

Remarks: See §2.2.1, pages 19 till 21
See §2.3, pages 24 till 26
See §2.6, pages 34 onwards

Answers:

- a. $N^{(1)} = -200 \text{ kN}$
- b. $N^{(2)} = -70 \text{ kN}$
- c. $F = 270 \text{ kN}$
- d. $0,62 \text{ mm}$

Explanation:

$$\varepsilon = \frac{\Delta \ell}{\ell} = \frac{-0,4 \text{ mm}}{600 \text{ mm}} = -\frac{2}{3} \times 10^{-3}$$

$$EA^{(1)} = 300 \times 10^3 \text{ kN}; EA^{(2)} = 105 \times 10^3 \text{ kN}$$

$$\text{a. } N^{(1)} = \left(-\frac{2}{3} \times 10^{-3}\right)(300 \times 10^3 \text{ kN}) = -200 \text{ kN}$$

$$\text{b. } N^{(2)} = \left(-\frac{2}{3} \times 10^{-3}\right)(105 \times 10^3 \text{ kN}) = 70 \text{ kN}$$

$$\text{c. } F = -(N^{(1)} + N^{(2)}) = 270 \text{ kN}$$

$$\text{d. } \Delta \ell = \frac{420 \text{ kN}}{270 \text{ kN}} \times (-0,4 \text{ mm}) = -0,62 \text{ mm}$$