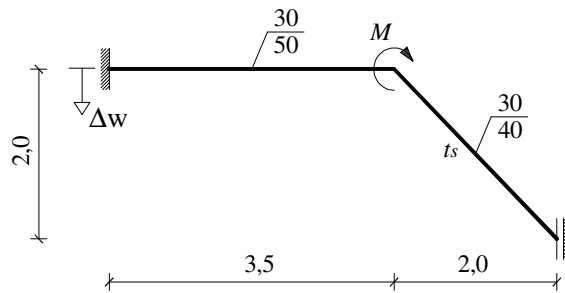


GS 1. - 2. kolokvij (A1) – (2009./2010.)

1. (30) Odredite dijagram momenata.



$$M = 100 \text{ kN}$$

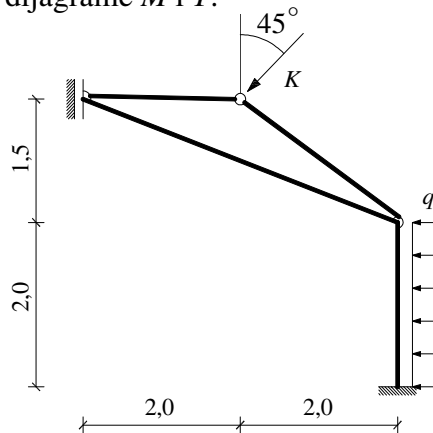
$$t_s = -25^\circ \text{ C}$$

$$\alpha_t = 10^{-5} \text{ K}^{-1}$$

$$\Delta w = 4 \text{ cm}$$

$$E = 3 \cdot 10^7 \text{ kN/m}^2$$

2. (30) Odredite dijagrame M i T .



$$q = 30 \text{ kN/m}$$

$$K = 130 \text{ kN}$$

stupovi/grede

$$b/h = 30/45 \text{ cm}$$

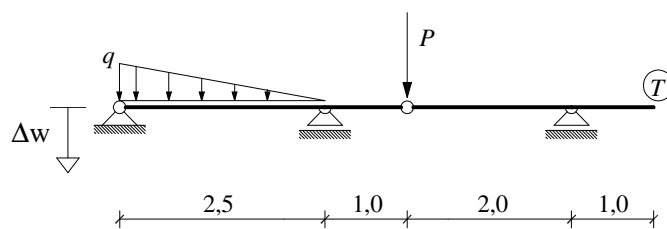
$$E = 3 \cdot 10^7 \text{ kN/m}^2$$

štapovi

$$b/h = 10/10 \text{ cm}$$

$$E = 2 \cdot 10^8 \text{ kN/m}^2$$

3. (30) Odredite zaokret točke T .



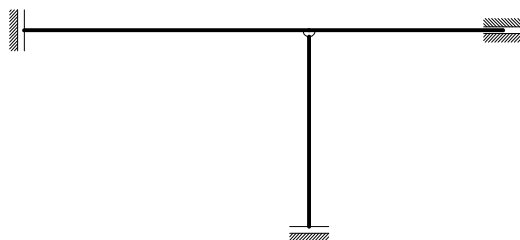
$$P = 240 \text{ kN}$$

$$q = 55 \text{ kN/m}$$

$$\Delta w = 1 \text{ cm}$$

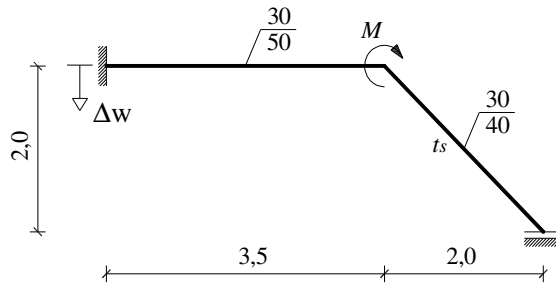
$$EI = 50000 \text{ kNm}^2$$

4. (10) Stupanj statičke neodređenosti, nacrtajte dva osnovna sistema i na njima označite nepoznate veličine X_i .



GS 1. - 2. kolokvij (A2) – (2009./2010.)

1. (30) Odredite dijagram momenata.



$$M = 200 \text{ kN}$$

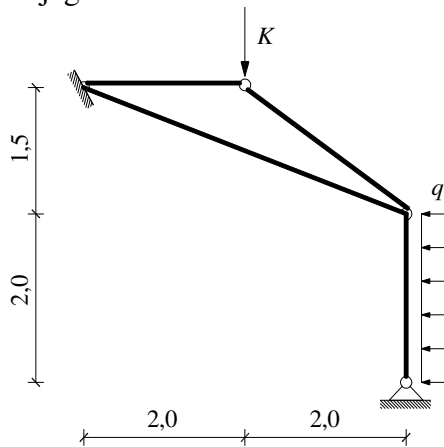
$$t_s = 28^\circ \text{ C}$$

$$\alpha_t = 10^{-5} \text{ K}^{-1}$$

$$\Delta w = 3 \text{ cm}$$

$$E = 3 \cdot 10^7 \text{ kN / m}^2$$

2. (30) Odredite dijagrame M i T .



$$q = 34 \text{ kN/m}$$

$$K = 250 \text{ kN}$$

stupovi/grede

$$b/h = 30/45 \text{ cm}$$

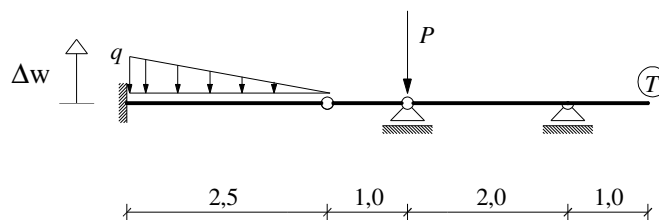
$$E = 3 \cdot 10^7 \text{ kN / m}^2$$

štapovi

$$b/h = 10/10 \text{ cm}$$

$$E = 2 \cdot 10^8 \text{ kN / m}^2$$

3. (30) Odredite zaokret točke T .



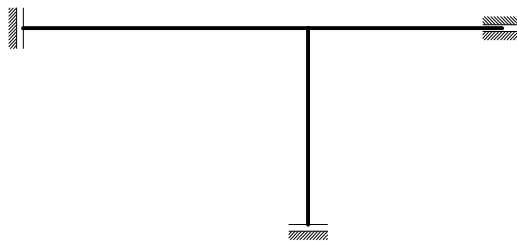
$$P = 200 \text{ kN}$$

$$q = 50 \text{ kN / m}$$

$$\Delta w = 1,5 \text{ cm}$$

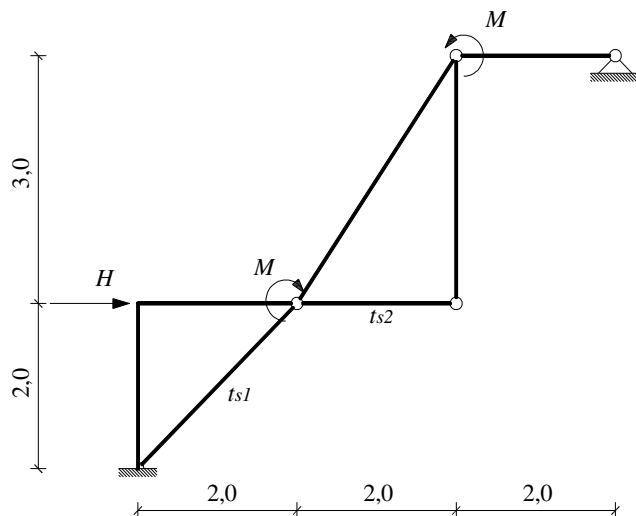
$$EI = 60000 \text{ kNm}^2$$

4. (10) Stupanj statičke neodređenosti, nacrtajte dva osnovna sistema i na njima označite nepoznate veličine X_i .



GS 1. - 2. kolokvij (B1) – (2009./2010.)

1. (30) Odredite dijagrame M i N .



$$M = 100 \text{ kN}$$

$$t_{s1} = -25^\circ \text{ C}$$

$$t_{s2} = -15^\circ \text{ C}$$

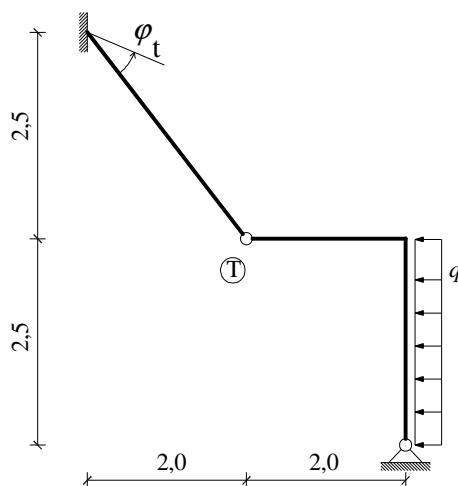
$$\alpha_t = 10^{-5} \text{ K}^{-1}$$

$$H = 200 \text{ kN}$$

$$E = 3 \cdot 10^7 \text{ kN / m}^2$$

$$b / h = 30 / 30 \text{ cm}$$

2. (30) Odredite vertikalni pomak točke T .



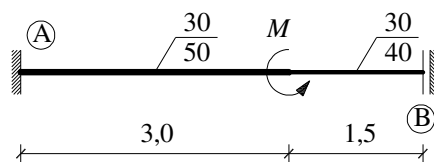
$$q = 46 \text{ kN/m}$$

$$\varphi_t = 0,009$$

$$E = 3 \cdot 10^7 \text{ kN / m}^2$$

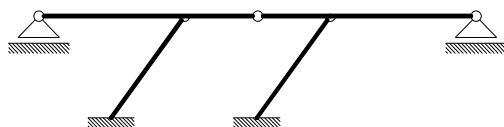
$$b / h = 30 / 50 \text{ cm}$$

3. (30) Odredite vrijednost momenta M tako da vertikalni pomak točke B iznosi 1,0 cm.



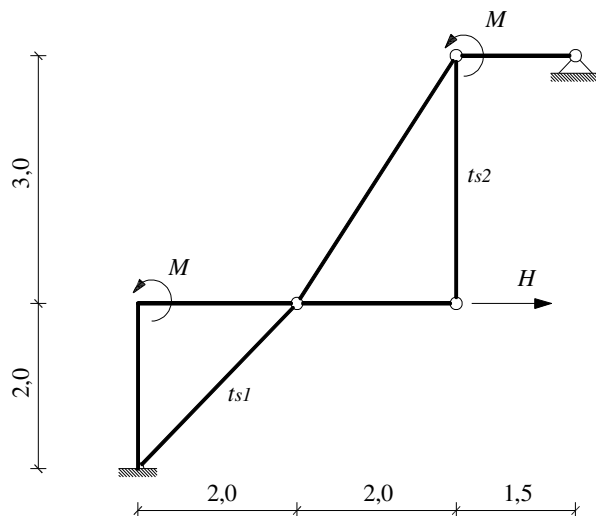
$$E = 3 \cdot 10^7 \text{ kN / m}^2$$

4. (10) Odredite stupanj statičke neodređenosti, nacrtajte dva osnovna sistema i na njima označite nepoznate veličine X_i .



GS 1. - 2. kolokvij (B2) – (2009./2010.)

1. (30) Odredite dijagrame M i N .



$$M = 130 \text{ kN}$$

$$t_{s1} = 25^\circ \text{ C}$$

$$t_{s2} = -16^\circ \text{ C}$$

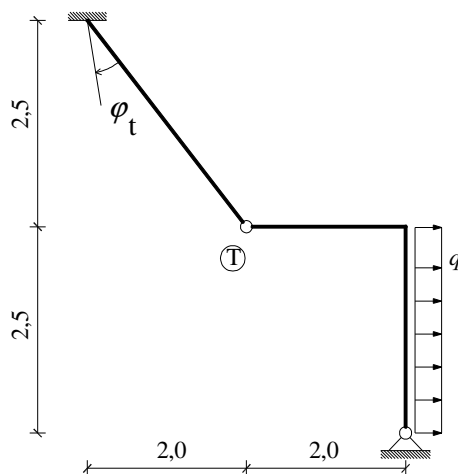
$$\alpha_t = 10^{-5} \text{ K}^{-1}$$

$$H = 230 \text{ kN}$$

$$E = 3 \cdot 10^7 \text{ kN/m}^2$$

$$b/h = 30/30 \text{ cm}$$

2. (30) Odredite horizontalan pomak točke T .



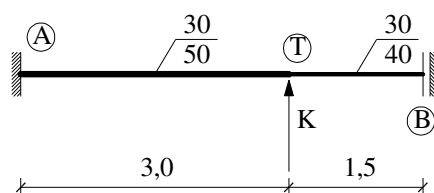
$$q = 40 \text{ kN/m}$$

$$\varphi_t = 0,008$$

$$E = 3 \cdot 10^7 \text{ kN/m}^2$$

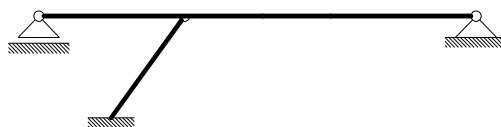
$$b/h = 30/40 \text{ cm}$$

3. (30) Odredite vrijednost sile K tako da vertikalni pomak točke T iznosi 1,0 cm.



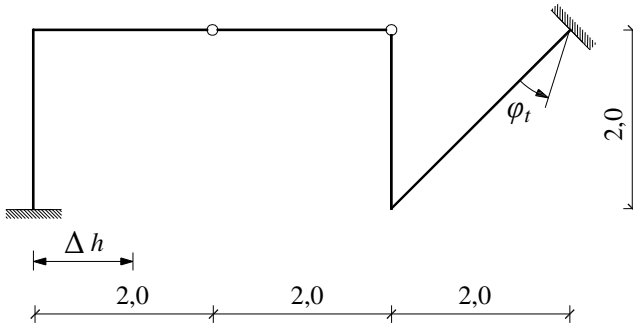
$$E = 3 \cdot 10^7 \text{ kN/m}^2$$

4. (10) Odredite stupanj statičke neodređenosti, nacrtajte dva osnovna sistema i na njima označite nepoznate veličine X_i .



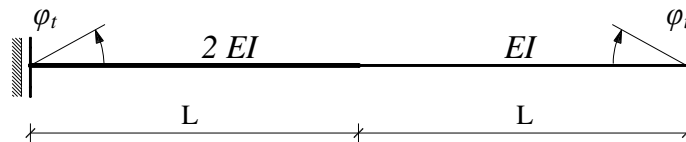
GS 1. – 2. kolokvij (C1) (2009./2010.)

1. (30) Nacrtajte M i T dijagrame.



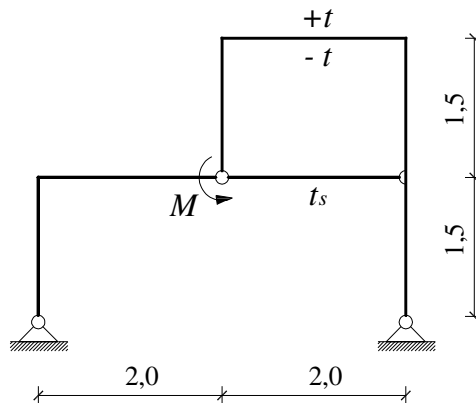
$$\begin{aligned}\varphi_t &= 0,002 \\ b/h &= 30/60 \text{ cm} \\ \Delta h &= 2,0 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2\end{aligned}$$

2. (15) Nacrtajte M dijagram.



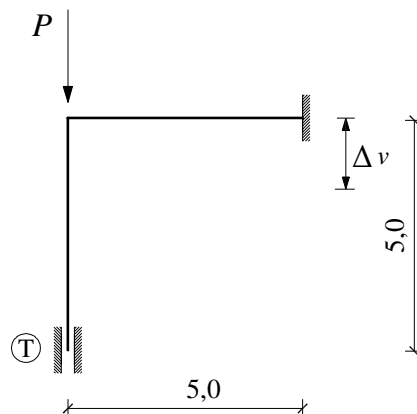
3. (25) Nacrtajte M dijagram.

$$\begin{aligned}b/h &= 30/45 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2\end{aligned}$$



$$\begin{aligned}t &= 10 \text{ }^\circ\text{C} \\ t_s &= 12 \text{ }^\circ\text{C} \\ \alpha_t &= 10^{-5} \text{ }^\circ\text{C}^{-1} \\ M &= 100 \text{ kNm}\end{aligned}$$

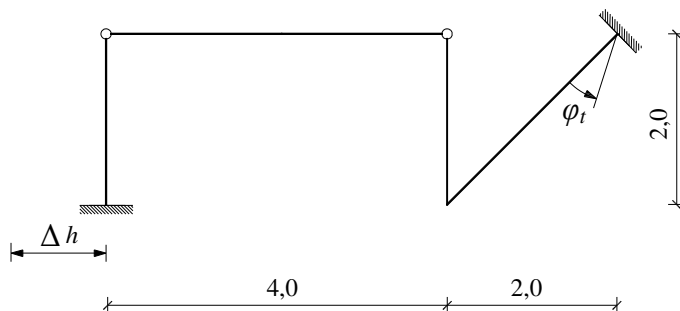
4. (30) Odredite vertikalni pomak točke T.



$$\begin{aligned}P &= 100 \text{ kN} \\ b/h &= 30/60 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2 \\ \Delta v &= 3,0 \text{ cm}\end{aligned}$$

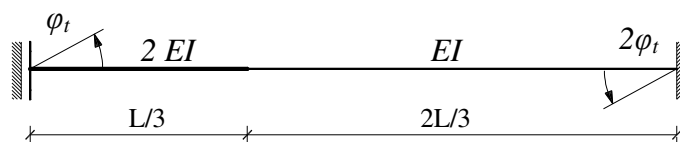
GS 1. – 2. kolokvij (C2) (2009./2010.)

1. (30) Nacrtajte M i T dijagrame.



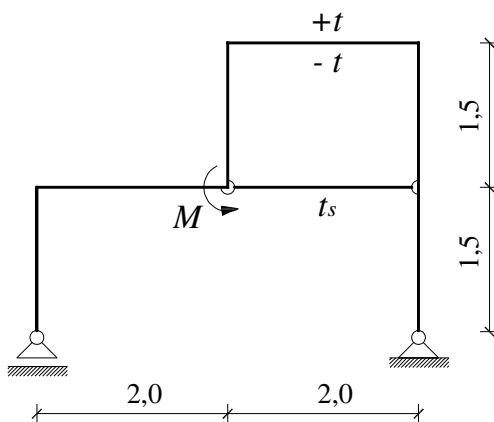
$$\begin{aligned}\varphi_t &= 0,003 \\ b/h &= 30/60 \text{ cm} \\ \Delta h &= 2,5 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2\end{aligned}$$

2. (15) Nacrtajte M dijagram.



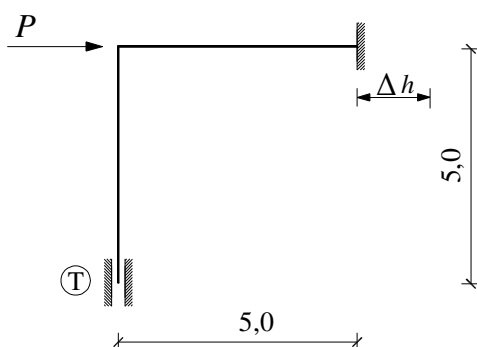
3. (25) Nacrtajte M dijagram.

$$\begin{aligned}b/h &= 30/45 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2\end{aligned}$$



$$\begin{aligned}t &= 10 \text{ }^\circ\text{C} \\ t_s &= 15 \text{ }^\circ\text{C} \\ \alpha_t &= 10^{-5} \text{ }^\circ\text{C}^{-1} \\ M &= 100 \text{ kNm}\end{aligned}$$

4. (30) Odredite vertikalni pomak točke T.



$$\begin{aligned}P &= 100 \text{ kN} \\ b/h &= 25/45 \text{ cm} \\ E &= 3 \times 10^7 \text{ kN/m}^2 \\ \Delta h &= 2,0 \text{ cm}\end{aligned}$$

GS 1. – 2. kolokvij (D1) (2009./2010.)

1. (30) Nacrtajte M dijagram.

okvir :

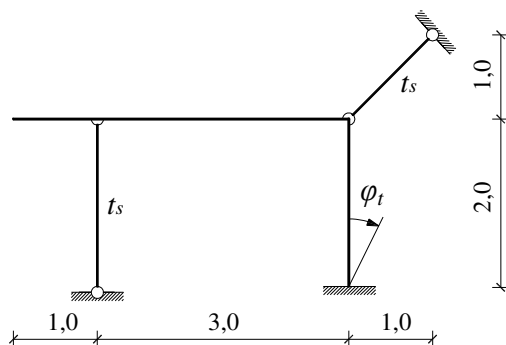
$$b/h = 30/30 \text{ cm}$$

$$E = 3 \times 10^7 \text{ kN/m}^2$$

štapovi :

$$r = 3 \text{ cm}$$

$$E = 2 \times 10^8 \text{ kN/m}^2$$

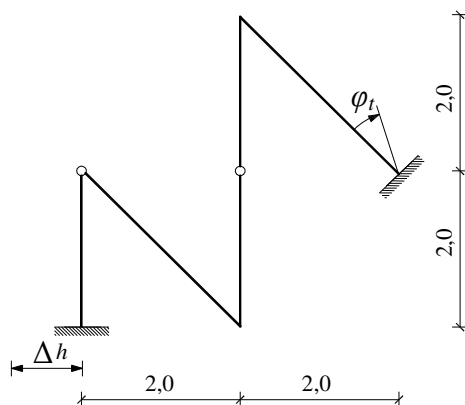


$$\varphi_t = 0,004$$

$$t_s = 12 \text{ }^\circ\text{C}$$

$$\alpha_t = 10^{-5} \text{ }^\circ\text{C}^{-1}$$

2. (30) Nacrtajte M i T dijagrame.



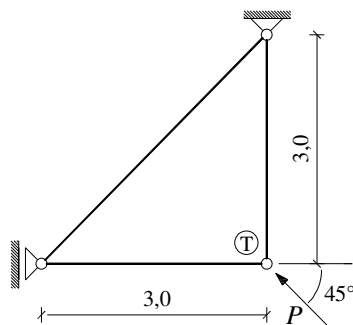
$$\varphi_t = 0,002$$

$$b/h = 25/50 \text{ cm}$$

$$\Delta h = 2,5 \text{ cm}$$

$$E = 3 \times 10^7 \text{ kN/m}^2$$

3. (15) Odredite pomak točke T.



$$P = 150\sqrt{2} \text{ kN}$$

$$b/h = 25/25 \text{ cm}$$

$$E = 3 \times 10^7 \text{ kN/m}^2$$

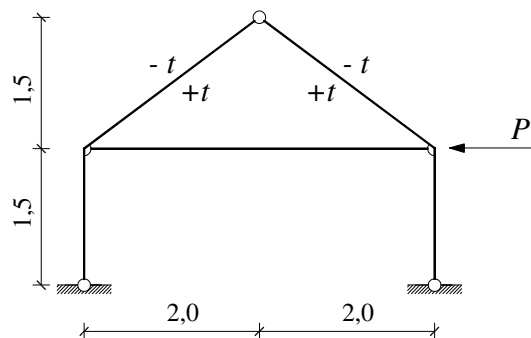
4. (25) Nacrtajte M dijagram.

okvir :

$$EI = 162000 \text{ kNm}^2$$

zatega :

$$EA = 566000 \text{ kN}$$



$$t = 10 \text{ }^\circ\text{C}$$

$$\alpha_t = 10^{-5} \text{ }^\circ\text{C}^{-1}$$

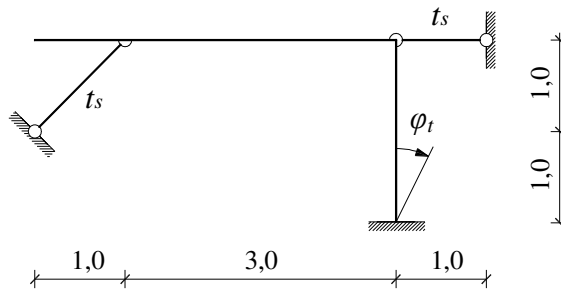
$$P = 120 \text{ kN}$$

GS 1. – 2. kolokvij (D2) (2009./2010.)

1. (30) Nacrtajte M dijagram.

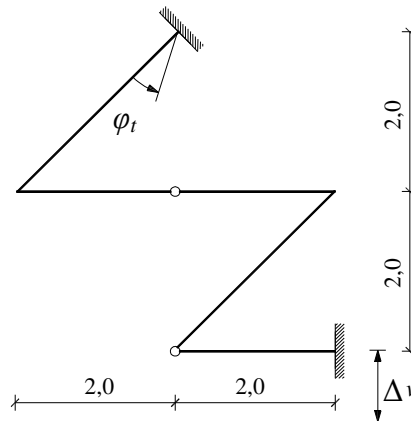
okvir :
 $b/h = 30/30$ cm
 $E = 3 \times 10^7$ kN/m²

štapovi :
 $r = 3$ cm
 $E = 2 \times 10^8$ kN/m²



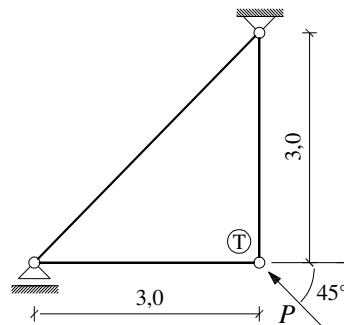
$\varphi_t = 0,004$
 $t_s = 12$ °C
 $\alpha_t = 10^{-5}$ °C⁻¹

2. (30) Nacrtajte M i T dijagrame.



$\varphi_t = 0,002$
 $b/h = 25/50$ cm
 $\Delta v = 2,5$ cm
 $E = 3 \times 10^7$ kN/m²

3. (15) Odredite pomak točke T.

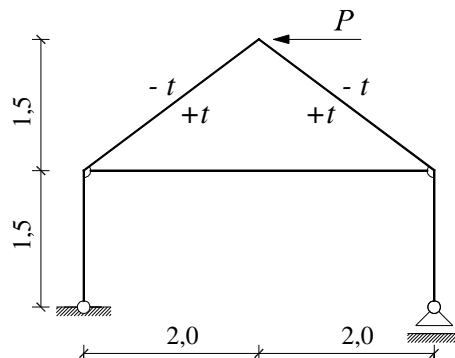


$P = 100\sqrt{2}$ kN
 $b/h = 25/25$ cm
 $E = 3 \times 10^7$ kN/m²

4. (25) Nacrtajte M dijagram.

okvir :
 $EI = 162000$ kNm²

zatega :
 $EA = 566000$ kN



$t = 10$ °C
 $\alpha_t = 10^{-5}$ °C⁻¹
 $P = 150$ kN