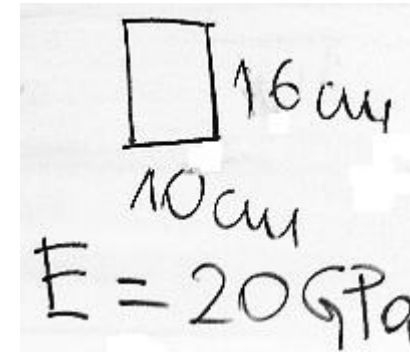
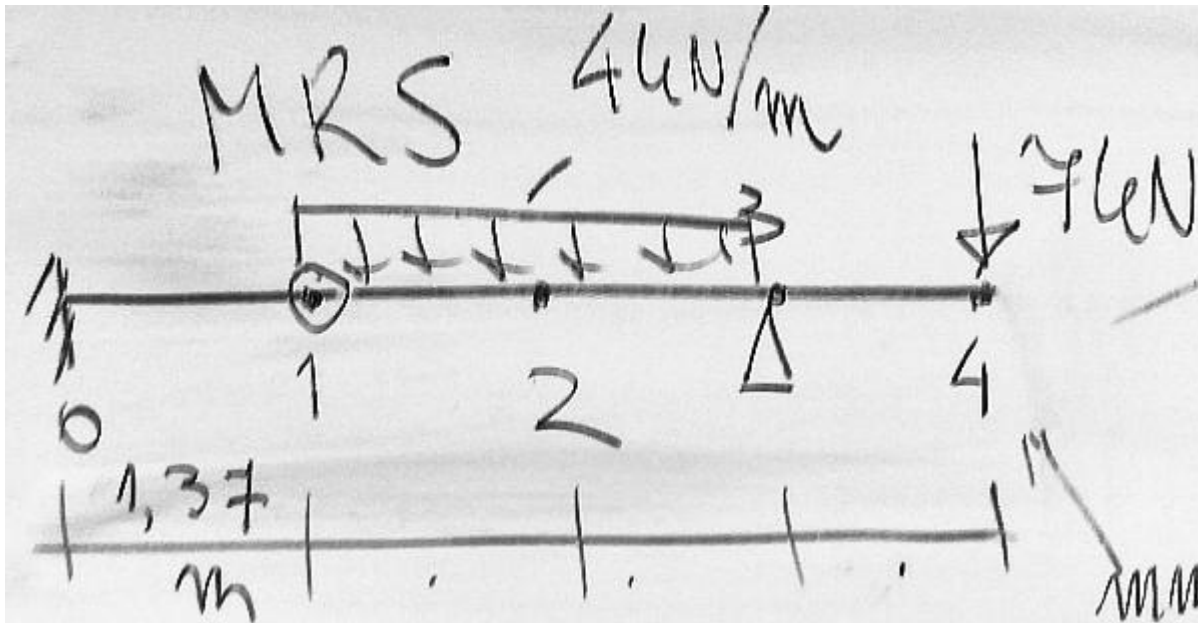


ORIGIN := 0



$$P := 7 \text{ kN} \quad q := 4 \frac{\text{kN}}{\text{m}} \quad E := 20 \text{ GPa} \quad \Delta := 1.37 \text{ m} \quad n := 4$$

$$\underline{L} := n \cdot \Delta = 5.48 \text{ m}$$

$$b := 10 \text{ cm} \quad h := 16 \text{ cm} \quad \underline{J} := b \cdot \frac{h^3}{12} = 3413.333 \cdot \text{cm}^4$$

$$R3 := \frac{q \cdot 2 \cdot \Delta^2 + P \cdot 3 \cdot \Delta}{2 \cdot \Delta} = 15.980 \text{ kN}$$

$$T1 := q \cdot 2 \cdot \Delta + P - R3 = 1.980 \text{ kN}$$

$$M0 := T1 \cdot \Delta = 2.713 \text{ kN} \cdot \text{m}$$

$$R0 := T1$$

$$\alpha := \frac{\Delta^2}{E \cdot J} \quad \alpha = 2.749 \times 10^{-3} \cdot \frac{1}{\text{kN}}$$

$$M1(x) := -M0 + R0 \cdot x$$

$$M2(x) := M1(x) - q \cdot \frac{(x - \Delta)^2}{2}$$

$$M3(x) := -P \cdot (L - x)$$

$$i := 0 .. n$$

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

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

$$i := 2 .. 3 \quad M_i := M2(X_i)$$

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

$$M = \begin{array}{c|c} & 0 \\ \hline 0 & -2.713 \\ 1 & 0.000 \\ 2 & -1.041 \\ 3 & -9.590 \\ 4 & 0.000 \end{array} \cdot \text{kN} \cdot \text{m} \quad X = \begin{array}{c|c} & 0 \\ \hline 0 & 0.000 \\ 1 & 1.370 \\ 2 & 2.740 \\ 3 & 4.110 \\ 4 & 5.480 \end{array} \text{m}$$

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

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

$$y = \begin{pmatrix} 0.00 \times 10^0 \\ -3.73 \times 10^0 \\ -4.33 \times 10^{-1} \\ 0.00 \times 10^0 \\ -2.59 \times 10^1 \end{pmatrix} \cdot \text{mm}$$

