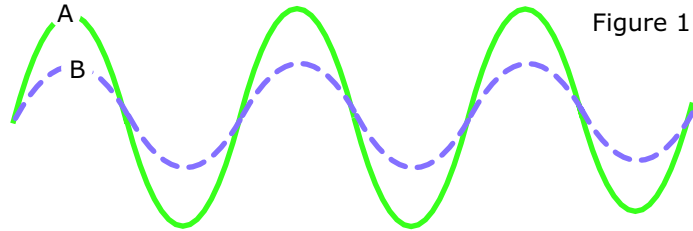


Waves properties 2

Name & Set

1 Figure 1 shows two transverse waves superimposed on one another.



(i) Draw an arrow on wave A to show what is meant by *wavelength* [1]

(ii) Describe in words what is meant by the *wavelength* of a wave.

(iii) Describe in words what is meant by the *frequency* of a wave

(iv) In what way are waves A & B similar?

(v) In what way are waves A & B different?

2 Figure 2 shows a full-scale drawing the surface of water as a wave travels across it.

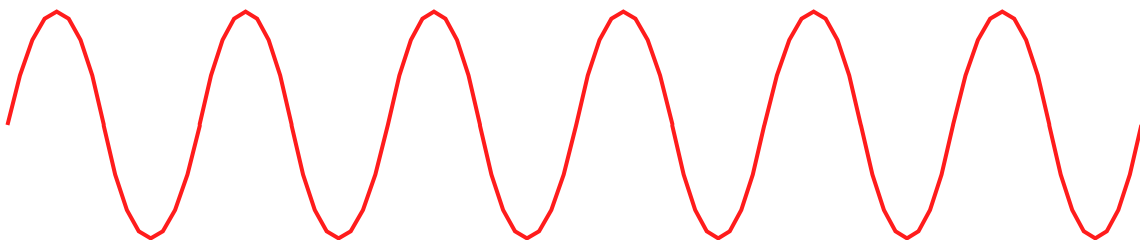


Figure 2

(i) Is this wave transverse or longitudinal? _____ [1]

(ii) Give another type of wave that vibrates like this _____ [1]

(ii) Describe the motion of the water as this wave travels across the surface.

_____ [2]

(iii) Draw an arrow & label it **W** to show the wavelength of this wave [1]

(iv) Draw an arrow & label it **A** to show the amplitude of this wave [1]

(v) How many cycles of this wave are shown in the diagram? _____ [1]

(vi) Measure the length of the whole wave and thus calculate its wavelength.

_____ [2]

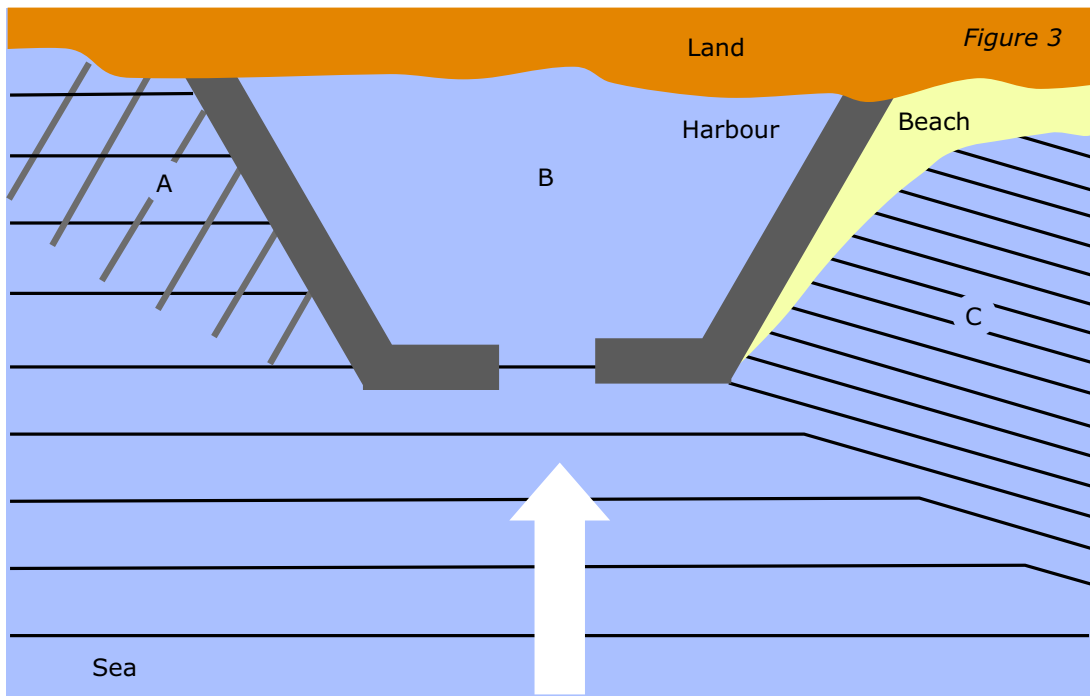
(vii) Write down the equation that links wave velocity, frequency and wavelength.

_____ [2]

(viii) The wave has a velocity of 80 cm per second. Calculate the frequency of the wave.

_____ [2]

3 Figure 3 shows ocean waves moving towards a harbour.



(i) Describe what has happened to the waves at A

[2]

(ii) Describe what has happened to the waves at C.

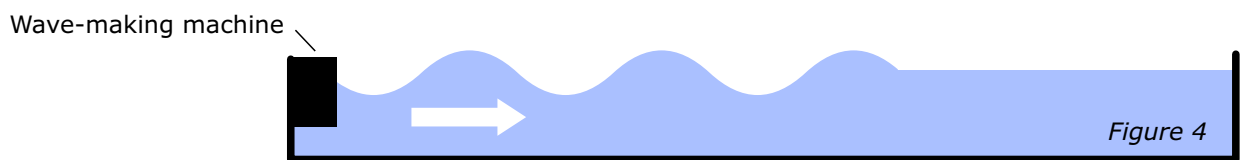
[2]

(iii) What conditions could produce the wave pattern at C?

[2]

(iv) Complete figure 2 to show what happens when the waves enter the harbour B. [2]

4 Figure 4 shows the cross section of a swimming pool. A wave machine at one end creates waves that travel across the pool. The diagram shows the surface of the water 1.5 seconds after the wave machine began making waves.

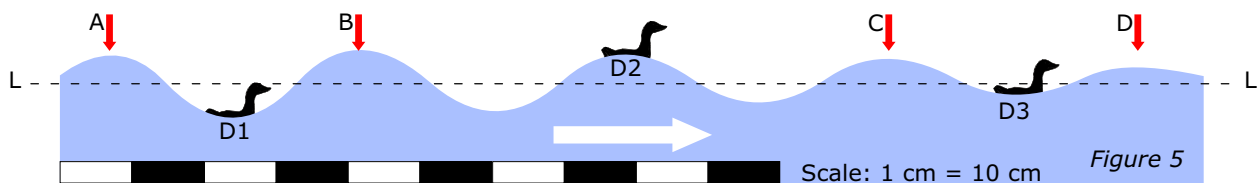


(a) How many cycles of the wave are shown in figure 3? _____ [1]

(b) Calculate the frequency of the waves

[2]

Figure 5 shows the surface of the pool several minutes after the wave machine has begun working.



(c) Measure the distance between the points AB and use the given scale to find the wavelength of the waves.

[2]

(d) Describe what, if anything happens to the wavelength and amplitude of the waves as they travel across the surface of the pool.

(i) wavelength

_____ [2]

(ii) amplitude

_____ [2]

(e) (i) Write down in words the equation that links wave speed, wavelength and frequency. [2]



(ii) Use your answer from (b) and (c) to calculate the speed of the wave.

_____ [2]

(f) Describe the motion of the duck at D1 as the wave travels across the water.

_____ [2]

(g) A duck at D3 rises and falls in step with duck at D1. What can you say about the frequency of the wave at D3 compared to its frequency at D1?

_____ [2]

(h) Describe the motion of the duck at D2 compared to the duck at D1

_____ [2]