

III) $0 \leq x_1 < a$

$$M_g(x_1) = M + 2P \cdot x_1 = qa^2 + 2qa^2 \cdot x_1$$

$$M_g(x_1=0) = qa^2$$

$$M_g(x_1=a) = 3qa^2$$

$$T(x_1) = -2P = -2qa$$

$$N(x_1) = 0$$

IV) $0 \leq x_5 < a$

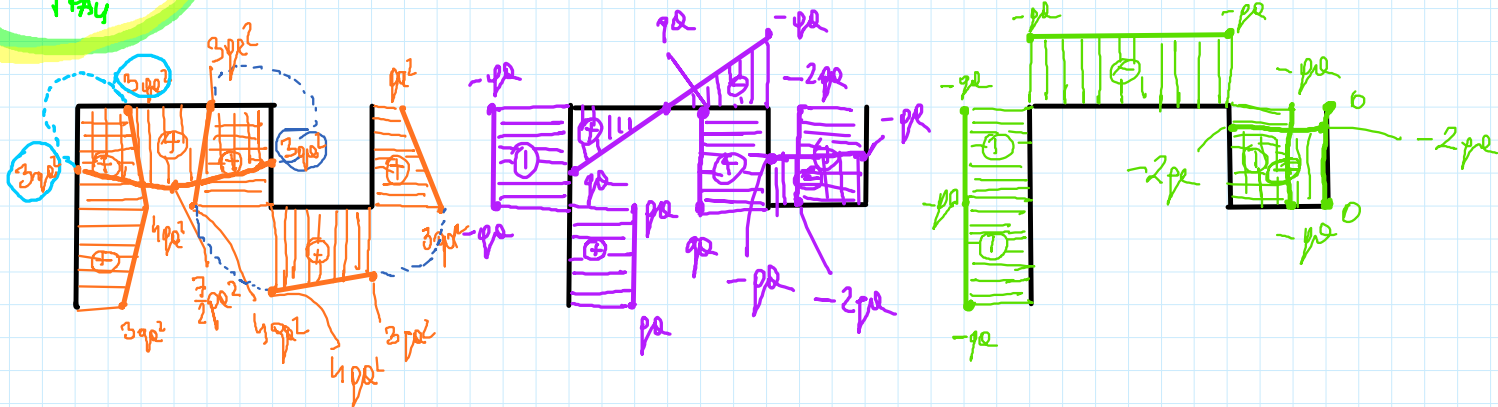
$$M_g(x_5) = M + 2P \cdot a + P \cdot x_5 = qa^2 + 2qa^2 + qa \cdot x_5$$

$$M_g(x_5=0) = 3qa^2$$

$$M_g(x_5=a) = 4qa^2$$

$$T(x_5) = -P = -qa$$

$$N(x_5) = -2P = -2qa$$



$R_{Ax} = -qa, R_{Ay} = qa, M_u = -3qa^2$

I) $0 \leq x_1 < a$

$$M_g(x_1) = -M_u - R_{Ax} \cdot x_1 = 3qa^2 + qa \cdot x_1$$

$$M_g(x_1=0) = 3qa^2$$

$$M_g(x_1=a) = 4qa^2$$

$$T(x_1) = -R_{Ax} = qa$$

$$N(x_1) = -R_{Ay} = -qa$$

II) $a \leq x_1 < 2a$

$$M_g(x_1) = -M_u - R_{Ax} \cdot x_1 - 2P \cdot (x_1 - a) = 3qa^2 + qa \cdot x_1 - 2qa^2 \cdot (x_1 - a)$$

$$M_g(x_1=a) = 4qa^2, M_g(x_1=2a) = 5qa^2 - 2qa^2 = 3qa^2$$

$$T(x_1) = -R_{Ax} - 2P = -qa$$

$$N(x_1) = -R_{Ay} = -qa$$

DANE:

$P = 1qa$
 $M = 1qa^2$
 $q \cdot a$

REAKCJE:

$$\begin{cases} \sum F_{ix} = 0 \\ \sum F_{iy} = 0 \\ \sum M_i = 0 \end{cases} \begin{cases} R_{Ax} + 2P + P - 2P = 0 \\ R_{Ay} - q \cdot 2a + P = 0 \end{cases} \begin{cases} R_{Ax} = -qa \\ R_{Ay} = qa \end{cases}$$

$$\sum M_i = M_u - 2P \cdot a - q \cdot 2a \cdot a - P \cdot a + P \cdot 3a + 2P \cdot 2a + M = 0$$

$$M_u = qa^2(2 + 2 + 2 - 3 - 1 - 1) = 0 \Rightarrow M_u = -3qa^2$$

SPR.

$$\sum M_{ic} = M_u + R_{Ax} \cdot a - R_{Ay} \cdot a + P \cdot 2a + 2P \cdot a + M = 0$$

$$qa^2(-3 - 1 - 1 + 2 + 2 + 1) = 0$$

$$0 = 0$$

$$\textcircled{\text{ii}} 0 \leq x_2 \leq 2a$$

$$\Pi_g(x_2) = -\Pi_u + R_A y \cdot x_2 - P_A x \cdot 2a - 2P \cdot a - q \left(\frac{x_2 - 0}{2} \right)^2 = \left. \begin{array}{l} \Pi_g(x_2 = a) = 3qa^2 + qa^2 \\ - \frac{1}{2} qa^2 = \\ \frac{3}{2} qa^2 \end{array} \right\}$$

$$= 3qa^2 + qa x_2 + \cancel{qa \cdot 2a} - \cancel{2qa^2} - \frac{q x_2^2}{2} =$$

$$\Pi_g(x_2 = 0) = 3qa^2, \quad \Pi_g(x_2 = 2a) = qa^2(3 + 2 - 2) = 3qa^2$$

$$T(x_2) = R_A y - q x_2 = qa - q x_2$$

$$U(x_2) = -P_A x - 2P = qa \cdot 2qa = -qa$$

$$T(x_2 = 0) = qa$$

$$T(x_2) = 0 \Leftrightarrow x_2 = a$$

$$T(x_2 = 2a) = -qa$$

$$\textcircled{\text{iv}} 0 \leq x_3 \leq a$$

$$\Pi_g(x_3) = -\Pi_u + R_A y \cdot 2a - R_A x (2a - x_3) - 2P(a - x_3) - 2qa \cdot a =$$

$$= 3qa^2 + 2qa^2 + qa(2a - x_3) - 2qa(a - x_3) - 2qa^2 =$$

$$= 3qa^2 + 2qa^2 - x_3 \cdot qa - 2qa^2 + x_3 \cdot 2qa = 3qa^2 + x_3 \cdot qa$$

$$\Pi_g(x_3 = 0) = 3qa^2$$

$$T(x_3) = R_A y + 2P = -qa + 2qa = qa$$

$$\Pi_g(x_3 = a) = 4qa^2$$

$$N(x_3) = R_A y - 2qa = qa - 2qa = -qa$$