

- 4 Fig. 4.1 shows the variation with time t of the height h above the ground of an object of mass 36 kg that is undergoing vertical simple harmonic motion.

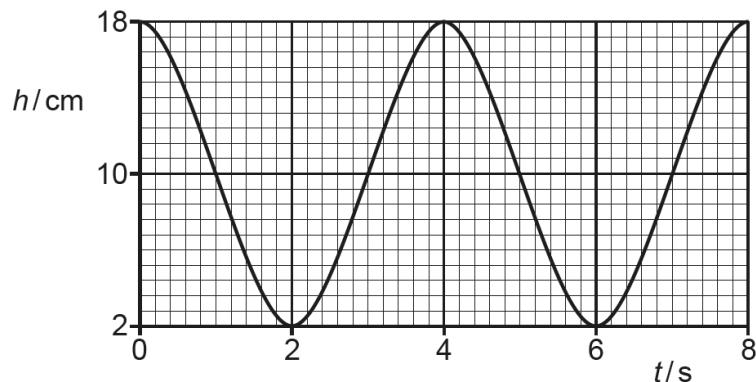


Fig. 4.1

- (a) State the defining equation for simple harmonic motion. Identify the meaning of each of the symbols used to represent physical quantities.

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.....
.....

[1]

- (b) For the oscillations of the object,

- (i) show that the angular frequency ω is 1.6 rad s^{-1} ,

[1]

(ii) determine the total energy E .

$$E = \dots \text{ J} [3]$$

(c) On Fig. 4.2, sketch the variation with h of the kinetic energy E_K of the object.

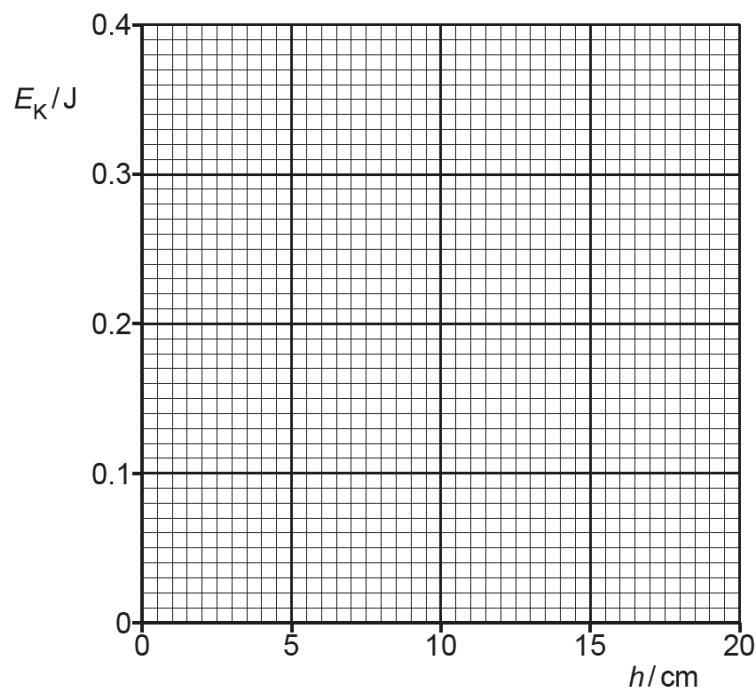


Fig. 4.2

[3]

[Total: 8]

