9 This question is about sound waves.

(a) Sound waves are

(1)

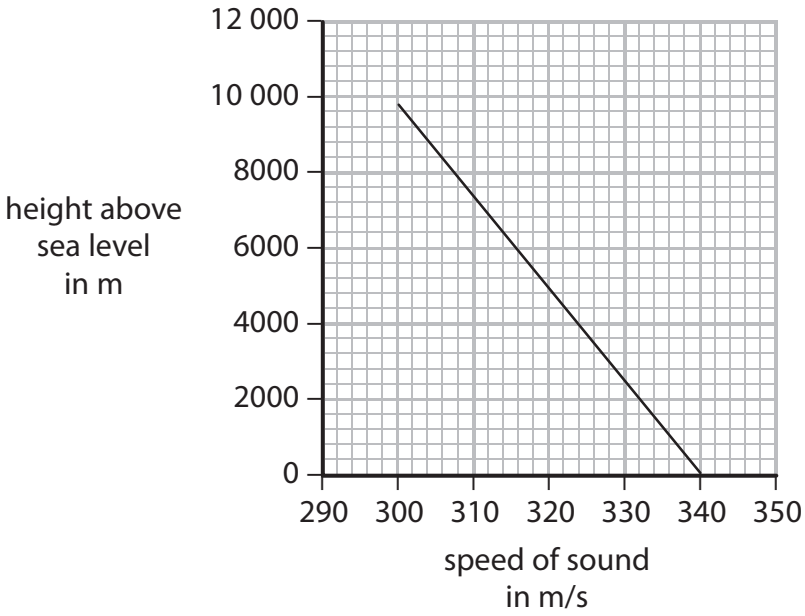
- ☒ **A** electromagnetic waves
- ☒ **B** ionising radiation
- ☒ **C** longitudinal waves
- ☒ **D** transverse waves

(b) Describe an experiment to measure the speed of sound in air.

(5)

(c) The speed of sound in air is different for different heights above sea level.

The graph shows how the speed of sound varies with height.



(i) Use the graph to estimate the speed of sound in air 6000 m above sea level.

(1)

Speed = ... m/s

(ii) Describe the pattern shown by the graph.

(2)

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(iii) Some aeroplanes can travel faster than the speed of sound.

When an aeroplane travels faster than the speed of sound it causes a shock wave. People on the ground hear this shock wave as a sonic boom.

A student says

Do you agree with the student?

Explain why.

(2)

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(Total for Question 9 = 11 marks)