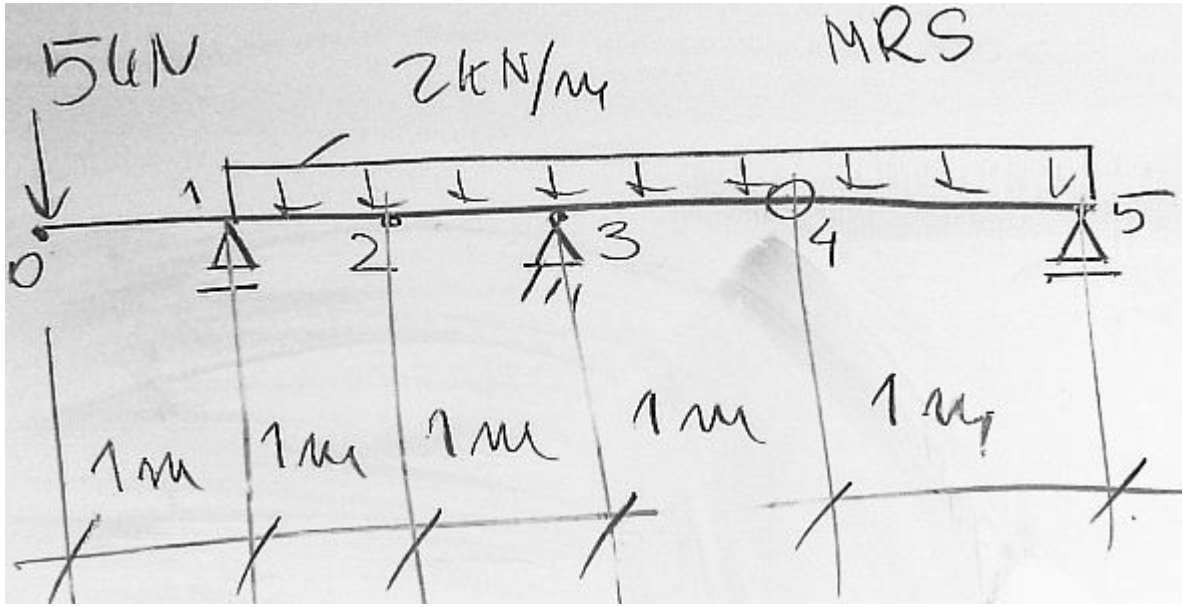
Grupa 1

ORIGIN := 0



$P := 5kN \qquad q := 2\frac{kN}{m}$

$L := 5m \qquad b := 8cm \qquad h := 12cm \qquad J := b \cdot \frac{h^3}{12} \qquad E := 15GPa$

$R5 := \frac{q \cdot 1m \cdot 0.5m}{1m} = 1 \cdot kN \qquad T4 := 1kN$

$R3 := \frac{q \cdot 3m \cdot 1.5m + T4 \cdot 3m - P \cdot 1m}{2m} = 3.5 \cdot kN \qquad R1 := P + q \cdot 3m + T4 - R3 = 8.5 \cdot kN$

$n := 5 \qquad \Delta := \frac{L}{n} = 1\,m \qquad \alpha := \frac{\Delta^2}{E \cdot J} \qquad \alpha = 5.787 \cdot \frac{1}{MN}$

$M1(x) := -P \cdot x$

$M2(x) := M1(x) + R1 \cdot (x - 1m) - q \cdot \frac{(x - 1m)^2}{2}$

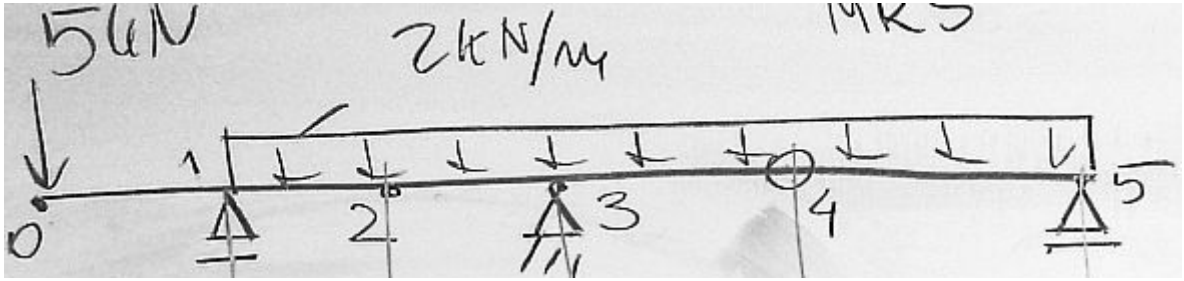
$M3(x) := M2(x) + R3 \cdot (x - 3m)$

$i := 0 .. \; n \qquad X_i := i \cdot \Delta$

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

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

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



$M =$

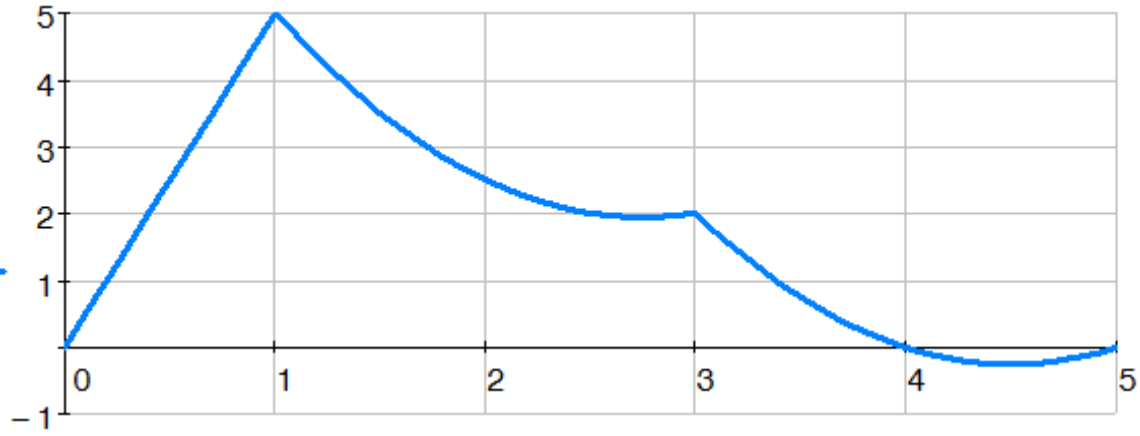
	0
0	0
1	-5
2	-2.5
3	-2
4	0
5	0

$\cdot kN \cdot m \qquad X =$

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

m

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

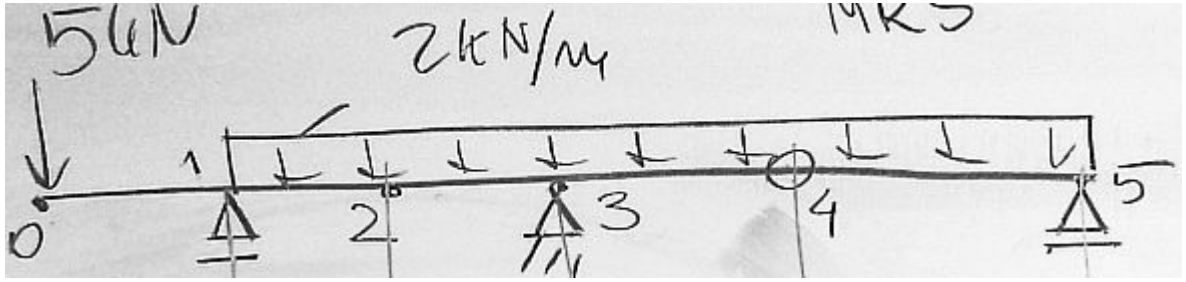


Równania MRS

$y_1 = 0$ $y_3 = 0$ $y_5 = 0$

$$y_0 - 2y_1 + y_2 = \alpha M_1 \qquad y_0 + y_2 = \alpha M_1$$
$$y_1 - 2y_2 + y_3 = \alpha M_2 \quad \text{-------->} \quad y_2 = \alpha M_2$$
$$y_2 - 2y_3 + y_4 = \alpha M_3 \qquad y_2 + y_4 = \alpha M_3$$

$$\alpha = 5.787 \cdot \frac{1}{MN} \qquad E \cdot J = 172.8\,kN \cdot m^2$$



$M =$

	0
0	0
1	-5
2	-2.5
3	-2
4	0
5	0

$\cdot kN \cdot m$

$y =$

	0
0	-36.17
1	0.00
2	7.23
3	0.00
4	-18.81
5	0.00

$\cdot mm$