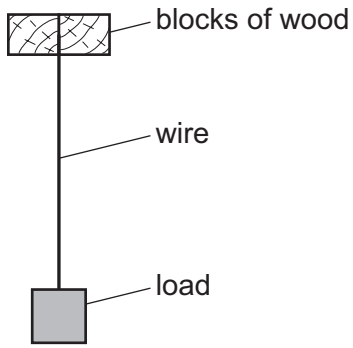
21 The diagram shows a wire of diameter D and length L that is firmly clamped at one end between two blocks of wood. A load is applied to the wire which causes it to extend by an amount x.



By how much would a wire of the same material, but of diameter $2D$ and length $3L$, extend when the same load is applied?

A $\frac{2}{3}x$ **B** $\frac{3}{4}x$ **C** $\frac{4}{3}x$ **D** $\frac{3}{2}x$

22 Which property of a metal wire depends on its Young modulus?

A ductility

B elastic limit

C spring constant

D ultimate tensile stress

Space for working