

- 6 A student does an experiment to determine the refractive index of a glass block.



- (a) The student places the glass block on a piece of paper and draws round the block with a pencil.

Name two additional pieces of equipment the student will need for his experiment.

(2)

1

2

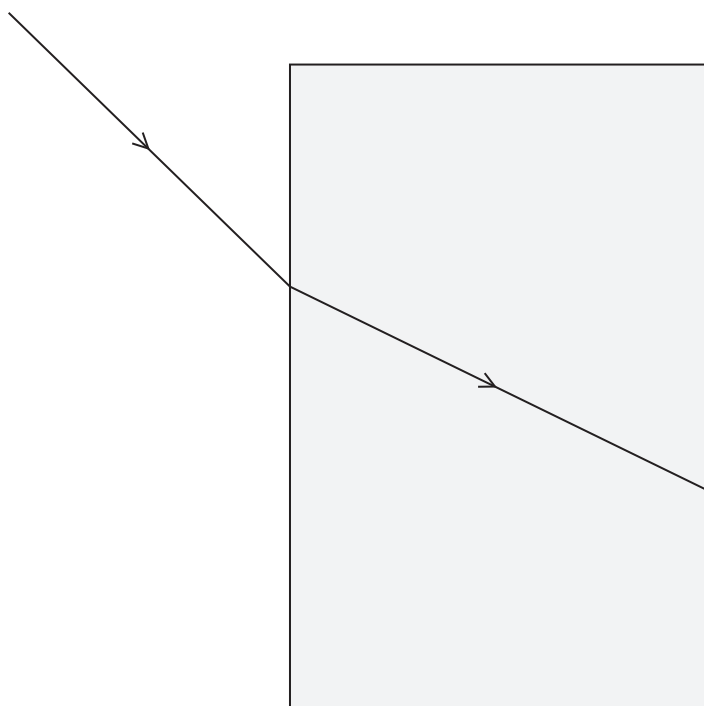
- (b) The diagram shows the path of a ray of light as it travels towards and then through the glass block.

- (i) Draw the path of the ray of light when it leaves the glass block.

(2)

- (ii) Draw the normal line at the point where the ray of light enters the glass block.

(1)



- (iii) Determine the angle of incidence and the angle of refraction at the point where the ray of light enters the glass block.

(2)

angle of incidence = °

angle of refraction = °

- (iv) State the formula linking refractive index, angle of incidence and angle of refraction.

(1)

- (v) Calculate the refractive index of the glass block.

(2)

refractive index =



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- (c) A teacher suggests that a more accurate value for the refractive index can be found using a graphical method.

Design a method to obtain a value for the refractive index of the glass block using a graph.

You may draw a diagram to support your answer.

(3)

(Total for Question 6 = 13 marks)

