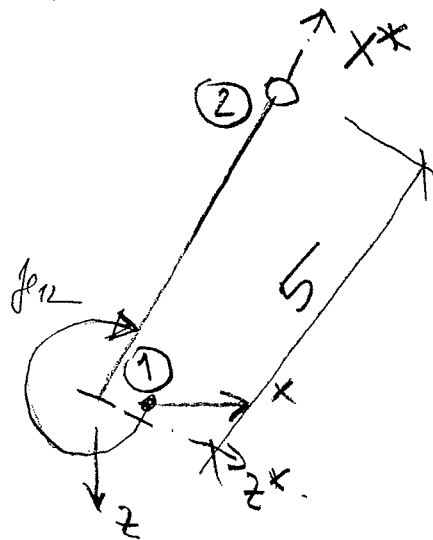
TEORIE :

- 1) URČETE STUPĚŇ PŘETVAŘIVÉ NEURČITOSTI.
- 2) JAK SE VE VÝPOČTU ODM PROJEVÍ ZATÍŽENÍ PRUTU ZNĚNOU TEPLOTY?
- 3) PRO PRUT 2-3 UVEĎTE :
 - a) VÝPOČTOVÝ MODEL PRO VÝPOČET PRŮT. REAKCI
 - b) NAKRESLETE PRŮT. REAKCE
 - c) JAKOU METODOU SE VÝPOČTOU? (BEZ TABULEK)
- 4) POMOCÍ PŘÍČ. ČÁKÝ R_A VÝPOČTETE REAKCI R_A



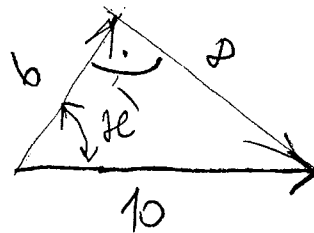


$$I = \frac{1}{12} b h^3 = 2,304 \cdot 10^{-4} \text{ m}^4 \quad A = 0,048 \text{ m}^2$$



$$\cos \phi_{23} = 1$$

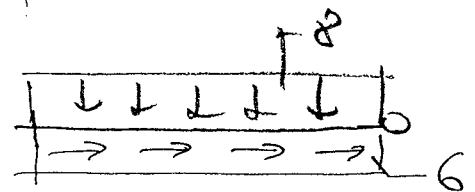
$$\sin \phi_{23} = 0$$



$$\cos \phi_{12} = 0,6$$

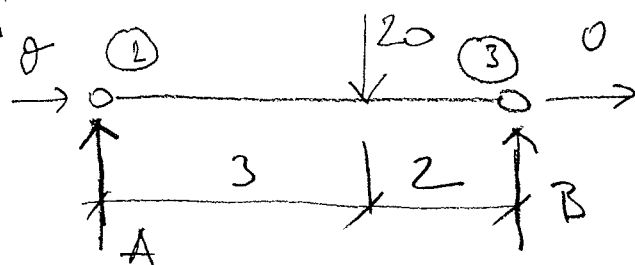
$$\sin \phi_{12} = -0,8$$

PRIMAIRE VERICHTING:



$$\begin{bmatrix} - \\ - \\ - \\ -21000 \\ 3000 \end{bmatrix} \begin{matrix} u_2 \\ v_2 \\ \theta \\ u_3 \\ v_3 \end{matrix} = \begin{bmatrix} 0,6 & 0,8 & 0 \\ -0,8 & 0,6 & 0 \\ 0 & 0 & 1 \\ 0,6 & 0,8 & 0 \\ -0,8 & 0,6 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} -15000 \\ -21000 \\ 21000 \\ -15000 \\ -11000 \\ 0 \end{bmatrix}$$

$$\{\bar{r}_{12}\} = [k_{12}]^T \{\bar{u}\}$$



$$\sum M_1 = 0: -20 \cdot 3 + B \cdot 5 = 0$$

$$B = 12$$

$$\sum M_3 = 0: -A \cdot 5 + 20 \cdot 2 = 0$$

$$A = 8$$

$$\{R_{13}\} = \{0; -8000; 0; 0; -12000; 0\}^T$$

MATICE TUHOSTI:

$$[k_{12}] = 10^6 \cdot \begin{bmatrix} u_1 & w_1 & \varphi_1 & u_2 & w_2 & \varphi_2 \\ \hline - & - & - & - & - & - \\ - & - & - & - & - & - \\ - & - & - & - & - & - \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \hline \end{bmatrix} \begin{matrix} u_1 = 0 \\ w_1 = 0 \\ \varphi_1 = 0 \\ u_2 \\ w_2 = 0 \\ \varphi_2 \end{matrix}$$

61,46

$$[k_{23}] = 10^6 \cdot \begin{bmatrix} u_2 & w_2 & \varphi_2 & u_3 & w_3 & \varphi_3 \\ \hline 96 & 0 & 0 & -96 & 0 & 0 \\ - & 0 & 0 & - & 0 & 0 \\ - & - & - & - & - & - \\ -96 & 0 & 0 & 96 & 0 & 0 \\ \hline \end{bmatrix} \begin{matrix} u_2 = 0 \\ w_2 \\ \varphi_2 \\ u_3 \\ w_3 = 0 \\ \varphi_3 \end{matrix}$$

SOUSTAVA ROVNIC

$$10^6 \cdot \begin{bmatrix} 61,46 & 0 \\ - & 96 \end{bmatrix} \cdot \begin{Bmatrix} w_2 \\ u_3 \end{Bmatrix} = \begin{Bmatrix} 0 \\ 10000 \end{Bmatrix} - \begin{Bmatrix} 3000 \\ -8000 \end{Bmatrix} = \begin{Bmatrix} 5000 \\ 10000 \end{Bmatrix}$$

$$w_2 = 81,35 \cdot 10^{-6} \text{ m} = 0,08135 \text{ mm}$$

$$u_3 = 104,167 \cdot 10^{-6} \text{ m} = 0,104 \text{ mm}$$