

Question 16 (continued)

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

Repeat the procedure for each length more than once in order to gain an average. Also get a number of people to time the time for one period to again get average result.

- (b) Compare Kim's and Ali's methods of calculating g and identify the better approach. 3

Kim uses the data in the table which should be more accurate than Ali's method because Ali uses a graph with the 'Line of best fit' & not actual pts recorded in the table. \therefore Kim's method of calc. g is a much better approach in order to gain more accurate results of g as she uses actual results recorded whereas Ali uses line of best fit in

- (c) Calculate the value of g from the line of best fit on Ali's graph. 3

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

$$T^2 = 4\pi^2 \left(\frac{L}{g}\right)$$

$$(0.57)^2 = 4\pi^2 \left(\frac{0.08}{g}\right)$$

$$0.3249 = \frac{0.32\pi^2}{g} \quad \therefore g = 9.72 \text{ ms}^{-2} \text{ (2dp)}$$

$$0.3249g = 0.32\pi^2$$

$$g = \frac{0.32\pi^2}{0.3249}$$

$$g = 9.720755335$$

End of Question 16