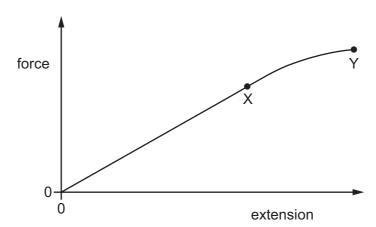
**18** A sample of metal is subjected to a force which increases to a maximum value and then decreases back to zero. A force–extension graph for the sample is shown.

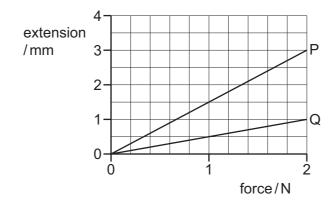


When the sample contracts, it follows the same force-extension curve as when it was being stretched.

What is the behaviour of the metal between X and Y?

- A both elastic and plastic
- B not elastic and not plastic
- C elastic but not plastic
- D plastic but not elastic
- 19 Two wires, P and Q, made of the same material, are stretched with an increasing force.

A graph is plotted of the variation with force of the extension of each wire.



The wires have the same original length but different diameters.

What is the ratio  $\frac{\text{diameter of wire Q}}{\text{diameter of wire P}}$ ?

- **A**  $\frac{1}{3}$
- **B**  $\frac{1}{\sqrt{3}}$
- $\mathbf{C}$   $\sqrt{3}$
- **D** 3