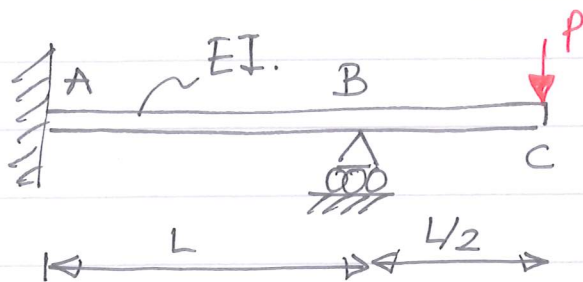


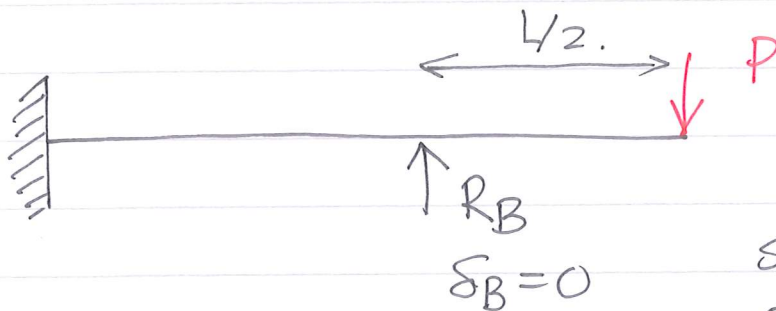
2.4.122

GIVET:

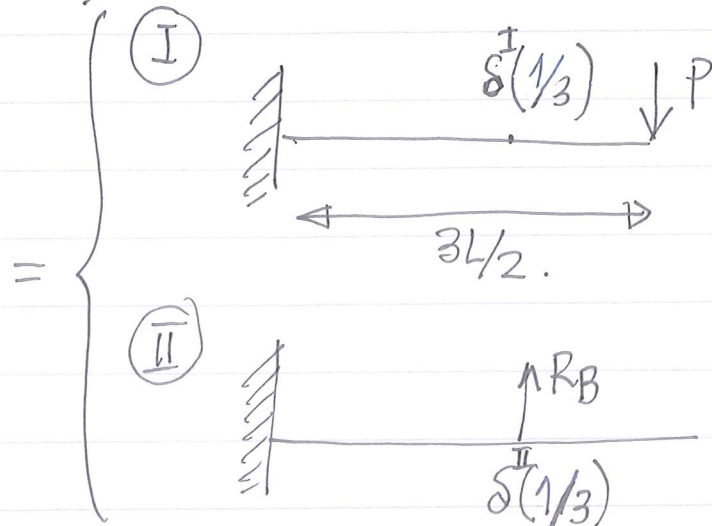


SÖKT: A) Reaktionskraften vid B
B) Nedböjningen vid C.

LÖSNING:

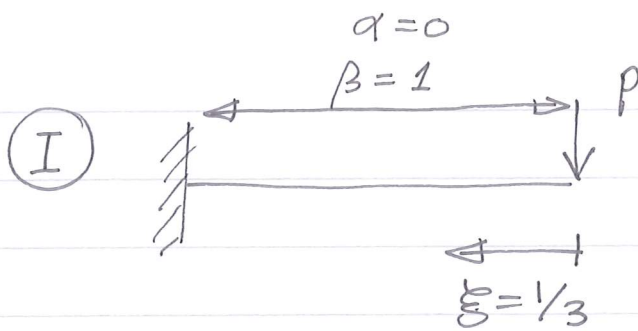


A) R_B ?



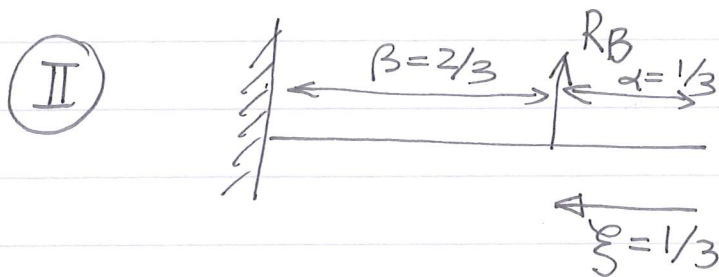
$$L = \frac{3L}{2} \quad \xi = \frac{L/2}{3L/2} = \frac{1}{3}$$

$$\underline{\underline{\delta_B = \delta_B^I + \delta_B^{II} = 0}}$$



$$\delta^I\left(\frac{1}{3}\right) \stackrel{\xi > \alpha}{=} \frac{P(3L/2)^3}{6EI} \left(\left(\frac{1}{3}\right)^3 - 3\left(\frac{1}{3}\right) + 2 \right) = \frac{27PL}{48EI} \left(\frac{1}{27} + 1 \right)$$

$$\delta^I\left(\frac{1}{3}\right) = \frac{7PL}{12EI}$$



$$\delta^{II}\left(\frac{1}{3}\right) \stackrel{\xi = \alpha}{=} \frac{P(3L/2)^3}{3EI} \left(\frac{2}{3}\right)^3 \stackrel{P = -R_B}{=} - \frac{R_B L}{3EI}$$

$$\delta = \delta^I\left(\frac{1}{3}\right) + \delta^{II}\left(\frac{1}{3}\right) = \frac{7PL}{8 \cdot 4EI} - \frac{R_B L}{3EI} = 0 \Rightarrow \boxed{R_B = \frac{7P}{4}}$$

B) Nedböjningen vid C:

$$\delta_c = \delta_c^I + \delta_c^{II} =$$

① :-

$$\delta_c^I(0) \stackrel{\xi=d=0}{=} \frac{P(3L/2)^3}{3EI} = \frac{9PL^3}{8EI}.$$

②

$$\delta_c^{II}(0) \stackrel{\xi < d}{=} \frac{(-7P/4) \cdot (3L/2)^3}{6EI} \left(-\left(\frac{2}{3}\right)^3 + 3 \cdot \left(\frac{2}{3}\right)^2 \right) =$$
$$= -\frac{49PL^3}{48EI}$$

$$\delta_c = \frac{9PL^3}{8EI} - \frac{49PL^3}{48EI}$$

$$\boxed{\delta_c = \frac{5PL^3}{48EI}}$$