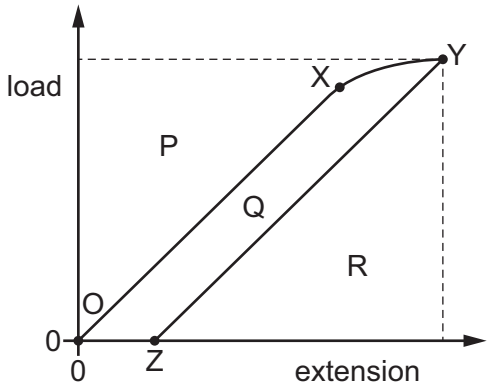
20 A metal cylinder is able to withstand a compressive force of 4.0 kN without deforming plastically.

The cylinder has cross-sectional area A and would be at its elastic limit when a stress σ is applied.

What is a possible pair of values for A and σ?

	A / m^2	σ / MPa
A	1.5×10^{-5}	50
B	1.5×10^{-5}	80
C	7.5×10^{-5}	50
D	7.5×10^{-5}	80

21 A wire has both elastic and plastic properties. When it is slowly loaded, its extension varies with load as shown by line OXY. The removal of the load is represented by line YZ. This creates areas P, Q and R on the graph.



Which area represents the maximum elastic potential energy stored in the wire?

A P **B** Q **C** Q + R **D** R

22 A progressive wave on a wire has a frequency of 10 Hz. Two points on the wire, separated by a distance of 0.25 m, have a phase difference of 22.5°.

What is the maximum speed of the wave?

A 2.5 m s^{-1} **B** 10 m s^{-1} **C** 20 m s^{-1} **D** 40 m s^{-1}