

- 1 A student takes measurements to determine the acceleration of a ball as it rolls down a slope. He uses the apparatus illustrated in Fig. 1.1.

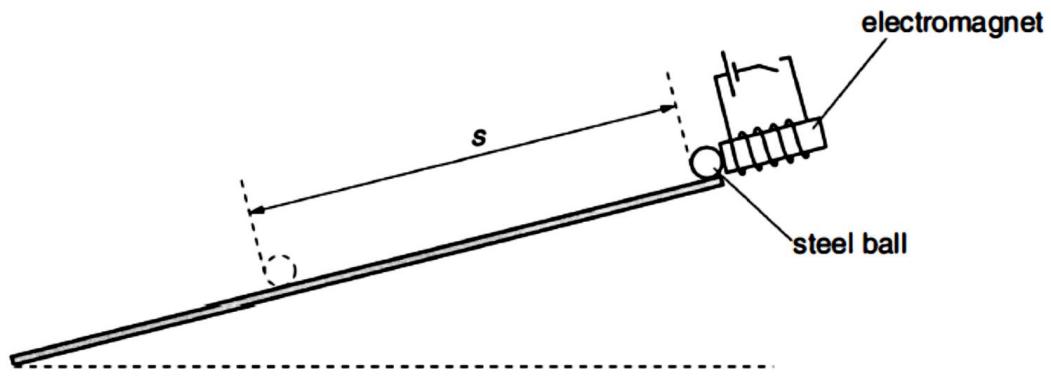


Fig. 1.1

The student measures the time t for the ball to roll a distance s down the slope after the ball has been released from the electromagnet.

The variation with t^2 of the distance s is shown in Fig. 1.2.

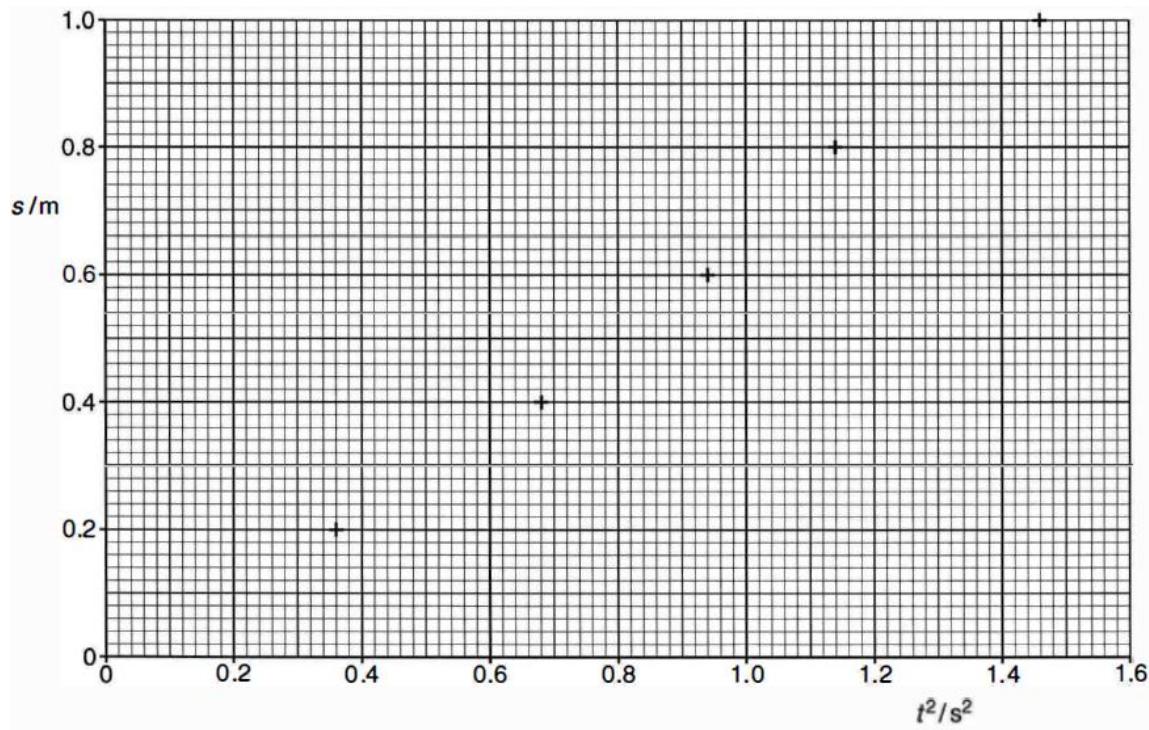


Fig. 1.2

- (i) Use Fig. 1.2 to determine a value for the acceleration of the ball down the slope.

$$\text{acceleration} = \dots \text{m s}^{-2} \quad [5]$$

- (ii) State the feature of the data shown in Fig. 1.2 that indicates the presence of

1. random error,

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..... [1]

2. systematic error.

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..... [1]

