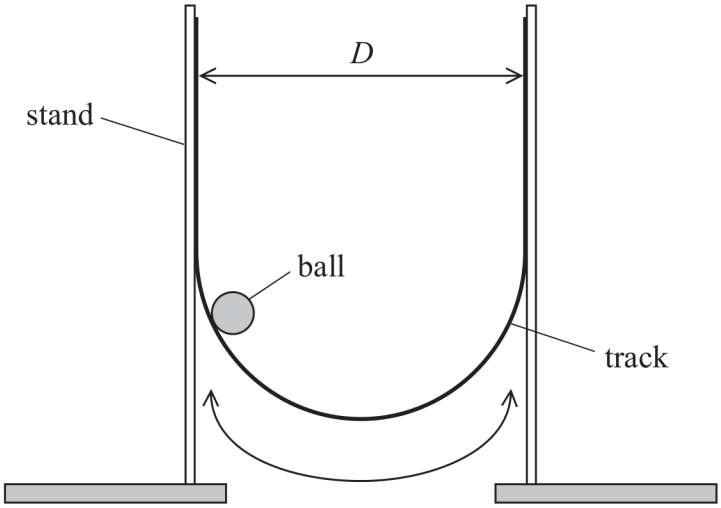
Answer ALL questions.

1 A ball rolls along a U-shaped track. The ball oscillates in a vertical plane as shown.



(a) Describe how the time period of the oscillations should be measured to make the readings as accurate as possible.

(3)

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(b) Describe how a single measure of D should be made accurately.

(2)

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(c) A student determined the time period T for different values of the distance D.
She obtained the following results.

D / m	0.235	0.335	0.445
T / s	0.78	0.94	1.09

She predicts that for these oscillations

$$T \propto \sqrt{D}$$

Show that her results are consistent with this prediction.

(3)

(Total for Question 1 = 8 marks)