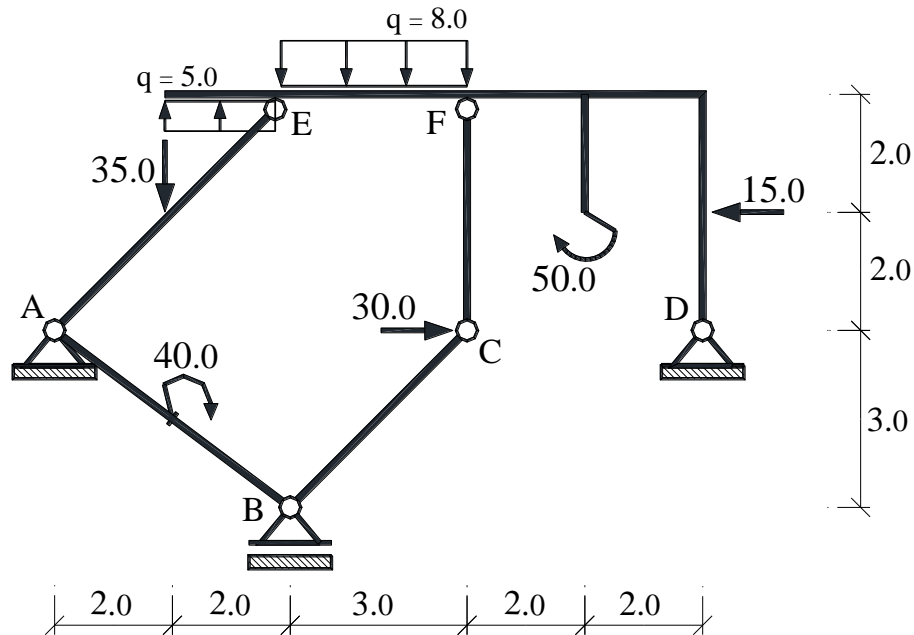


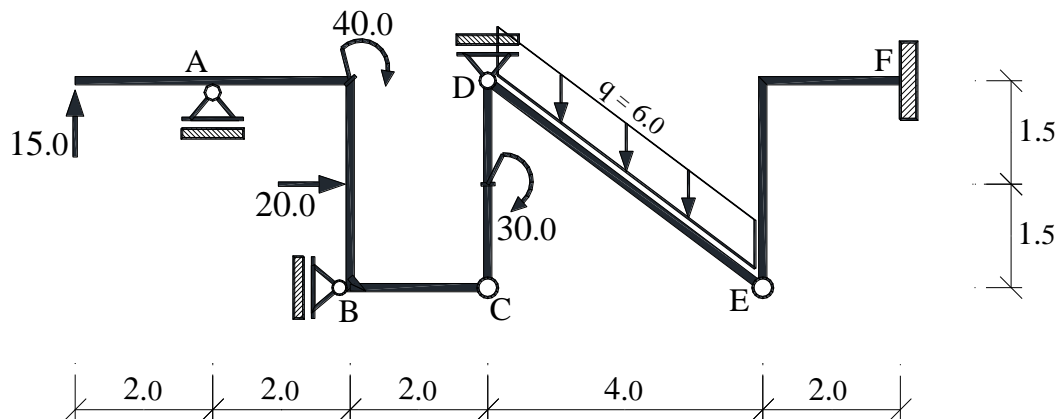
НАЦРТАТИ ДИЈАГРАМЕ СИЛА У ПРЕСЕКУ ЗА ПРИКАЗАНЕ НОСАЧЕ

ГРУПА **A**

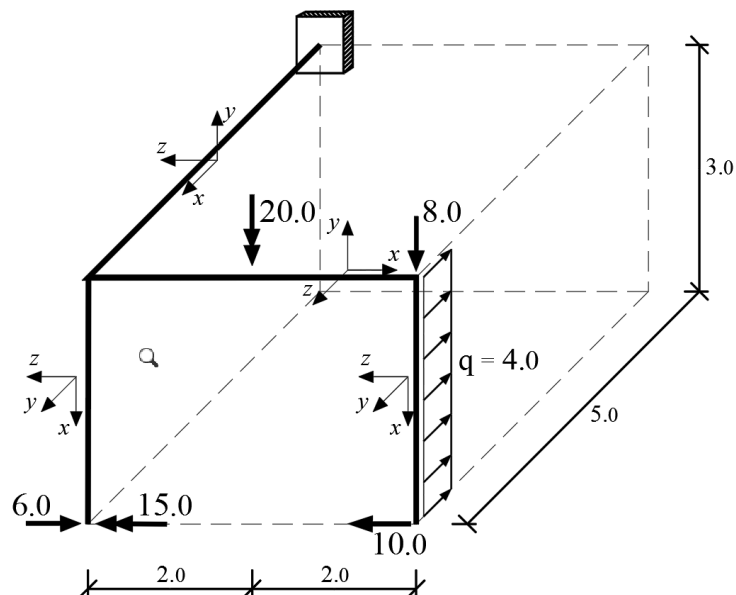
1.
(43%)



2.
(37%)



3.
(20%)



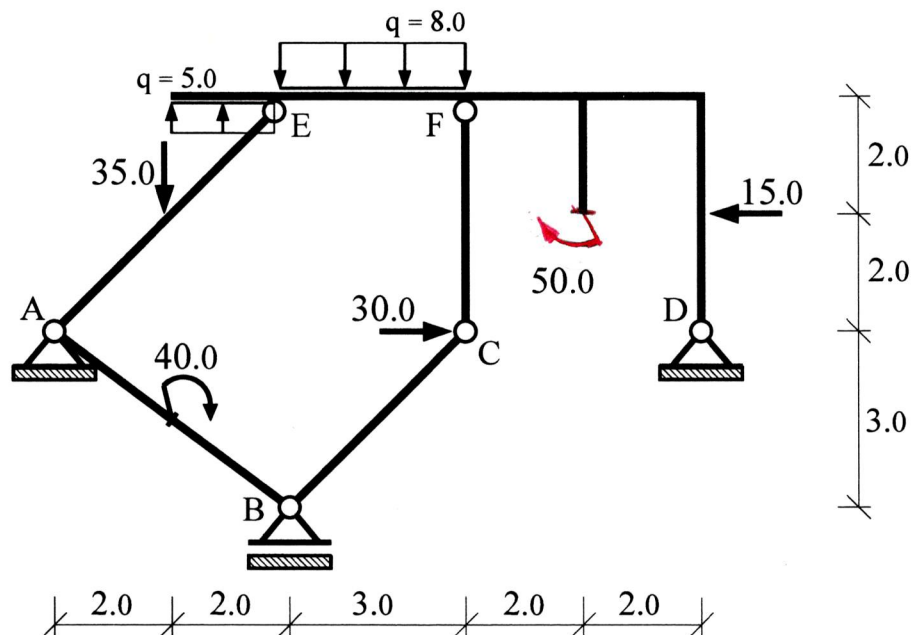
(kN, m)

НАПОМЕНА: Услов за полагање писменог дела испита је:

» минимум 50% укупног броја поена,

» минимум 50% тачан дијаграм момената у 1. или 2. зад.

1.

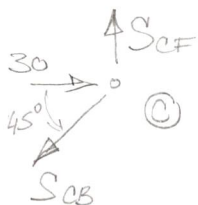


* Δeo B-C-F:

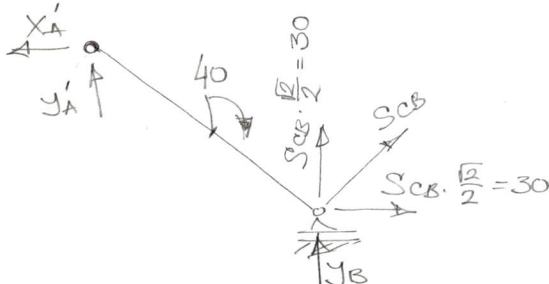
(РАВНОТЕЖА ЧВОРА C)

$$\sum F_x = 0: -S_{CB} \cdot \frac{\sqrt{2}}{2} + 30 = 0 \Rightarrow S_{CB} = 30\sqrt{2}$$

$$\sum F_y = 0: S_{CF} - S_{CB} \cdot \frac{\sqrt{2}}{2} = 0 \Rightarrow S_{CF} = 30$$



* Δeo A-B:

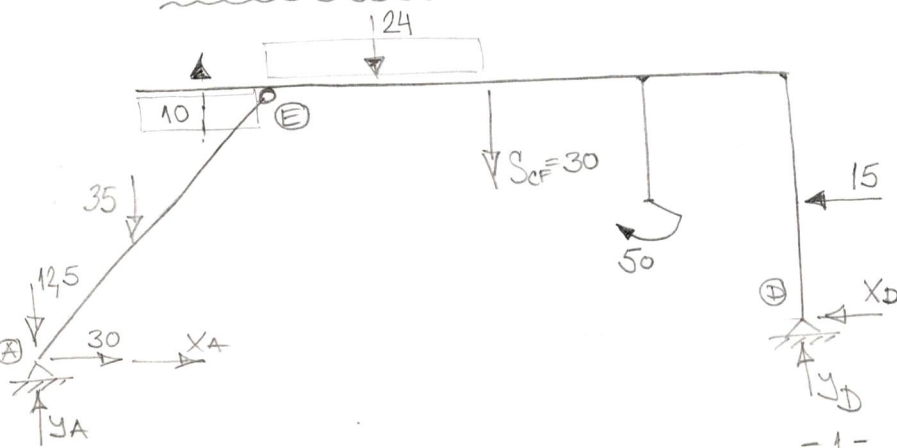


$$\sum F_x = 0: -X'_A + 30 = 0 \Rightarrow X'_A = 30$$

$$\sum M_B = 0: -X'_A \cdot 3 + Y'_A \cdot 4 + 40 = 0 \Rightarrow Y'_A = 12,5$$

$$\sum F_y = 0: Y'_A + Y_B + 30 = 0 \Rightarrow Y_B = -42,5$$

* Δeo A-E-D:



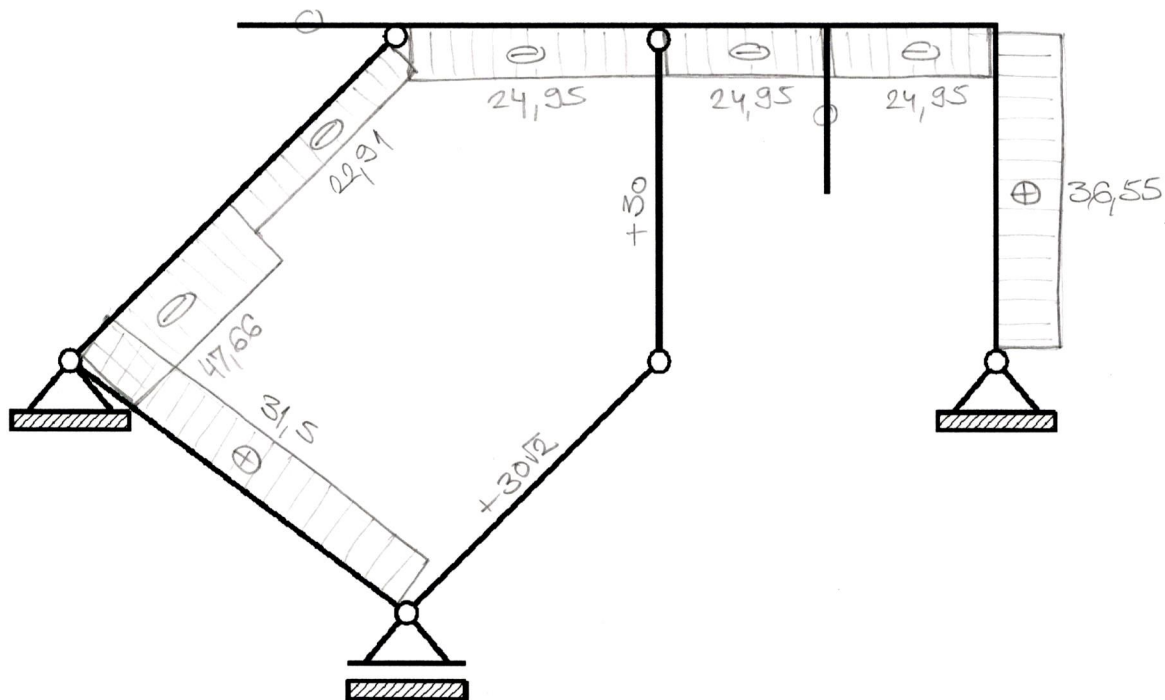
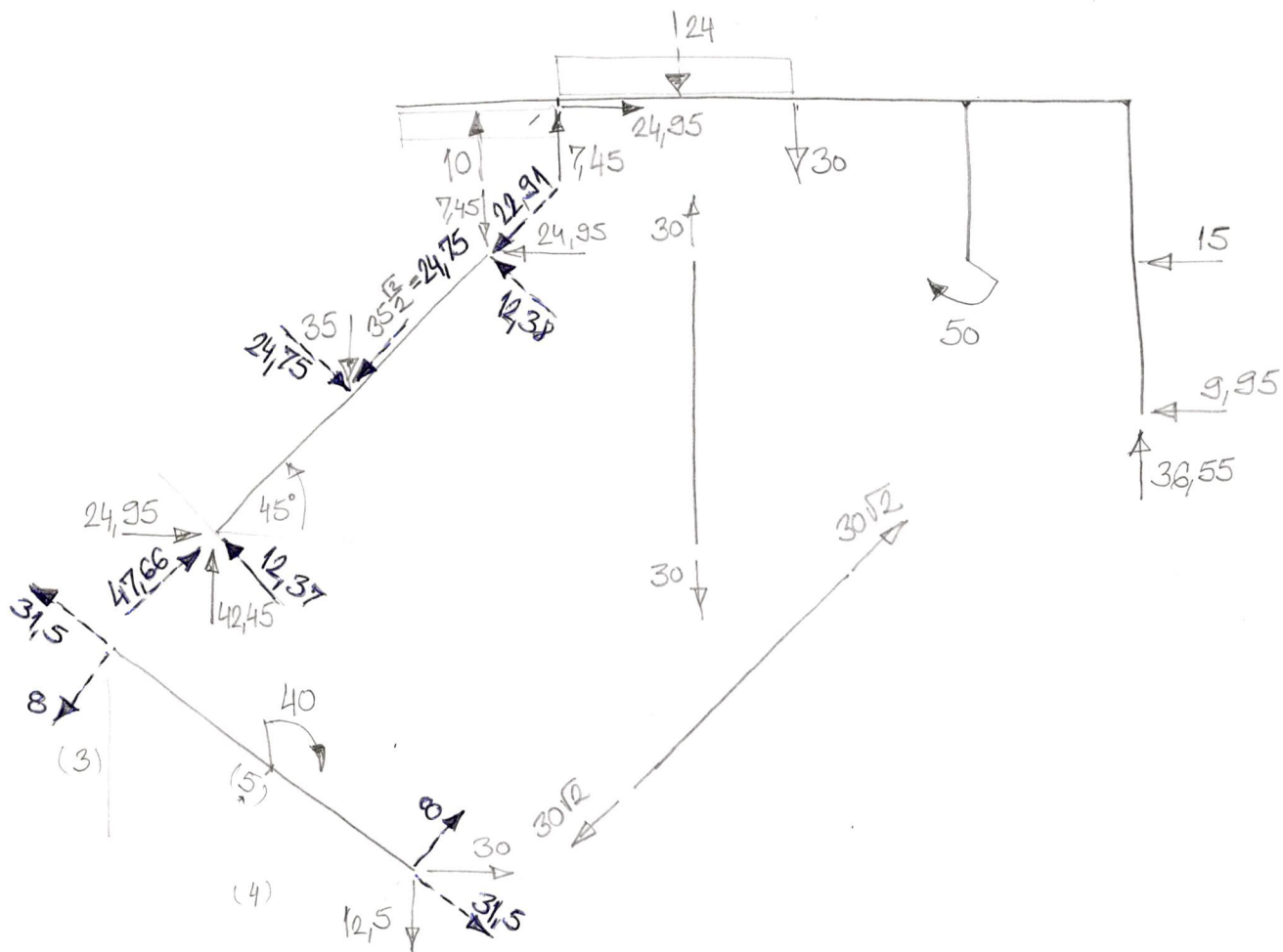
$$\sum M_A = 0: Y_D \cdot 11 - 35 \cdot 2 + 10 \cdot 3 - 24 \cdot 5,5 - 30 \cdot 7 - 50 + 15 \cdot 2 = 0 \Rightarrow Y_D = 36,55$$

$$\sum F_y = 0: Y_A + Y_D - 12,5 - 35 + 10 - 24 - 30 = 0 \Rightarrow Y_A = 54,95$$

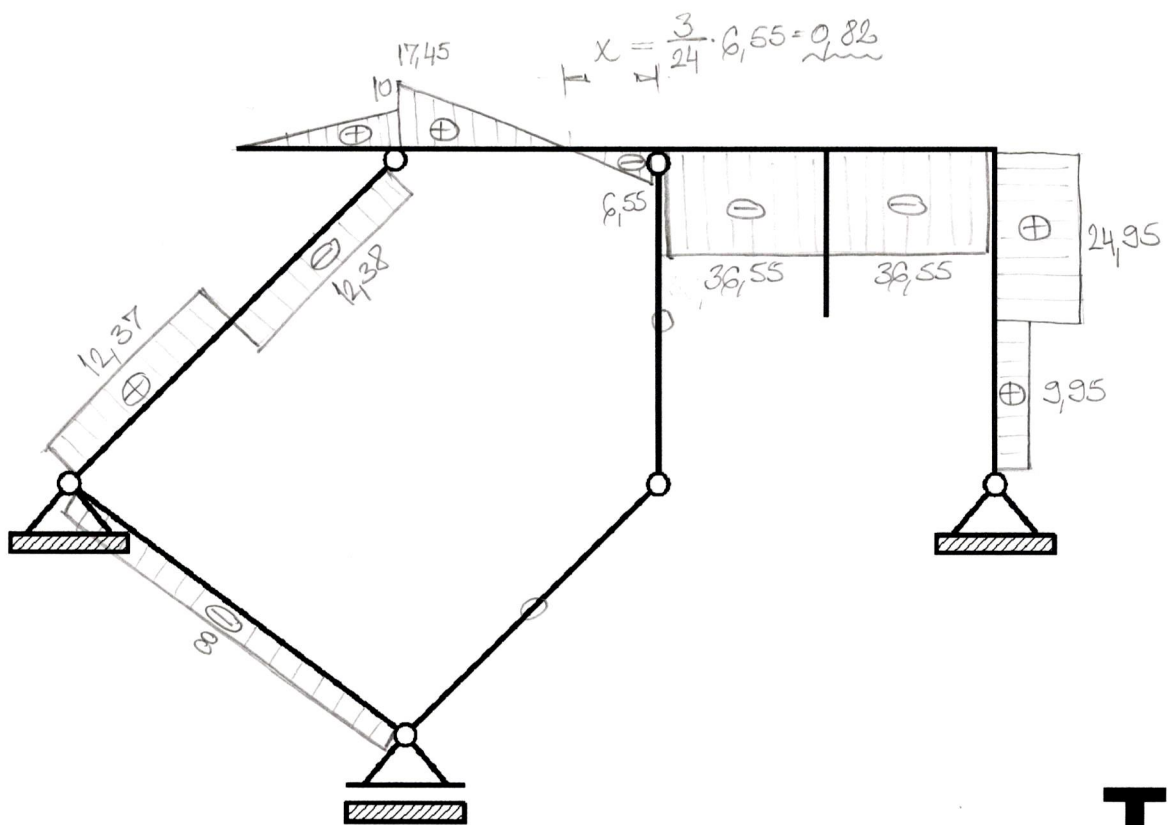
$$\sum M_E = 0: Y_A \cdot 4 - X_A \cdot 4 - 12,5 \cdot 4 - 30 \cdot 4 - 35 \cdot 2 = 0 \Rightarrow X_A = -5,05$$

$$\sum F_x = 0: X_A - X_D + 30 - 15 = 0 \Rightarrow X_D = 9,95$$

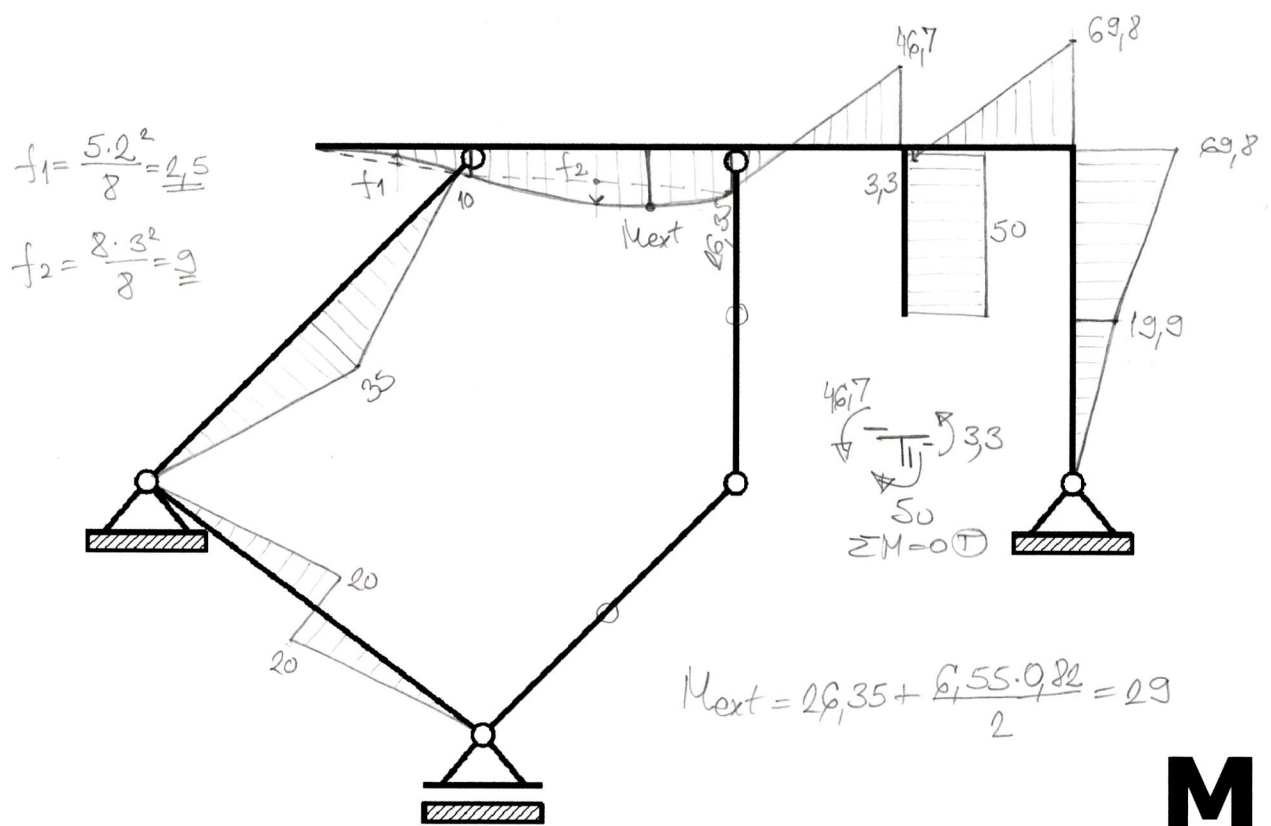
* Рекапитуляція *



N

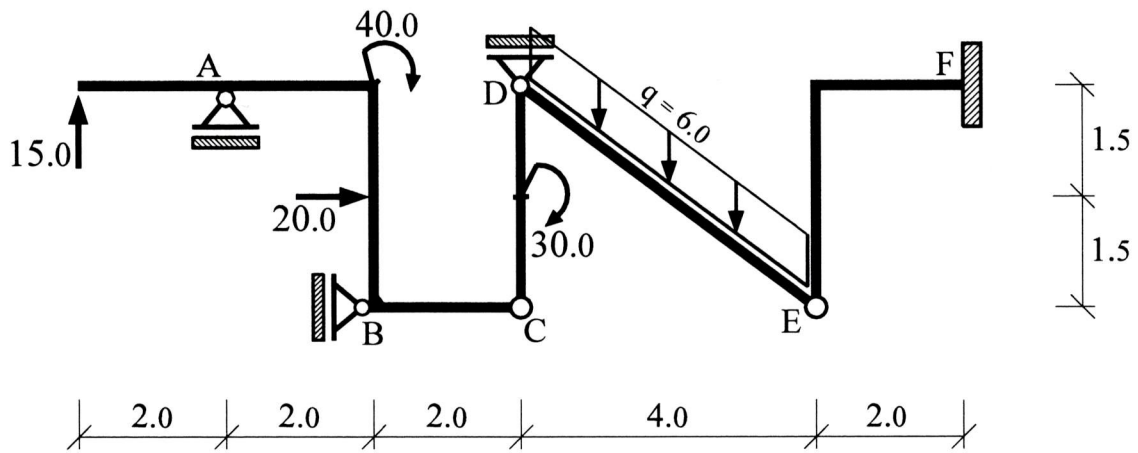


T

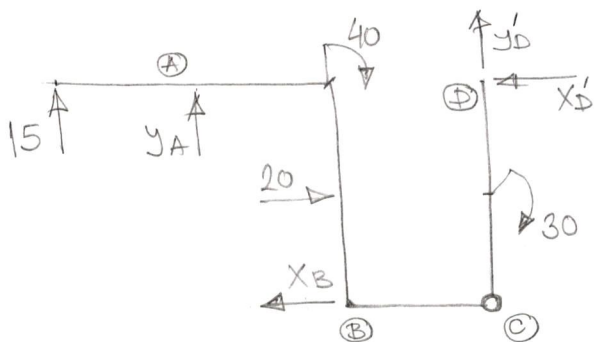


M

2.

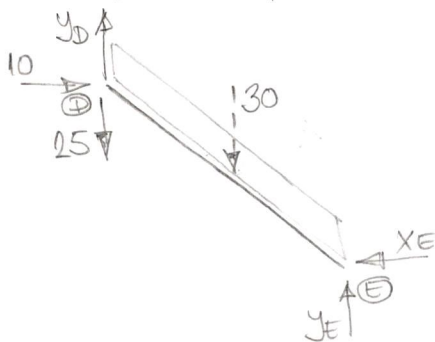


* Δes A-B-C-D:



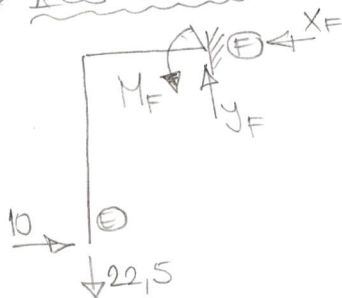
$$\begin{aligned} \sum M_C^{\text{rope} \rightarrow} &= 0: X_D' \cdot 3 - 30 = 0 \Rightarrow \boxed{X_D' = 10} \\ \sum F_x = 0: &-X_B - X_D' + 20 = 0 \Rightarrow \boxed{X_B = 10} \\ \sum M_C^{\text{ABO} \rightarrow} &= 0: Y_A \cdot 4 + 15 \cdot 6 + 40 + 20 \cdot 1.5 = 0 \\ &\Rightarrow \boxed{Y_A = -40} \\ \sum F_y = 0: &Y_A + Y_D' + 15 = 0 \Rightarrow \boxed{Y_D' = 25} \end{aligned}$$

* Δes D-E:



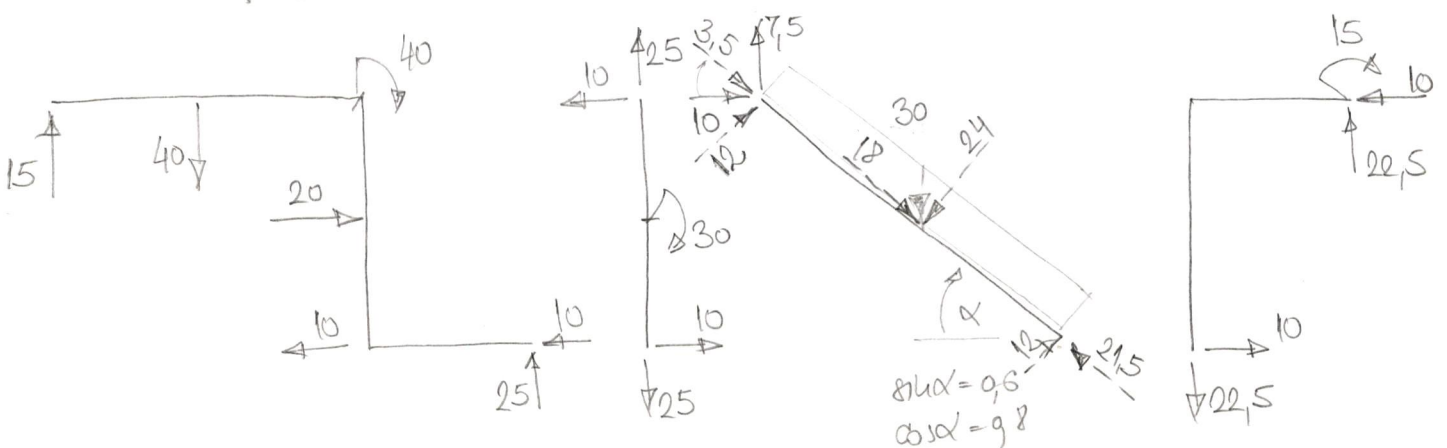
$$\begin{aligned} \sum F_x = 0: &\boxed{X_E = 10} \\ \sum M_D^{\rightarrow} &= 0: X_E \cdot 3 - Y_E \cdot 4 + 30 \cdot 2 = 0 \Rightarrow \boxed{Y_E = 22.5} \\ \sum F_y = 0: &Y_D + Y_E - 25 - 30 = 0 \Rightarrow \boxed{Y_D = 32.5} \end{aligned}$$

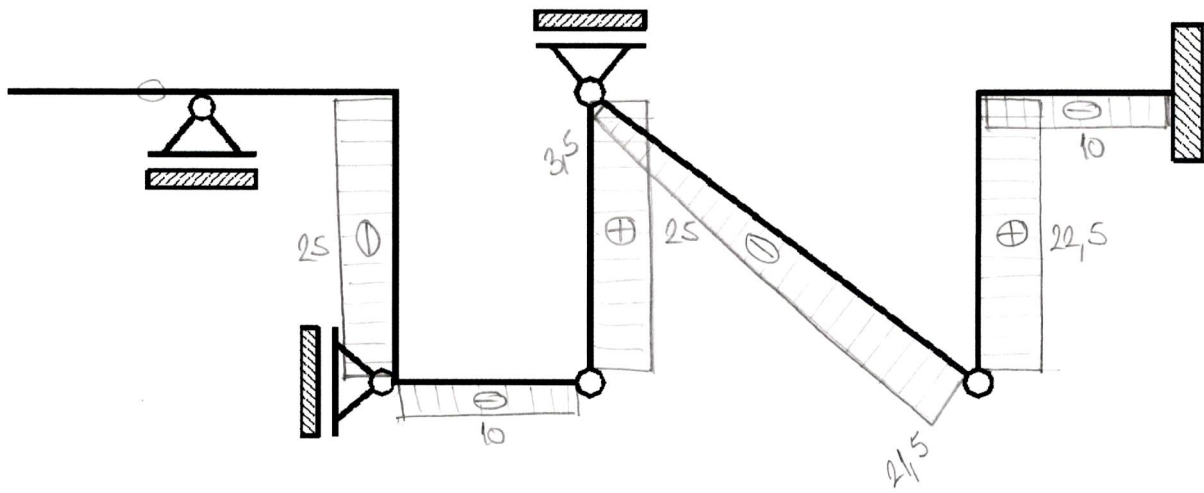
* Δes E-F:



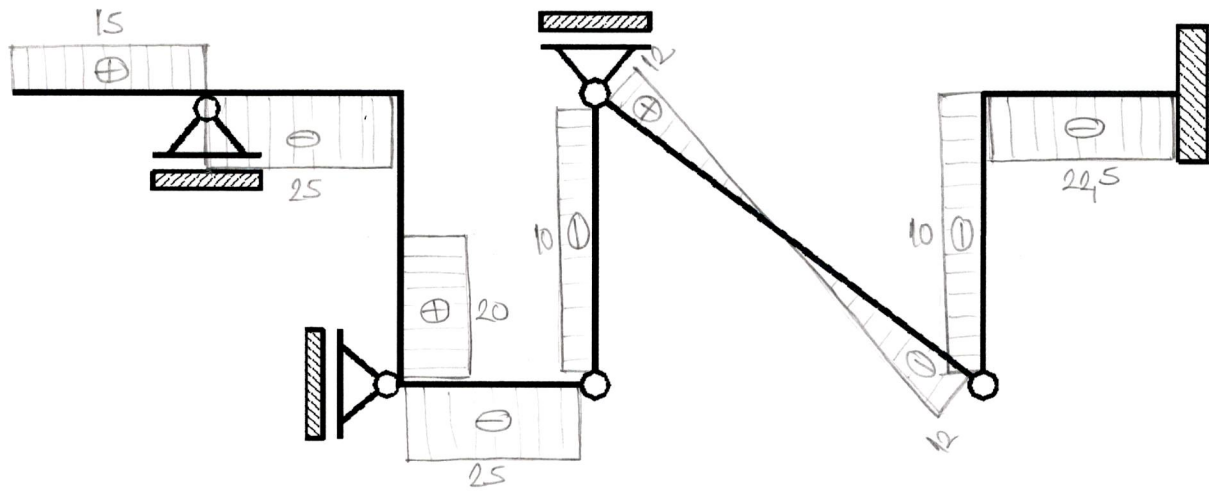
$$\begin{aligned} \sum F_x = 0: &\boxed{X_F = 10} \\ \sum F_y = 0: &\boxed{Y_F = 22.5} \\ \sum M_F^{\rightarrow} &= 0: M_F + 22.5 \cdot 2 + 10 \cdot 3 = 0 \Rightarrow \boxed{M_F = -75} \end{aligned}$$

* Результаты расчета

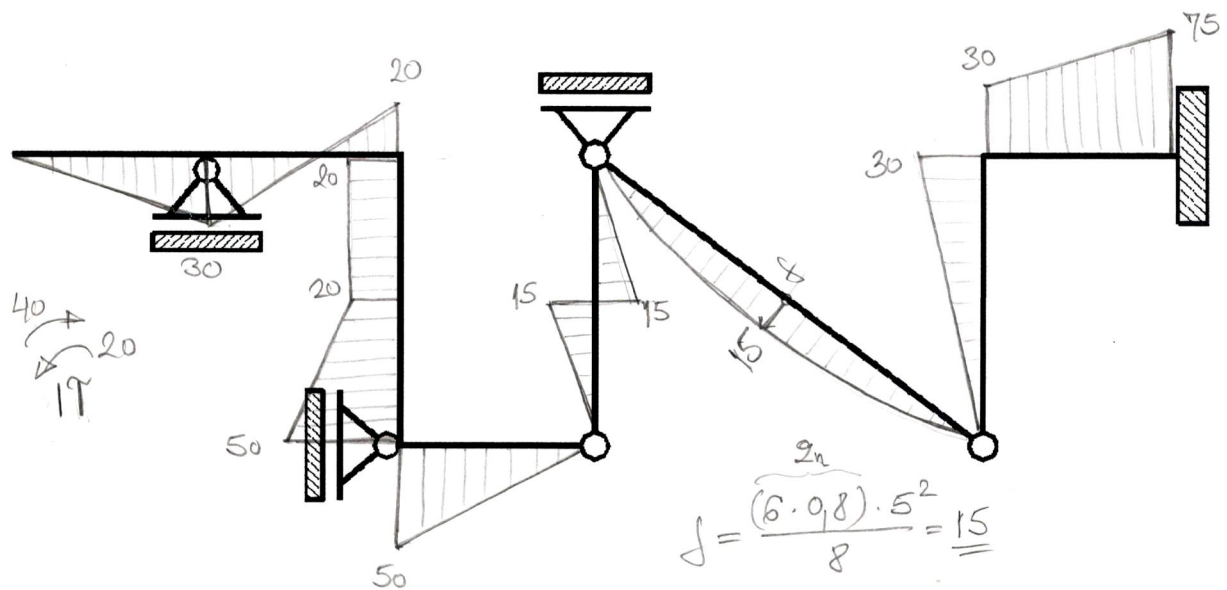




N

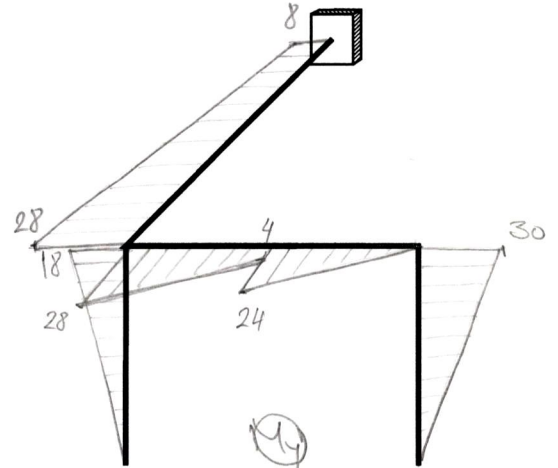
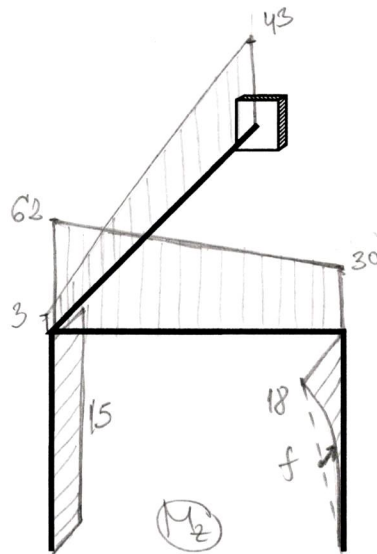
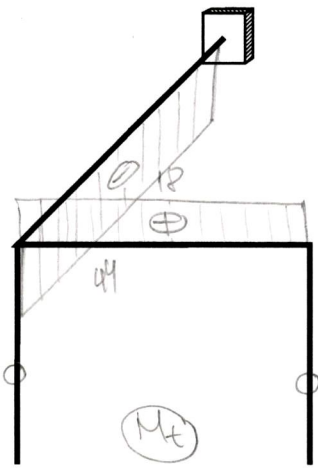
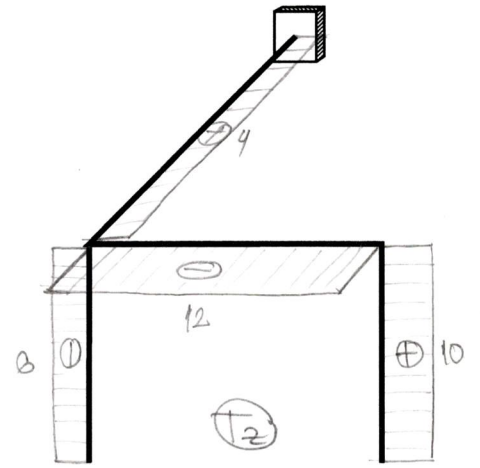
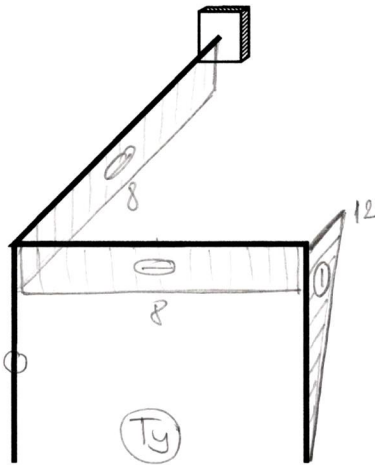
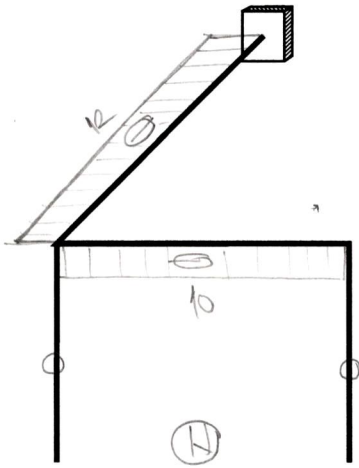
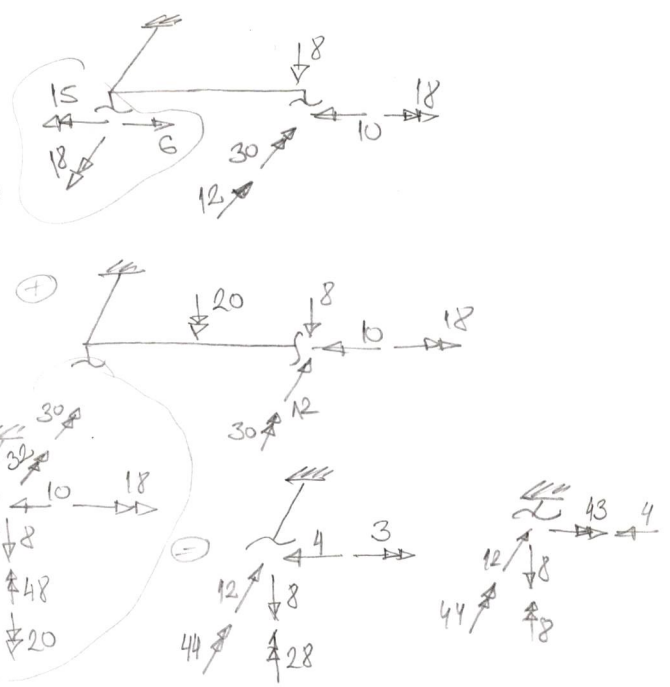
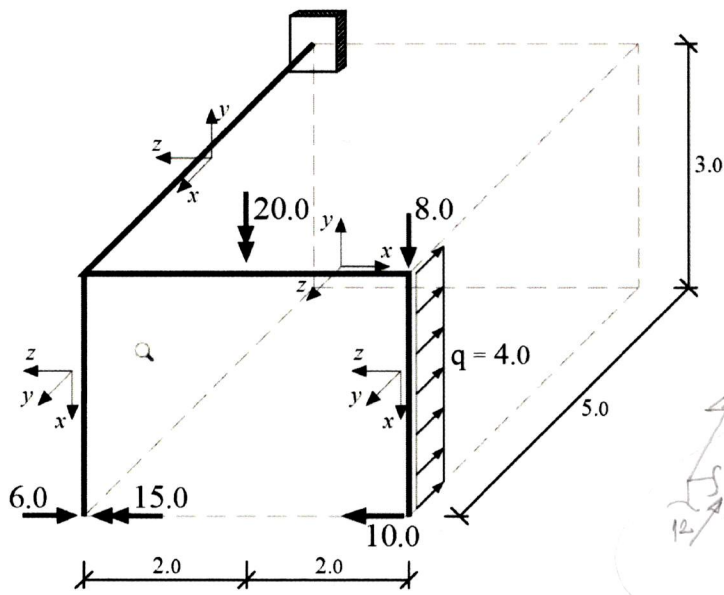


T



M

3.



$$f = \frac{4 \cdot 3^2}{8} = 4.5$$