

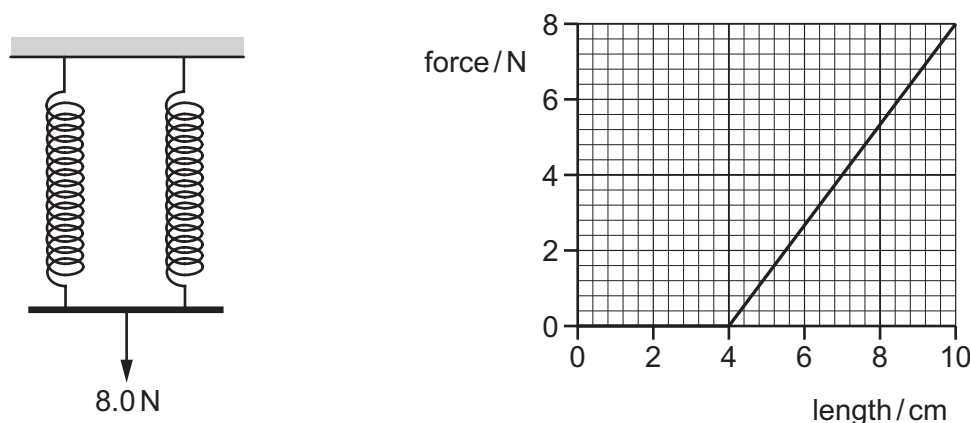
- 19 A metal wire, of cross-sectional area A and unstretched length l , is subjected to stress σ . As a result it has strain ε .

Which expression gives the Young modulus of the metal?

- A $\frac{\varepsilon}{\sigma}$ B $\frac{\varepsilon A}{\sigma l}$ C $\frac{\sigma}{\varepsilon}$ D $\frac{\sigma l}{\varepsilon A}$

- 20 Two identical springs are connected in parallel.

A weight of 8.0 N is hung from the combination, as shown.

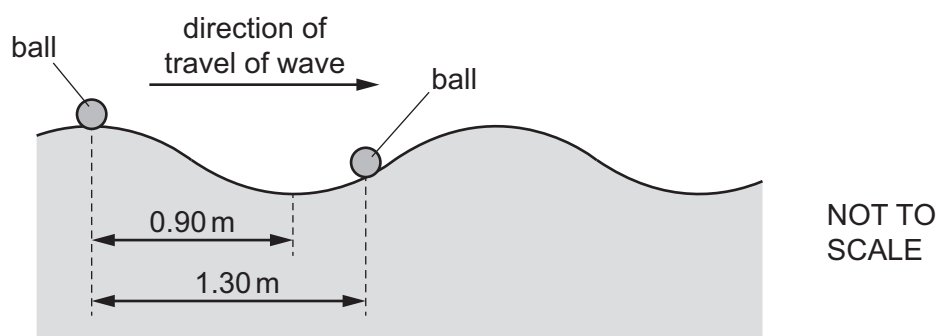


The graph shows the variation with length of the force applied to **one** of the springs.

What is the strain energy in **one** of the springs?

- A 0.060 J B 0.12 J C 0.14 J D 0.24 J
- 21 Two balls float on the surface of the sea. The balls are separated by a distance of 1.30 m.

A wave travels on the surface of the sea so that the balls move vertically up and down.



The distance between a crest and an adjacent trough of the wave is 0.90 m.

What is the phase difference between the two balls?

- A 55° B 110° C 160° D 260°