

Physics

PHY6T/P14/task

Unit 6 Investigative and Practical Skills in A2 Physics ISA (P) Circular Motion

Task Sheet

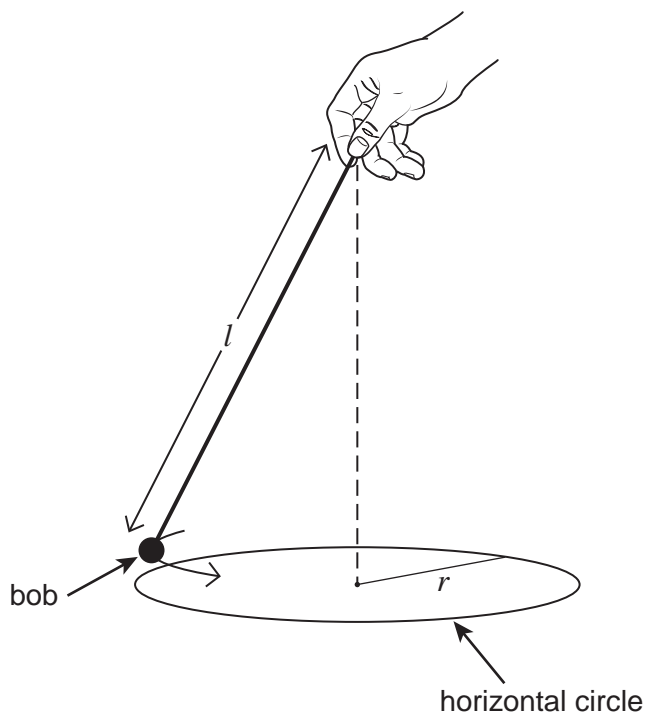
This task is worth 7 marks

You are advised to read through the instructions before beginning your work.

You are going to investigate how the time period for the circular motion of a pendulum varies with the length of the pendulum.

Figure 1 shows the apparatus you will use which consists of a pendulum of length l . The bob moves in a horizontal circle of radius r .

Figure 1



- Measure and record the diameter, d , of the circle drawn on the sheet of A3 paper.
- Estimate and record the uncertainty in your measurements of d .
- Fix the paper with the circle face upwards on the floor.
- Make a mark on the string approximately 0.25 m from the centre of the bob. Measure and record this length, l , of the pendulum.
- Estimate and record the uncertainty in your measurement of l .

- Hold the string at the 0.25 m mark directly above the centre of the circle and rotate it gently so that the mass moves with uniform circular motion of radius, r , equal to the radius of the drawn circle.
- Take suitable readings to measure the time period, T , of the circular motion.
- Repeat the measurements of T and l for a range of values of l between 0.25 m and 1.10 m.
- Record all your measurements in a table.
- Plot a graph of T (on the y -axis) against l , drawing a best fit curve.
- Record the precision of the stopclock or stopwatch you used.

After the Investigation

At the end of the investigation, hand in all your written work, including the graph and recorded results, to the supervisor.

This documentation will be required for Stage 2 of the ISA. Ensure that you have entered your centre details, candidate number and name on all the sheets you have completed.