



Gevraagd: 1) Reactiekracht in steunpunt B
 2) Doorbuiging in C

1) $\sum N_{RB} = 0$

$$N_{RB} = \Delta D + \Delta M + \varphi B - f_{RB} = 0$$

$$\Delta D = \frac{D L^3}{3EI} = \frac{500 \cdot 2^3}{3EI}$$

$$\Delta M = \frac{M L^2}{2EI} = \frac{(500 \cdot 1,2) \cdot 2^2}{2EI}$$

$$\varphi B = \frac{q L^4}{8EI} = \frac{500 \cdot 2^4}{8EI}$$

$$f_{RB} = \frac{R_B L^3}{3EI} = \frac{R_B \cdot 2^3}{3EI}$$

$$0 = \frac{500 \cdot 2^3}{3EI} + \frac{(500 \cdot 1,2) \cdot 2^2}{2EI} + \frac{500 \cdot 2^4}{8EI} - \frac{R_B \cdot 2^3}{3EI}$$

$$R_B = 1323 \text{ N}$$

2) $f_C = \pi_C + q_C - F_C$

$$\pi_C = \frac{D L^3}{3EI} = \frac{500 \cdot 2^3}{3EI}$$

$$\pi_C = \frac{F L^3}{3EI} = \frac{500 \cdot 3,2^3}{3EI} = 9,0784 \text{ m}$$

$$q_C = \frac{q L^4}{8EI} + \frac{q L^3}{6EI} = \frac{500 \cdot 2^4}{8EI} + \frac{500 \cdot 2^3}{6EI} \cdot 1,2 = 0,0235$$

$$F_C = \frac{F L^3}{3EI} + \frac{F L^2}{2EI} = \frac{1420 \cdot 2^3}{3EI} + \frac{1420 \cdot 2^2}{2EI} \cdot 1,2 = 0,0939 \text{ m}$$

$$f_C = 9,0784 + 0,0235 - 0,0939 = 0,008 \text{ m} = 8 \text{ mm}$$