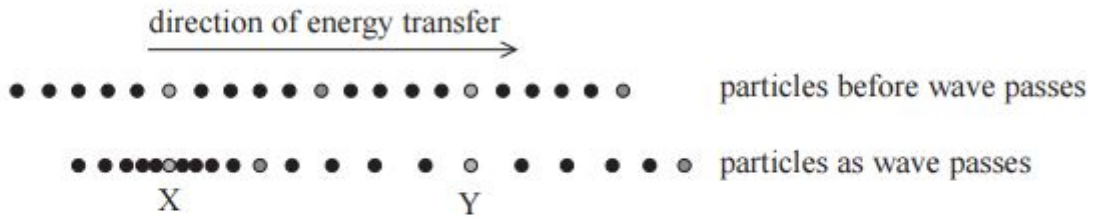


Wave Basics MCQ QP1

- 1 The diagram represents the particles in a medium before a sound wave passes through and while a sound wave is passing through.



Which statement is **not** true?

- A Particle displacement is parallel to the direction of energy transfer.
 - B The wave causes the formation of compressions and rarefactions.
 - C X is a position of maximum particle displacement.
 - D Y is a position of zero particle displacement.
- 2 Which table correctly shows the wavelength and frequency of light at each end of the visible spectrum?

A

	wavelength / 10^{-9} m	frequency / 10^{12} Hz
red	390	400
violet	750	770

B

	wavelength / 10^{-9} m	frequency / 10^{12} Hz
red	750	400
violet	390	770

C

	wavelength / 10^{-9} m	frequency / 10^{12} Hz
red	390	770
violet	750	400

D

	wavelength / 10^{-9} m	frequency / 10^{12} Hz
red	750	770
violet	390	400

3 A stationary observer hears a sound emitted by a moving source.

This produces a Doppler effect which is a

- A change in frequency of the sound emitted by the source.
- B change in frequency of the sound heard by the observer.
- C change in velocity of the sound emitted by the source.
- D change in velocity of the sound heard by the observer.

4 Two waves have the same frequency and are travelling in the same medium.

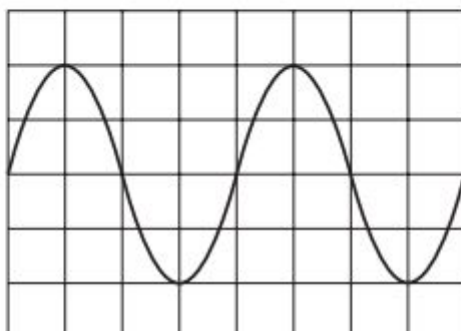
The two waves can produce a standing wave if they

- A have different amplitudes and travel in opposite directions.
- B have different amplitudes and travel in the same direction.
- C have the same amplitude and travel in opposite directions.
- D have the same amplitude and travel in the same direction.

5 Which of the following summarises the change in wave characteristics when going from ultraviolet to infrared in the electromagnetic spectrum?

	Frequency	Speed (in a vacuum)
<input type="checkbox"/> A	decreases	decreases
<input type="checkbox"/> B	decreases	stays the same
<input type="checkbox"/> C	increases	decreases
<input type="checkbox"/> D	increases	stays the same

- 6 A particular sound is investigated by connecting a microphone to an oscilloscope. The diagram shows the trace of a sound wave on the oscilloscope. The screen of the oscilloscope has a grid on it. On the x-axis 1 division represents 5 ms.



The frequency of the sound wave is

- A 0.05 Hz
 - B 0.1 Hz
 - C 50 Hz
 - D 100 Hz
- 7 Ultrasound is used to investigate the blood in an artery in a human body by detecting a Doppler shift. This Doppler shift is used to measure the
- A diameter of the artery.
 - B size of the particles in the blood.
 - C temperature of the blood.
 - D velocity of the blood.