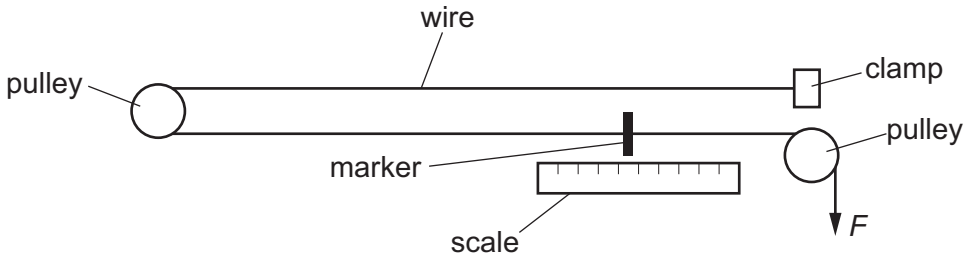
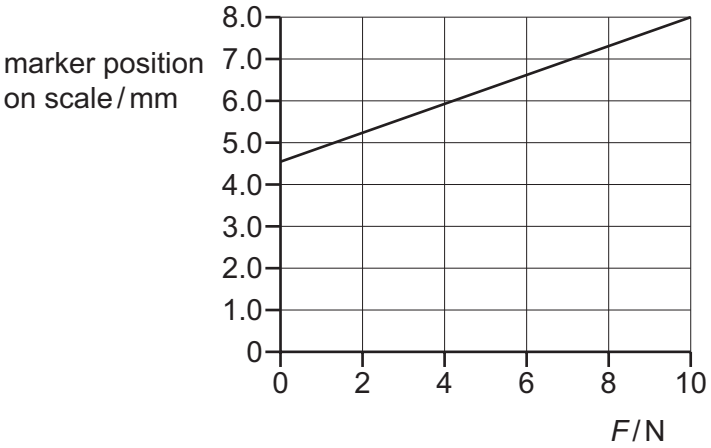
19 In an experiment to measure the Young modulus of a metal, a wire of the metal of diameter 0.25 mm is clamped, as shown.



The wire passes from a clamp, around a frictionless pulley, and then to a second frictionless pulley where loads *F* are applied to it. A marker is attached to the wire so that the total length of wire between the clamp and the marker is initially 3.70 m. A scale is fixed near to this marker.

The graph shows how the reading on the scale varies with *F*.



What is the Young modulus of the metal?

A 5.5×10^{10} Pa

B 9.4×10^{10} Pa

C 1.6×10^{11} Pa

D 2.2×10^{11} Pa