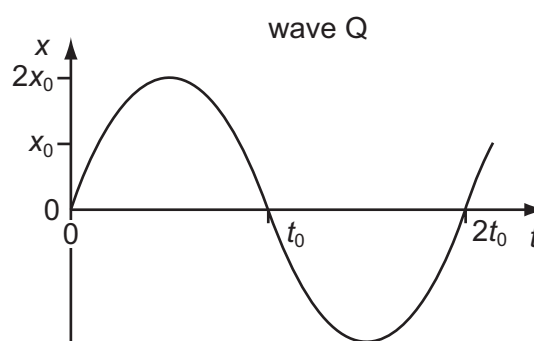
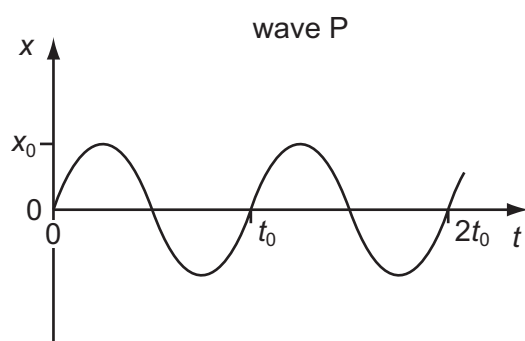


- 24** The intensity of a progressive wave is proportional to the square of the amplitude of the wave. It is also proportional to the square of the frequency.

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  $150 \text{ Hz}$  travels in water at a speed of  $1500 \text{ m s}^{-1}$ . It then travels through the surface of the water and into air, where its speed is  $300 \text{ m s}^{-1}$ .

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 |
|----------|-----------------------|---------------------|
| <b>A</b> | 0.10                  | 0.10                |
| <b>B</b> | 0.10                  | 0.50                |
| <b>C</b> | 10                    | 2.0                 |
| <b>D</b> | 10                    | 50                  |