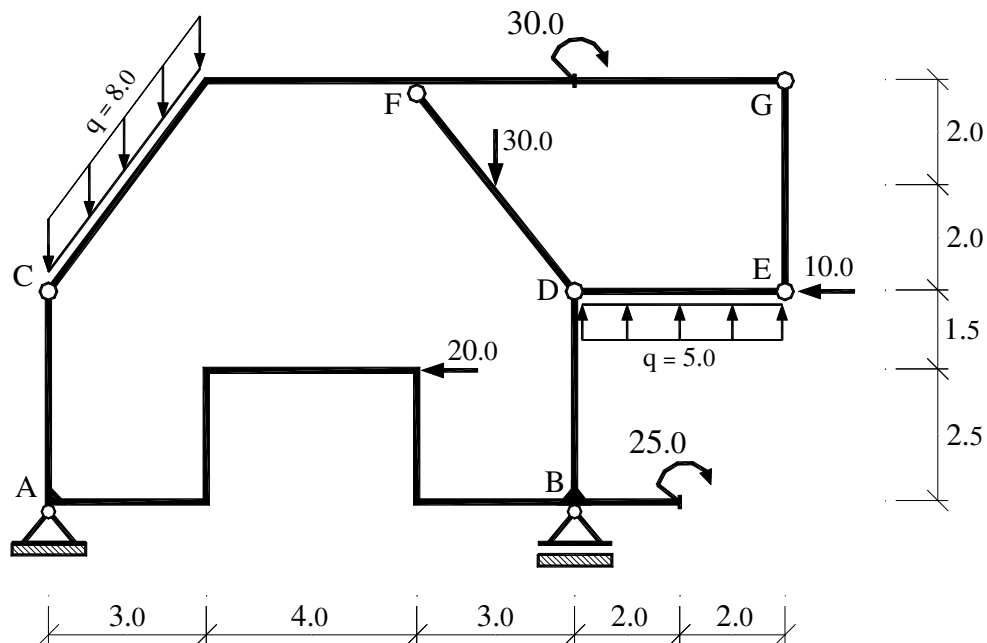


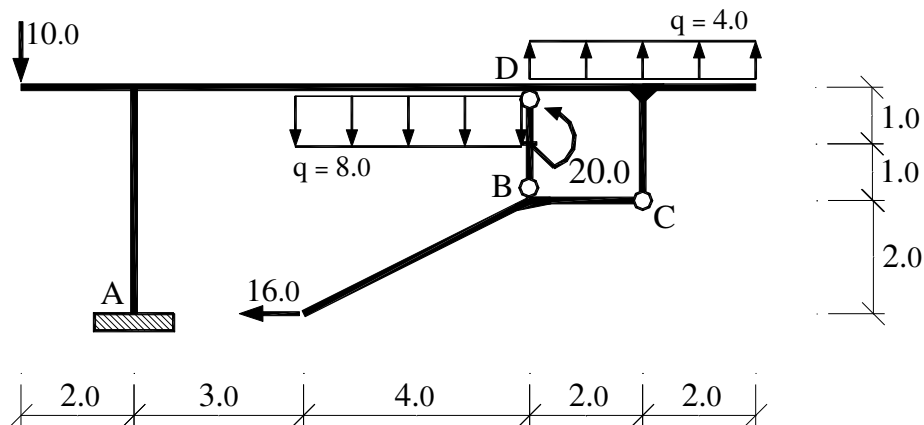
НАЦРТАТИ ДИЈАГРАМЕ СИЛА У ПРЕСЕКУ ЗА ПРИКАЗАНЕ НОСАЧЕ

ГРУПА **A**

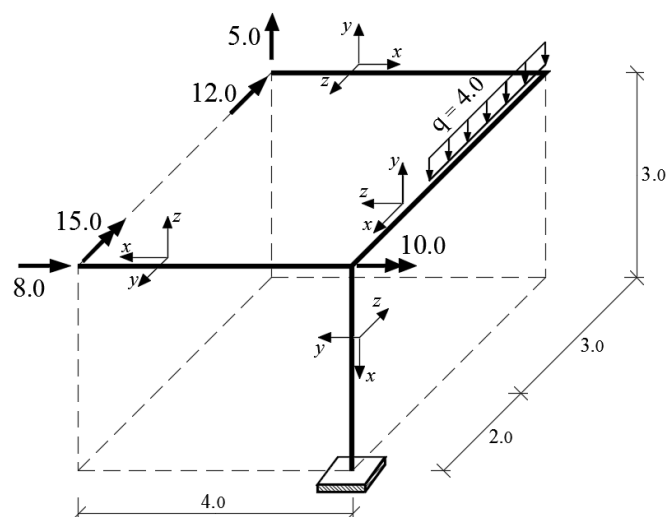
**1.**  
(45%)



**2.**  
(30%)



**3.**  
(25%)

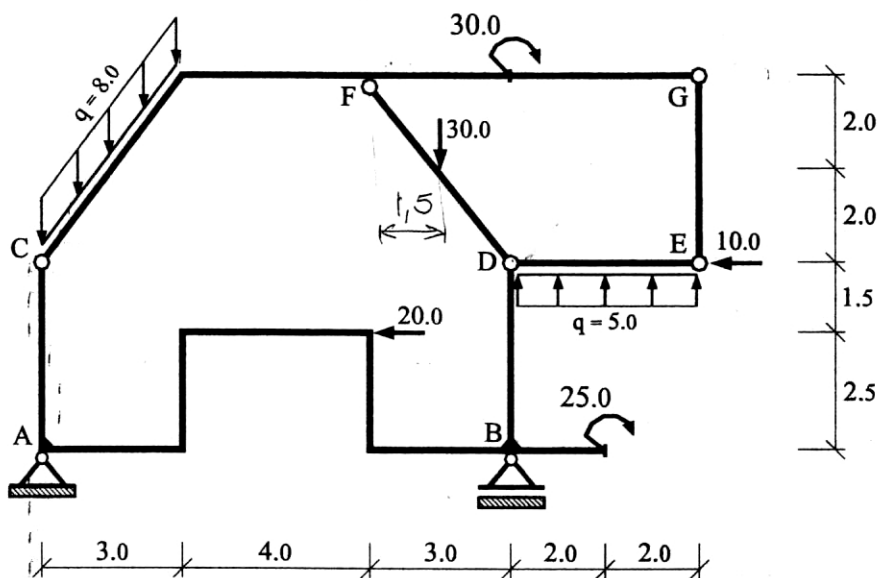


( kN, m )

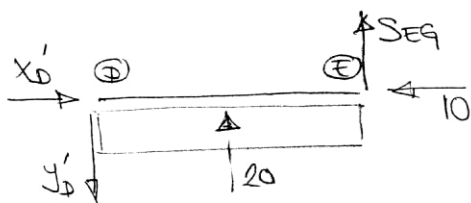
**НАПОМЕНА:** Услов за полагање писменог дела испита је:

» минимум 50% укупног броја поена,

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



\* ΔΕΘ D-E-G:

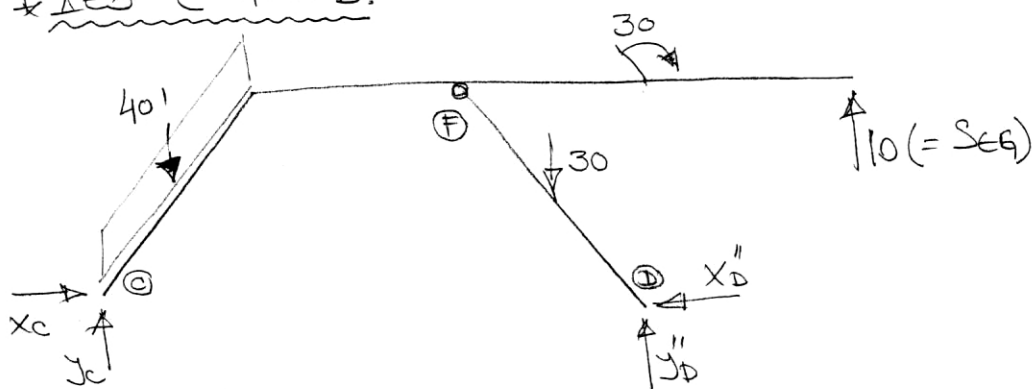


$$\Sigma F_x = 0: \quad X'_D = 10$$

$$\sum M_D^+ = 0: \text{Seq. } 4 + 20 \cdot 2 = 0 \Rightarrow \boxed{\text{Seq} = -10}$$

$$\sum F_y = 0: \boxed{y'_D = 10}$$

\* Δeo C-F-D:



$$\sum M_c^{+} = 0: \quad y_d \cdot 10 - 40 \cdot 1,5 - 30 \cdot 8,5 + 10 \cdot 14 - 30 = 0 \Rightarrow y_d'' = 20,5$$

$$\Sigma F_y = 0: y_c + y_D - 40 - 30 + 10 = 0 \Rightarrow y_c = 39,5$$

$$\sum M_F^{\text{gore} \rightarrow} = 0: y_c \cdot 7 - x_c \cdot 4 - 40 \cdot 5,5 + 30 - 10 \cdot 7 = 0 \Rightarrow x_c = 4,125$$

$$\sum F_x = 0: X_C - X_D = 0 \Rightarrow X_D = +4,125$$

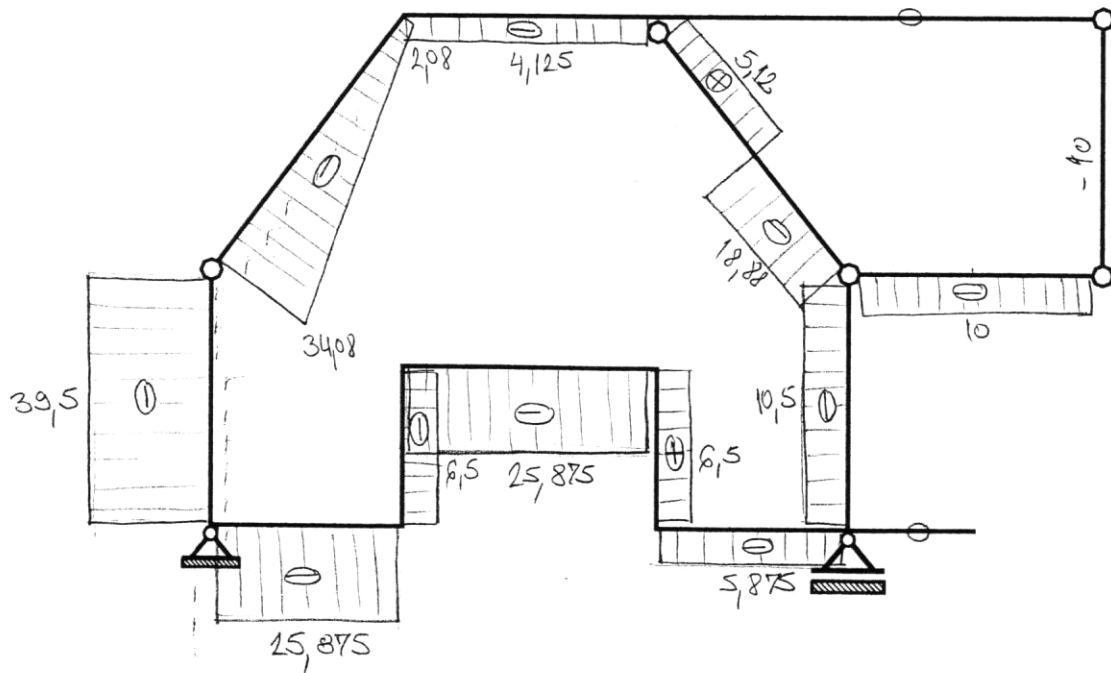
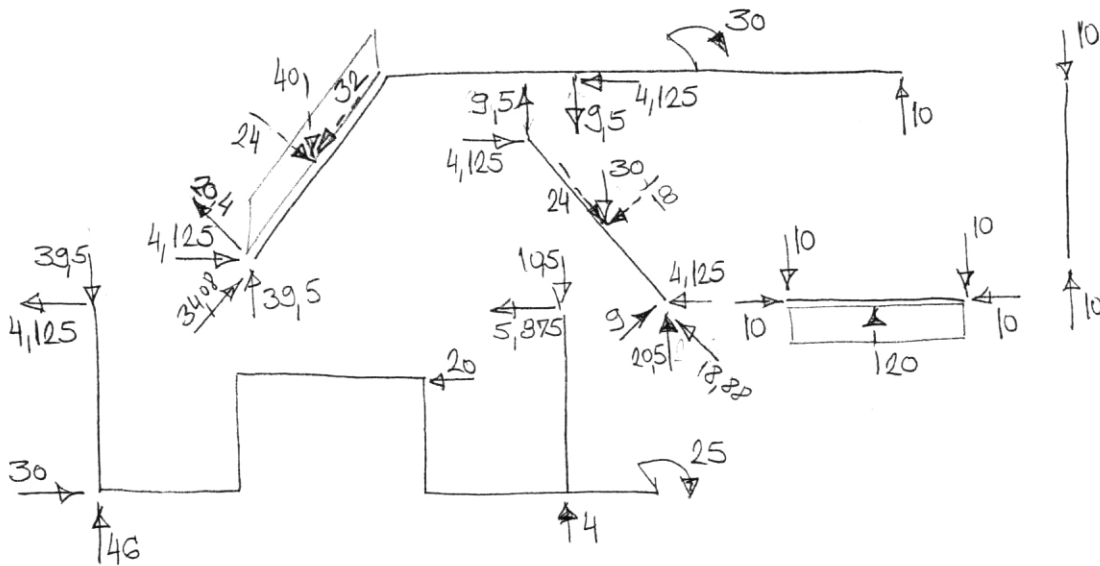
The diagram shows a stepped frame structure with the following dimensions and loads:

- Left Vertical Segment:** Height is 39,5. A horizontal load of 4,125 acts to the left at the top.
- Top Horizontal Segment:** Length is 20. A horizontal load of 20 acts to the left at the right end.
- Right Vertical Segment:** Height is 10,5. A horizontal load of 5,875 acts to the left at the top. A counter-clockwise moment of 25 is applied at the base.
- Supports:**
  - Support A is at the bottom left corner, with reaction forces  $X_A$  (horizontal, to the right) and  $Y_A$  (vertical, upwards).
  - Support B is at the bottom right corner, with reaction forces  $X_B$  (horizontal, to the right) and  $Y_B$  (vertical, upwards).

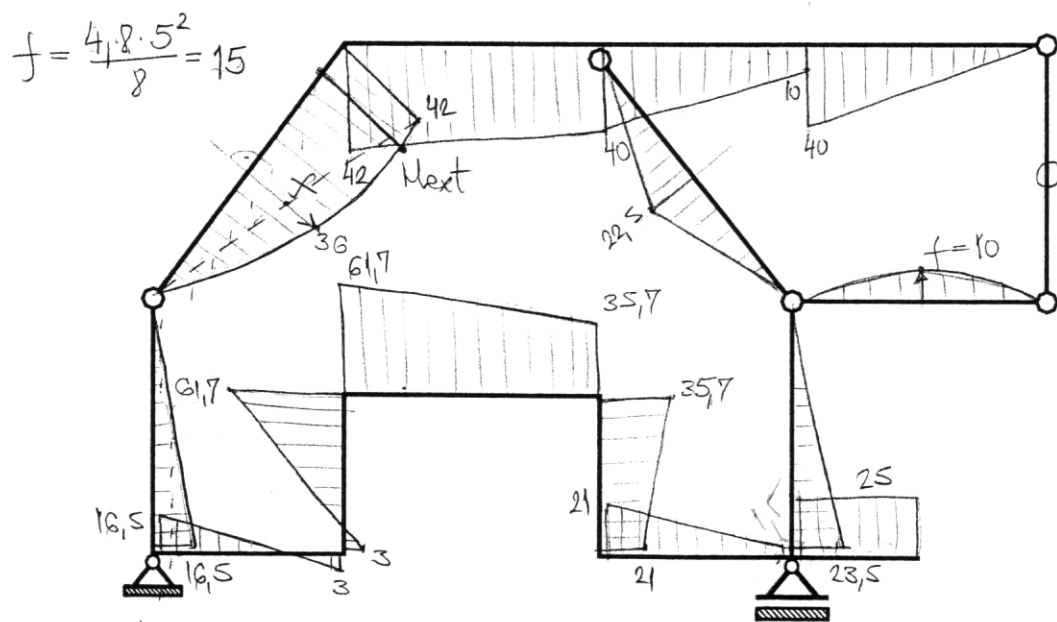
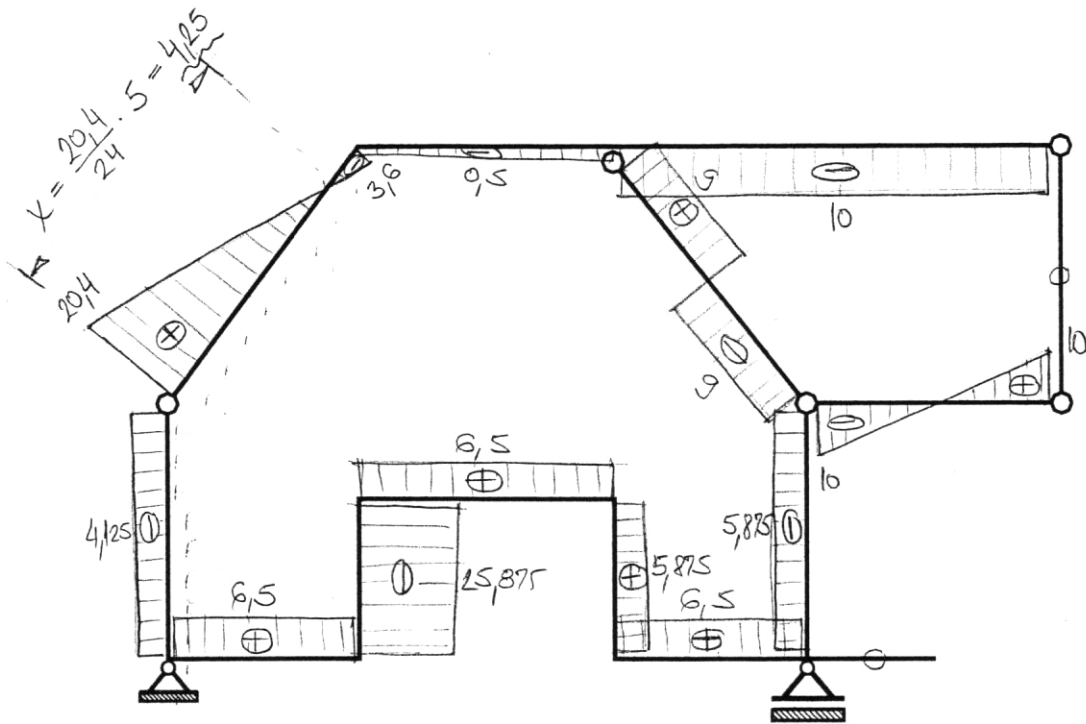
$$\sum M_A^+ = 0: y_B \cdot 10 + 4,125 \cdot 4 + 20 \cdot 2,5 - 10,5 \cdot 10 + 5875 \cdot 4$$

$$J_B = 4$$

\* РЕКАПИТУЛАЦИЈА \*

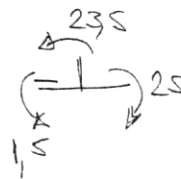


# N

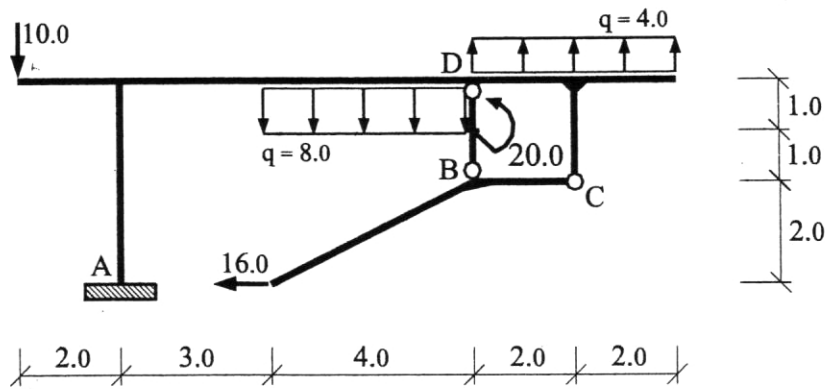


$$M_{ext} = \frac{4,25 \cdot 20,4}{2} = 43,35 \text{ kNm}$$

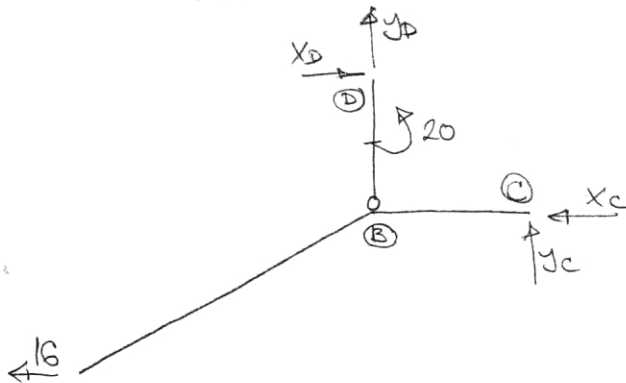
3



2.



\* Чес D-B-C:



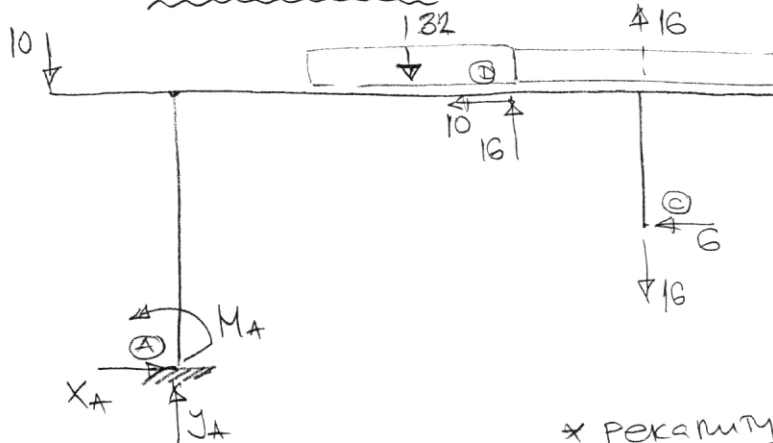
$$\sum M_B^{\text{rope} + \downarrow} = 0: X_D \cdot 2 - 20 = 0 \Rightarrow X_D = 10$$

$$\sum F_x = 0: X_D - X_C - 16 = 0 \Rightarrow X_C = -6$$

$$\sum M_C^{\downarrow} = 0: X_D \cdot 2 + Y_D \cdot 2 + 16 \cdot 2 - 20 = 0 \Rightarrow Y_D = 16$$

$$\sum F_y = 0: Y_C = 16$$

\* Чес A-D-C:

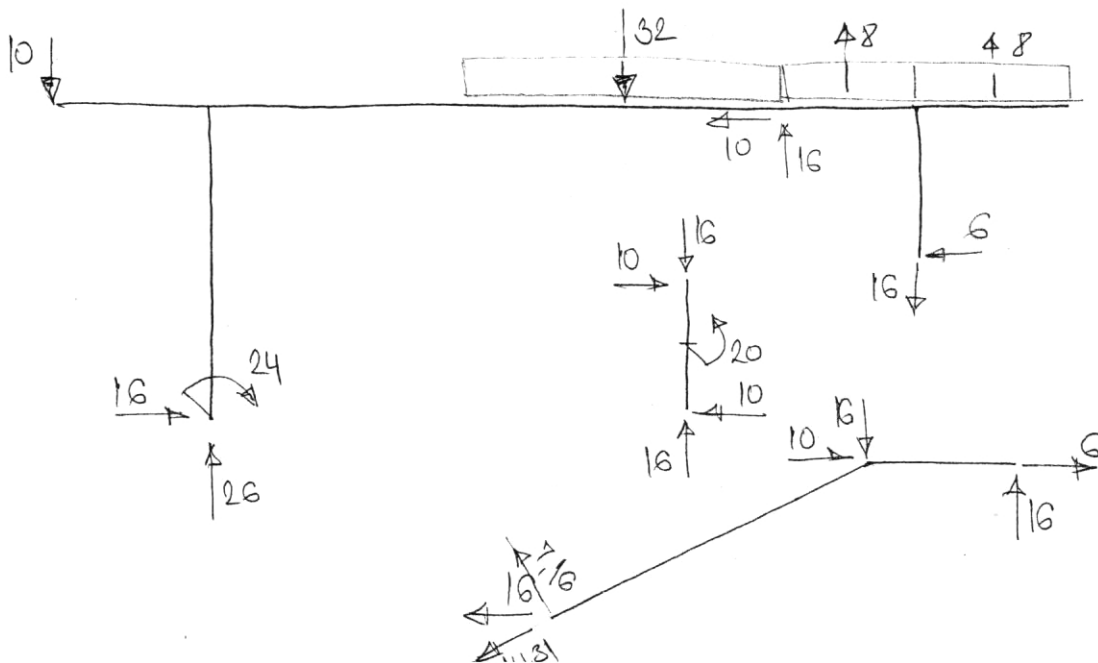


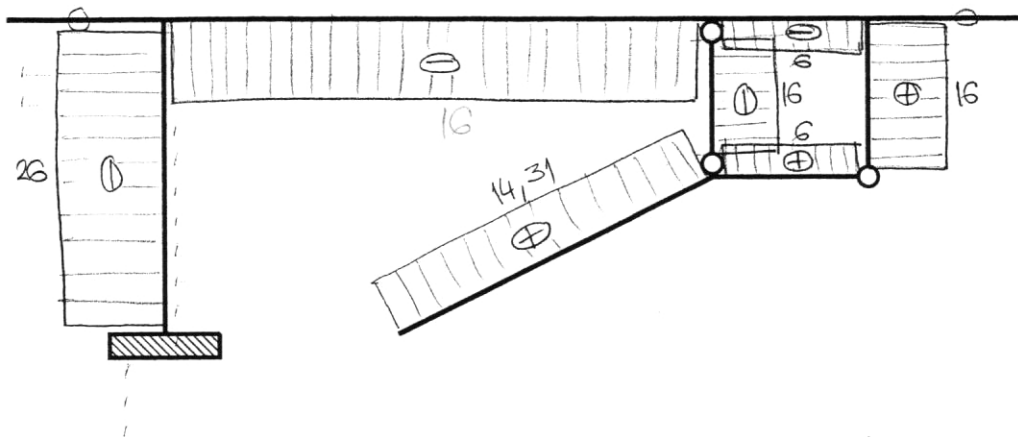
$$\sum F_x = 0: X_A = 16$$

$$\sum F_y = 0: Y_A = 26$$

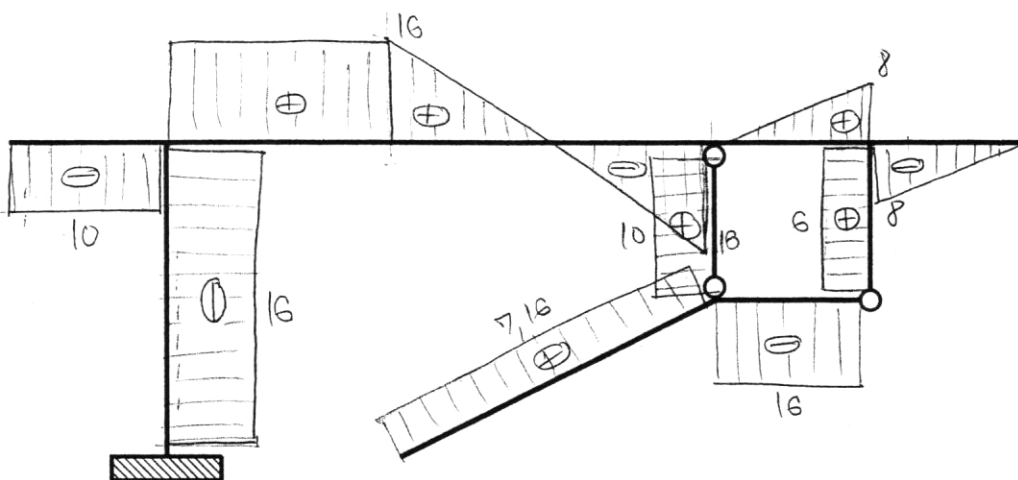
$$\sum M_A^{\uparrow} = 0: M_A + 10 \cdot 2 - 32 \cdot 5 + 16 \cdot 7 + 10 \cdot 4 + 6 \cdot 2 = 0 \Rightarrow M_A = -24$$

\* Реконструкция \*

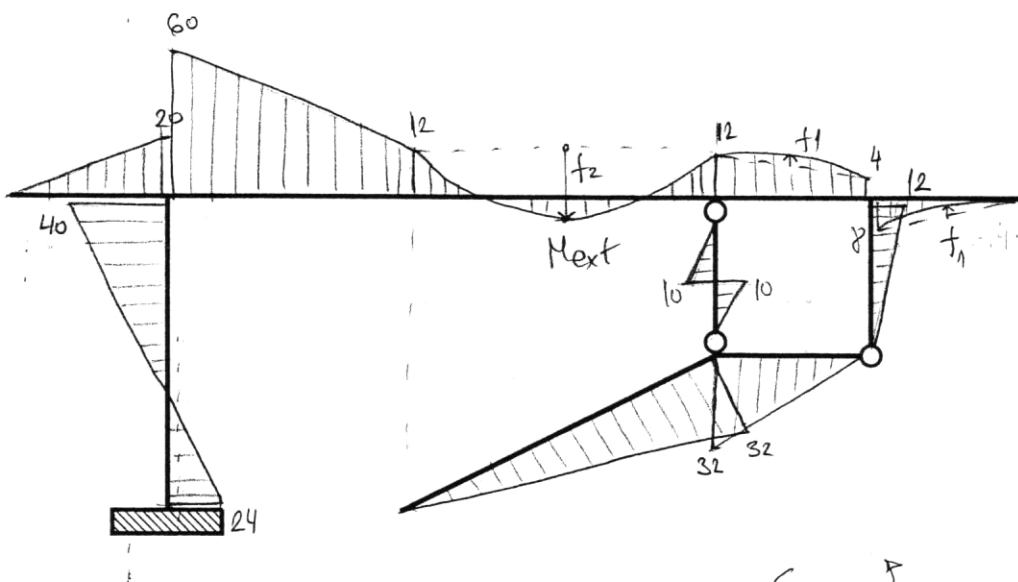




**N**



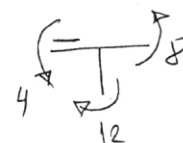
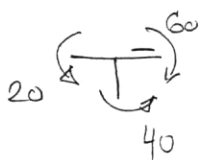
**T**



$$f_1 = \frac{4 \cdot 2^2}{8} = 2$$

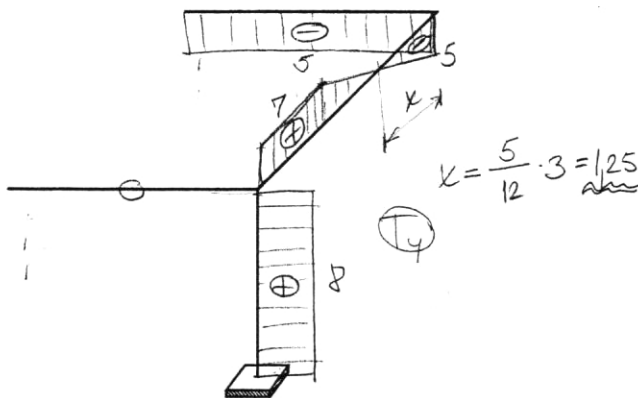
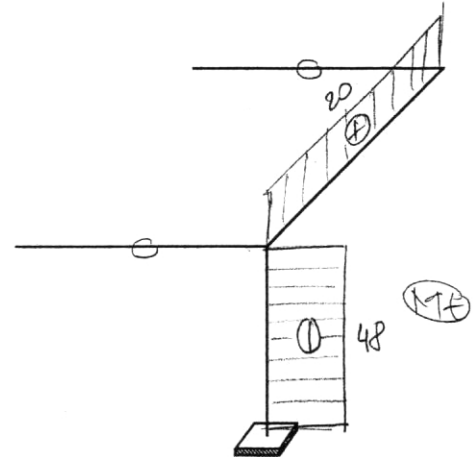
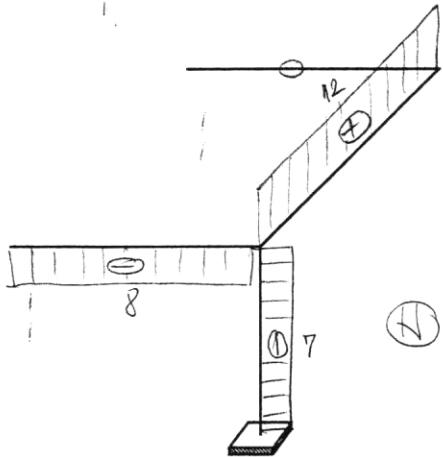
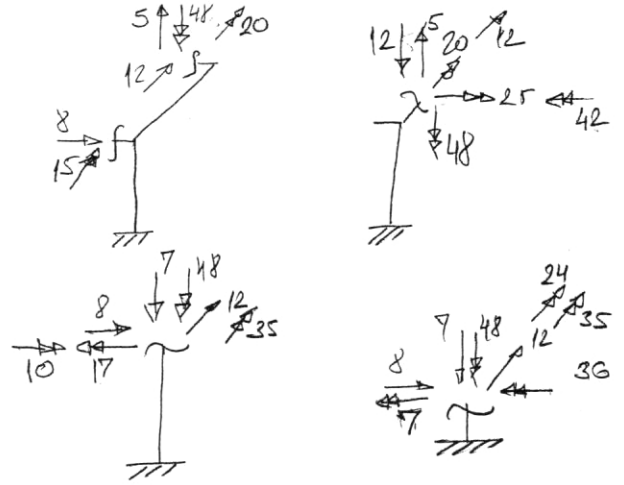
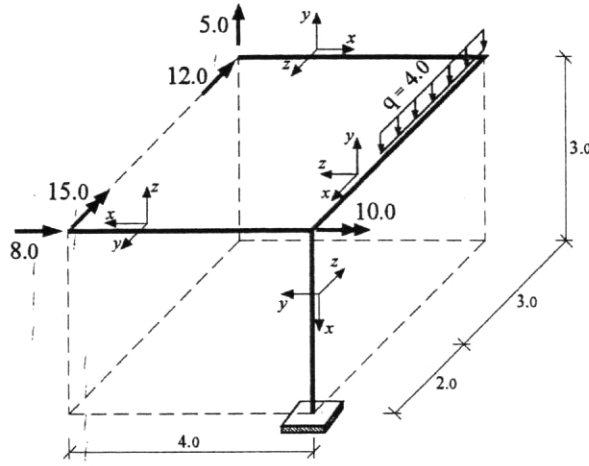
$$f_2 = \frac{8 \cdot 4^2}{8} = 16$$

**M**

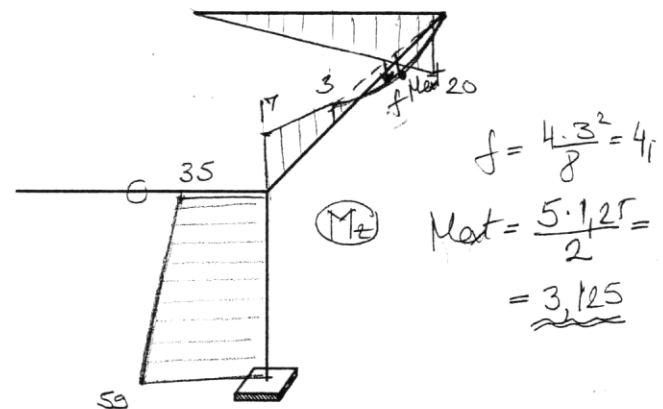


$M_{ext} = 4 \text{ kNm}$

3.



$$K = \frac{5}{12} \cdot 3 = 1.25$$



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

$$M_{\text{tot}} = \frac{5 \cdot 1.25}{2} = 3.125$$

