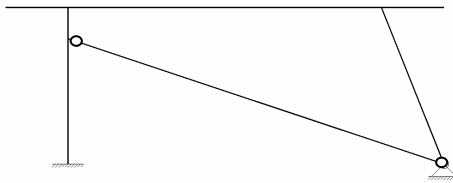
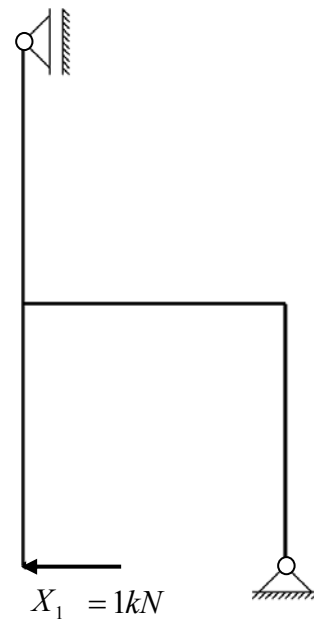
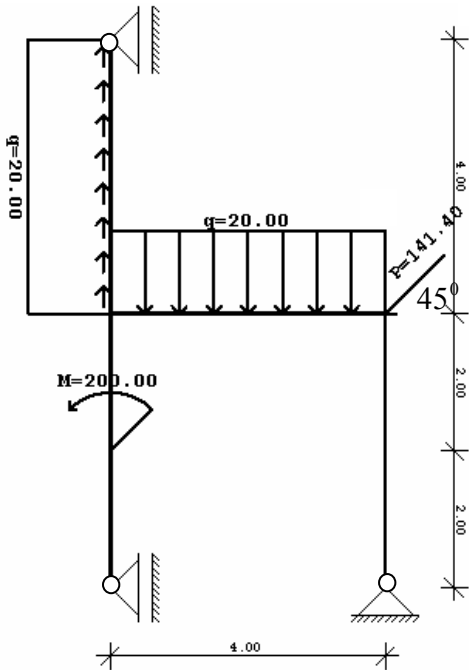


1. Odrediti stupanj statičke neodređenosti zadanog sustava te presijecanjem unutarnjih i vanjskih veza nacrtati dva statički određena sustava. (10 bodova)

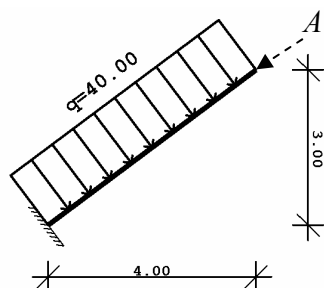


2. Za sustav na slici **METODOM SILA** odrediti dijagrame unutarnjih sila ( $M_K$ ,  $T_K$  i  $N_K$ ). Pri izračunu koeficijenta fleksibilnosti uzeti u obzir utjecaj **SAMO momenata savijanja** na deformiranje sustava.  $EI$  je konstantan za cijeli sustav. (50 bodova). ( $m_I=10; M_v=10; M_K, T_K, N_K=3*5=15; a_{II}=6; a_{IV}=6; X_I=3$ )  
Za izračunavanje koristiti **zadani osnovni sustav**.

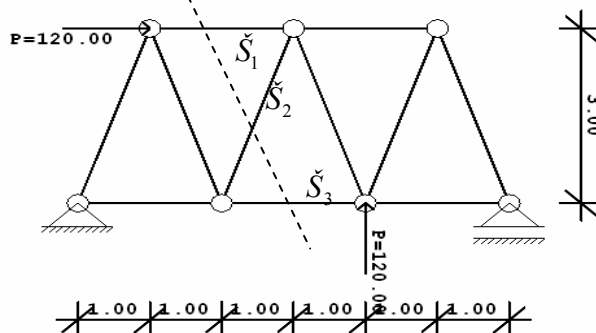


osnovni sustav za rješavanje

3. Odredite vrijednost **horizontalnog pomaka** točke A. Dimenzije elemenata su 20/30 cm,  $E = 3.15 \cdot 10^7$  kN/m<sup>2</sup> (15 bodova)



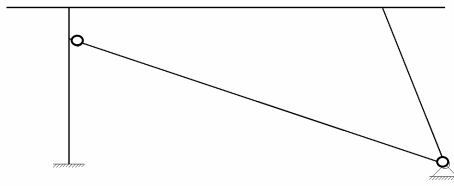
4. Metodom Rittera odredite sile u zadanim štapovima. (25).



**NAPOMENA: ZA PROLAZ NA USMENI DIO ISPITA TREBA SAKUPITI 50 I VIŠE BODOVA ALI ZADATAK IZ METODE SILA MORA BITI BODOVAN S NAJMANJE 25 BODOVA!!!!**

PRORAČUN KONSTRUKCIJA  
21. rujna 2006. godine

1. zadatak - neodređenost



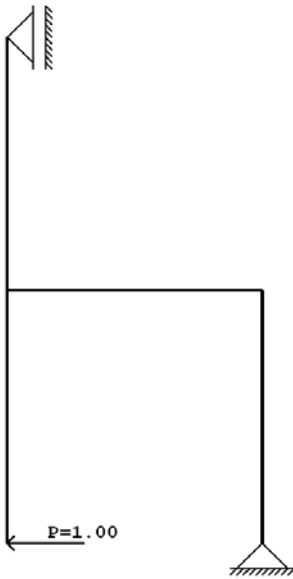
3 puta neodređen

2. Zadatak METODA SILA

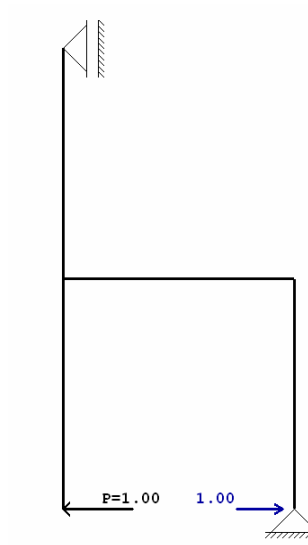
OSNOVNI SUSTAV

Osnovni sustav

Reakcije

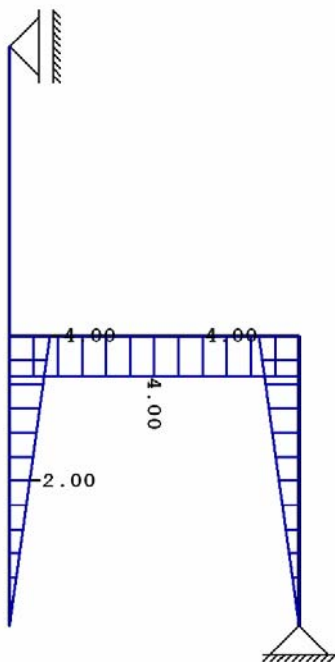


m1

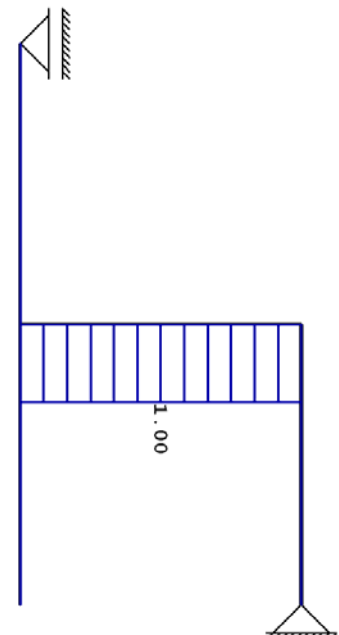
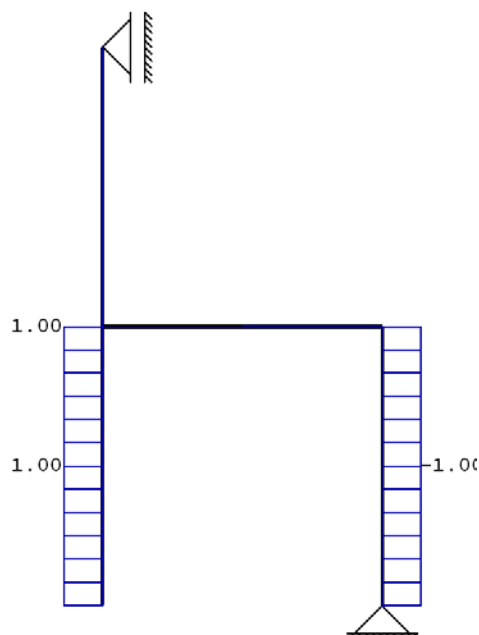


t1

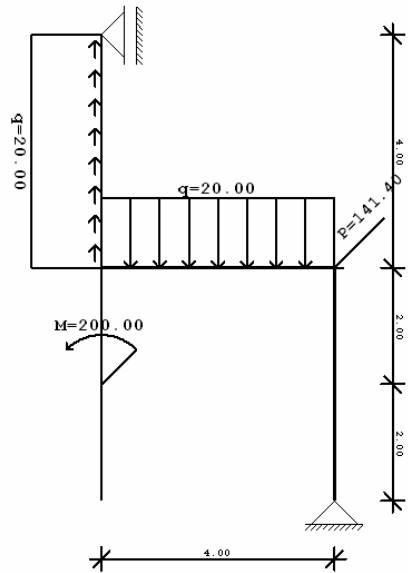
n1



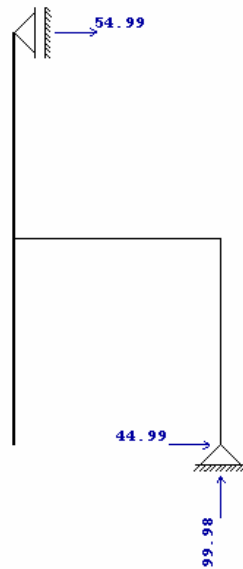
$a_{11} = 106,67$



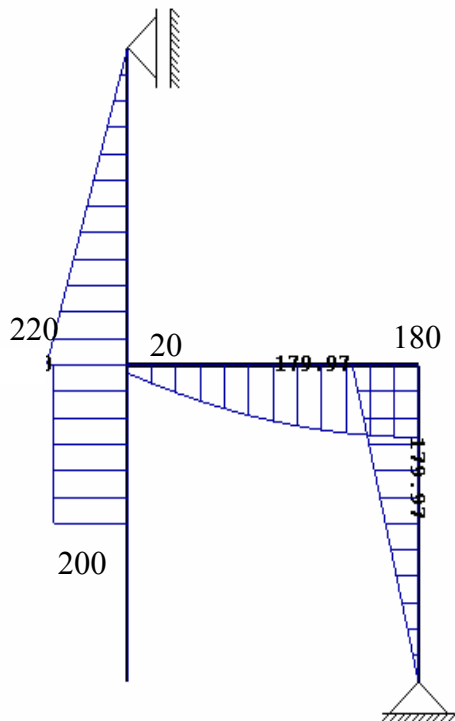
## VANJSKO OPTEREČENJE



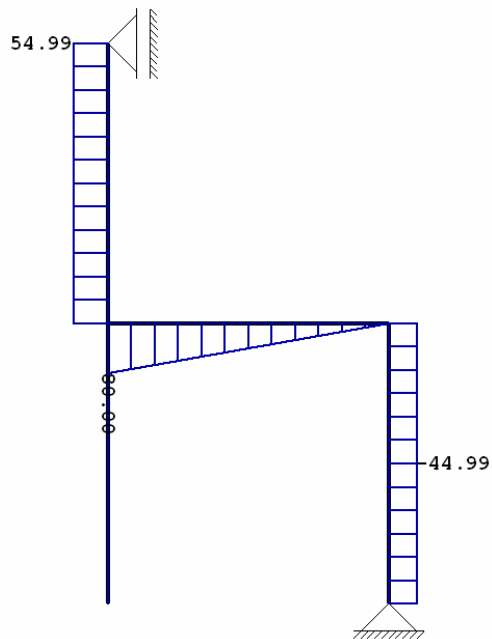
## REAKCIJE



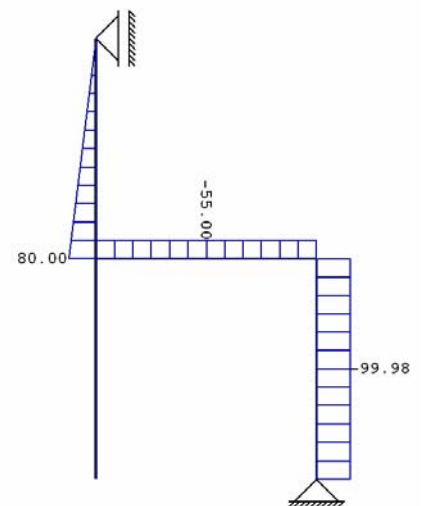
## M<sub>v</sub>



## T<sub>v</sub>



## N<sub>v</sub>

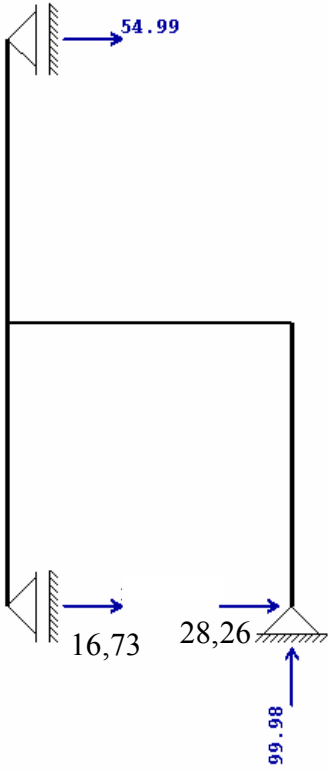


$$a_{1v} = 1786/EI$$

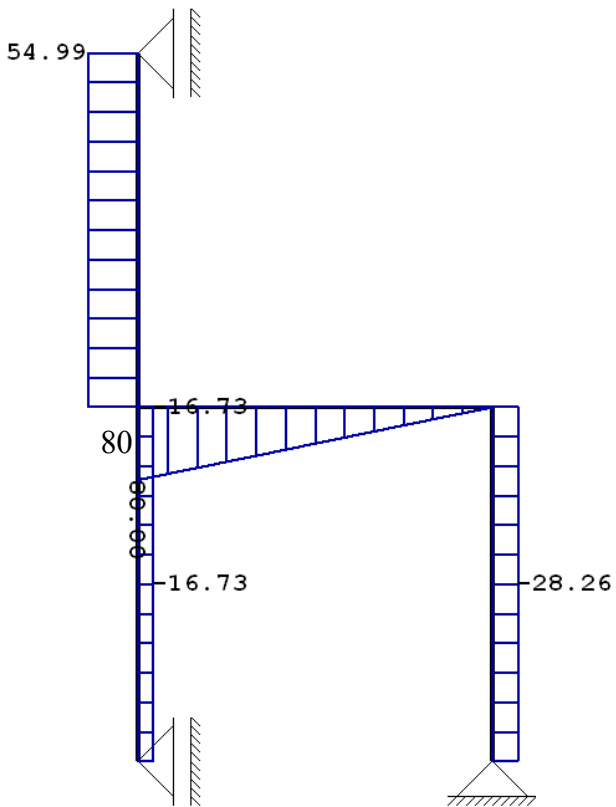
$$X_1 = -16.7 \text{ kN}$$

# KONAČNI DIJAGRAM

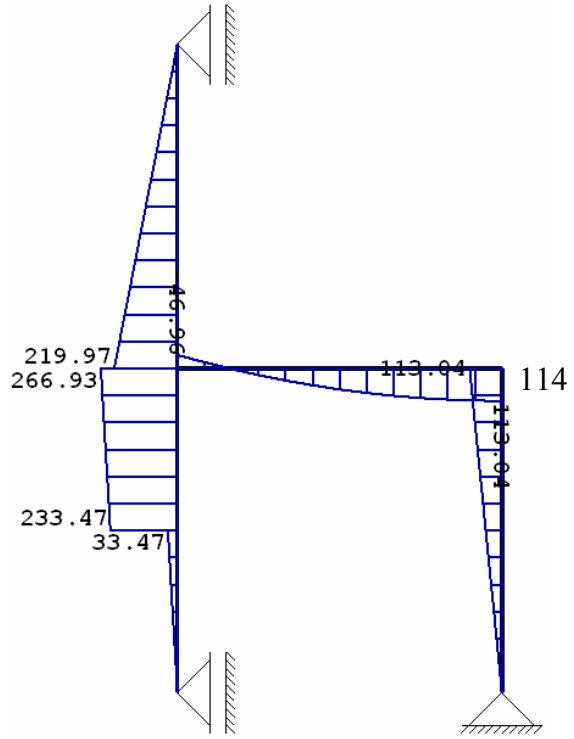
Konačne reakcije



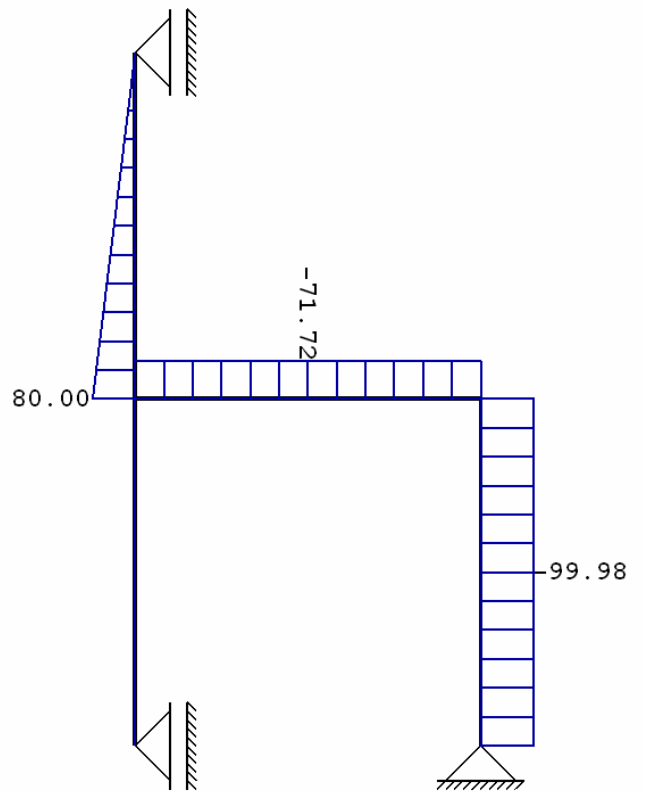
Tk



Mk

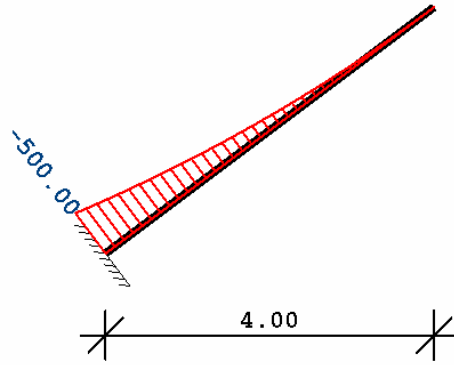
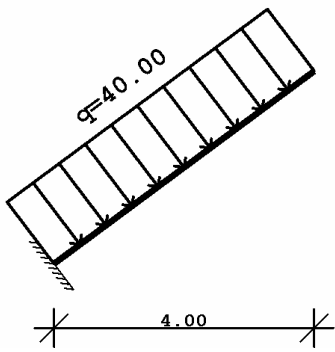


Nk

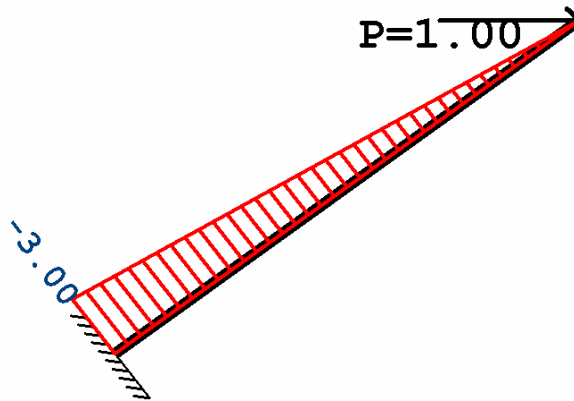
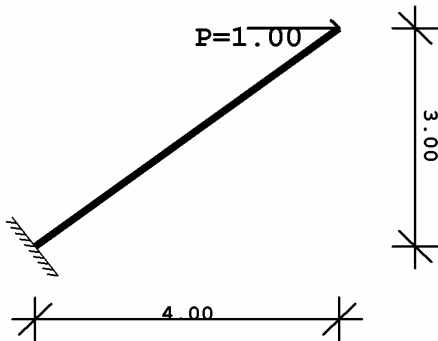




3. Odredite vrijednost horizontalnog pomaka točke A  
Dimenzije elemenata su 20/30 cm,  $E = 3.15 \cdot 10^7 \text{ kN/m}^2$  (15 bodova)

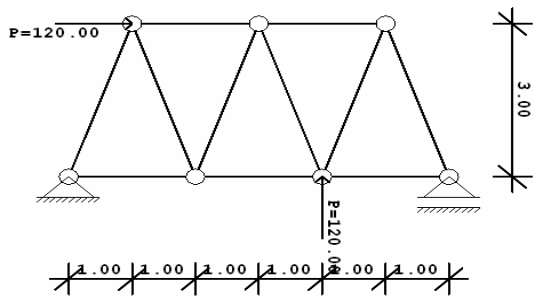


horizontalni pomak

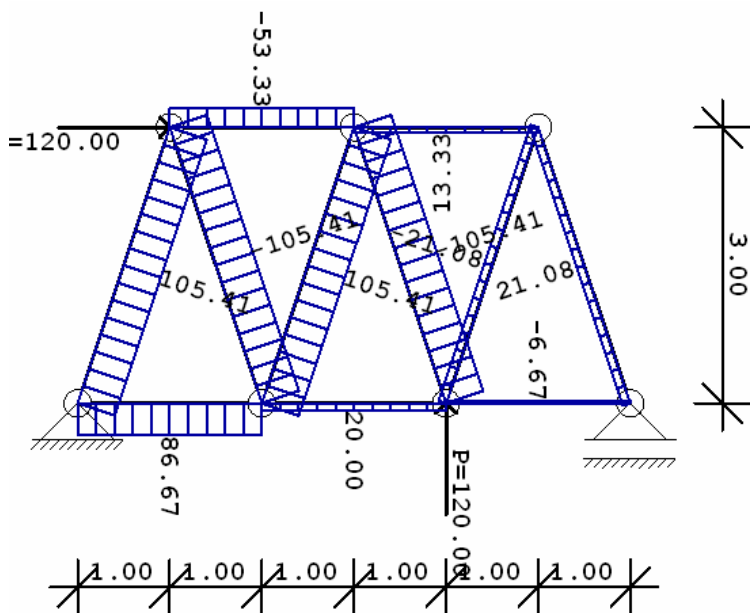
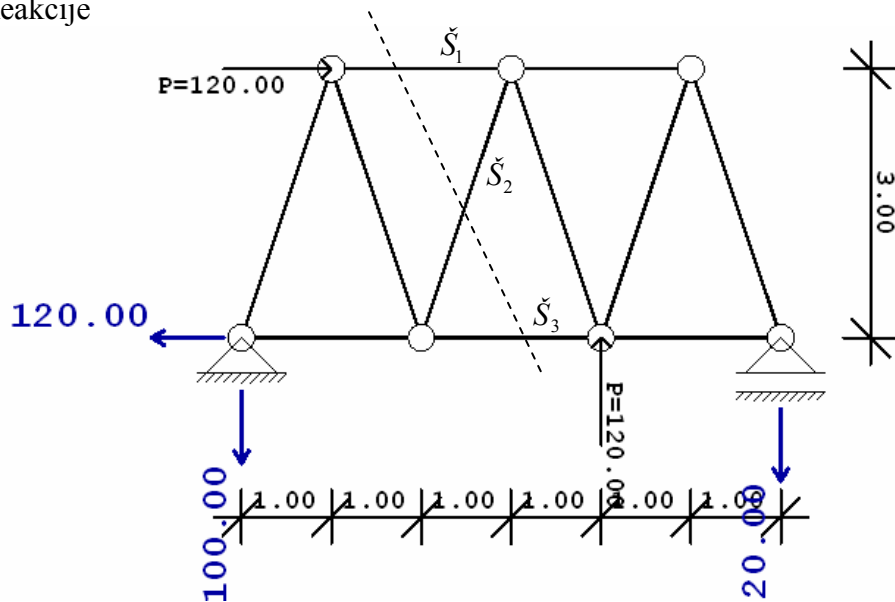


horizontalni pomak točke A  $\delta_A = 0.1327 \text{ m}$

#### 4. Sile u štapovima rešetke



Reakcije



$\check{S}_1 = -53.33 \text{ kN}$   
 $\check{S}_2 = 105.41 \text{ kN}$   
 $\check{S}_3 = 20 \text{ kN}$