

ΕΝΔΕΙΚΤΙΚΕΣ ΑΠΑΝΤΗΣΕΙΣ:

α) $d = 16 \text{ mm} = 1,6 \text{ cm}$

$$A = \frac{\pi d^2}{4} \Rightarrow A = \frac{3,14 \cdot (1,6 \text{ cm})^2}{4} \Rightarrow A = \frac{3,14 \cdot 2,56 \text{ cm}^2}{4} \Rightarrow A = 2,00 \text{ cm}^2$$

β) $l = 2 \text{ m} = 200 \text{ cm}$

$$\Delta l = \frac{F \cdot l}{A \cdot E} \Rightarrow F = \frac{\Delta l \cdot A \cdot E}{l} \Rightarrow F = \frac{0,8 \text{ cm} \cdot 2 \text{ cm}^2 \cdot 1.000.000 \text{ daN/cm}^2}{200 \text{ cm}} \Rightarrow F = \frac{1600000}{200 \text{ cm}} \text{ daN/cm}^2$$
$$\Rightarrow F = 8000 \text{ daN}$$

$$\beta) \sigma = \frac{F}{A} \Rightarrow \sigma = \frac{8000 \text{ daN}}{2 \text{ cm}^2} \Rightarrow \sigma = 4000 \frac{\text{daN}}{\text{cm}^2}$$