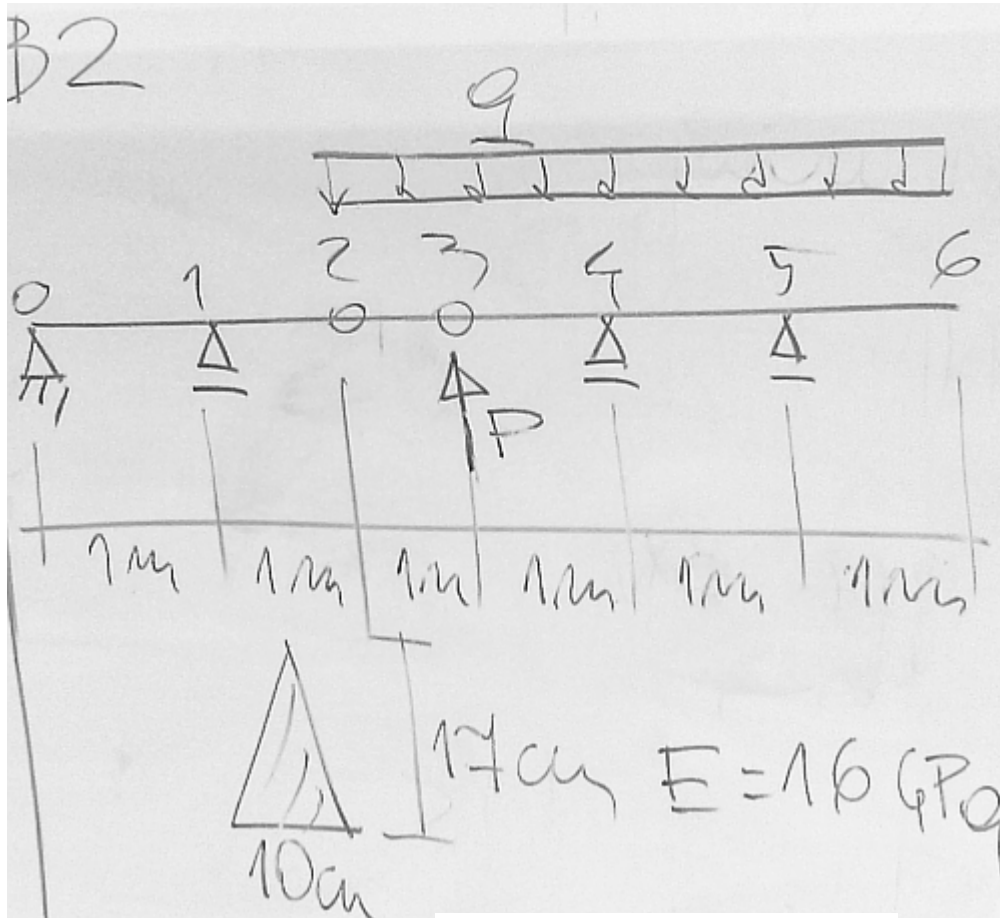


Metoda różnic skończonych - ugięcie belki B2



$$P := 3 \text{ kN} \quad q := 2 \frac{\text{kN}}{\text{m}} \quad E := 16 \text{ GPa}$$

$$b := 10 \text{ cm} \quad h := 17 \text{ cm}$$

$$L := 6 \text{ m} \quad J := b \cdot \frac{h^3}{36} = 1364.7222 \cdot \text{cm}^4$$

$$n := 6 \quad \Delta := \frac{L}{n} = 1 \text{ m}$$

$$\alpha := \frac{\Delta^2}{E \cdot J} = 4.57969 \cdot \frac{1}{\text{MN}}$$

dokładność $y \pm 0.0005 \text{ mm}$

$$T2 := \frac{q \cdot 1 \text{ m}}{2} \quad R1 := T2 \cdot 2 \quad R0 := T2 - R1 = -1 \text{ kN}$$

$$T3 := T2 - P = -2 \text{ kN} \quad R4 := \frac{q \cdot 3 \text{ m}}{2} + T3 \cdot 2 = -1 \text{ kN}$$

$$M1(x) := R0 \cdot x \quad M2(x) := M1(x) + R1 \cdot (x - 1 \text{ m})$$

$$M3(x) := M2(x) - q \cdot \frac{(x - 2 \text{ m})^2}{2}$$

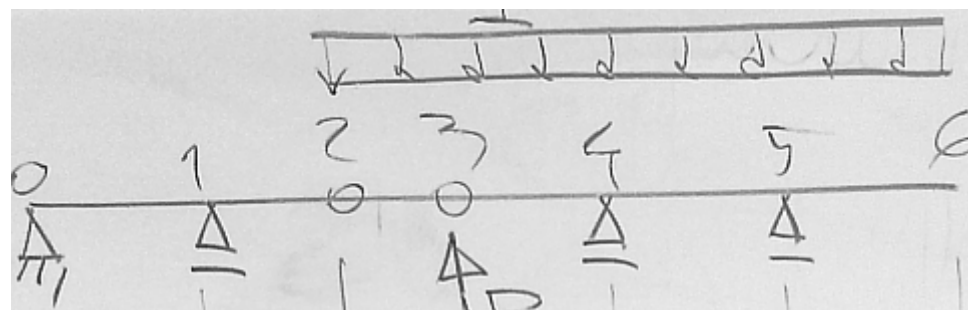
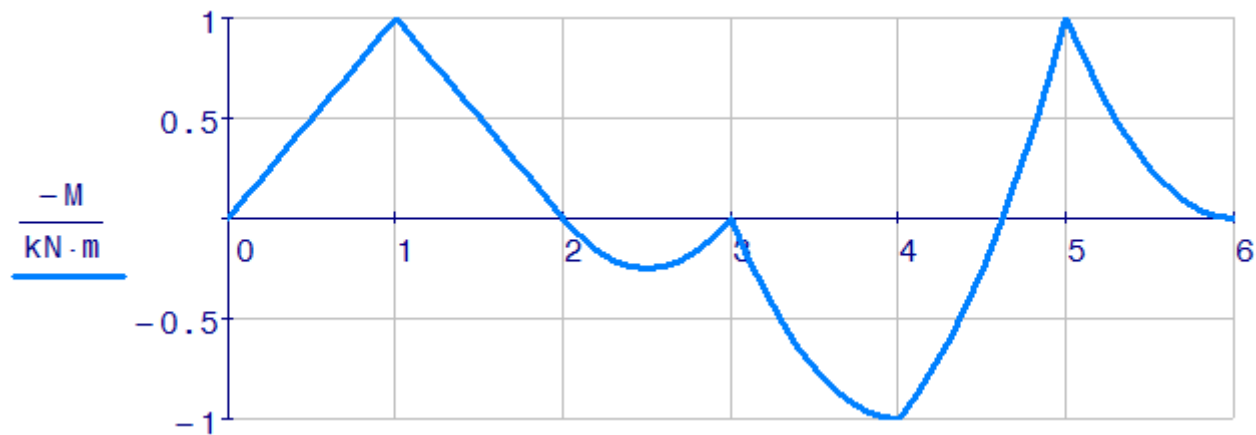
$$M4(x) := M3(x) + P \cdot (x - 3 \text{ m}) \quad M5(x) := M4(x) + R4 \cdot (x - 4 \text{ m}) \quad M6(x) := -q \cdot \frac{(L - x)^2}{2}$$

$$\frac{M}{\text{kN} \cdot \text{m}} =$$

	0
0	0
1	-1
2	0
3	0
4	1
5	-1
6	0

$$\frac{x}{\text{m}} =$$

	0
0	0
1	1
2	2
3	3
4	4
5	5
6	6



Warunki brzegowe

$$y_0 = 0 \quad y_1 = 0 \quad y_4 = 0 \quad y_5 = 0$$

Równania MRS

$$y_0 - 2y_1 + y_2 = \alpha M_1$$

$$y_3 - 2y_4 + y_5 = \alpha M_4$$

$$y_4 - 2y_5 + y_6 = \alpha M_5$$

$$y =$$

	0
0	0.000
1	0.000
2	-4.580
3	4.580
4	0.000
5	0.000
6	-4.580

· mm

$$\alpha = 4.57969 \cdot \frac{1}{\text{MN}}$$