

Chapter 10: Properties of Waves

1 a Sketch a transverse wave and label the amplitude and wavelength.

b Describe the pattern of oscillations in a longitudinal wave.

c Give one example of a longitudinal wave.

2 a State the equation that links frequency and time period.

b For the following examples, calculate the frequency of the wave.

For a wave with a time period:

i 2 s

ii 5 s

iii 10 s

iv 15 s

c For the following examples, calculate the time period of the wave.

For a wave with a frequency of:

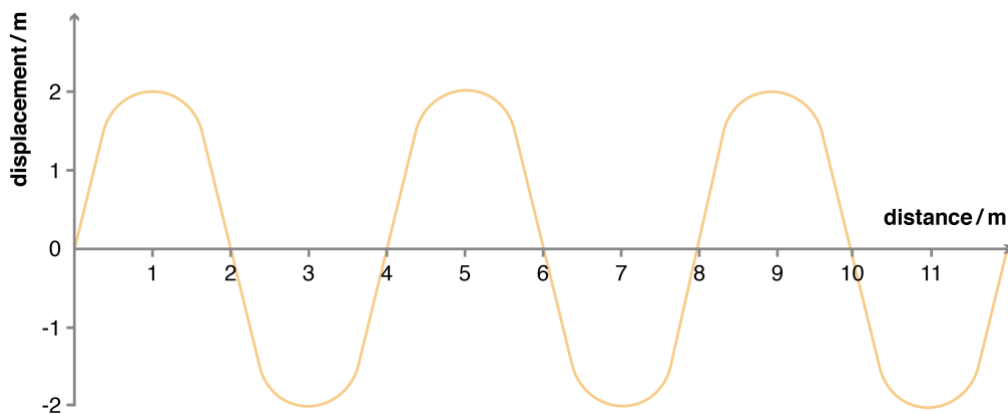
i 10 Hz

ii 50 Hz

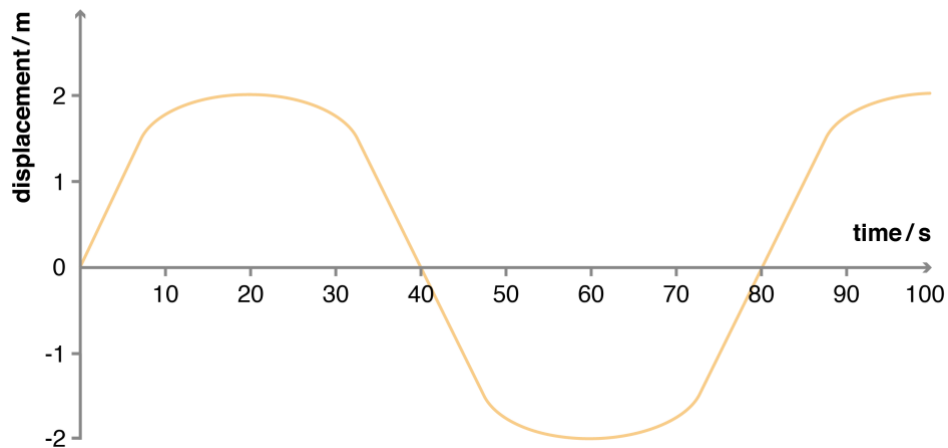
iii 250 Hz

iv 600 Hz

- 3 a Sketch a wave with twice the wavelength of the wave shown below.



- b Draw a wave that will have twice the frequency of the wave form shown below.

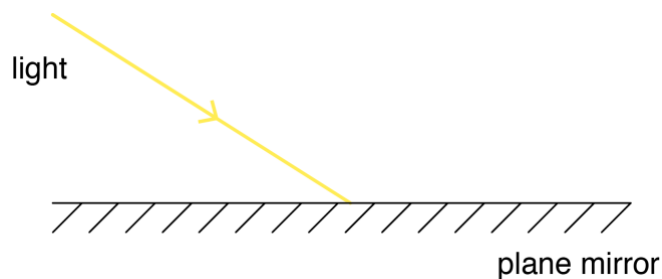


- 4 a Write the equation that links, wave speed, frequency and wavelength.
- b A ripple tank uses an electric motor and wooden bar to produce waves in the water. The frequency of the wooden bar is 2 Hz and produces waves with a wavelength of 0.5 cm. Calculate the speed of the wave in water in m/s.
- c Using your answer from part b, calculate the frequency of the wooden bar when the wavelength is reduced to 2.5 cm.

5 Radio waves travel at the speed of light, 300 000 000 m/s. Radio One transmits at a frequency of 97.6 MHz. Calculate the wavelength of the radio wave.

6 a State the Law of Reflection.

b A ray of light hits a plane mirror. Using the law of reflection, complete the ray diagram below to show the path of the reflected ray.



7 An ambulance is sounding its siren. Explain why the sound of the siren appears to change as it passes.