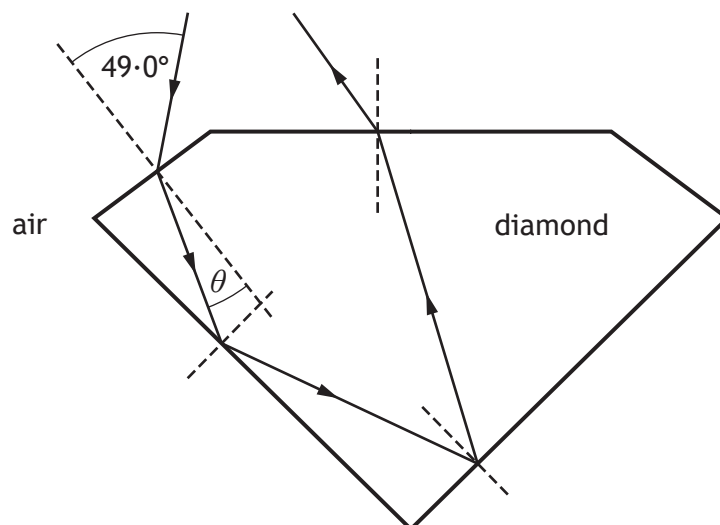


11. Diamonds sparkle because light that enters the diamond is reflected back to an observer.



- (a) A ray of monochromatic light is incident on a diamond at an angle of 49.0° . The refractive index of diamond for this light is 2.42. Calculate the angle of refraction θ .
Space for working and answer

3

- (b) Calculate the critical angle of the diamond for this light.
Space for working and answer

3



11. (continued)

- (c) Moissanite is a transparent material with a greater refractive index than diamond. A sample of moissanite is made into the same shape as the diamond.

State whether the sample of moissanite sparkles more or less than the diamond.

You must justify your answer.

3

[Turn over



* X 8 5 7 7 6 0 1 2 9 *