3 The variation with displacement x of the acceleration a of the centre of the cone of a loudspeaker is shown in Fig. 3.1.

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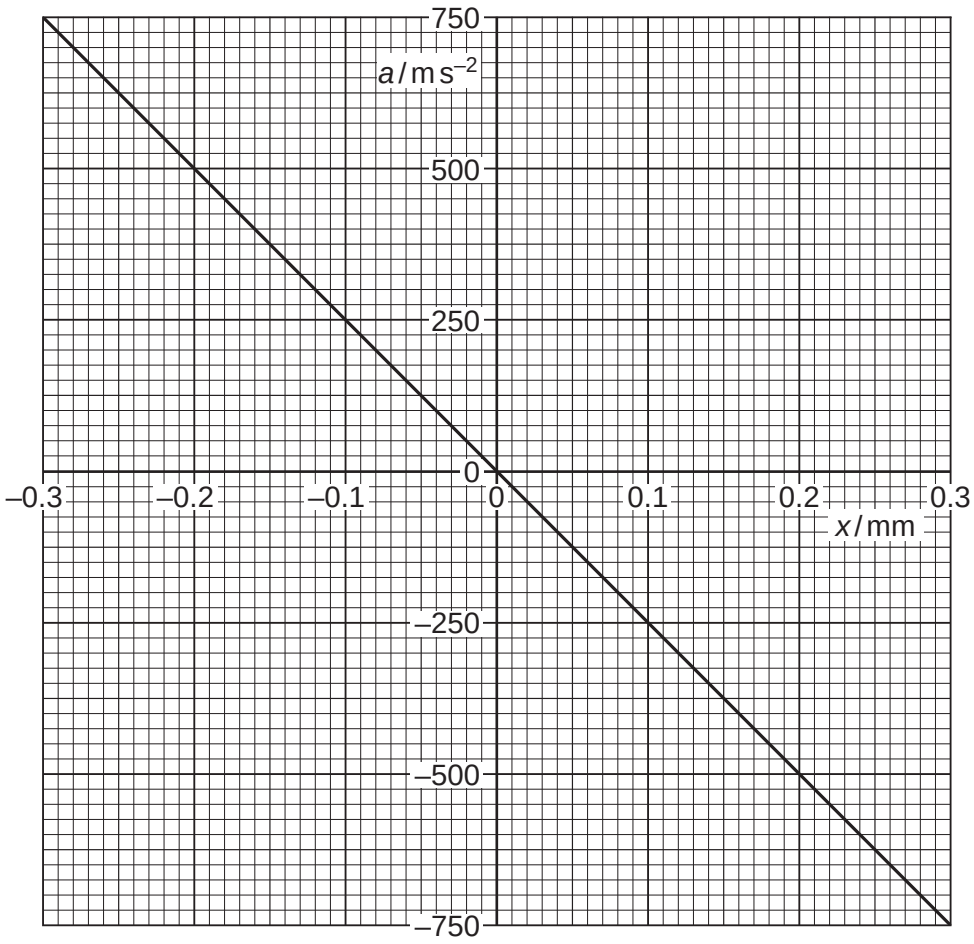

Fig. 3.1

(a) State the two features of Fig. 3.1 that show that the motion of the cone is simple harmonic.

1. .....

2. .....

[2]

(b) Use data from Fig. 3.1 to determine the frequency, in hertz, of vibration of the cone.

frequency = ... Hz [3]

(c) The frequency of vibration of the cone is now reduced to one half of that calculated in **(b)**.

The amplitude of vibration remains unchanged.

On the axes of Fig. 3.1, draw a line to represent the variation with displacement *x* of the acceleration *a* of the centre of the loudspeaker cone.

[2]

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