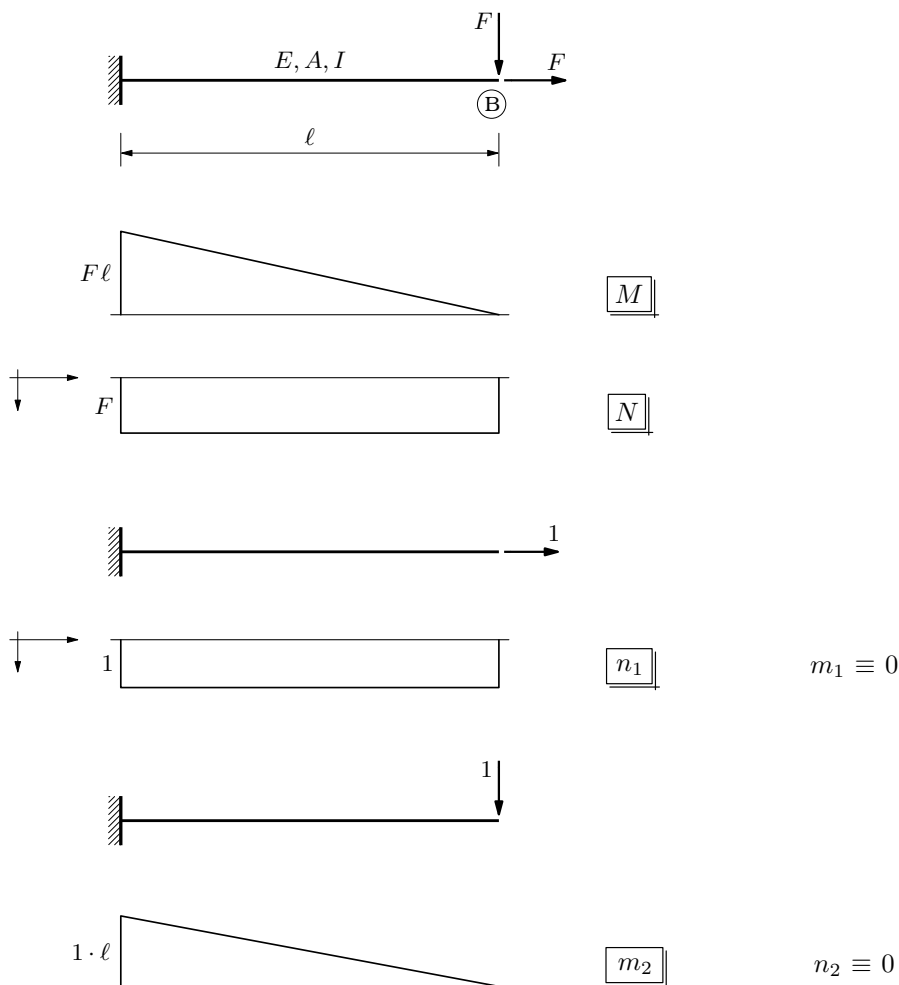


# Duljine komponenta pomaka kraja konzole

(... metodom jedinične sile)

Izračunajte omjer duljina uzdužne i poprečne komponente pomaka točke B!



$$u_B = \int_0^{\ell} \frac{n_1 N}{EA} dx = \frac{1}{EA} (F\ell) \cdot 1 = \frac{F\ell}{EA}$$

$$w_B = \int_0^{\ell} \frac{m_2 M}{EI} dx = \frac{1}{EI} \left( \frac{1}{2} F\ell^2 \right) \left( \frac{2}{3} \ell \right) = \frac{F\ell^3}{3EI}$$

$$\frac{w_B}{u_B} = \frac{\frac{F\ell^3}{3EI}}{\frac{F\ell}{EA}} = \frac{\cancel{F}\ell^{\cancel{3}}}{\cancel{3}EI} = \frac{\ell^2 A}{3I} = \frac{\ell^2 bh}{3 \frac{bh^3}{12}} = \frac{\cancel{\ell^2} \cancel{b} \cancel{h}}{\cancel{3} \frac{bh^{\cancel{3}}}{\cancel{12}4}} = \frac{4\ell^2}{h^2}$$

$$h = \frac{\ell}{10} \Rightarrow \ell = 10h \Rightarrow \frac{w_B}{u_B} = \frac{4\ell^2}{h^2} = \frac{4(10h)^2}{h^2} = \frac{4 \cdot 100 \cancel{h^2}}{\cancel{h^2}} = \mathbf{400}$$

$$h = \frac{\ell}{5} \Rightarrow \ell = 5h \Rightarrow \frac{w_B}{u_B} = \frac{4\ell^2}{h^2} = \frac{4(5h)^2}{h^2} = \frac{4 \cdot 25 \cancel{h^2}}{\cancel{h^2}} = \mathbf{100}$$