

$$\text{III} \quad 2 \leq x_3 \leq 3$$

$$T(x_3) = -P \cdot x_3 + V_A - q(x_3 - 1)^2$$

$$M(x_3) = -P \cdot x_3 + V_A \cdot x_3 - q \frac{(x_3 - 1)^2}{2} - M$$

$$T(x_3=2) = -8 + 5 - 2 = -5 \text{ kN}$$

$$M(x_3=2) = -8 + 10 - 1 - 2 = -1 \text{ kNm}$$

$$T(x_3=3) = -12 + 5 - 8 = -15 \text{ kN}$$

$$M(x_3=3) = -12 + 15 - 4 - 2 = -3 \text{ kNm}$$

$$\text{IV} \quad 3 \leq x_4 \leq 4 \quad (\text{licząc od prawej strony})$$

$$T_{x_4} = q(4 - x_4)^2$$

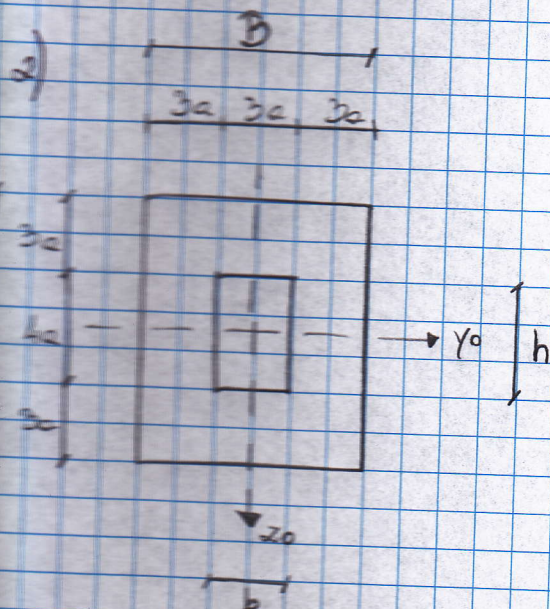
$$M(x_4) = -q \frac{(4 - x_4)^2}{2}$$

$$T(x_4=3) = 2 \text{ kN}$$

$$M(x_4=3) = 1 \text{ kNm}$$

$$T(x_4=4) = 0 \text{ kN}$$

$$M(x_4=4) = 0 \text{ kNm}$$



$$F = 8a \cdot 10a - 3a \cdot 4a = 78a^2 \quad \text{pole}$$

$$S_y = 80a^2 \cdot 4,5a - 12a^2 \cdot 1,5a = 405a^3 - 18a^3 = 387a^3$$

$$z_0 = \frac{S_y}{F} = \frac{387a^3}{78a^2} = 4,96a \approx 5a$$

$$J_y = \left(\frac{BH^3}{12} + F_1 \cdot y_1^2 \right) - \left(\frac{bh^3}{12} + F_2 \cdot y_2^2 \right)$$

$$J_y = \left(\frac{8a \cdot (10a)^3}{12} + 80a^2 \cdot (4,5a)^2 \right) - \left(\frac{3a \cdot (4a)^3}{12} + 12a^2 \cdot (1,5a)^2 \right)$$

$$J_y = (750a^4 + 1822,5a^4) - (16a^4 - 27a^4) = 2529,5a^4$$