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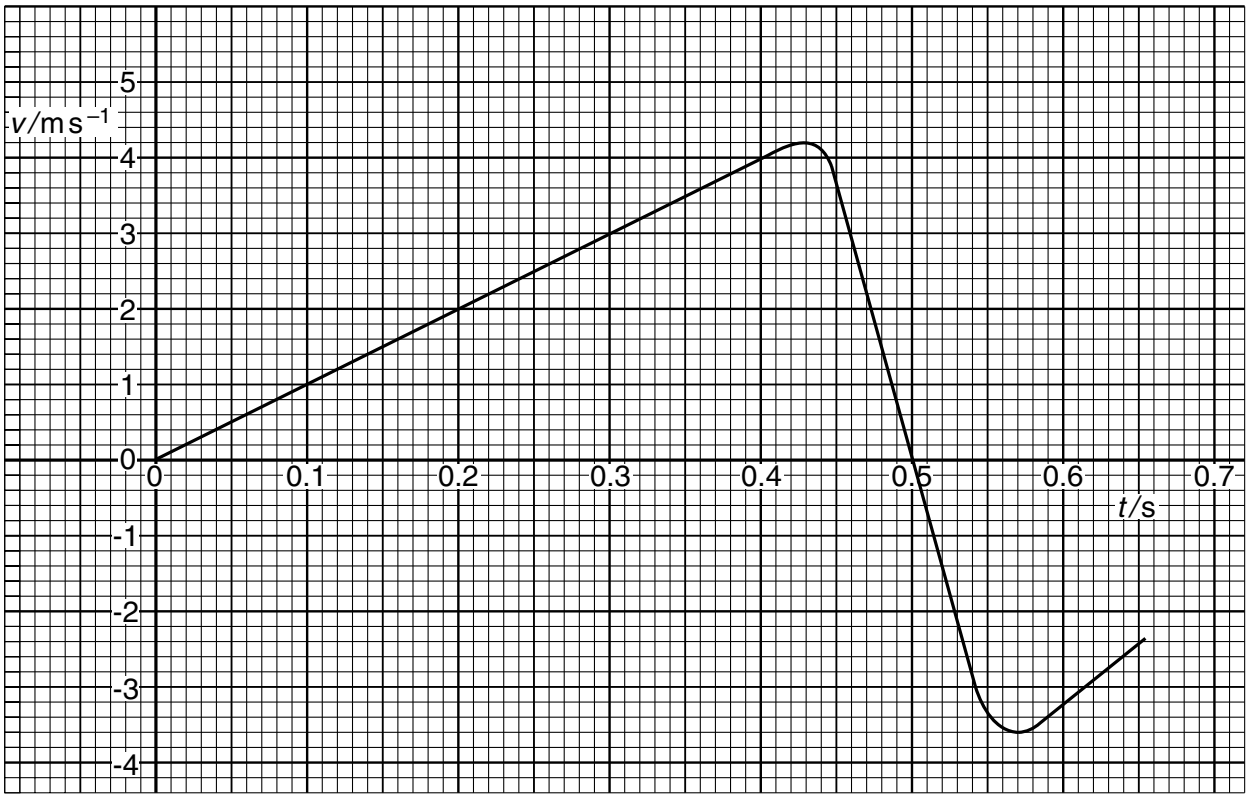

Fig. 3.1

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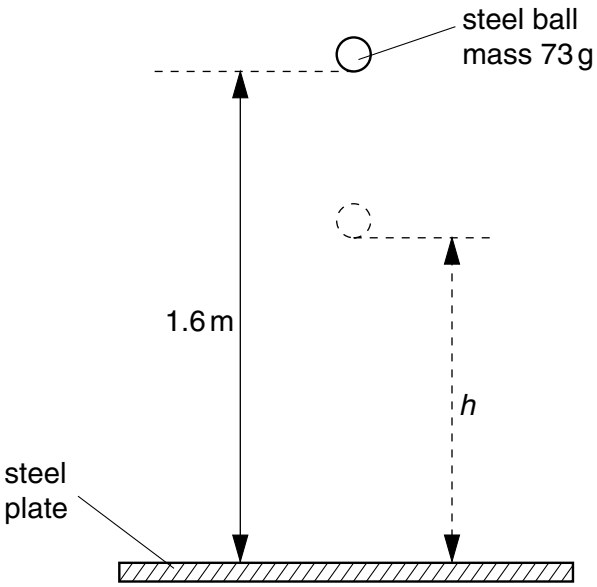

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The ball is dropped from rest and it bounces on the plate, reaching a height *h*.

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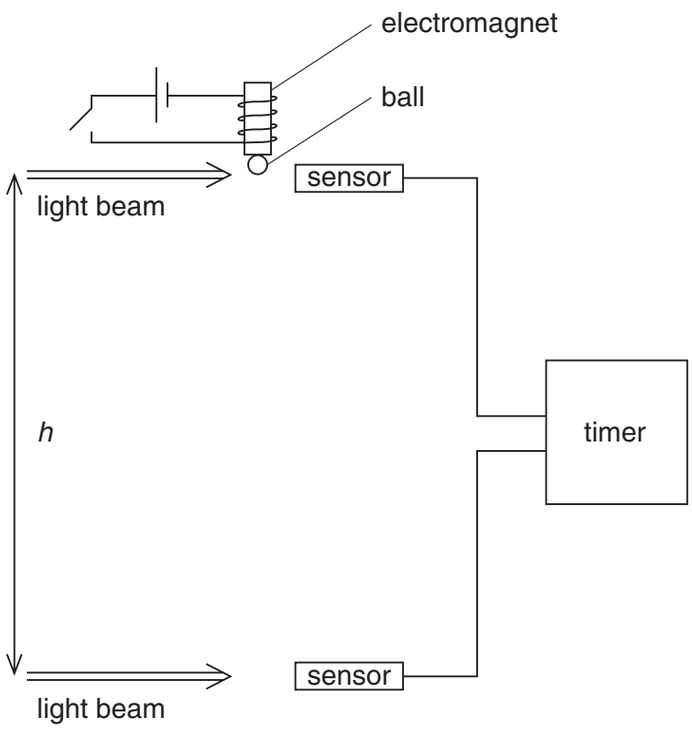
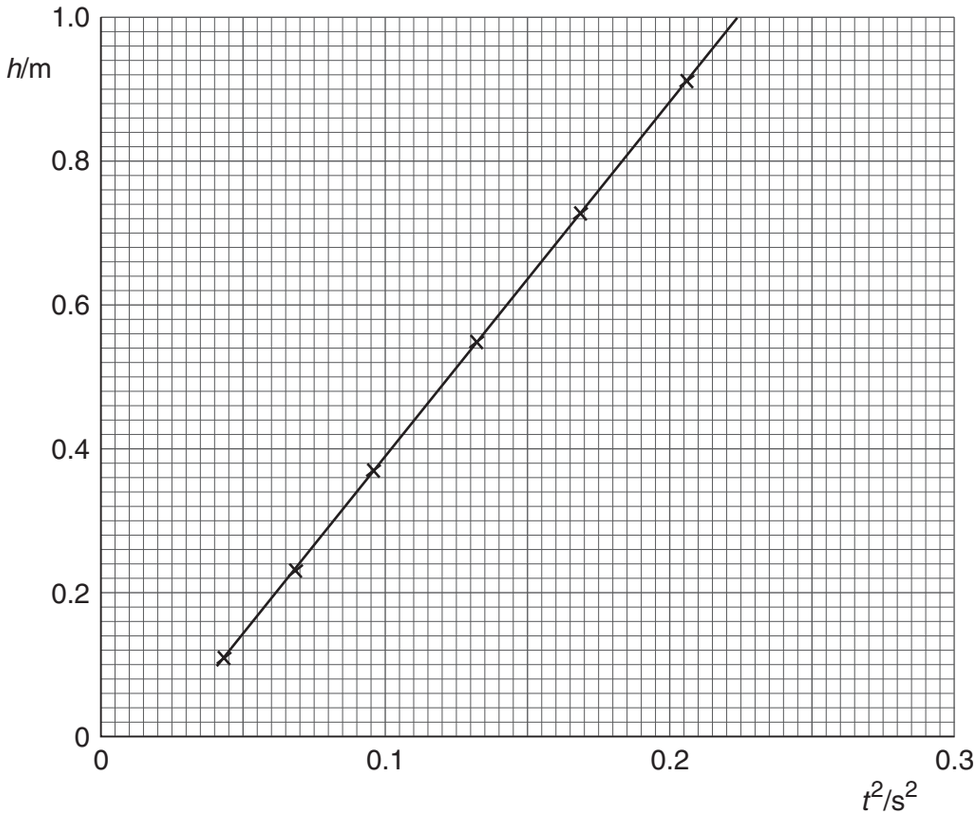


Fig. 2.1

A steel ball is held on an electromagnet. When the electromagnet is switched off, the ball immediately interrupts a beam of light and a timer is started. As the ball falls, it interrupts a second beam of light and the timer is stopped. The vertical distance h between the light beams and the time t recorded on the timer are noted. The procedure is repeated for different values of h. The student calculates values of t^2 and then plots the graph of Fig. 2.2.



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(a) Use Fig. 2.2 to calculate a value for g, the acceleration of free fall of the ball. Explain your working.

g = ... $m\,s^{-2}$ [4]

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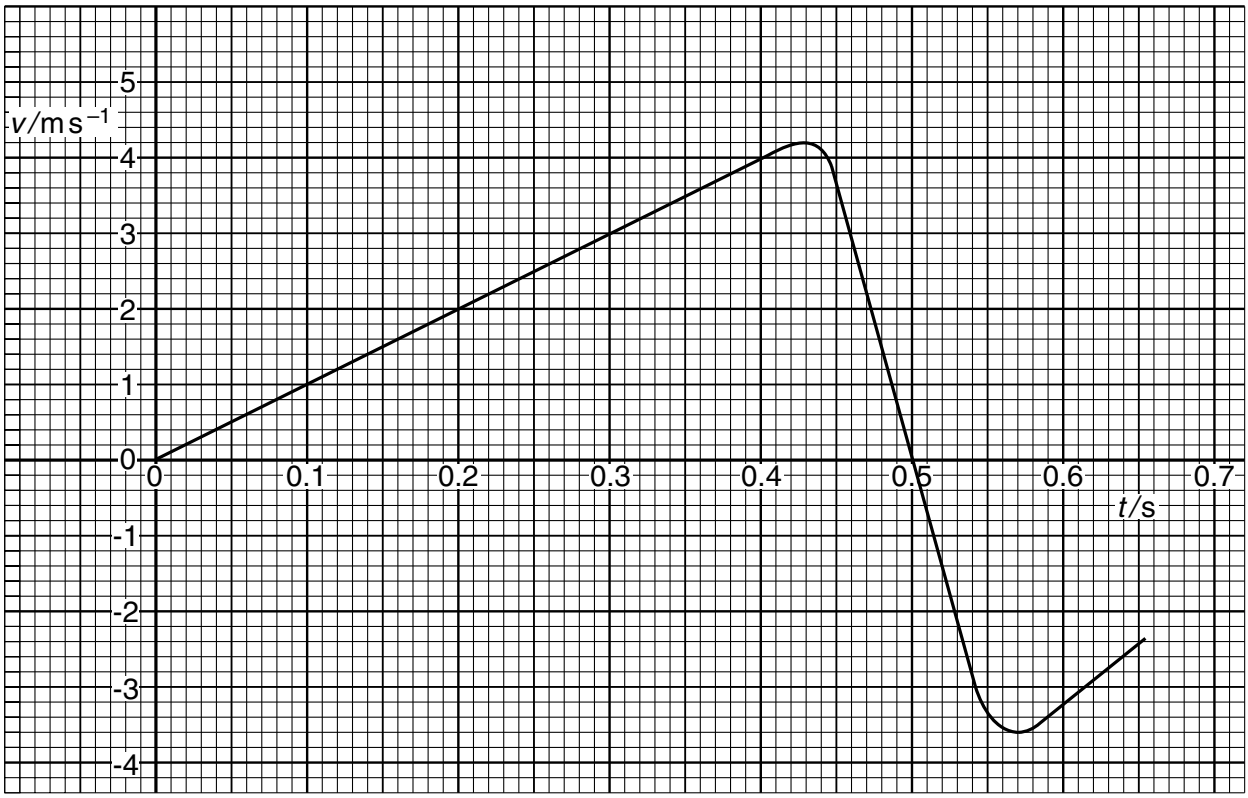

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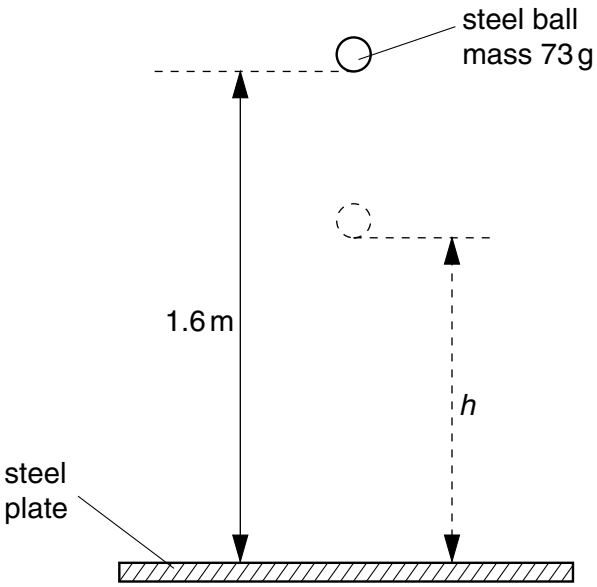

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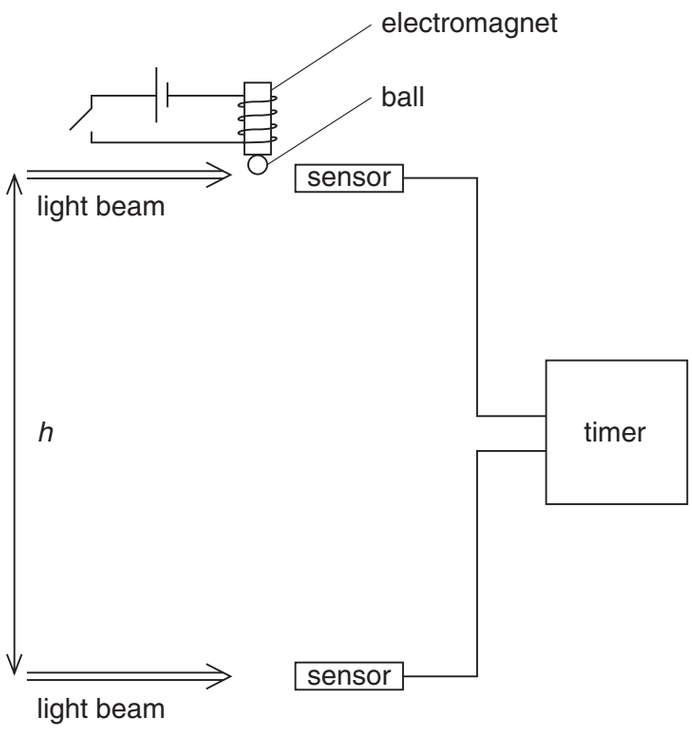

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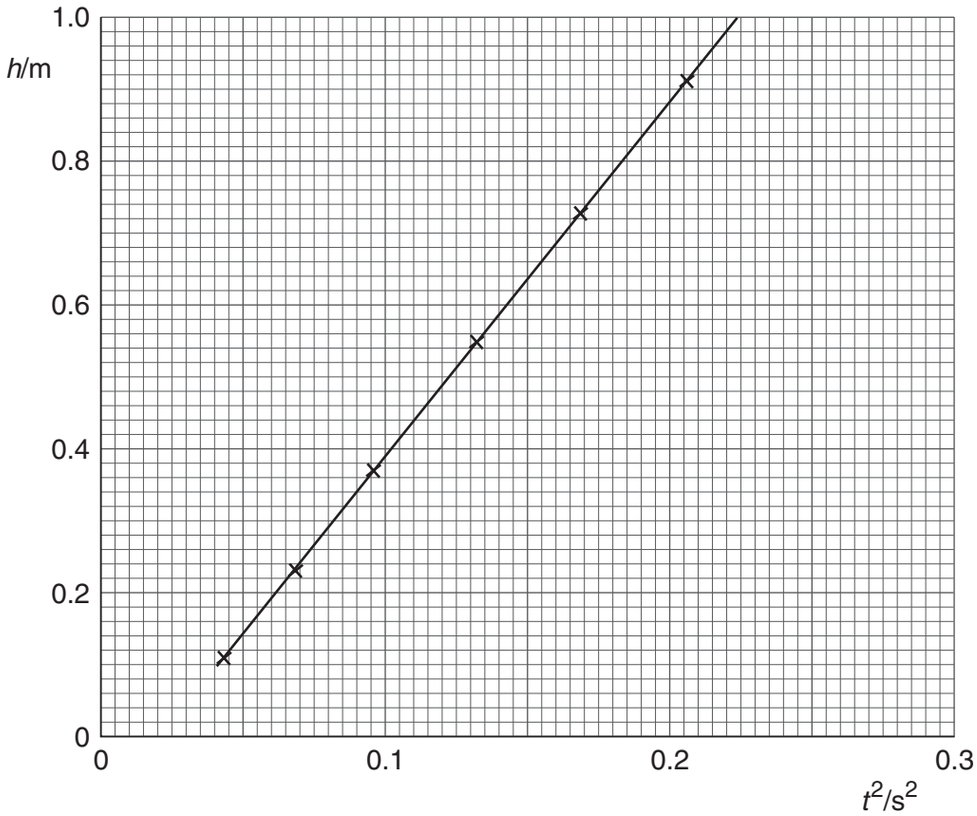

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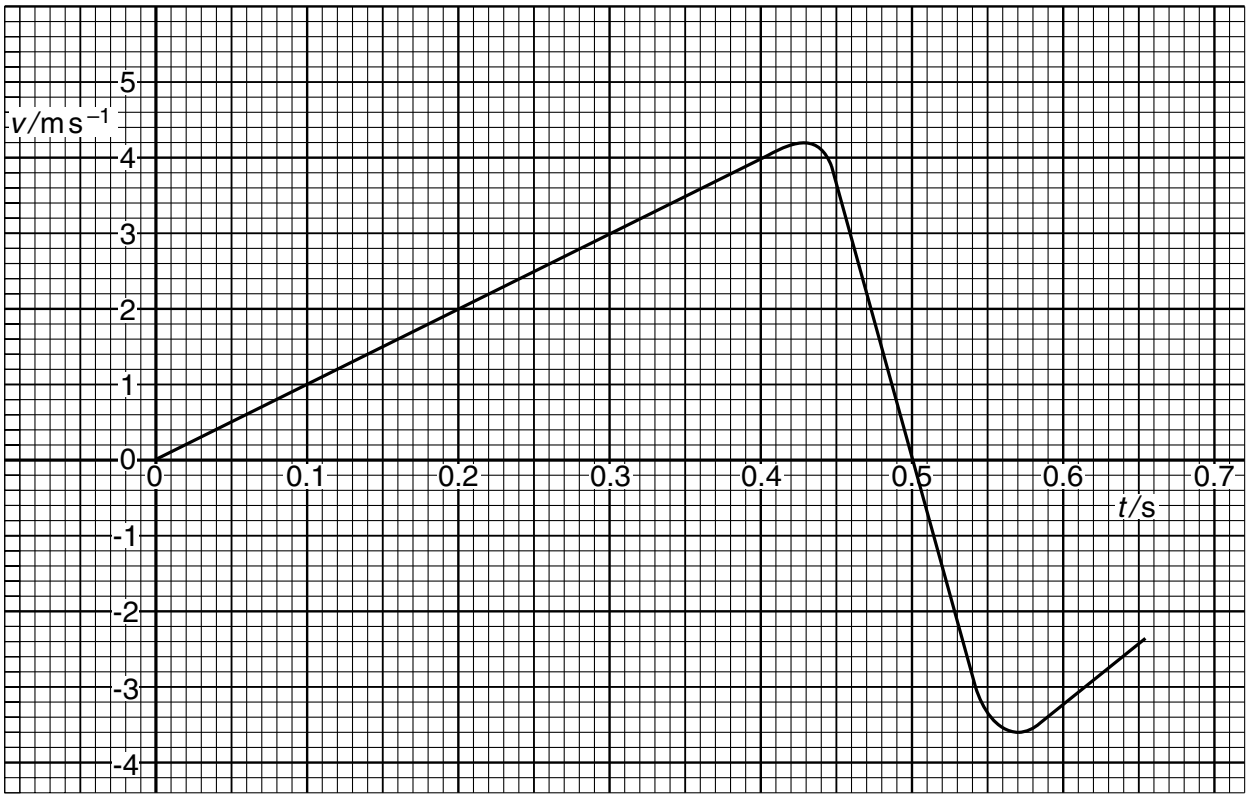

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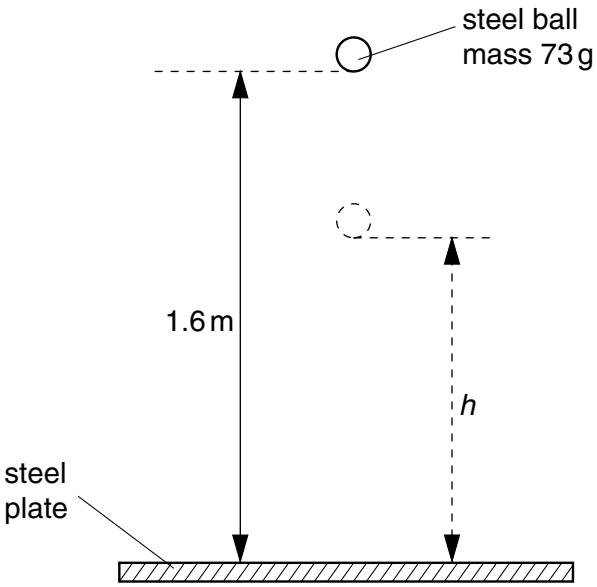

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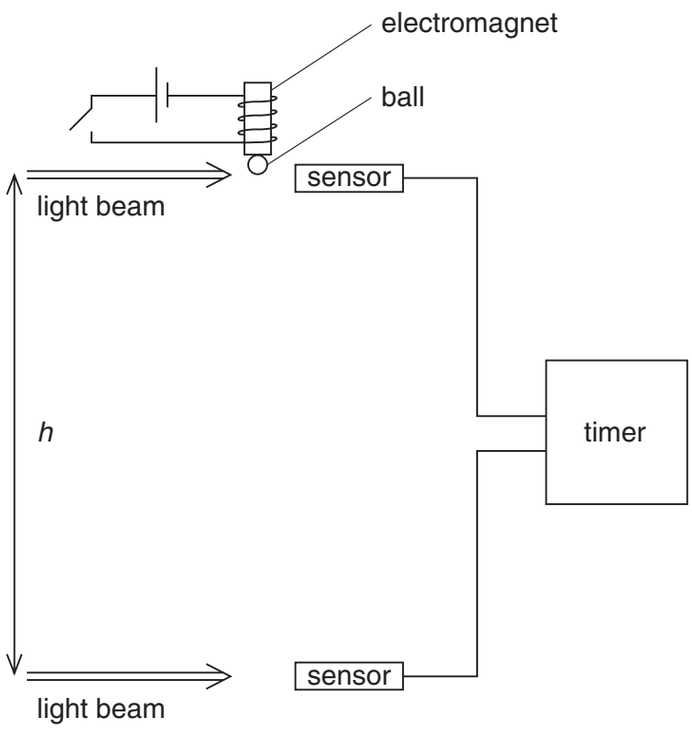

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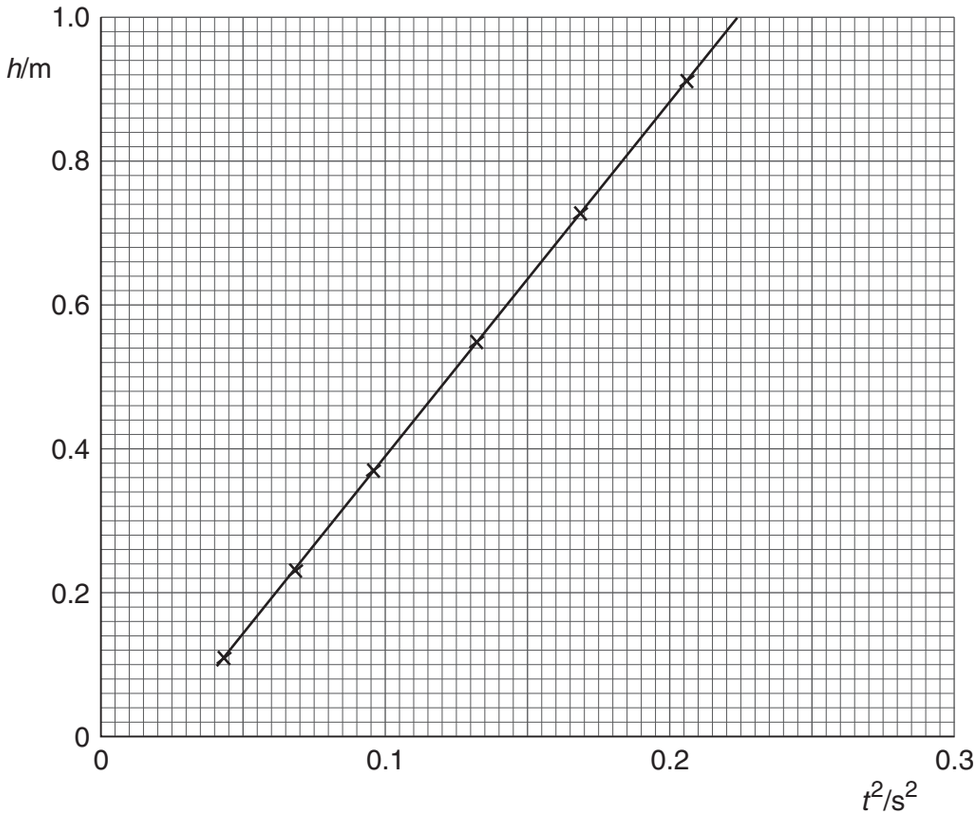

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