Work Sheet- 01

**1** (a) Complete the sentence by putting a cross (☒) in the box next to your answer.

Earthquakes can produce infrasound waves.

Compared to normal sound waves, infrasound waves always have a **smaller**

(1)

☒ **A** amplitude

☒ **B** energy

☒ **C** frequency

☒ **D** wavelength

(b) The diagram shows circles drawn around two research stations, **M** and **N**.
The stations are for detecting earthquakes.
Each circle shows the distance of the earthquake from that station.
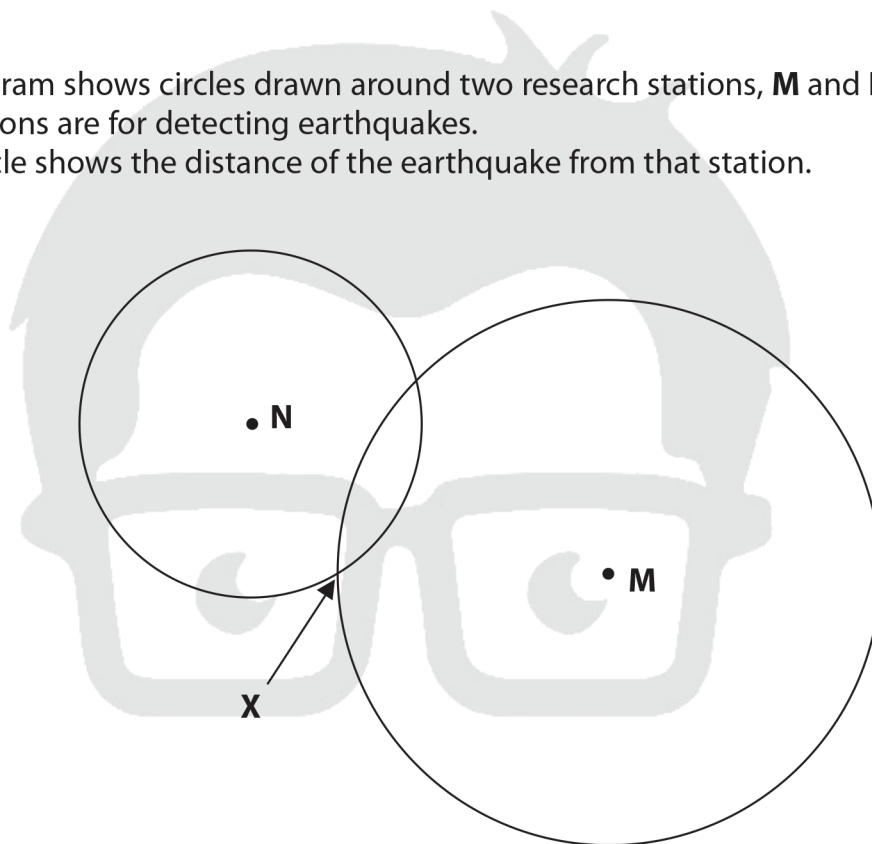
(i) Two students discuss the diagram.
Student A said: the earthquake **must** have been at X.
Student B said: the earthquake **might** have been at X.

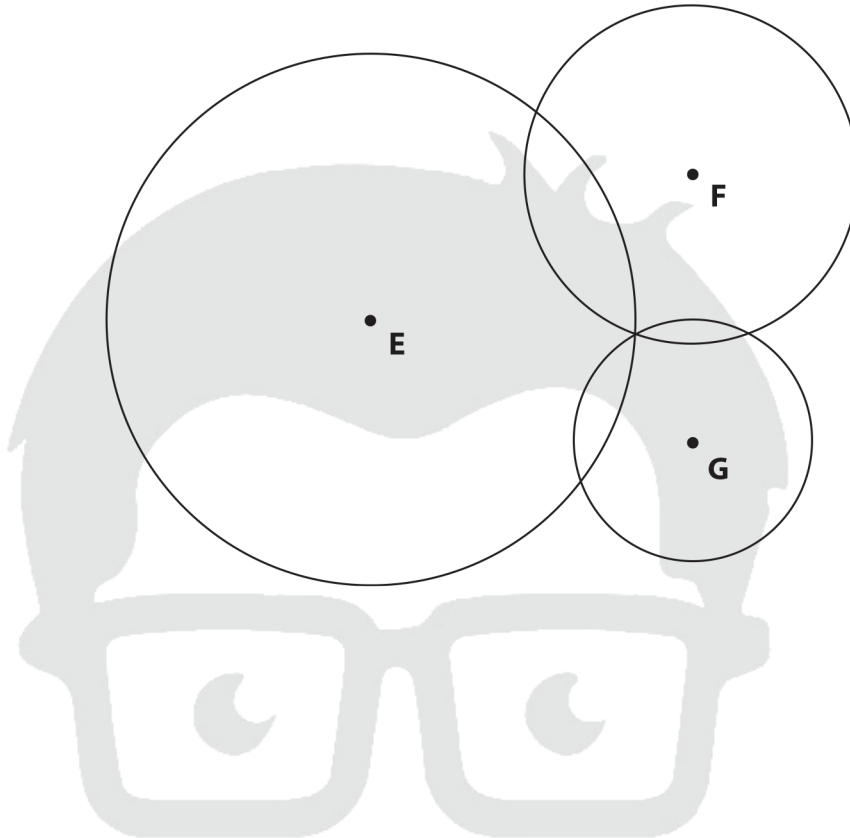Explain why the statement from student B is better.

(2)

....

....

....
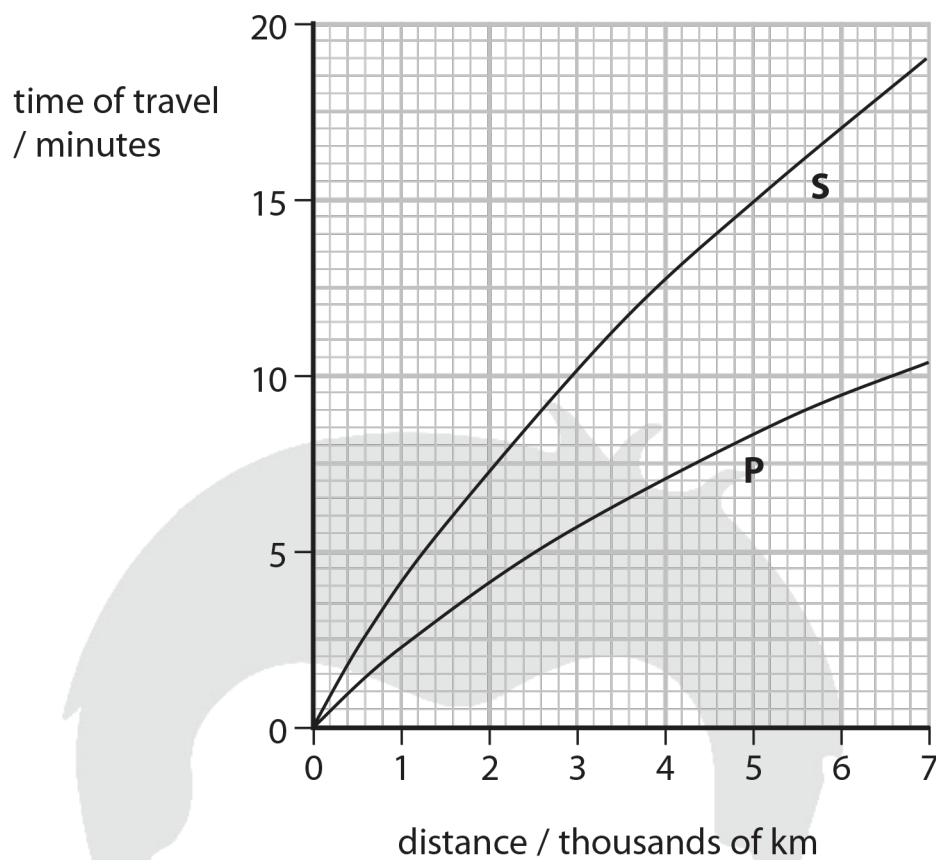
(ii) The diagram shows circles drawn round three research stations, **E**, **F** and **G**, for another earthquake.

Draw an arrow on the diagram to show where this earthquake probably happened.

(1)

(c) The graph shows information about P-waves and S-waves from an earthquake.

time of travel / minutes vs distance / thousands of km

An earthquake station is 6000 km from an earthquake.
The P-wave reaches the earthquake station before the S-wave.

Use the graph to find the difference in the arrival time of the S-wave and P-wave.

(2)

difference in arrival time = ... minutes

(d) P-waves are longitudinal.

Describe how particles in the ground move when P-waves pass through it.

(2)

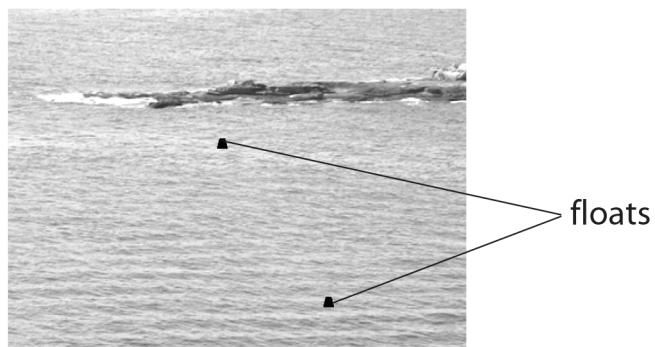..

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2 The photograph shows a wave in a bay.
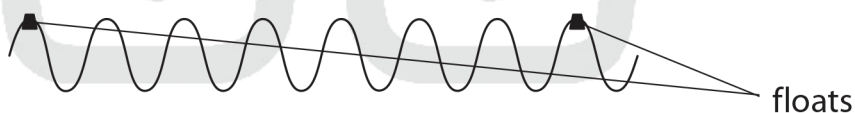The wave was made by a passing boat.

floats

(a) Which of these best describes what is transferred by the water wave?

Put a cross (☒) in the box next to your answer.

(1)

☒   **A**   energy only

☒   **B**   water only

☒   **C**   both water and energy

☒   **D**   neither water nor energy

(b) The diagram shows the wave as it passes by the two floats.

floats

(i)   The wavelength of the wave is 0.8 m.

Calculate the distance between the floats.

(2)

distance = ... m

(ii) The frequency of the wave is 0.4 Hz.

How many complete wavelengths pass each float in 20 s?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** 0.02

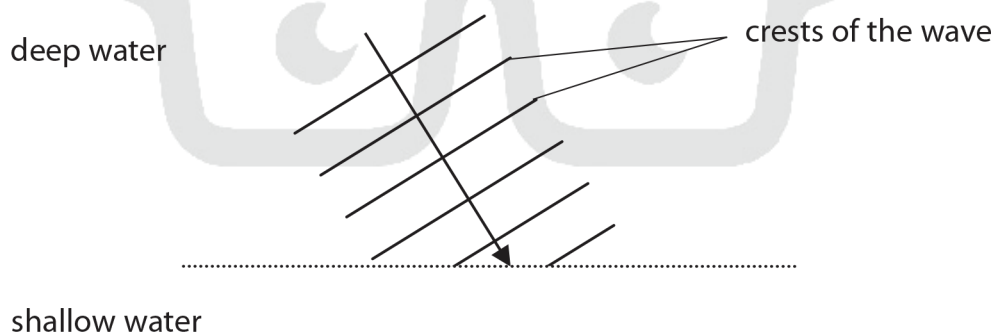☒ **B** 0.8

☒ **C** 8

☒ **D** 50

(iii) A man on the shore observes the wave.

Suggest **one** piece of information the man could gain about the boat by observing the wave that made it.

(1)

....

....

(c) The wave reaches shallow water before it reaches the shore.
Water waves travel more slowly in shallow water.

The diagram shows the wave as it reaches the shallow water.

deep water   crests of the wave

shallow water

Complete the diagram to show how the wave travels in the shallow water.

(3)

(Total for Question 2 = 8 marks)