

Question 16 (continued)

- (a) Outline TWO changes that could be made to the experimental procedure that would improve its accuracy. 2

Use ten periods (T) of the pendulum and find the average, this would increase the accuracy and alter the errors cause by humans reflex.

- (b) Compare Kim's and Ali's methods of calculating g and identify the better approach.

Increase the length of the string and take a greater gap between each attempt.

Kim found the mean value for g using the data in the table and the formula $T = 2\pi\sqrt{\frac{L}{g}}$, this way could encure errors due to missusing the formula or incorrect maths eq. (human error) but it is still more accurate than graphing the points as there is not an accumal-insufient.

-ion of errors

→ Ali's method for calculating g is superior as it uses the technique of graphing the information in the table, these points could be positioned incorrectly and result in the wrong value of g.

- (c) Calculate the value of g from the line of best fit on Ali's graph.

$$T^2 = 2\pi\sqrt{\frac{L}{g}}$$

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$$\frac{T^2}{g} = 2\pi L$$

$$g = \frac{2\pi L}{T^2}$$

$$g = \frac{2\pi(0.10)}{0.4} = 1.57$$

End of Question 16