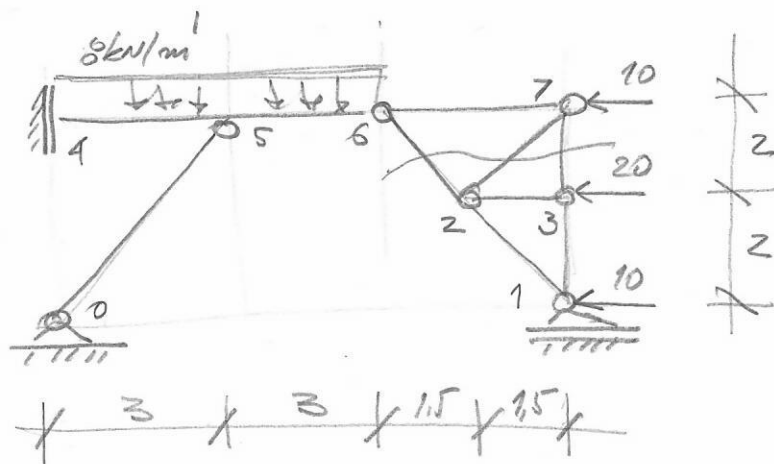


UNIVERZITET U BANJALUCI
 ARHITEKTONSKO-GRADUVINSKO-GEODEZSKI FAKULTET
 KATEORA ZA MEHANIKU I TEORIJU KONSTRUKCIJA
 STUDIJSKI PROGRAM GRADUVINARSTVO

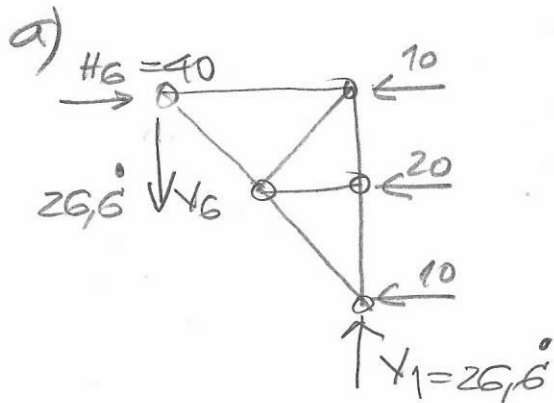
20.02.2021.

TEHNIČKA MEHANIKA 1

ZA ZAODZI NOSAČ I OPTEREĆENJE TREBA:



- 10 a) SRACUNATI REAKCIJE OSLOMACA I SILE VEZA IZMEĐU PLOČA
- 30 b) NACRTATI DIAGRAME M , T , N NA PUNOM DELU NOSAČA
- 30 c) ISPISATI $N(x)$, $T(x)$ I $N(x)$ NA DELU 5-6 PUNOG NOSAČA
- 20 d) PO DVE METODE ODREDITI SILE U ŠTAPOVIMA REŠETKE U NAZNAČENOM PRESEKU
- 10 e) METODOM VIRTUELNOG RADA ODREDITI SILU U ŠTAPU 505

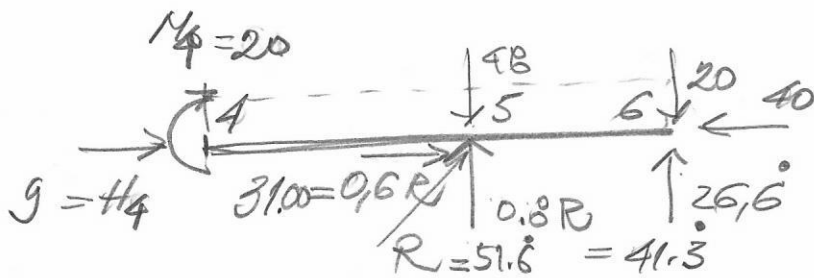


$$\sum H = H_6 - 40 = 0 \quad H_6 = 40 \text{ kN}$$

$$\sum M_6 = 3V_1 - 4 \cdot 10 - 2 \cdot 20 = 0 \quad V_1 = 26,6$$

$$\sum V = V_6 - 26,6 = 0 \quad V_6 = 26,6$$

$$f = 8 \cdot \frac{3^2}{8} = 9$$



$$\sum V = 0,8R + 26,6 - 48 - 20 = 0$$

$$0,8R = 41,3 \text{ kN}$$

$$R = 51,6 \text{ kN}$$

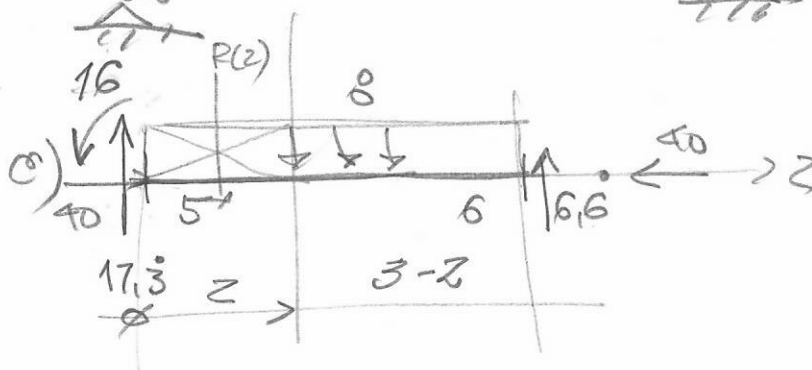
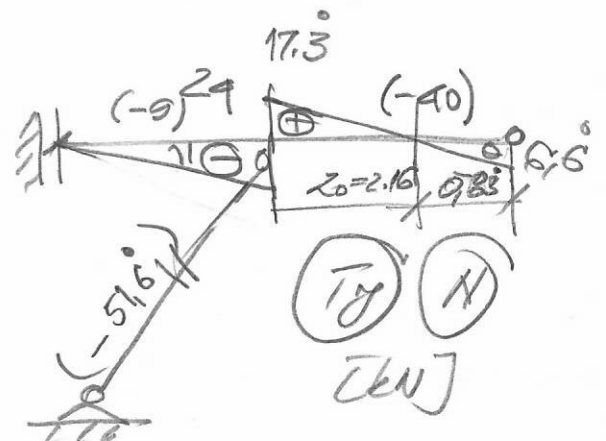
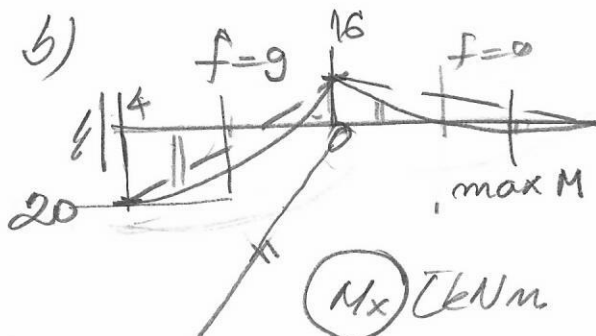
$$0,6R = 31,00 \text{ kN}$$

$$\sum H = H_4 + 31 - 40 = 0$$

$$H_4 = 9 \text{ kN}$$

$$M_4 = 20 \text{ kNm}$$

$$\sum M_5 = M_4 - 3 \cdot 6,6 = 0$$



$$R(z) = 8z$$

$$N(z) = -40$$

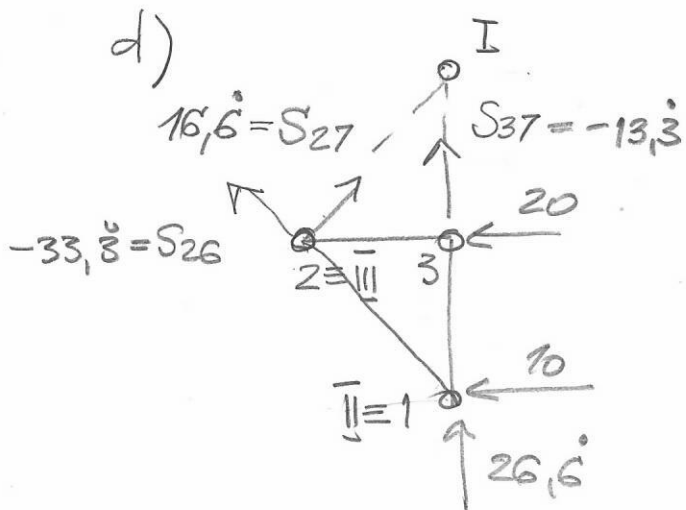
$$T_y(z) = 17,3 - 8z$$

$$T_y(0) = 17,3 \quad T_y(3) = -6,6 \text{ kN}$$

$$M_x(z) = -16 + 17,3 \cdot z - \frac{8}{2} \cdot z^2 \quad M_x(0) = -16 \quad M_x(3) = 0$$

$$T_y(z) = 17,3 - 8z = 0 \Rightarrow z_0 = \frac{17,3}{8} = 2,16$$

$$\max M = -16 + 17,3 \cdot 2,16 - 4 \cdot 2,16^2 = 2,7 \text{ kNm}$$



$$\sum^{\uparrow} M_I = 1(0,6 S_{26} + 10) + 2 \cdot 20 = 0$$

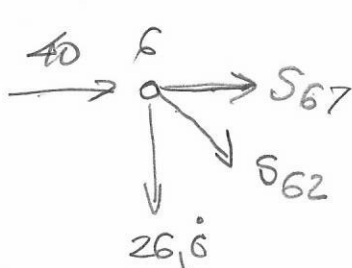
$$S_{26} = -33,3 \text{ kN}$$

$$\sum^{\uparrow} M_2 = 1 \cdot 0,6 S_{27} - 20 \cdot 2 = 0$$

$$S_{27} = 16,6 \text{ kN}$$

$$\sum^{\uparrow} M_3 = 1,5(S_{37} + 26,6) - 2 \cdot 10 = 0$$

$$S_{37} = 13,3 \text{ kN}$$

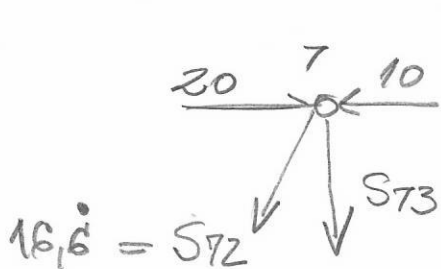


$$\sum V = 26,6 + S_{62} \cdot 0,8 = 0$$

$$S_{62} = -33,3 \text{ kN}$$

$$\sum H = S_{67} + 40 - 33,3 \cdot 0,6 = 0$$

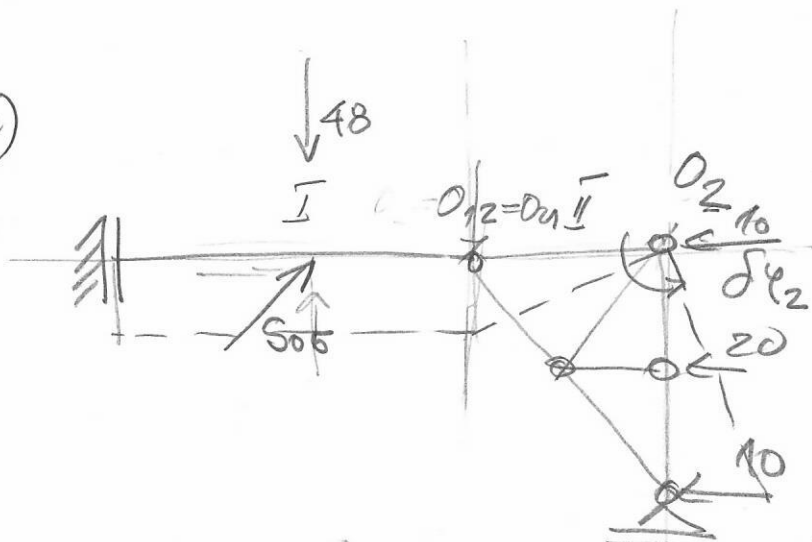
$$S_{67} = -20 \text{ kN}$$



$$\sum H = S_{72} \cdot 0,6 + 10 - 20 = 0 \quad S_{72} = 16,6 \text{ kN}$$

$$\sum V = 16,6 \cdot 0,8 - S_{73} = 0 \quad S_{73} = 13,3 \text{ kN}$$

e)



$$\left[(-S_{05} \cdot 0,8 + 48 + 20) \cdot 3 - 20 \cdot 2 - 10 \cdot 4 \right] \delta \varphi_2 = 0$$

$$-2,4 S_{05} + 204 - 80 = 0 \quad S_{05} = 51,6 \text{ kN}$$