

Answer on Question #41508 – Physics – Other

Question.

In experimental observations involving rectangular glass blocks,

- a. the angle of incidence is less than the angle of refraction in general
- b. the angle of incidence is equal to the angle of refraction
- c. the angle of incidence is greater than the angle of refraction when light is moving out of the block
- d. the angle of refraction is less than the angle of incidence when light is entering the block

Solution.

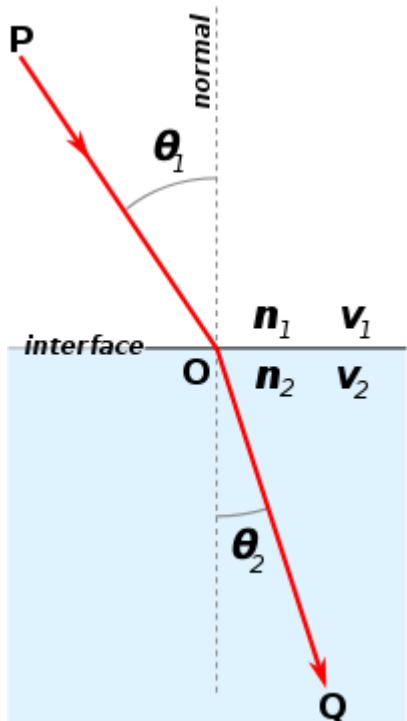


Fig.1. Refraction at the boundary between two media with different refractive index.

Write Snell's Law:

$$\frac{n_2}{n_1} = \frac{\sin \theta_1}{\sin \theta_2}$$

θ_1 is the angle of incidence

θ_2 is the angle of refraction

n is the refractive index of the respective medium

If the medium 1 is air and medium 2 is glass, then:

$$n_2 > n_1 \rightarrow \sin \theta_1 > \sin \theta_2 \rightarrow \theta_1 > \theta_2$$

So, the angle of refraction is less than the angle of incidence when light is entering the block.

Therefore, when light exits from the block: $\theta_1 < \theta_2$

Answer.

d. the angle of refraction is less than the angle of incidence when light is entering the block

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