

- 11 Diagram 1 shows what happens when light is incident on a piece of transparent material.

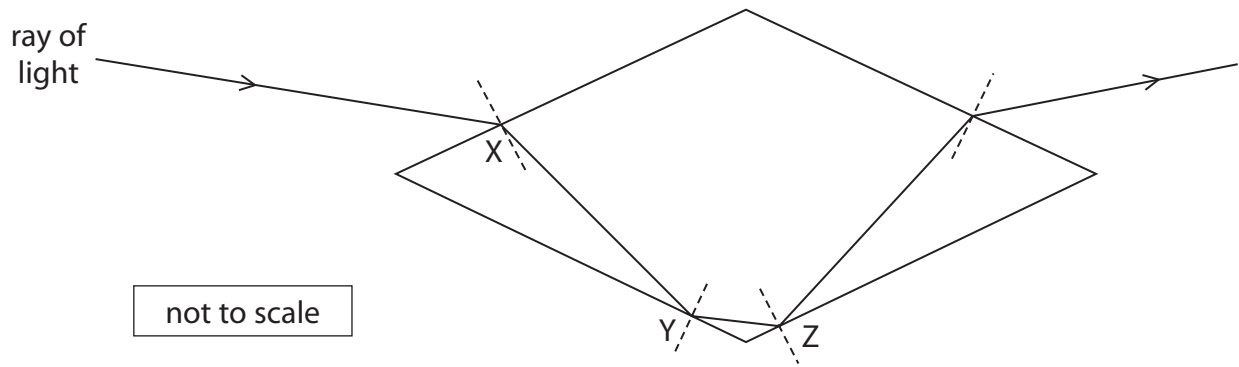


Diagram 1

- (a) When very bright light shines on this transparent material, a small amount of light is reflected at point X.

- (i) On diagram 2, draw the reflected ray from point X.

(2)

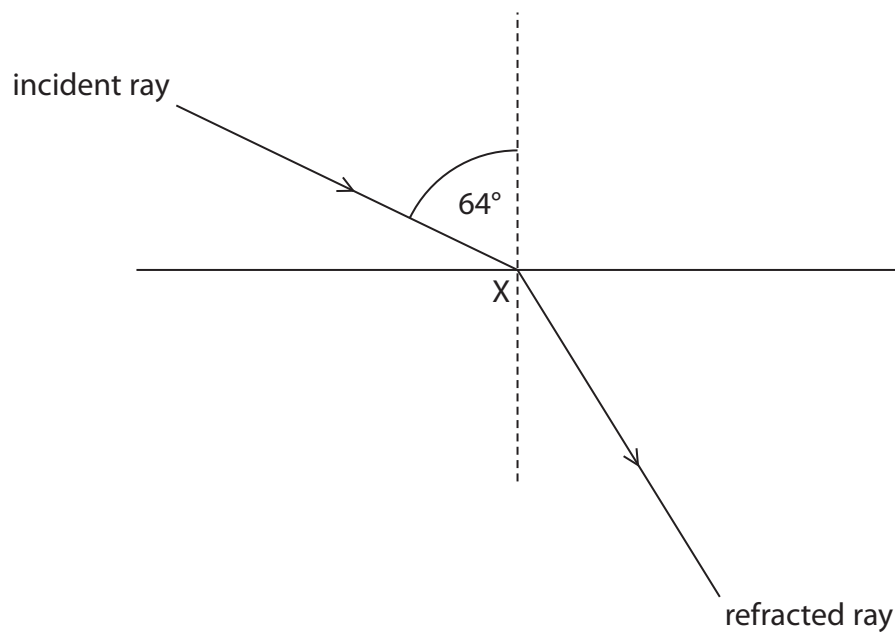


Diagram 2

- (ii) Measure the angle of **refraction** at point X on diagram 2.

(1)

angle = ..... degrees



(iii) State the formula linking refractive index, angle of incidence and angle of refraction. (1)

(iv) Show that the refractive index of the transparent material is about 1.7 (2)

(v) State the formula linking refractive index and critical angle. (1)

(vi) Calculate the critical angle for the transparent material. (2)

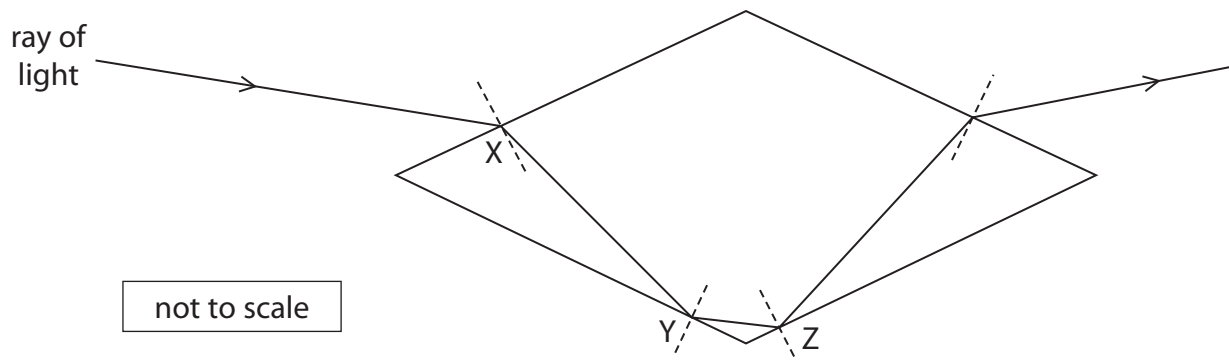
critical angle = ..... degrees

**QUESTION 11 CONTINUES ON NEXT PAGE**



(b) Explain the behaviour of the light at points Y and Z.

(3)



(Total for Question 11 = 12 marks)

**TOTAL FOR PAPER = 110 MARKS**

