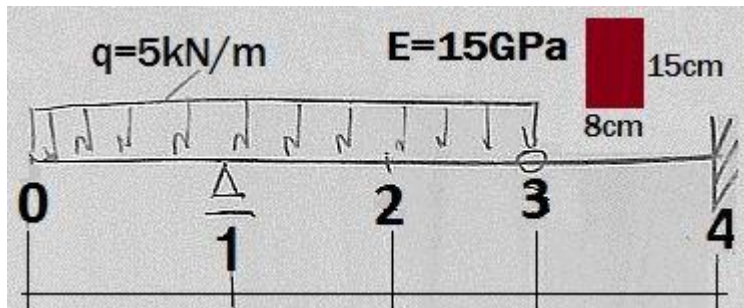


Grupa IBN8

ORIGIN := 0



$$P := 0 \text{ kN} \quad q := 5 \frac{\text{kN}}{\text{m}}$$

$$L := 4 \text{ m}$$

$$b := 8 \text{ cm}$$

$$h := 15 \text{ cm}$$

$$J := b \cdot \frac{h^3}{12}$$

$$E := 15 \text{ GPa}$$

$$R1 := \frac{q \cdot 3 \text{ m} \cdot 1.5 \text{ m}}{2 \text{ m}}$$

$$n := 4 \quad \Delta := \frac{L}{n} = 1 \text{ m}$$

$$\alpha := \frac{\Delta^2}{E \cdot J}$$

$$\alpha = 2.963 \times 10^{-3} \cdot \frac{1}{\text{kN}}$$

$$M1(x) := -q \cdot \frac{x^2}{2}$$

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

$$M3(x) := M2(x) + q \cdot \frac{(x - 3\text{m})^2}{2}$$

$$i := 0 .. n$$

$$X_i := i \cdot \Delta$$

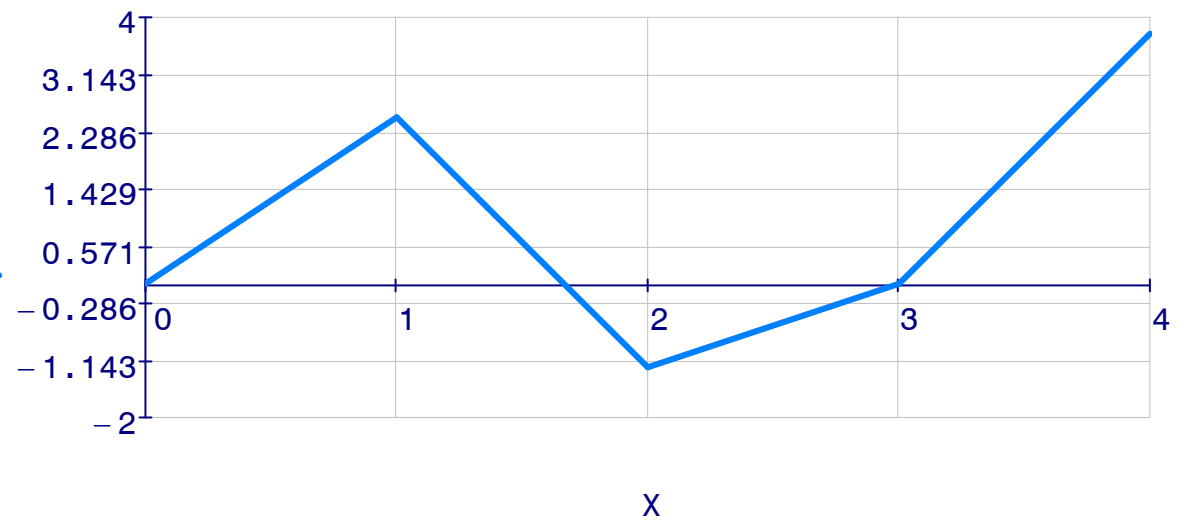
$$i := 0 .. 1 \quad M_i := M1(X_i)$$

$$i := 1 .. 3 \quad M_i := M2(X_i)$$

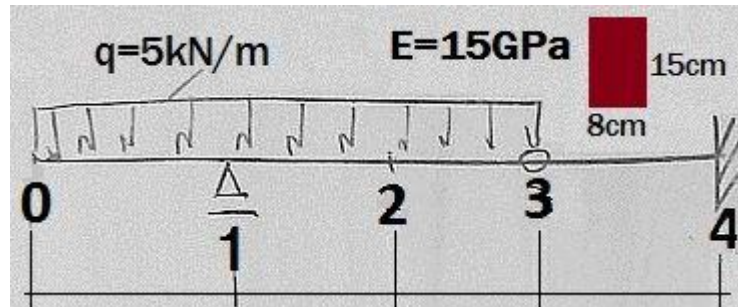
$$i := 3 .. n \quad M_i := M3(X_i)$$

| | | | | | | | |
|-----|---|-------|----------|-----|---|---|---|
| M = | | 0 | · kN · m | X = | | 0 | m |
| | 0 | 0 | | | 0 | 0 | |
| | 1 | -2.5 | | | 1 | 1 | |
| | 2 | 1.25 | | | 2 | 2 | |
| | 3 | 0 | | | 3 | 3 | |
| | 4 | -3.75 | | | 4 | 4 | |

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



$$A := \begin{pmatrix} 0 & 1 & 0 & 0 & 0 \\ 1 & -2 & 1 & 0 & 0 \\ 0 & 1 & -2 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 2 & 0 \end{pmatrix}$$



$$y := \text{lsolve}(A, \alpha \cdot M)$$

$$y = \begin{pmatrix} -2.778 \\ 0 \\ -4.63 \\ -5.556 \\ 0 \end{pmatrix} \cdot \text{mm}$$

