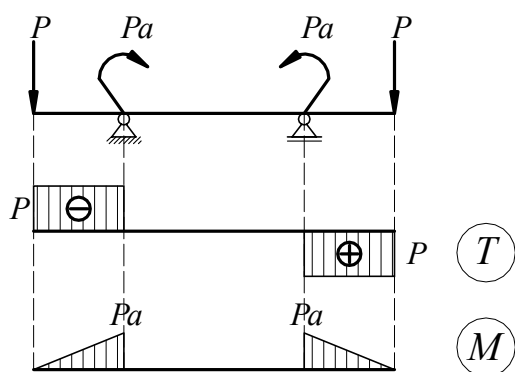
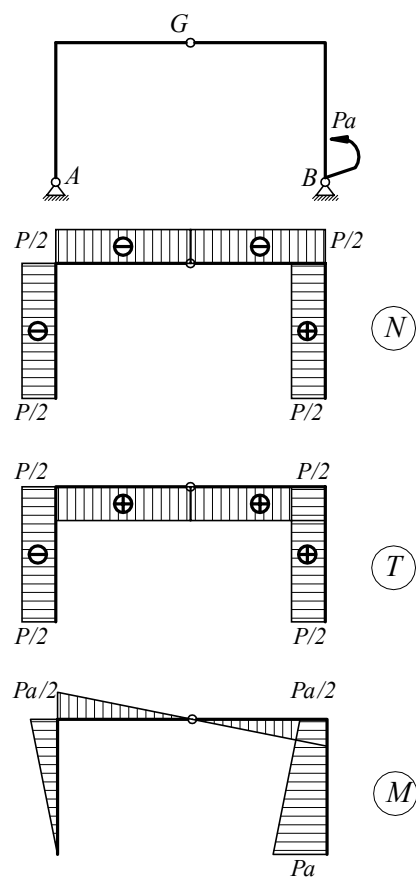


1.

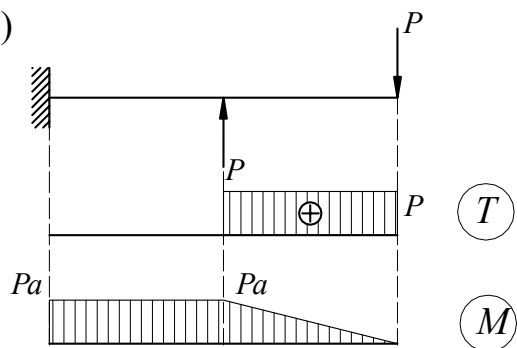
a)



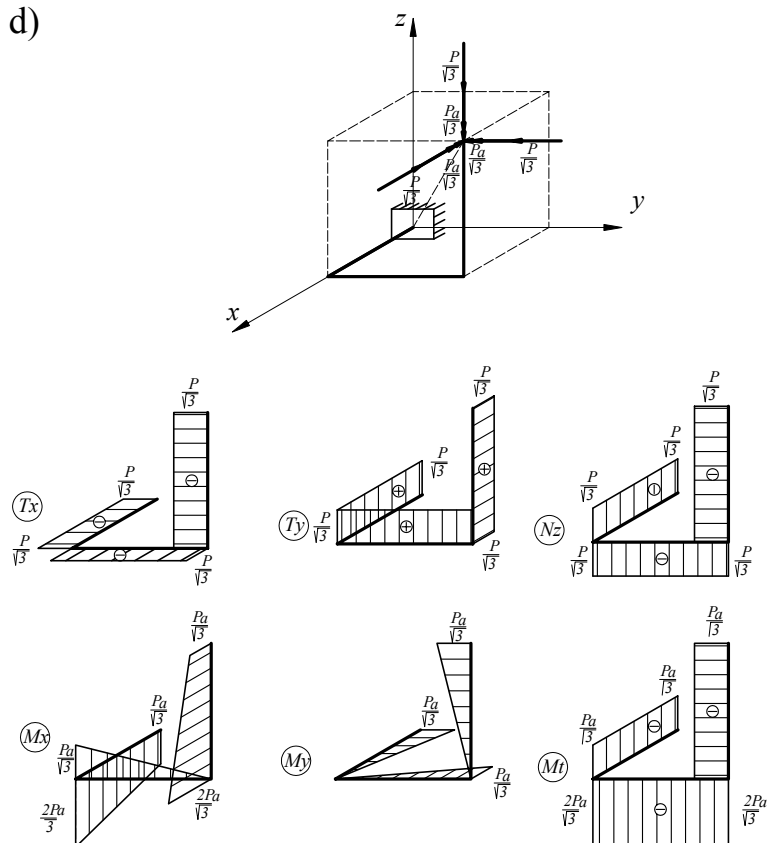
b)



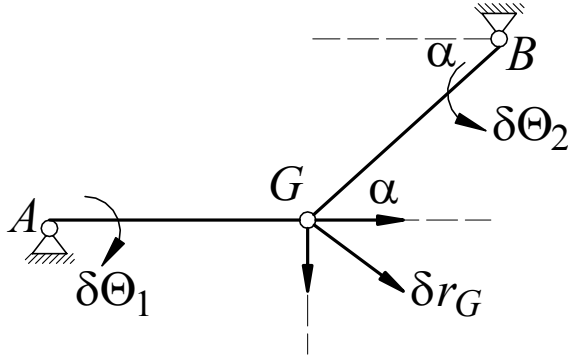
c)



d)



2.



$$\delta \vec{r}_A = \delta x_A \vec{i} + \delta y_A \vec{j} = 0$$

$$\delta x_A = 0; \delta y_A = 0$$

$$\delta \vec{r}_B = \delta x_B \vec{i} + \delta y_B \vec{j} = 0$$

$$\delta x_B = 0; \delta y_B = 0$$

$$\delta \vec{r}_G^I = \delta \vec{r}_A + \delta \theta_1 \times \overrightarrow{AG} = -\delta \theta_1 \cdot l \cdot \vec{j}$$

$$\delta \vec{r}_G^{II} = \delta \vec{r}_B + \delta \theta_2 \times \overrightarrow{BG} = l \cdot \sin \alpha \cdot \delta \theta_2 \cdot \vec{i} - l \cdot \cos \alpha \cdot \delta \theta_2 \cdot \vec{j}$$

$$\delta \vec{r}_G^I = \delta \vec{r}_G^{II}$$

$$\Rightarrow \begin{cases} \vec{i} : 0 = l \cdot \sin \alpha \cdot \delta \theta_2 \\ \vec{j} : -l \cdot \delta \theta_1 = -l \cdot \cos \alpha \cdot \delta \theta_2 \end{cases}$$

$$\delta \theta_1 - \delta \theta_2 \cdot \cos \alpha = 0$$

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \sin \alpha \\ 0 & 0 & 0 & 0 & 1 & -\cos \alpha \end{bmatrix} \begin{pmatrix} \delta x_A \\ \delta y_A \\ \delta x_B \\ \delta y_B \\ \delta \theta_1 \\ \delta \theta_2 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

$$\det[A] = 0$$

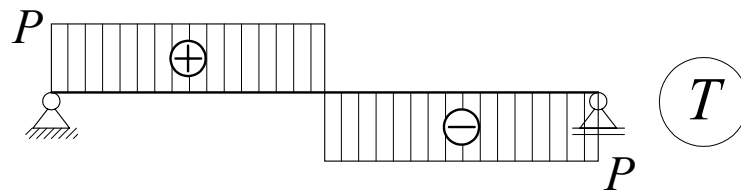
$$\Rightarrow \sin \alpha = 0 \quad \alpha = k\pi \quad \Rightarrow \alpha = 0$$

3.

$$M(x) = \frac{Pa}{2} + P \cdot x \quad (0 < x < a)$$

$$M(x) = Pa - P \cdot (x - a) \quad (a < x < 2a)$$

$$T(x) = \frac{dM}{dx} = \begin{cases} P; & 0 \leq x \leq a \\ -P; & a \leq x \leq 2a \end{cases}$$



$$q(x) = -\frac{dT}{dx} = 0; \quad 0 \leq x \leq 2a$$

Opterećenje koje deluje na nosaču:

