PENANG SANGAM HIGH SCHOOL
YEAR 13 PHYSICS
WEEK 1
Dates: (31/05/21) to (04/06/21)

WORKSHEET: 1

1. A glass cube is measured to be 6.5 ± 0.1 cm.
   Find its volume in cm^3 along with its absolute uncertainty. ($V = L^3$)

2. Mere measured the period of oscillation of a simple pendulum. The recorded readings were: 5.63, 5.56, 5.42, 5.70 and 5.81 seconds.

   a) Find the mean of the five measurements.

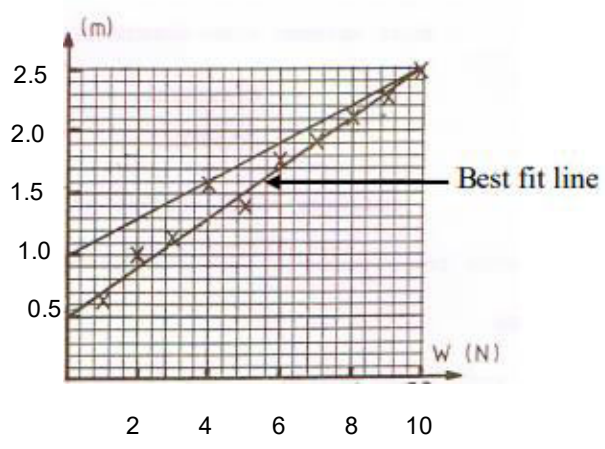
   b) Calculate the absolute error.

   c) Hence, write the period of oscillation with its absolute uncertainty.

   d) What is the percentage error in the measurement of the period of oscillation?

3. Two variables L and W are plotted. The line of best fit and error line are drawn as shown below.

   Calculate the slope of the graph with the correct uncertainty.



4. In an experiment on relationships, the equation $y = 4x^2$ was used to investigate the relationship between y and x.

a) Rewrite the equation in linear form using logarithm.

b) Determine the gradient of the graph.

c) Determine the value of the y- intercept.

d) Show the relationship on a linear graph.

5. Show that the formula $d = v_i t + \frac{1}{2}at^2$ is dimensionally consistent,

where d is the distance travelled in time, t, v_I is the initial velocity, and a is the acceleration.

6) A 600 N person is standing on bathroom scale in elevator. When the scale reads 900 N, calculate the acceleration of the elevator?

7) An elevator and its load have a total mass of 850 kg. The elevator is moving downwards at 6 ms^{-1}. It is then brought to rest with constant acceleration over a distance of 9 m.

Calculate:

a) The acceleration of the elevator while coming to rest.

b) The tension in the cable from which the elevator is suspended while coming to rest.

c) The force exerted by the floor of the lift on a 60 kg passenger as the lift slows down.