

- 24** Two springs P and Q both obey Hooke's law. They have spring constants  $2k$  and  $k$  respectively.

The springs are stretched, separately, by a force that is gradually increased from zero up to a certain maximum value, the same for each spring. The work done in stretching spring P is  $W_P$ , and the work done in stretching spring Q is  $W_Q$ .

How is  $W_P$  related to  $W_Q$ ?

- A**  $W_P = \frac{1}{4}W_Q$       **B**  $W_P = \frac{1}{2}W_Q$       **C**  $W_P = 2W_Q$       **D**  $W_P = 4W_Q$

- 25** Which value is a possible wavelength for radiation in the microwave region of the electromagnetic spectrum?

- A**  $3 \times 10^{-2} \text{ m}$       **B**  $3 \times 10^{-5} \text{ m}$       **C**  $3 \times 10^{-8} \text{ m}$       **D**  $3 \times 10^{-10} \text{ m}$

- 26** The four graphs represent a progressive wave on a stretched string. Graphs **A** and **B** show how the displacement  $d$  varies with distance  $x$  along the string at one instant. Graphs **C** and **D** show how the displacement  $d$  varies with time  $t$  at a particular value of  $x$ .

The labels on the graphs are intended to show the wavelength  $\lambda$ , the period  $T$ , and the amplitude  $a$  of the wave, but only one graph is correctly labelled.

Which graph is correctly labelled?

