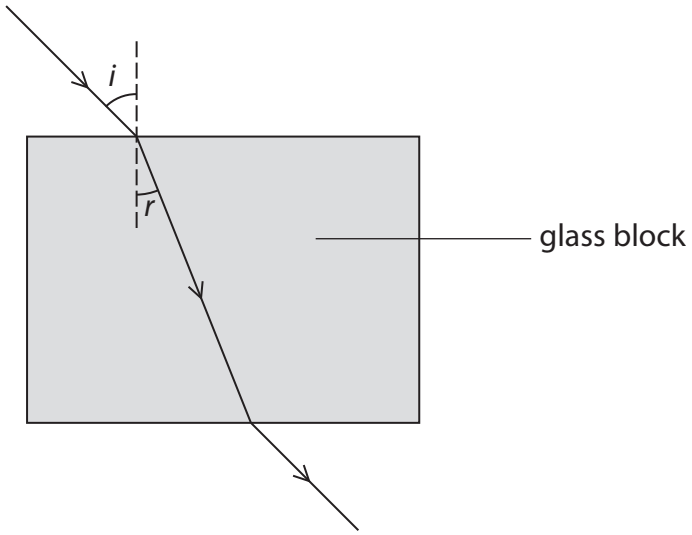
6 A student investigates refraction using a glass block.

She wants to find the refractive index of the glass.

She sends rays of light into the block at different angles and measures the angle of incidence and the angle of refraction.



The table shows her results.

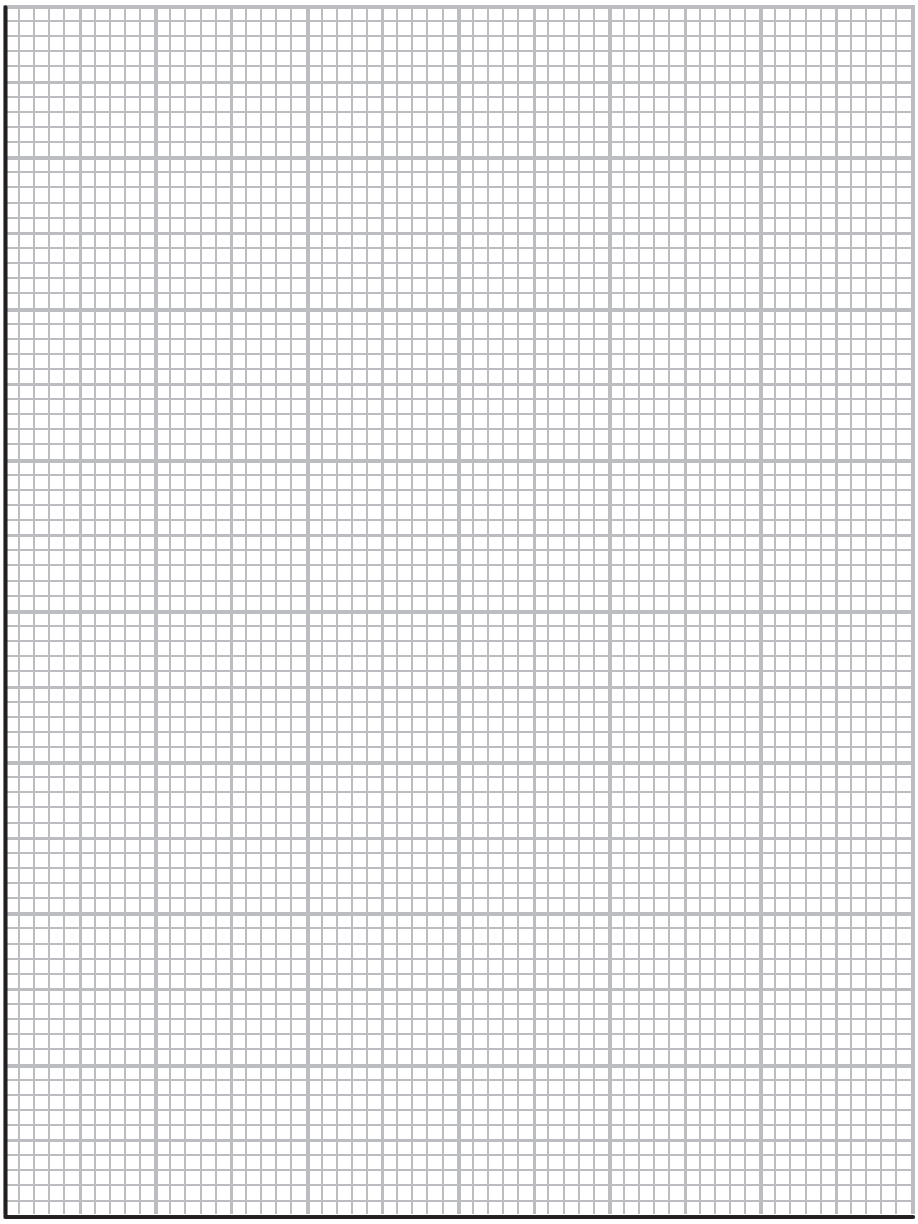
Angle of incidence, *i*	Angle of refraction, *r*	sin *i*	sin *r*
0°	0°	0.00	0.00
15°	10°	0.26	0.17
25°	16°	0.42	
35°	22°	0.57	
45°	28°	0.71	0.47

(a) (i) Complete the table by calculating the missing values of sin *r*.

(1)

(ii) Draw a graph of sin *i* (*y*-axis) against sin *r* (*x*-axis).

(5)



(iii) Use your graph to find the refractive index of the glass.

(2)

refractive index = ...

(b) Suggest two reasons why using a graph to find the refractive index is a better method than simply calculating it using a pair of angles from the table.

(2)

1 .....

.....

2 .....

.....

(Total for Question 6 = 10 marks)