

Q1.

Figure 12 is a diagram of part of a water wave.

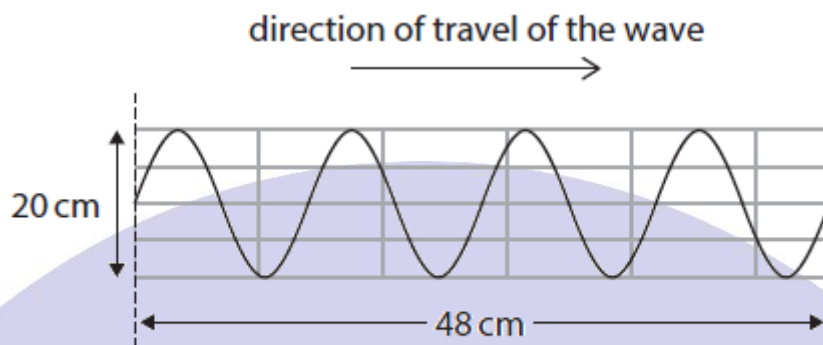


Figure 12

(ii) Use data from Figure 12 to determine the wavelength of the wave.

(1)

wavelength = cm

(iii) The water wave shown in Figure 12 is generated in a large tank.

A student observes the wave.

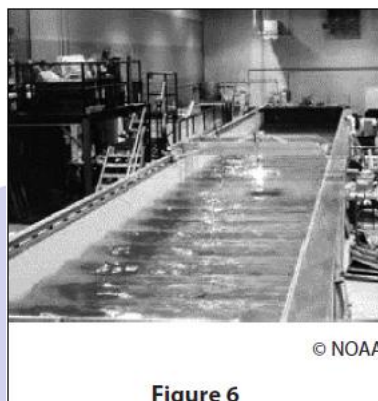
Describe how the student could determine the wave speed of the wave.

(2)

(Total for question = 3 marks)

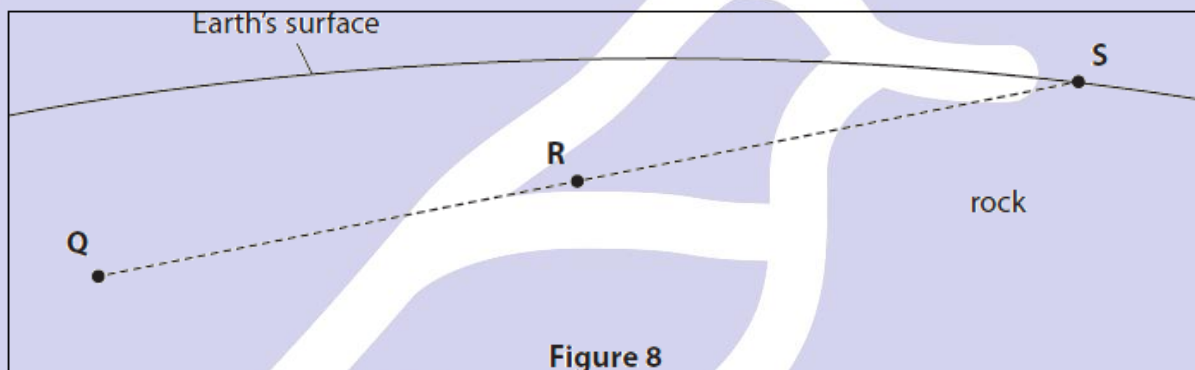
Q2.

Figure 6 shows a large tank of water.



The tank of water is used to study water waves.

Figure 8 shows part of the inside of the Earth below the surface.



An earthquake starts at **Q**.

A seismic wave travels from **Q** to **S**.

The frequency of the seismic wave is 12 Hz.

The wave speed of the seismic wave is 7 km / s.

A technician measured the frequency of the water wave in Figure 7 by counting how many waves passed him in 15 s.

Explain why this would **not** be a suitable method for measuring the frequency of the seismic wave in Figure 8.

(2)

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(Total for question = 2 marks)

Q3.

Figure 2 shows water waves spreading out from a source.

A student measures the wavelength of the waves.

He uses a ruler to measure the distance from one crest to the next crest.

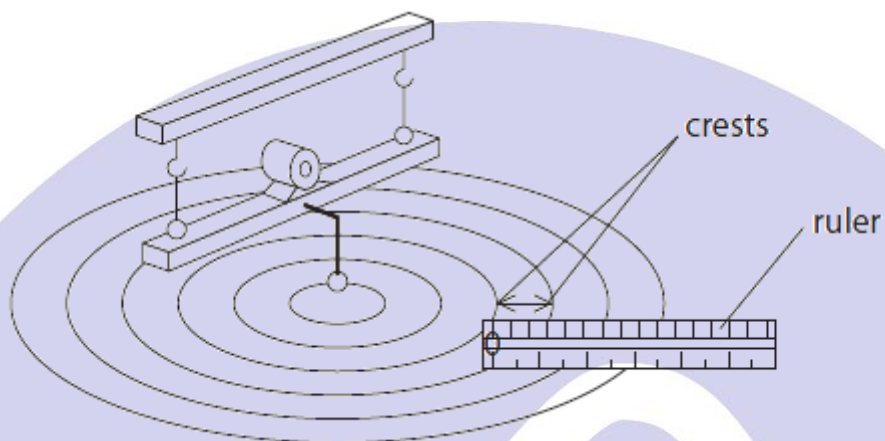


Figure 2

Explain how to improve the student's method for measuring the wavelength.

(2)

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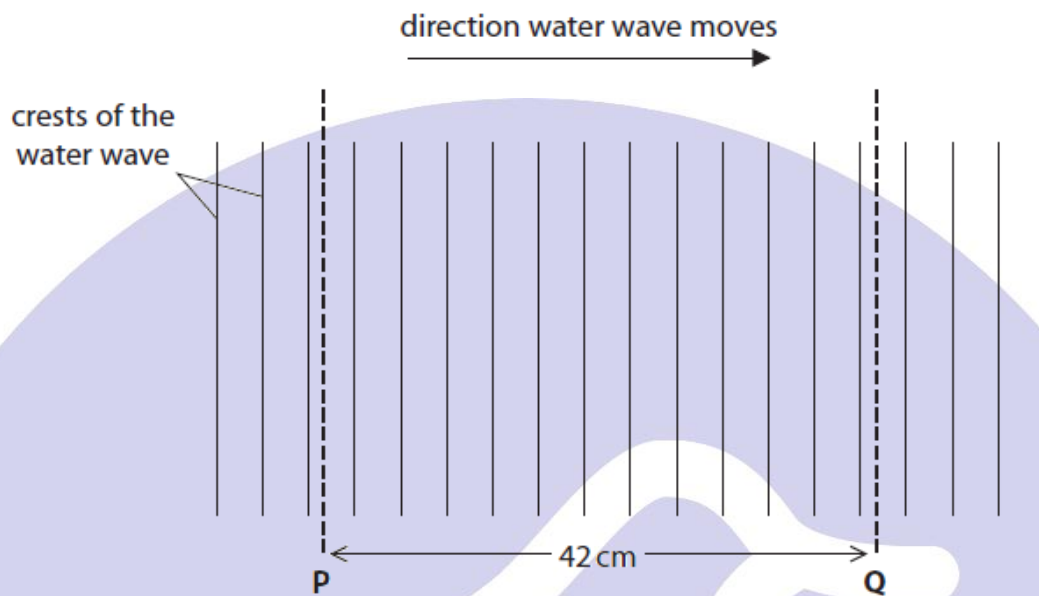
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(Total for question = 2 marks)

Q4.

This question is about waves.

Figure 3 is a diagram of a **water wave** in a ripple tank.



- (i) State the number of crests of the wave between **P** and **Q**.

(1)

number of crests =

- (ii) The distance between **P** and **Q** is 42 cm.

Calculate the wavelength of the water wave in Figure 3.

(2)

wavelength = cm

- (iii) Describe how a student could determine the wave speed of the water wave in Figure 3.

(3)

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(Total for question = 6 marks)

Q5.

(i) Figure 9 shows a student sitting on the shore of a lake watching ripples on the surface of the water moving past a toy boat.

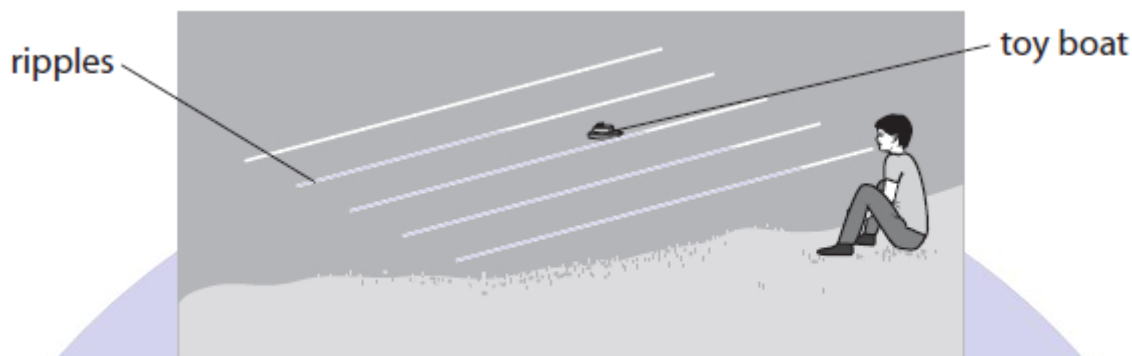


Figure 9

The student has a stopwatch.

Describe how the student could determine the frequency of the ripples on the lake.

(3)

(Total for question = 3 marks)

Q6.

Figure 6 shows a ripple tank.

A screen is placed below the ripple tank.

The wave pattern produced by the ripples can be seen on the screen.

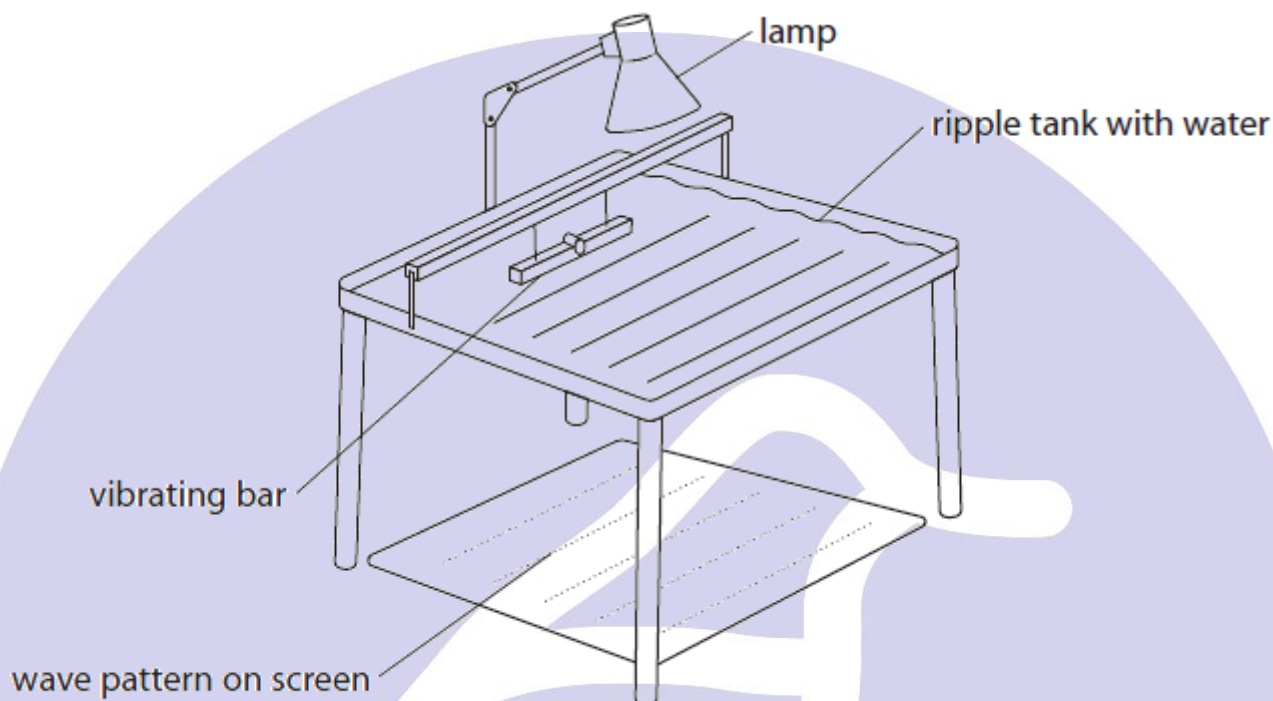


Figure 6

A student has a stop clock and a ruler.

(i) Describe how the student could measure the frequency of the ripples.

(2)

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(ii) Describe how the student could measure the wavelength of the ripples.

(2)

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(Total for question = 4 marks)