

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

Answers:

- a. $\sigma = 87,5 \text{ N/mm}^2$
- b. $\Delta\ell = 2,5 \text{ mm}$

Explanation:

Assume the acceleration due to gravity is $g = 10 \text{ N/kg}$

a. $\sigma = \frac{(245 \text{ kg}) \times (10 \text{ N/kg})}{28 \text{ mm}^2} = 87,5 \text{ N/mm}^2$

b. $\Delta\ell = \frac{(245 \text{ kg}) \times (10 \text{ N/kg})(6 \times 10^3 \text{ mm})}{(210 \times 10^3 \text{ N/mm}^2)(28 \text{ mm}^2)} = 2,5 \text{ mm}$