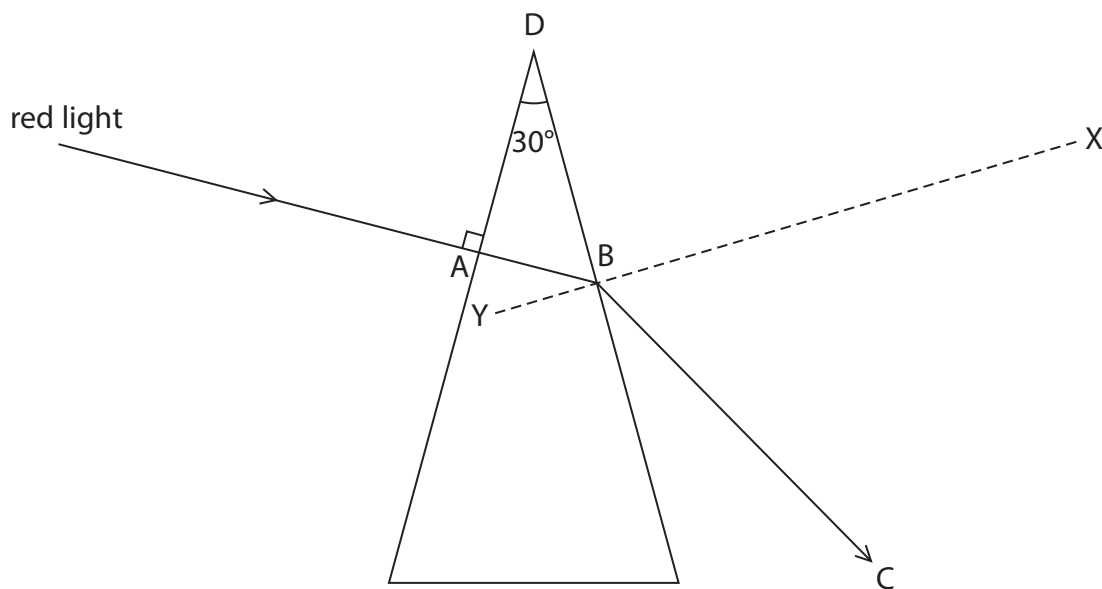


- 9 A student investigates what happens when light passes through a glass prism. He shines red light into the prism so that the light is incident at 90° at A. He then completes the path of the light through the prism as shown.



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- (a) (i) State the advantage of shining the light at right angles into the prism.

(1)

- (ii) Suggest why the student uses light of just one colour.

(1)

- (iii) State the name given to the line XY.

(1)



- (b) (i) Measure the angle of refraction of the light at B.

(1)

angle = degrees

- (ii) State the relationship between refractive index, angle of incidence and angle of refraction.

(1)

- (iii) The angle of incidence at B is 30° .

Calculate the refractive index of the glass.

(2)

refractive index =



(c) The critical angle of the glass prism is 35° .

(i) Explain what is meant by the term **critical angle**.

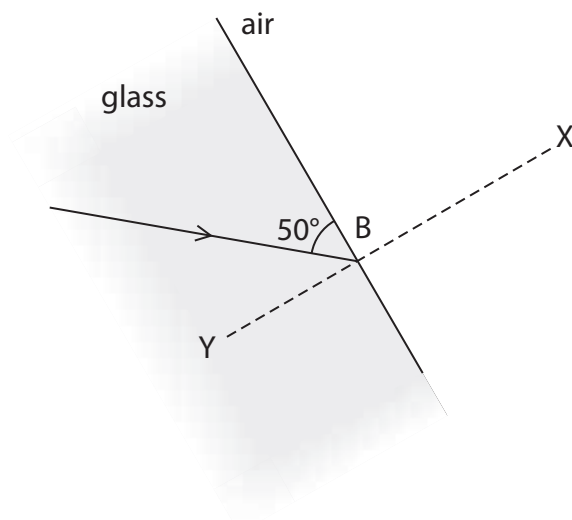
You may draw a diagram to help your answer.

(2)

(ii) The student shines the light so that it hits B at a different angle.

Continue the path of the ray of light on the diagram.

(2)



(Total for Question 9 = 11 marks)



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