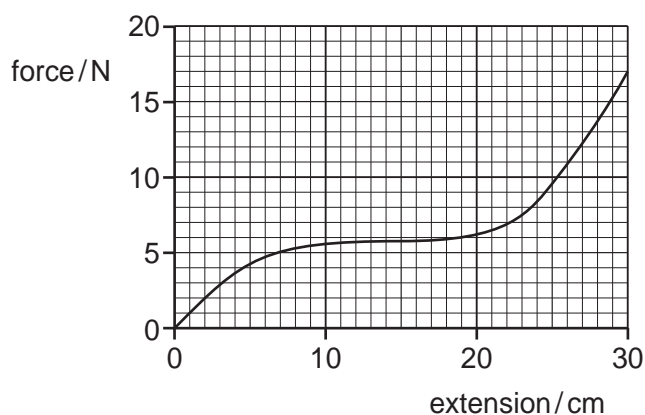


- 20** Two steel wires P and Q have lengths  $l$  and  $2l$  respectively, and cross-sectional areas  $A$  and  $\frac{A}{2}$  respectively. Both wires obey Hooke's law.

What is the ratio  $\frac{\text{tension in P}}{\text{tension in Q}}$  when both wires are stretched to the same extension?

- A**  $\frac{1}{4}$                       **B**  $\frac{1}{2}$                       **C**  $\frac{2}{1}$                       **D**  $\frac{4}{1}$

- 21** A rubber band is stretched by hanging weights on it and the force-extension graph is plotted from the results.



What is the best estimate of the strain energy stored in the rubber band when it is extended 30 cm?

- A** 2.0 J                      **B** 2.6 J                      **C** 5.1 J                      **D** 200 J

**Space for working**