6 **(a)** Use the principle of superposition to explain the formation of a stationary wave.

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....[3]

(b) Describe an experiment to determine the wavelength of sound in air using stationary waves. Include a diagram of the apparatus in your answer.

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....[3]

(c) The variation with distance x of the intensity I of a stationary sound wave is shown in Fig. 6.1.
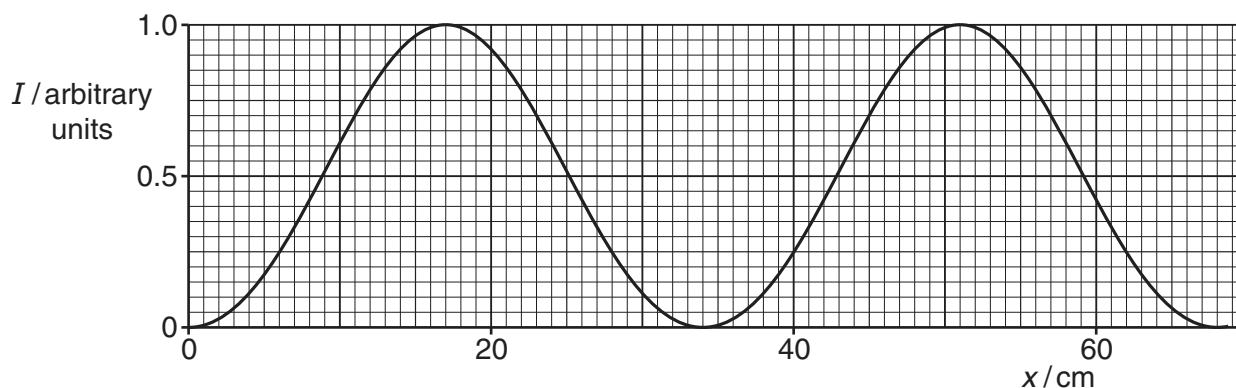

Fig. 6.1

(i) On the x-axis of Fig. 6.1, indicate the positions of all the nodes and antinodes of the stationary wave. Label the nodes **N** and the antinodes **A**. [1]

(ii) The speed of sound in air is $340\,\text{m s}^{-1}$.

Use Fig. 6.1 to determine the frequency of the sound wave.

frequency = ... Hz [3]

Please turn over for Question 7.