

Physics lab report essay



**ASSIGN
BUSTER**

The period remained the same as the mass increased. LLC. As the arc of swing increased, did the period (T) increased, decreased, or remained the same? The period of swing decreased as the period (T) increased. AAA. From the data table 1 construct a graph of periods (T) (Y axis) vs.. Length (m) (X-axis) b.

From data table 2 construct a graph of period (T) (Y axis) vs.. Mass (kg) (X Axis) c. From data table 2 construct a graph of period (T) (Y axis) vs.. Arc of swing (θ) (X axis) 3. For each of these three graphs, describe the relationship between the Period and the X-axis variable. If the graph is horizontal straight line then the two variables are independent of each other.

Fifth graph is a straight diagonal line the relationship is linear. (I. E. , the variables are directly proportional to each other). Length/ Period is Linear Arc of Swing/ Period is Independent Variables Material/Period is Linear 4. What other factors(s), not investigated by you (length, mass, arc of swing) in this experiment might affect the period of the pendulum? The angle of the Pendulum's swing 5.

What is the advantage of timing 20 complete swings of your pendulum instead of only one? The timing of 20 complete swings of my pendulum can have a more accurate measurement since there is less human errors. AAA. The theoretical equation for the period of a pendulum is giving by.

$T = 2\pi \sqrt{\frac{L}{g}}$ Where $T =$ Period, $L =$ Length of the pendulum, and $g =$ the acceleration due to gravity in m/s^2 If we square both sides of the equation we get; $T^2 = 4\pi^2 \frac{L}{g}$ and thus $T^2 = \frac{4\pi^2}{g} L$ = the slope of the graph in AAA. Calculate the slope of the graph in question AAA. And from the slope,

find the value of "g" by using 4112 g So, The gravity is about 9.698 m/SAA. Slope b. Compare this measured value of "g" to the theoretical value of $g = 9.81 \text{ m/s}^2$ so by determining the % error of your measured value from the theoretical value.

Percent Error = 20.6% Conclusion: The goal of this experiment was to determine the effect of mass, arc of swing and length on the period of a simple pendulum. We varied the pendulum mass for a fixed length, and varied the pendulum length and angle for a fixed mass. The results of this experiment are not in close agreement with original assumption of our group: mass, length and angle all have sharable effect on the period of our pendulum. The timing of letting go the bob and air resistance can be some errors because when you let go of the bob the timing could be a little off and the air resistance which can push the bob making it faster or slower.

Error may have also resulted from the pendulum swaying forward or backward during its motion. Sometimes the bob was not dropped exactly straight and caused the bob to take on a slightly diagonal motion. This would have changed the times of our periods slightly. And the timing errors might be improved by having few more trials.