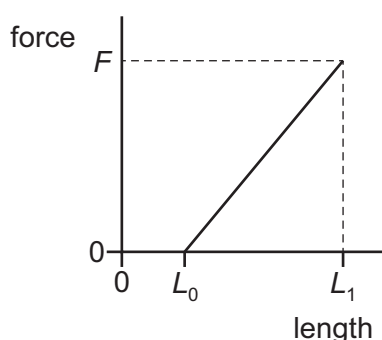18 A metal wire has length 5.2 m and diameter 1.0 mm. The metal has Young modulus 360 GPa.

The wire is fixed at one end and a force is applied to the other end. The force extends the wire by 7.2 mm. The wire obeys Hooke's law.

What is the force applied to the wire?

A 1.2×10^2 N

B 3.9×10^2 N

C 5.0×10^2 N

D 1.6×10^3 N

19 The graph shows how the length of a spring varies with the force applied to it.

The spring has unstretched length L_0. When a force F is applied, the spring has length L_1.

What is the work done in stretching the spring to length L_1?

A $\frac{1}{2}FL_1$ 　　　 B $\frac{1}{2}F(L_1 - L_0)$ 　 C FL_1 　　　　 D $F(L_1 - L_0)$

20 A progressive wave of frequency 1.5 kHz travels in a medium at a speed of 340 m s^{-1}.

What is the minimum distance between two points on the wave that have a phase difference of 70°?

A 4.4 cm 　　　 B 8.8 cm 　　　 C 18 cm 　　　 D 23 cm