

Task 1

Calculate the Euler buckling load for the rod, 1.00m long, is pinned at each end.

$$\text{using } P_E = \frac{\pi^2 EI}{L^2} \quad \frac{\pi (40\text{mm})^4}{64}$$

$$P_E = \frac{\pi^2 \cdot 210 \times 10^3 \text{ kN/mm}^2 \cdot 1.25 \times 10^5 \text{ mm}^4}{1000 \text{ mm}^2}$$

$$= 259 \text{ kN} \quad \cancel{2.59} \quad 259.1 \text{ kN}$$

Task 2

C 24 timber strut, 150x150mm in section and 4.0m long, is pinned at one end in direction at the other.