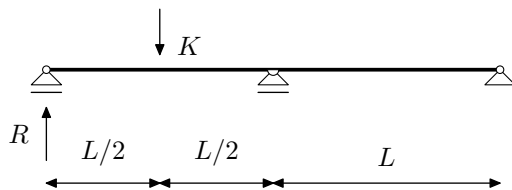


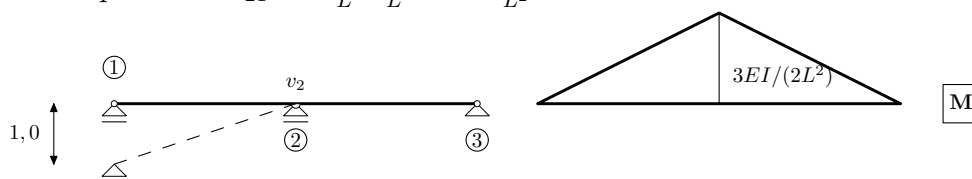
Zadatak: Pomoću utjecajne funkcije η_R dobivene metodom pomaka odredite iznos reakcije R , ($K = 160 \text{ kN}$, $EI = 20250 \text{ kNm}^2$).



nepoznanica: φ_2

$$k_{21} = k_{23} = \frac{1}{L}$$

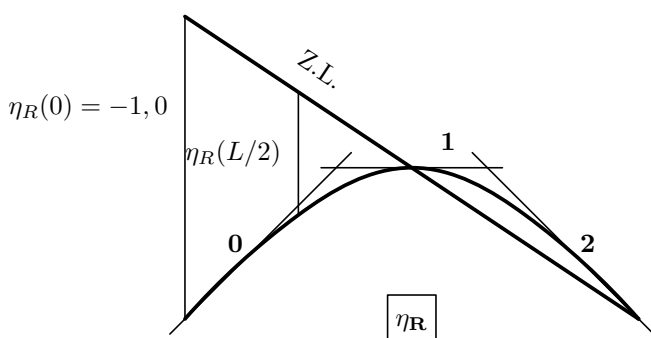
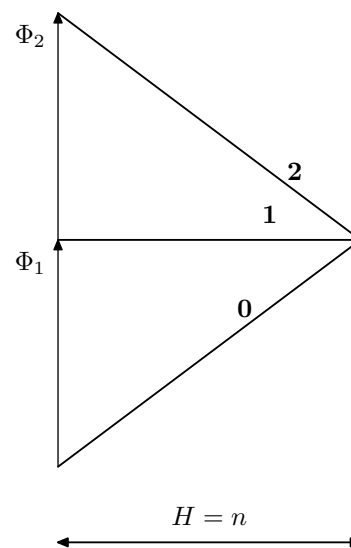
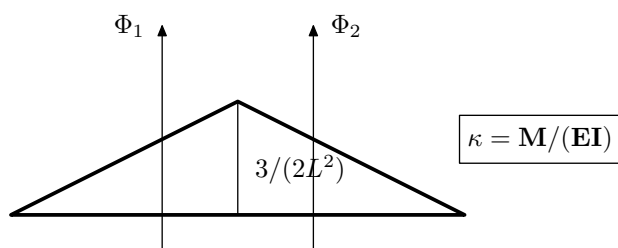
$$\text{momenti upetosti: } \overline{M}_{21} = 3 \frac{EI}{L} \frac{(0-1)}{L} = -\frac{3EI}{L^2}$$



$$M_{21} = 3k_{21}\varphi_2 + \overline{M}_{21} = \frac{3}{L}\varphi_2 - \frac{3EI}{L^2}$$

$$M_{23} = 3k_{23}\varphi_2 = \frac{3}{L}\varphi_2$$

$$\sum_i M_{2i} = 0 \Rightarrow \frac{6}{L}\varphi_2 = \frac{3EI}{L^2} \Rightarrow \varphi_2 = \frac{EI}{2L} \Rightarrow M_{21} = -\frac{3EI}{2L^2}, M_{23} = \frac{3EI}{2L^2}$$



$$\Phi_1 = \Phi_2 = \frac{3}{2L^2} \cdot \frac{L}{2} = \frac{3}{4L}$$

mjerilo dužina : 1 cm :: 1 m mjerilo Φ_i i H : 1 cm :: 1,0 $m = 4L$, $H = n = L$
 očitana vrijednost $\eta_R(L/2) = -1.6 \text{ cm} \Rightarrow \eta_R(L/2) = \eta_R(L/2) \cdot \frac{n}{m} = -1.6 \frac{L}{4L} = -0.4$

$$R(K) = -160 \cdot -0,4 = 64 \text{ kN}$$

Razlika je u odnosu na analitičku vrijednost ($R(K) = 65 \text{ kN}$) zbog ograničenih mogućnosti očitavanja vrijednosti. Uz $m = 16L$, očitana vrijednost bi iznosila $\eta_R(L/2) = -6.5 \text{ cm}$ i dobili bismo točnu vrijednost.