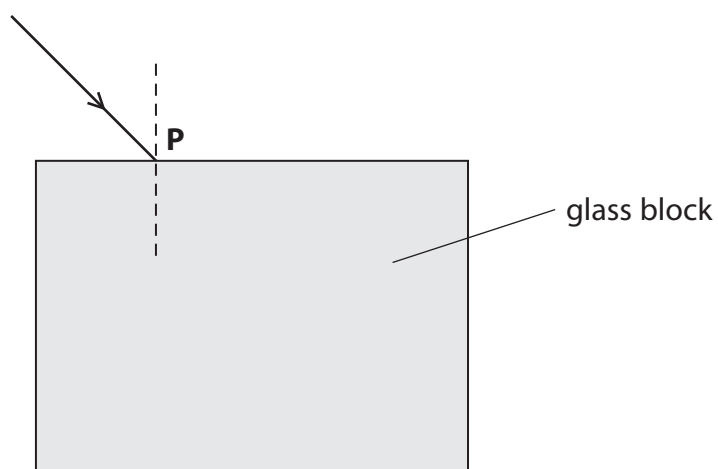


- 5 A student uses a rectangular glass block to determine the refractive index of glass. The diagram shows a ray of red light in air as it enters the glass block at **P**. The normal at **P** is shown as a dotted line.



(a) Complete the diagram by

- drawing the ray that continues inside the block
- labelling the angle of incidence (i) and the angle of refraction (r)
- drawing the ray that leaves the block.

(4)



(b) The student measures values for the angle of incidence (i) and the angle of refraction (r).

i	60°
r	34°
$\sin i$	
$\sin r$	

(i) Complete the table by inserting values for $\sin i$ and $\sin r$. (1)

(ii) State the equation that links refractive index, angle of incidence (i) and angle of refraction (r). (1)

(iii) Calculate the refractive index of the glass. (2)

Refractive index =

(c) How should the student continue the investigation to obtain a more accurate value for the refractive index of glass? (3)

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(Total for Question 5 = 11 marks)

