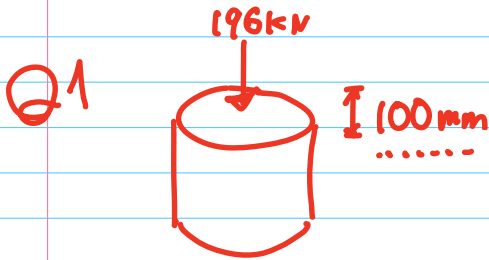


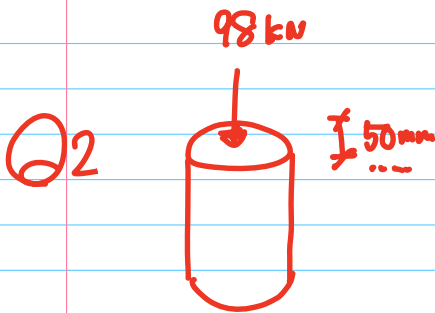
$$\text{MPa} = \text{N/mm}^2$$

### Solutions of Mini quiz 3



$$\sigma = \frac{P}{A}$$
$$\sigma = \frac{196 \text{ kN}}{50^2 \times 50^2 \times \pi} = \frac{196 \times 1000 \text{ N}}{50^2 \times 50^2 \times \pi}$$

$$= 24.95 \text{ N/mm}^2$$
$$= 25.0 \text{ N/mm}^2 \text{ MPa}$$
$$= 24.9 \text{ MPa}$$



$$\sigma = \frac{P}{A}$$

$$= \frac{98 \times 1000}{25^2 \times 25^2 \times \pi} = 49.91 \text{ MPa}$$

$$49.9 \text{ MPa} \quad 50.0 \text{ MPa}$$

Q3

$$\sigma_{\text{all}} = 140 \text{ MPa} \quad A = 2000 \text{ mm}^2$$

$$\sigma = \frac{P}{A} \rightarrow P = \sigma \cdot A$$

$$= 140 \text{ MPa (N/mm}^2) \times 2000 \text{ mm}^2$$

$$= 0.3 \times 10^6 \text{ N}$$

$$= 280.000 \text{ N} = \boxed{2.8 \times 10^5 \text{ N}}$$
$$= 280 \text{ kN}$$