

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

Answers:

- a. $u_{\text{block}} = 0,84 \text{ mm } (\downarrow)$
 b. $N^{(1)} = N^{(3)} = +17,5 \text{ kN}; N^{(2)} = +28 \text{ kN}$
 c. $\sigma^{(1)} = \sigma^{(3)} = 70 \text{ N/mm}^2; \sigma^{(2)} = 112 \text{ N/mm}^2$

Explanation:

- b. $\Delta\ell^{(1)} = \Delta\ell^{(2)} = \Delta\ell^{(3)} \Rightarrow N^{(1)} = N^{(3)} = 0,625 \times N^{(2)}$
 $N^{(1)} + N^{(2)} + N^{(3)} = 2,25 \times N^{(2)} = F \Rightarrow N^{(2)} = 28 \text{ kN}$
 $N^{(1)} = N^{(3)} = 17,5 \text{ kN}$

a. $u_{\text{block}} (\downarrow) = \Delta\ell^{(1)} = \frac{(17,5 \text{ kN})(1500 \text{ mm})}{(125 \text{ kN/mm}^2)(250 \text{ mm}^2)} = 0,84 \text{ mm}$

c. $\sigma^{(1)} = \sigma^{(3)} = \frac{17,5 \times 10^3 \text{ N}}{250 \text{ mm}^2} = 70 \text{ N/mm}^2$
 $\sigma^{(2)} = \frac{28 \times 10^3 \text{ N}}{250 \text{ mm}^2} = 112 \text{ N/mm}^2$