

Physics

PHY3T/Q14/task

Unit 3 Investigative and practical skills in AS Physics
ISA (Q) Refraction

Task Sheet

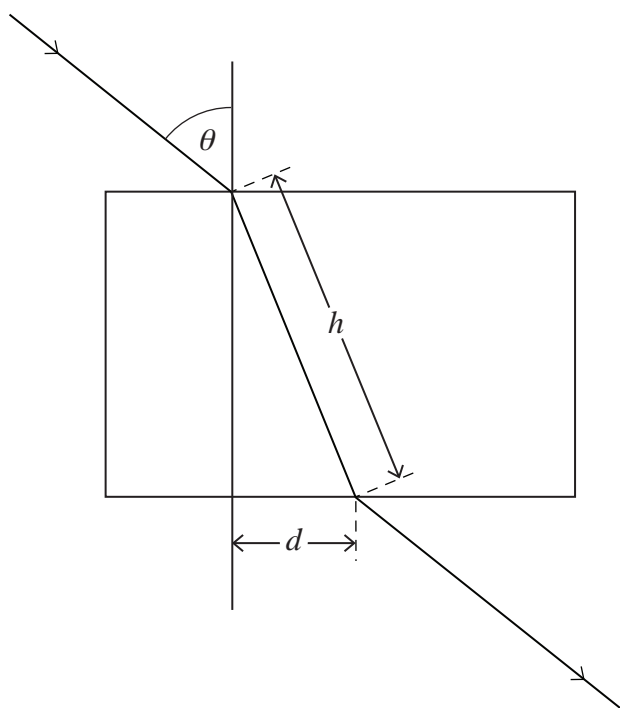
This task is worth 7 marks

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

You are going to investigate the refraction of light by a rectangular glass or Perspex block.

- Place the block on the paper and draw round its outline.
- You are going to take a set of readings of the angle of incidence, θ , on the block for a range of θ as shown in **Figure 1**.
- Draw the normal to the surface of the block at the point of incidence.
- Mark the path of the light beam entering the block at an angle θ of 70° .
- Set up the apparatus so that a narrow beam of coloured light passes through the block.
- Mark the point at which it leaves the block and then remove the block.
- Using a 30 cm ruler, measure the distances, d and h .
- Repeat the experiment for angles of incidence in the range between 70° and 10° .
- On fresh paper, repeat the measurements for the same angles of incidence.
- Tabulate all your results in a single table.
- Calculate $\sin \theta$ and $\frac{d}{h}$ for each angle of incidence and include these values in your table.
- Plot a graph of $\frac{d}{h}$ on the vertical-axis against $\sin \theta$ and draw the straight line of best fit.
- Record the precision of your protractor.

Figure 1



After the Investigation

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

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