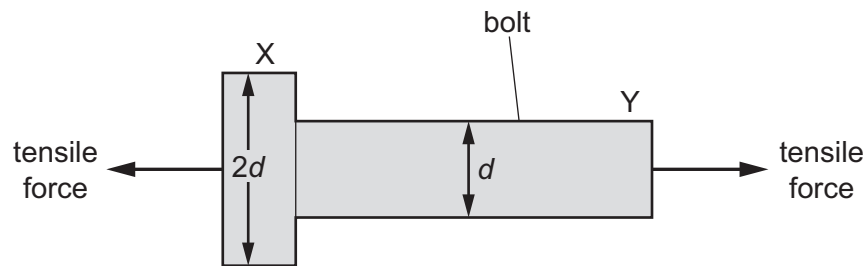


- 20 A bolt is subjected to a tensile force, as shown.



The bolt has a circular cross-section. At end X the diameter is  $2d$ . At end Y the diameter is  $d$ .

What is the ratio  $\frac{\text{stress at Y}}{\text{stress at X}}$  ?

- A** 0.25      **B** 0.50      **C** 2.0      **D** 4.0
- 21 A rectangular block of steel supporting a very large component of a bridge has a height of 15 cm and a cross-section of  $20\text{ cm} \times 12\text{ cm}$ . It is designed to compress 1 mm when under maximum, evenly distributed, load.

The Young modulus of steel is  $2.0 \times 10^{11} \text{ N m}^{-2}$ .

What is the maximum load it can support?

- A** 32 MN      **B** 56 GN      **C** 720 GN      **D** 32 TN