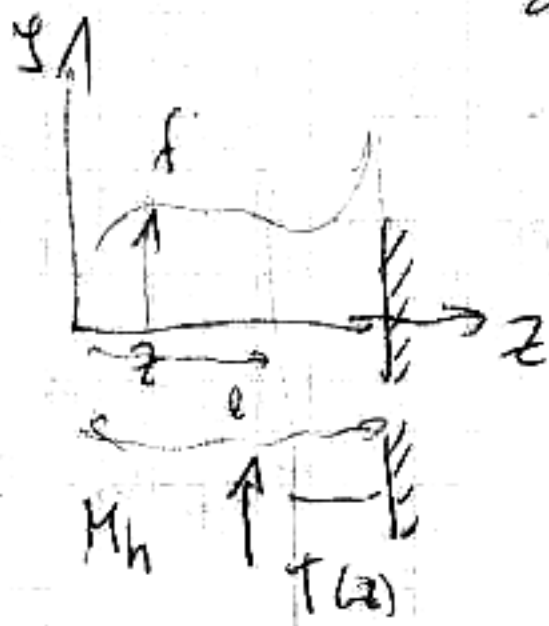


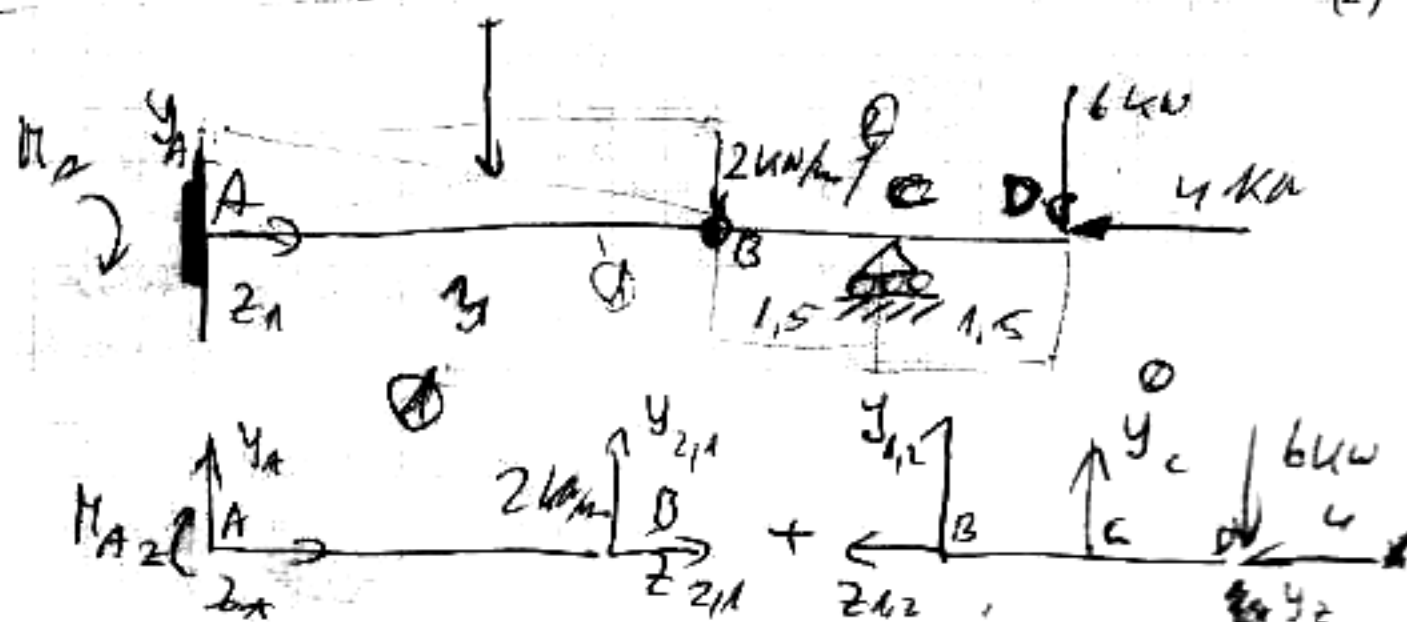
Metode' terkecil, energi potensial:

Energi potensial



$$\frac{dT}{dz} = -f \quad \int_{z_0}^z T(z) - T(z_0) = - \int_{z_0}^z f dz$$

$$\frac{dM}{dz} = T$$



$$(2) M_B = 1.5 \cdot y_c - 6 \cdot 3$$

$$y_c = 12$$

$$\textcircled{1} \quad \sum y = 0 = y_1 + y_2 - 6 \Rightarrow y_{1,2} = 3$$

$$\sum z = 0 = z_{1,2} + 4 \Rightarrow z_{1,2} = -4$$

$$(2) M_B = 0 = y_c \cdot 1.5 - 6 \cdot 3$$

$$y_c = 12$$

$$(1) y = -8 + y_c + 6 = 0$$

$$y_c = 12$$

$$y = -4 + y_c = 0$$

$$y_c = 4$$

③

$$y_c = 12$$

$$\sum y = 0 = y_A - 8 + y_c - 6 \Rightarrow y_A = 2$$

$$\sum z = 0 = z_A - 4 \Rightarrow z_A = 4$$

$$M_A = 0 = M_A + 8 \cdot 2 - y_c \cdot 5.5 + 6 \cdot 7$$

$$M_A = 11.5$$

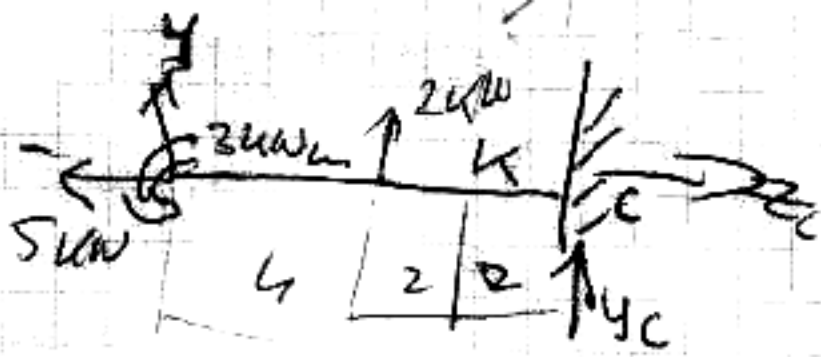
$$M_{Ax} =$$

$$(2) x = -4 + 4 + x_c = 0$$

$$F_c = 4.6 + 1.2 \cdot 6$$

$$F_{z1} = 0.6 + 0.8 \cdot 6$$

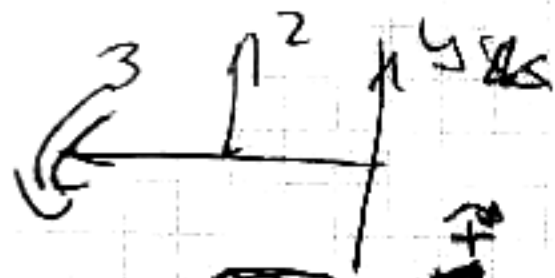
$$F_{z2} = 0.6 + 0.8 \cdot 6$$



$$\sum y = 0 = y_c + 2 \Rightarrow y_c = -2 \text{ kN}$$

$$\sum z = 0 = z_c + 5 \Rightarrow z_c = -5 \text{ kN}$$

$$M_c = 0 = M_c + 2 \cdot 4 - 3 \Rightarrow M_c = 5 \text{ kNm}$$



$$\sum y = 0 = y_c + 2 \Rightarrow y_c = -2$$

$$\sum z = 0 = z_c + 5 \Rightarrow z_c = -5$$

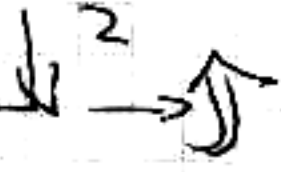
$$M_c = 0 = M_c + 2 \cdot 2 - 3 = 1 \text{ kNm}$$

$$H = H_c + 3 \text{ kN} = 4 \text{ kN} \Rightarrow H_c = 1 \text{ kN}$$

$$y = 2 \text{ kN} + y_c = 0$$

$$H_c = 5 \text{ kN}$$

$$x = 5 + x_c = 0$$



$$\sum y = 0 = y_c + 6 \Rightarrow y_c = -6$$

$$\sum x = 0 = x_c \Rightarrow x_c = 0$$

$$M_A = 0 = M_A - 6 \cdot 3$$

$$M_A = 18 \text{ kNm}$$

$$F_A = -6 \text{ kN}$$

$$M_x =$$

$$-6 \text{ kN}$$

$$M_A = 2 \cdot 8 + 2 y_B + 8$$

$$2 y_B = 16$$

$$y_B = 8$$

$$y = y_A + 8 + 8$$

$$y_c = 0$$

$$x = x_A = 0$$

$$F_c = -5 \text{ kN}$$

$$y = y_c + 2 = 0$$

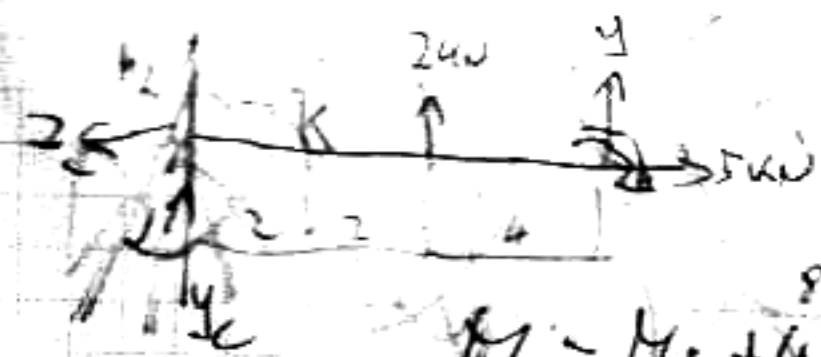
$$y_c = -2$$

$$x = x_c + 5 = 0$$

$$x_c = -5$$

$$M = M_c + 2 \cdot 2 - 5 = 0$$

$$M_c = 1$$



$$M = M_c + 4 \cdot 2 - 5 = 0$$

$$M_c = -3$$

$$y_c = 1$$