

- 19** A hammer with 10 J of kinetic energy hits a nail and pushes it 5.0 mm into a plank.

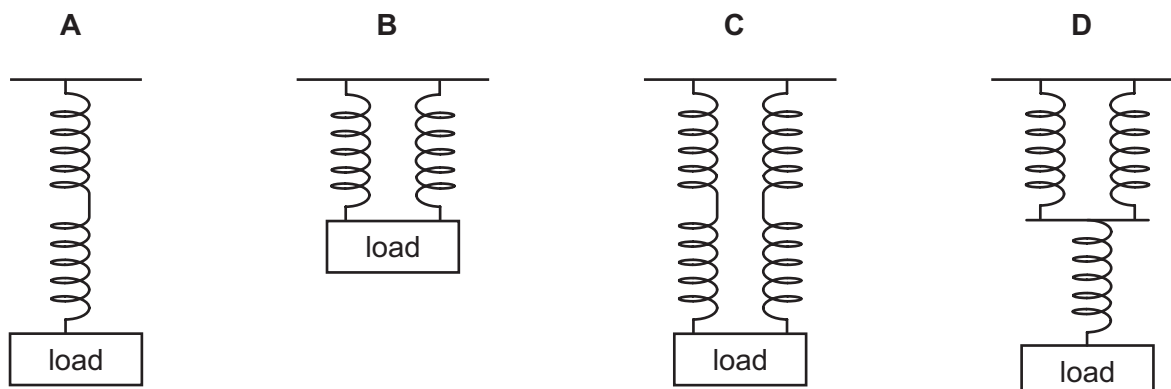
Both the hammer and nail come to rest after the collision.

What is the approximate average force that acts on the nail while it moves through 5.0 mm?

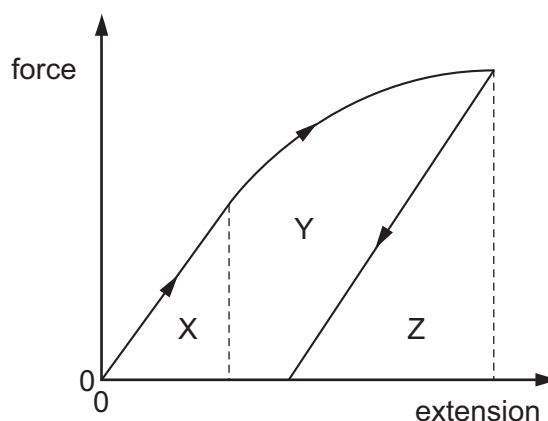
- A** 0.050 N **B** 2.0 N **C** 50 N **D** 2000 N

- 20** A number of identical springs are joined in four arrangements.

Which arrangement has the same spring constant as a single spring?



- 21** A sample of material is stretched by a tensile force to a point beyond its elastic limit. The tensile force is then reduced to zero. The graph of force against extension is shown below.



Which area represents the net work done on the sample?

- A** X **B** X + Y **C** Y + Z **D** Z

- 22** Two sound waves have frequencies of 250 Hz and 300 Hz. The speed of sound is 340 m s^{-1} .

What is the difference between the wavelengths of the two waves?

- A** 0.23 m **B** 1.1 m **C** 1.4 m **D** 6.8 m