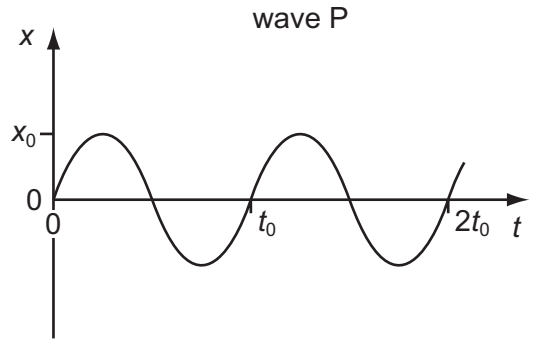
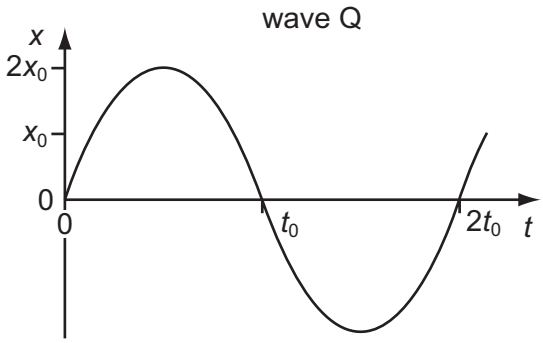
24 The intensity of a progressive wave is proportional to the square of the amplitude of the wave. It is also proportional to the square of the frequency.

The variation with time t of displacement x of particles in a medium, when two progressive waves P and Q pass separately through the medium, are shown on the graphs.





The intensity of wave P is I_0.

What is the intensity of wave Q?

A $\frac{1}{2}I_0$ **B** I_0 **C** $8I_0$ **D** $16I_0$

25 A sound wave of frequency 150 Hz travels in water at a speed of 1500 m s^{-1}. It then travels through the surface of the water and into air, where its speed is 300 m s^{-1}.

Which line in the table gives the correct values for the wavelengths of the sound in water and in air?

	wavelength in water / m	wavelength in air / m
A	0.10	0.10
B	0.10	0.50
C	10	2.0
D	10	50