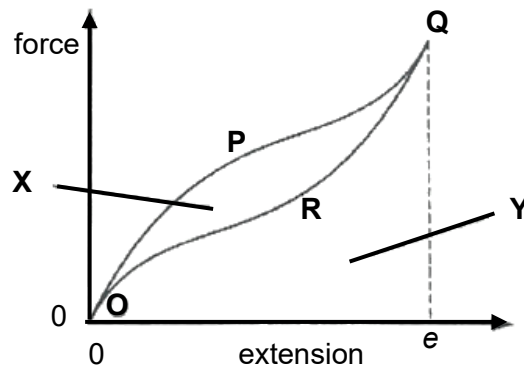


- 7 A rubber band is stretched and then relaxed to its original length. The diagram shows the force-extension graph for this process.



As the force is increased, the curve follows the path OPQ to extension  $e$ . As the force is reduced, the curve follows the path QRO to return to zero extension.

The area labelled X is between the curves OPQ and QRO.

The area labelled Y is bounded by the curve QRO and the horizontal axis.

Which statement about the process is correct?

- A X is the elastic potential energy stored in the rubber band when it is stretched to  $e$ .
- B  $(X + Y)$  is the minimum energy required to stretch the rubber band to  $e$ .
- C  $(Y - X)$  is the net work done on the rubber band during the process.
- D Y is the energy which heats the rubber band as it is stretched to  $e$ .