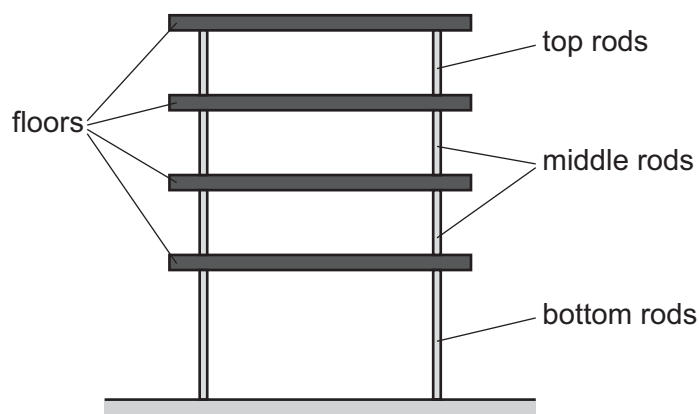


- 20 The diagram shows a simplified model of a building with four identical heavy floors.

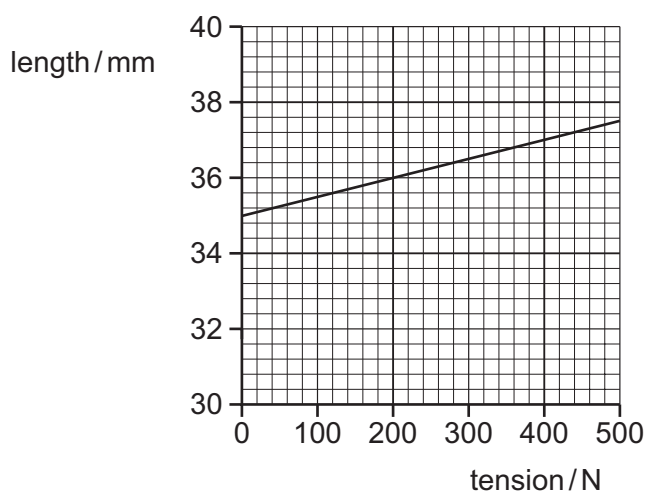


The spacing of the bottom floor from the ground is twice that of the spacing between the floors. Between each floor are equal numbers of vertical steel supporting rods of negligible mass compared with the floors. The rods are of different diameters so that the stress in each rod is the same.

What is the ratio  $\frac{\text{diameter of bottom rods}}{\text{diameter of top rods}}$ ?

- A** 2                      **B** 4                      **C** 8                      **D** 16
- 21 The Achilles tendon in a rabbit's leg is stretched when the rabbit jumps.

The graph shows the variation with tension of the length of the tendon.



What is the strain energy in the tendon when the tension is 400 N?

- A** 0.40 J                      **B** 0.80 J                      **C** 2.4 J                      **D** 7.4 J