5 This question is about sound.

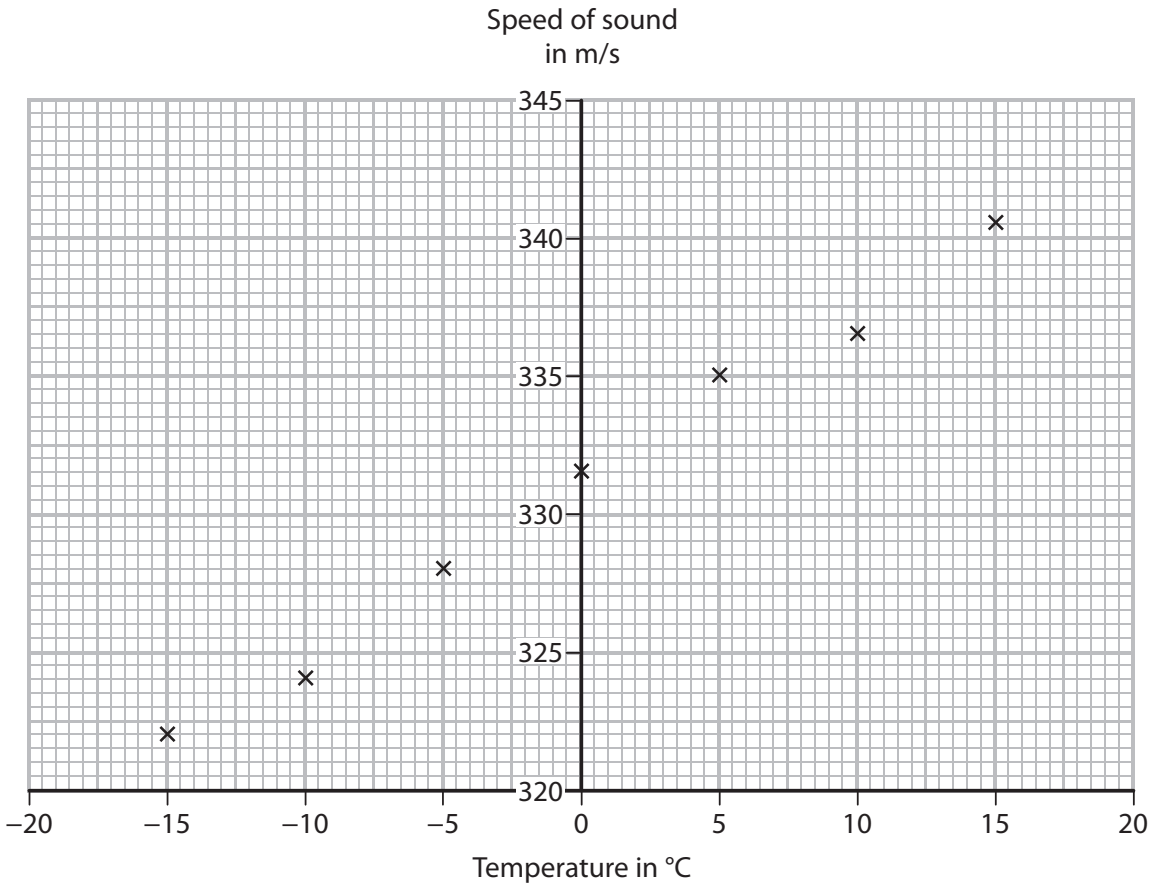
(a) Describe an investigation to measure the speed of sound in air.
You may draw a diagram to help your answer.

(6)

(b) The speed of sound changes when the temperature changes.

A student investigates how the speed of sound in air varies with temperature.

The student's results are shown on the graph.



(i) Draw a line of best fit on the graph.

(1)

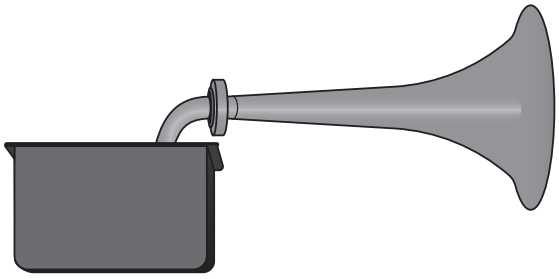
(ii) Use the graph to find the speed of sound when the air temperature is 20 °C.

(2)

speed of sound = ... m/s

(iii) A ship moves about in fog.

A foghorn is used to make a loud, low-pitched sound to warn any nearby ships.



The air temperature decreases while the foghorn emits sound waves of a constant frequency.

Explain how this decrease in temperature affects the wavelength of the sound waves.

(2)

.....

.....

.....

.....

(Total for Question 5 = 11 marks)