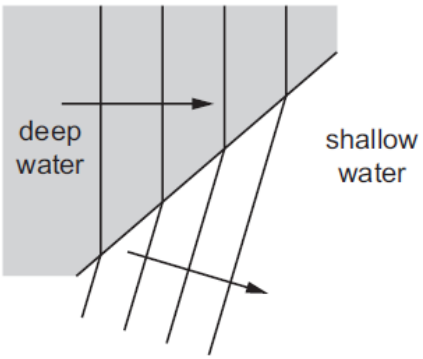
Waves – 2020 IGCSE 0625

1. March/2020/Paper_12/No.22

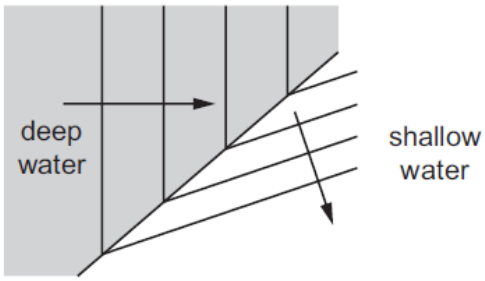
Waves on the surface of water travel from deep to shallow water.

Which diagram shows the correct path of the waves in the shallow water?

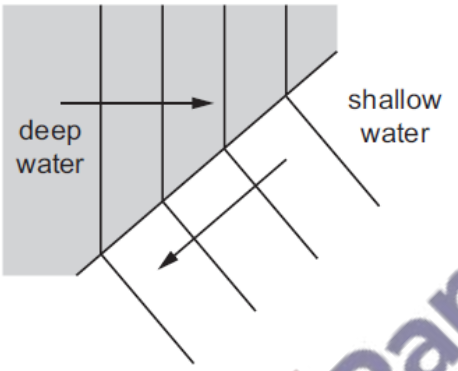
A



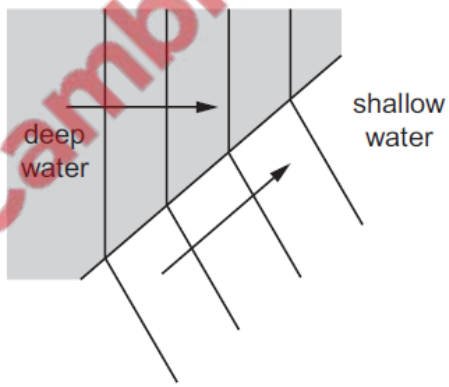
B



C



D



2. March/2020/Paper_22/No.23

Four students **A**, **B**, **C** and **D**, investigate the diffraction of water waves through a gap.

Each student uses a different gap size and a different wavelength for the water waves.

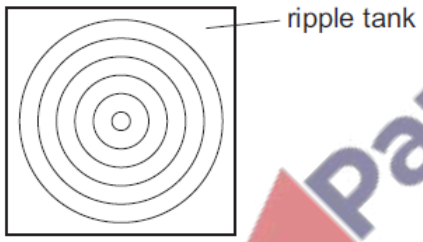
Which student produces the waves which have the most diffraction?

	gap size / cm	wavelength / cm
A	2.0	1.8
B	3.0	2.1
C	4.0	2.0
D	5.0	0.9

3. March/2020/Paper_22/No.24

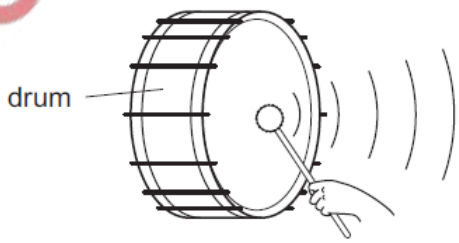
The diagrams show examples of wave motion.

1



waves on water

2



waves in air

3

waves on a rope

4

waves in a spring

Which waves are longitudinal?

A 1 only **B** 2 and 3 only **C** 2, 3 and 4 **D** 2 and 4 only

4. March/2020/Paper_32/No.8(a)

Fig. 8.1 represents a travelling wave at an instant in time.

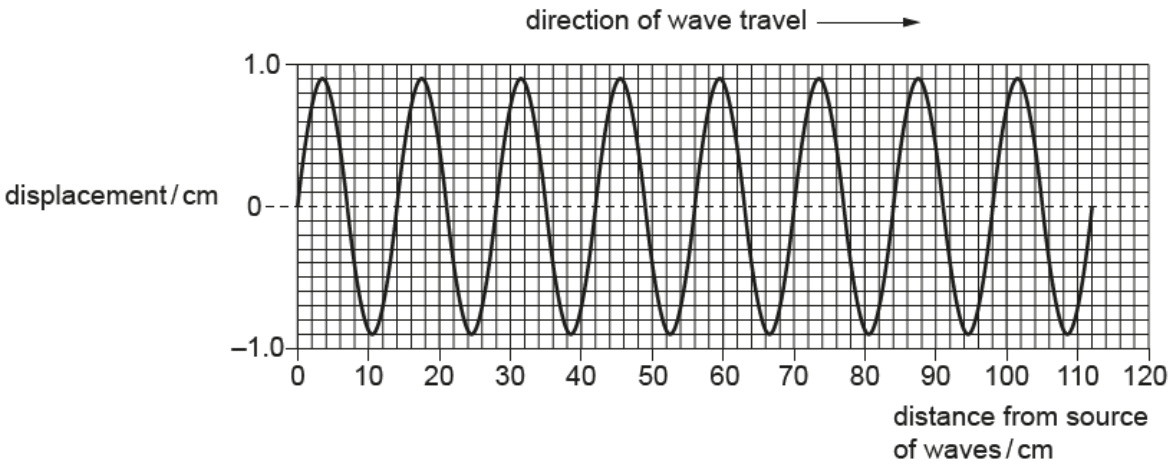


Fig. 8.1

(a) (i) Determine the amplitude of the wave.

amplitude = ... cm [1]

(ii) Determine the wavelength of the wave.

wavelength = ... cm [2]

(iii) It takes 2.0 s for a source to emit the wave shown in Fig. 8.1.

Calculate the frequency of the wave.

frequency = ... Hz [2]

5. March/2020/Paper_42/No.6

(a) Fig. 6.1 shows crests of a water wave moving from left to right in a harbour.

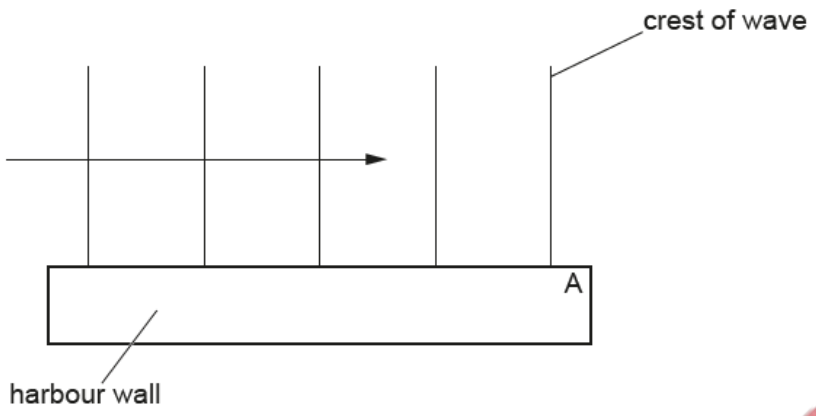


Fig. 6.1

(i) On Fig. 6.1, draw three more crests to the right of point A. [2]

(ii) State the name of the wave process that occurs as the wave passes point A.

..... [1]

(b) Fig. 6.2 shows the crests of another wave moving from left to right in a different part of the harbour. This wave moves from deep water to shallow water.

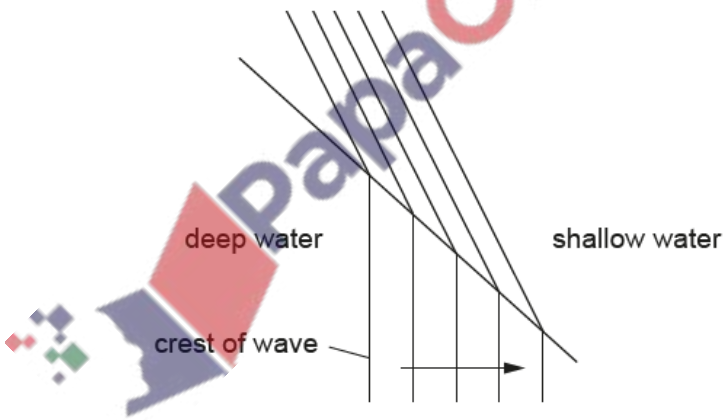


Fig. 6.2

(i) On Fig. 6.2, draw an arrow to show the direction of movement of the wave after it has passed into the shallow water. [1]

(ii) State the name of the process that occurs as the wave passes into the shallow water.

..... [1]

(iii) Complete Table 6.1 to state whether each of the properties of the wave **increases**, **decreases** or **stays the same** as the wave passes into the shallow water.

Table 6.1

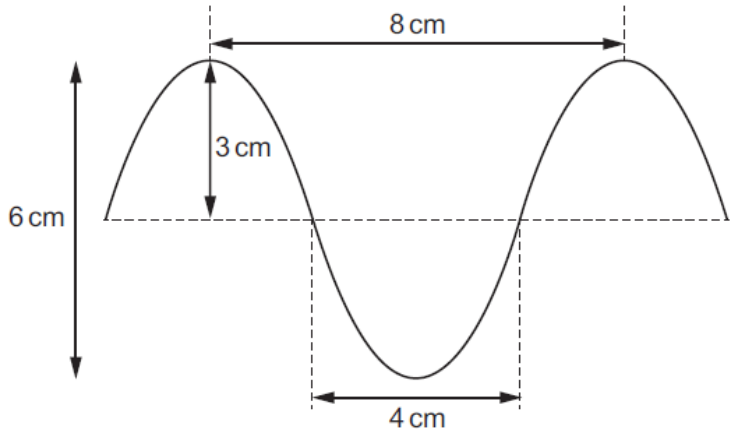
property	effect
wavelength	
frequency	
speed	

[3]

[Total: 8]

6. June/2020/Paper_11/No.21

The diagram shows a wave.



What are the amplitude and the wavelength of this wave?

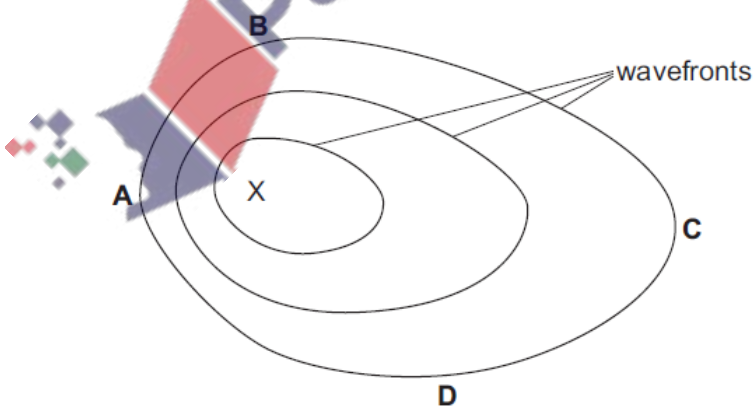
	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

7. June/2020/Paper_11/No.22

Waves travel more quickly on the surface of water when the water is deep.

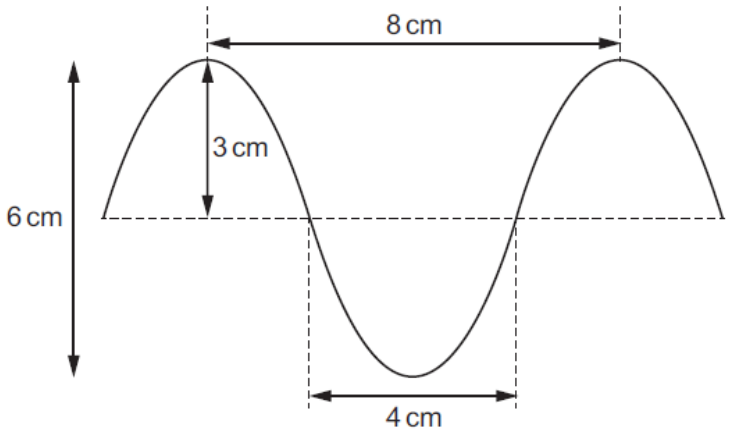
A stone is dropped at point X into a pool of varying depth. The diagram shows the first three wavefronts on the surface of the pool.

The region between X and which labelled point is likely to be the deepest?



8. June/2020/Paper_ 12/No.21

The diagram shows a wave.



What are the amplitude and the wavelength of this wave?

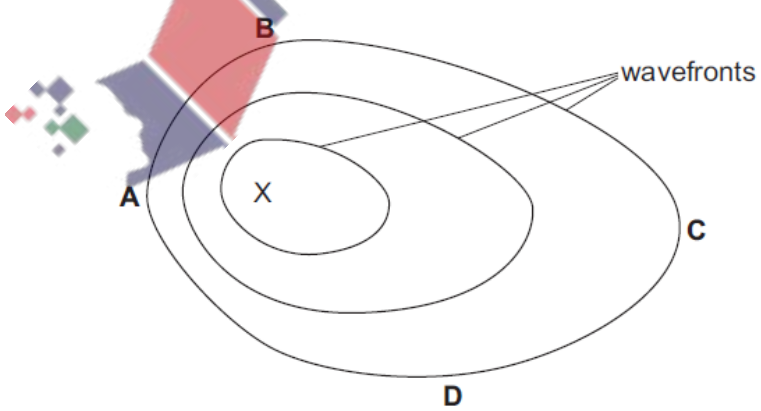
	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

9. June/2020/Paper_ 12/No.22

Waves travel more quickly on the surface of water when the water is deep.

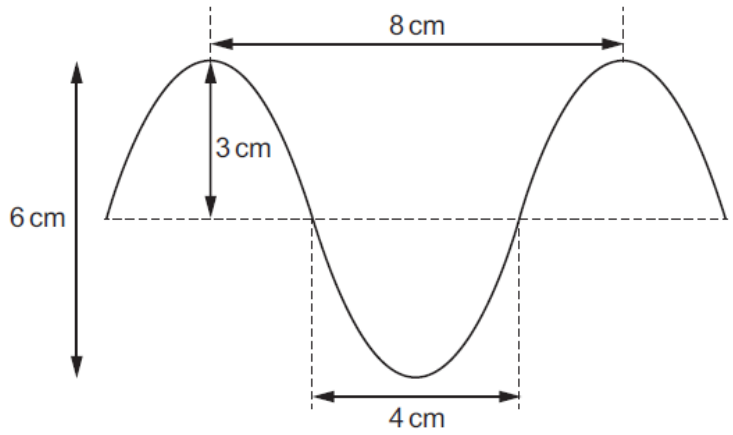
A stone is dropped at point X into a pool of varying depth. The diagram shows the first three wavefronts on the surface of the pool.

The region between X and which labelled point is likely to be the deepest?



10. June/2020/Paper_ 13/No.21

The diagram shows a wave.



What are the amplitude and the wavelength of this wave?

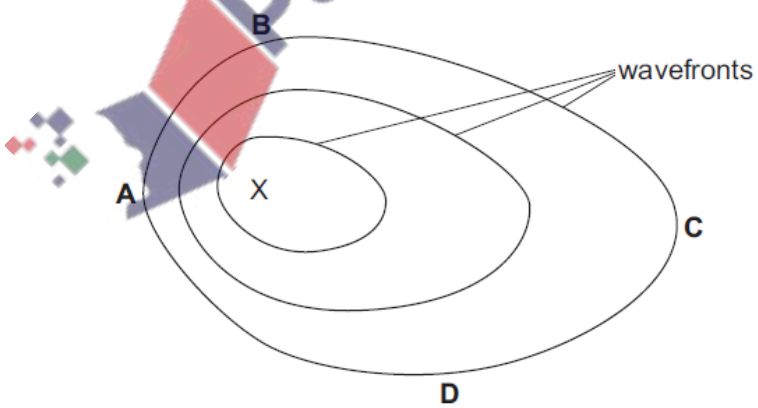
	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

11. June/2020/Paper_ 13/No.22

Waves travel more quickly on the surface of water when the water is deep.

A stone is dropped at point X into a pool of varying depth. The diagram shows the first three wavefronts on the surface of the pool.

The region between X and which labelled point is likely to be the deepest?



12. June/2020/Paper_ 21/No.20

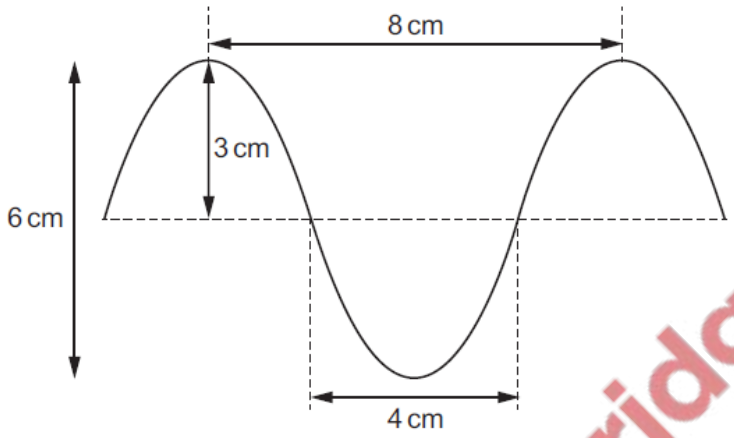
A wave of frequency 6600 Hz travels 1320 m in 4.0 s.

What is the wavelength?

A 0.050 m **B** 0.80 m **C** 1.3 m **D** 20 m

13. June/2020/Paper_ 21/No.21

The diagram shows a wave.

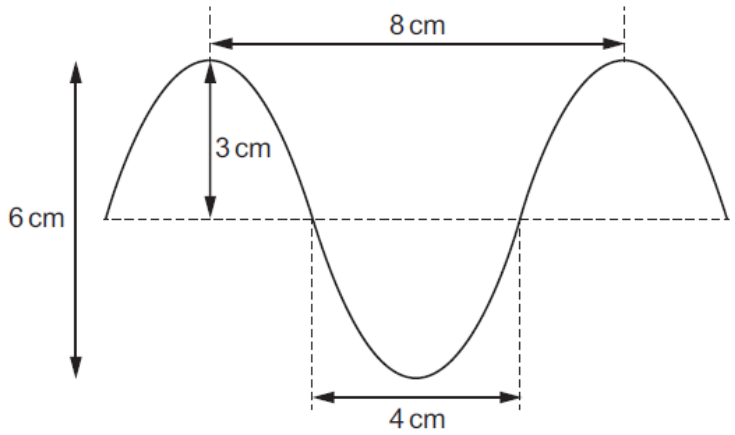


What are the amplitude and the wavelength of this wave?

	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

14. June/2020/Paper_ 22/No.20

The diagram shows a wave.



What are the amplitude and the wavelength of this wave?

	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

15. June/2020/Paper_ 23/No.20

An earthquake-monitoring station records the arrival of 16 complete waves of an earthquake wave in 20 s.

The speed of the earthquake wave is 6.0 km / s.

What is the wavelength of the earthquake wave?

A 1.3×10^{-4} m

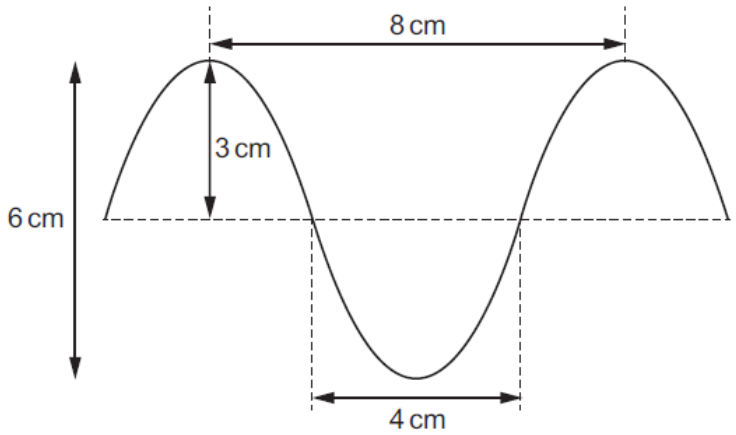
B 2.1×10^{-4} m

C 4.8×10^{3} m

D 7.5×10^{3} m

16. June/2020/Paper_ 23/No.21

The diagram shows a wave.



What are the amplitude and the wavelength of this wave?

	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

17. June/2020/Paper_42/No.5

Fig. 5.1 shows crests of a wave approaching a barrier where the wave is reflected.

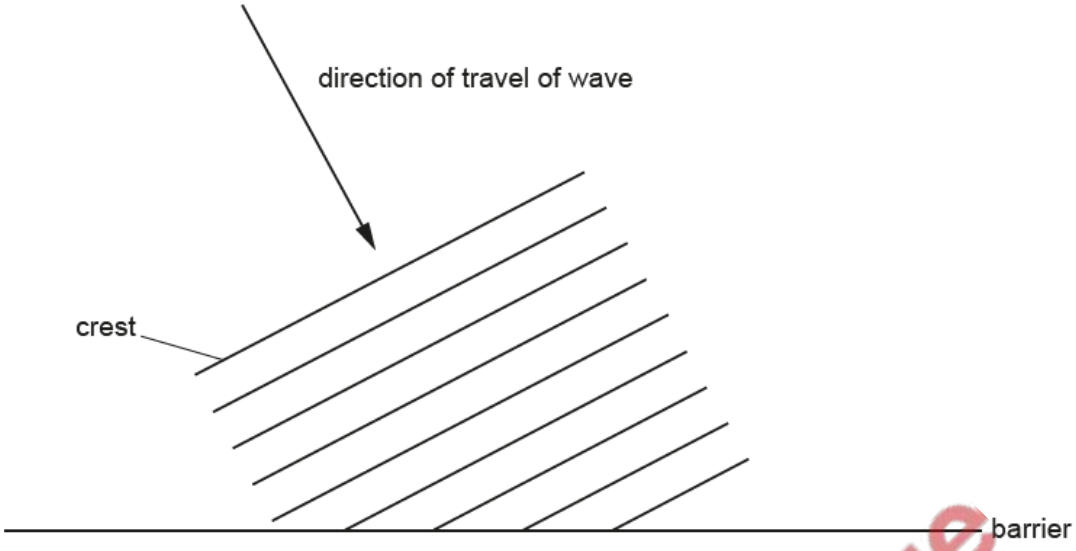


Fig. 5.1

(a) On Fig. 5.1, draw **three** crests of the reflected wave. [3]

(b) The wave has a wavelength of 36 cm and a speed of 1.2 m/s.

Calculate the frequency of the wave.

frequency = ... [3]

(c) Complete the following sentences.

An echo is the name for a reflected ..... wave.

The waves that form an echo are a type of longitudinal wave. Longitudinal waves are made up of ..... and rarefactions.

[2]

[Total: 8]

18. June/2020/Paper_43/No.6

(a) Fig. 6.1 shows crests of a sound wave after reflection from a solid surface.

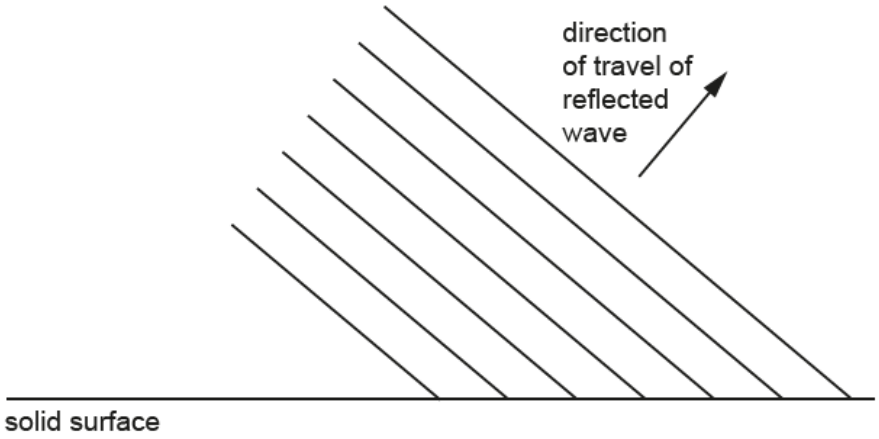


Fig. 6.1

On Fig. 6.1, draw **three** crests of the incident wave. [3]

(b) Tick **four** statements in the list below that are **false** for a sound wave that is audible to a healthy human ear.

The wave is longitudinal.	☐
The wave is transverse.	☐
The frequency of the wave is 1 Hz.	☐
The frequency of the wave is 1 kHz.	☐
The frequency of the wave is 1 MHz.	☐
The wave travels in a vacuum.	☐
The wave could travel in aluminium.	☐

[3]

(c) State a typical value for the speed of a sound wave in water.

..... [1]

[Total: 7]