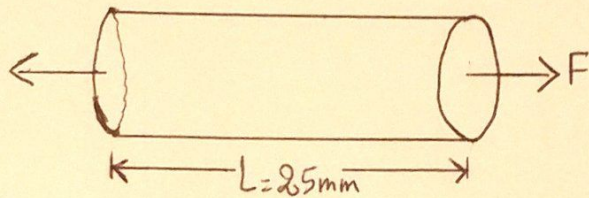


Modulus of Elasticity Example 1

Date: 2nd December 2020



Given:

$$F = 3,000\text{ N}$$

$$A = 30\text{ mm}^2$$

$$\Delta L = 2\text{ mm}$$

$$(a) \quad \sigma = \frac{F}{A} = \frac{3,000\text{ N}}{30\text{ mm}^2} = 100\text{ MPa}$$

$$(b) \quad \epsilon = \frac{\Delta L}{L} = \frac{2\text{ mm}}{25\text{ mm}} = 0.08$$

$$(c) \quad E = \frac{\sigma}{\epsilon} = \frac{100\text{ MPa}}{0.08} = 1,250\text{ MPa} = 1.25\text{ GPa}$$

