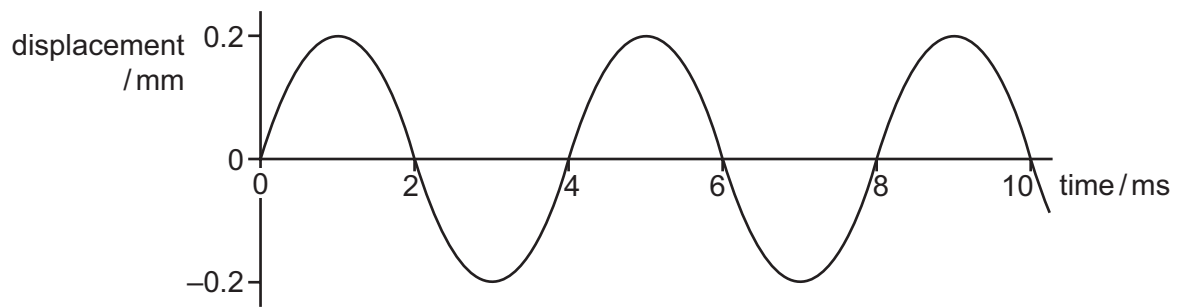


- 24** A sound wave moves with a speed of 320 m s^{-1} through air. The variation with time of the displacement of an air particle due to this wave is shown in the graph.



Which statement about the sound wave is correct?

- A** The frequency of the wave is 500 Hz.
 - B** The graph shows that sound is a transverse wave.
 - C** The intensity of the wave will be doubled if its amplitude is increased to 0.4 mm.
 - D** The wavelength of the sound wave is 1.28 m.
- 25** A wave of frequency 15 Hz travels at 24 m s^{-1} through a medium.
- What is the phase difference between two points 2 m apart?
- A** There is no phase difference.
 - B** They are out of phase by a quarter of a cycle.
 - C** They are out of phase by half a cycle.
 - D** They are out of phase by 0.8 of a cycle.
- 26** A wave of amplitude a has an intensity of 3.0 W m^{-2} .
- What is the intensity of a wave of the same frequency that has an amplitude $2a$?
- A** 4.2 W m^{-2} **B** 6.0 W m^{-2} **C** 9.0 W m^{-2} **D** 12 W m^{-2}
- 27** An electromagnetic wave has a wavelength that is numerically of the same order of magnitude as the diameter of a nucleus.

In which region of the electromagnetic spectrum does the wave occur?

- A** gamma ray
- B** X-ray
- C** visible light
- D** infra-red