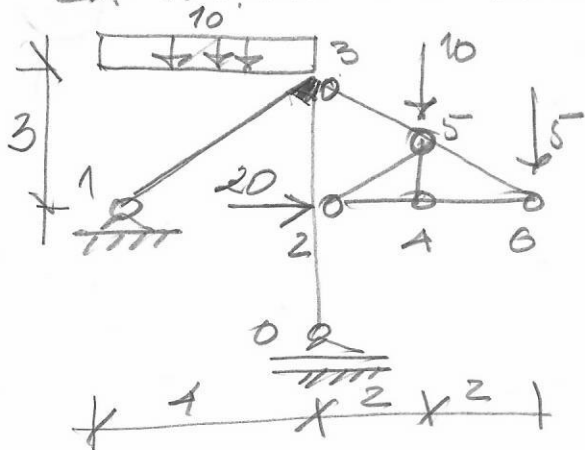


05.09.2020

TEHNIČKA MEHANIKA 1

ZA NOSAČ I OPTEREĆENJE NA SKICI TREBA:



a) ODREDITI REAKCIJE
 OSLOVACA I SILE VEZA

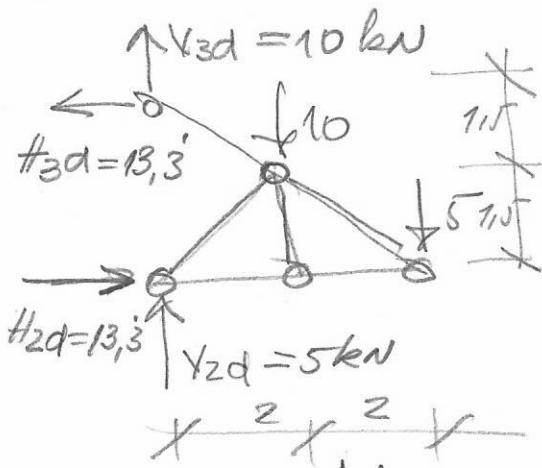
b) NA PUNOM DELU
 NOSAČA NACRTATI DIJA-
 GRAME SILE U PRESEKU

c) NAPISATI JEDNAČINU
 MOMENTA SAVIDANJA NA

DELU 1-3 PUNOG DELA NOSAČA

d) NA REŠETKASTOM DELU NOSAČA ODREDITI
 SILE U ZAPOVIMA S_{29} , S_{25} I S_{35} METODOM
 PRESEKA

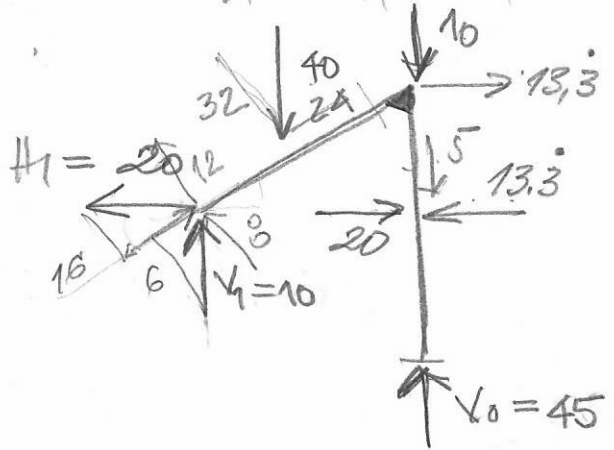
e) MOMENT U ČVORU 3 ODREDITI METODOM VIRTU-
 ELNOG RADA



$$a) \quad H_{3d} = \frac{10 \cdot 2 + 5 \cdot 4}{3} = \underline{13,3 \text{ kN}}$$

$$V_{3d} = \frac{13,3 \cdot 1,5}{2} = \underline{10 \text{ kN}}$$

$$V_{2d} = 15 - 10 = \underline{5 \text{ kN}}$$

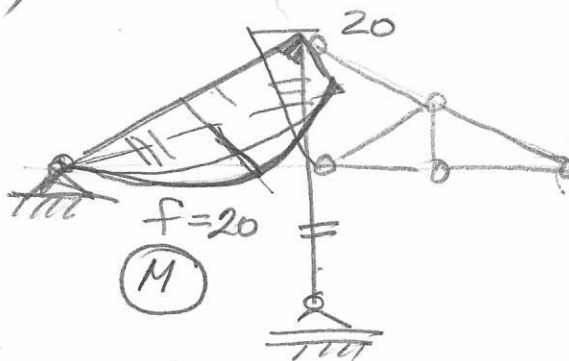


$$H_1 = 20 \text{ kN}$$

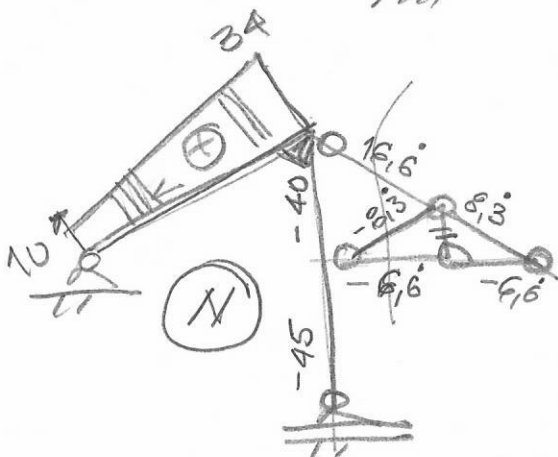
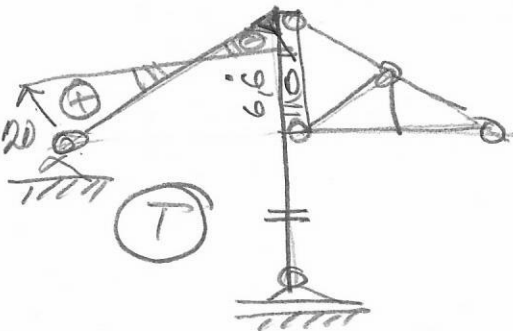
$$V_1 = 10 \text{ kN}$$

$$V_0 = 45 \text{ kN}$$

b)



$$f = 10 \cdot \frac{4^2}{8} = 20$$



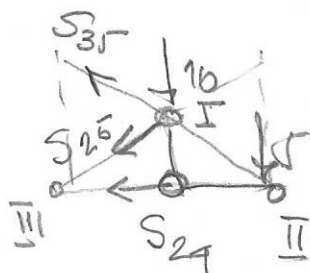
$$c) \quad M_x(z) = 20z - \frac{32}{5} \cdot \frac{z^2}{2}$$

$$M_x(z) = 20z - \frac{16}{5} z^2$$

$$M_x(0) = 0$$

$$M_x(5) = 20 \cdot 5 - \frac{16}{5} \cdot 5^2 = 20 \text{ kNm} \checkmark$$

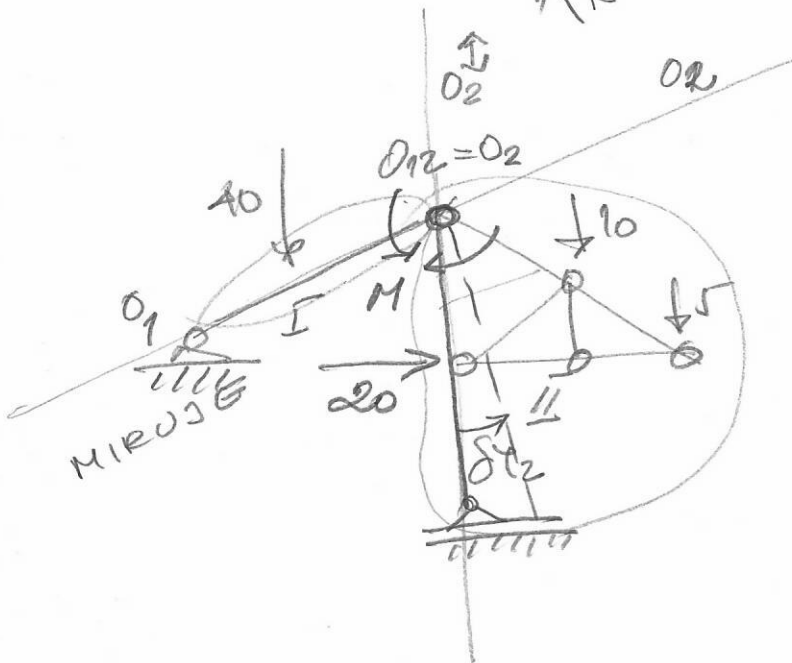
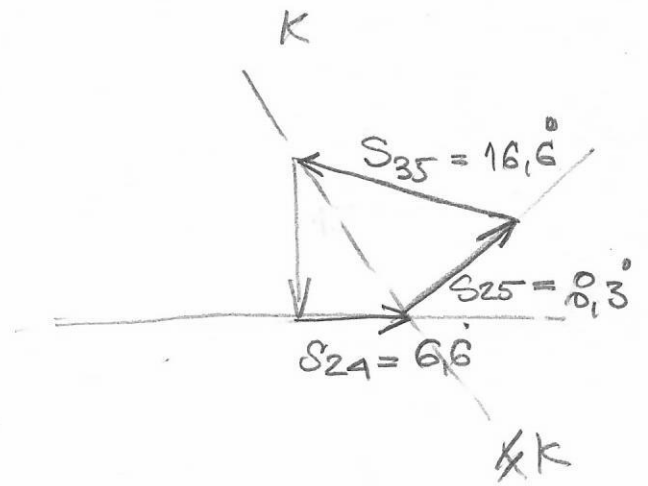
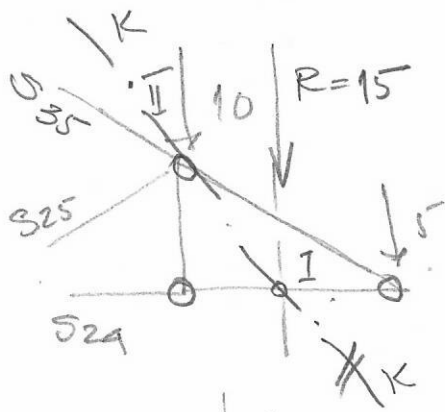
d)



$$\sum M_I = 1,5 S_{24} + 2 \cdot 5 = 0 \quad \underline{S_{24} = -6,6}$$

$$\sum M_{II} = 3 \cdot 0,8 \cdot S_{25} + 2 \cdot 10 = 0 \quad \underline{S_{25} = -8,3}$$

$$\sum M_{III} = 3 \cdot 0,8 \cdot S_{35} - 2 \cdot 10 - 4 \cdot 5 = 0 \quad \underline{S_{35} = 16,6}$$



$$\delta A = 20 \cdot 3 \delta \varphi_2 - 10 \cdot 2 \delta \varphi_2 - 5 \cdot 4 \delta \varphi_2 - M \delta \varphi_2 = 0$$

$$\delta \varphi_2 [20 \cdot 3 - 10 \cdot 2 - 5 \cdot 4 - M] = 0$$

$$20 - M = 0$$

$$\underline{M = 20 \text{ kNm}}$$