

A level Physics B

H557/01 Fundamentals of physics

Question Set 6

1. (a) For light passing from a vacuum into a medium, the refractive index is

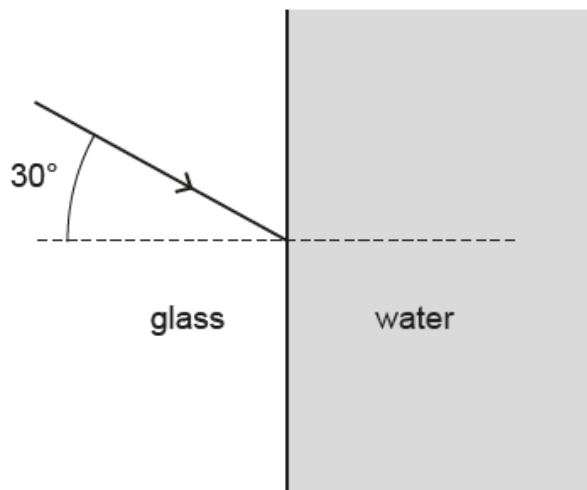
$$n_{\text{medium}} = \frac{c}{c_{\text{medium}}}$$

Complete this line of algebraic reasoning.

$$n_{\text{glass}} = \frac{c}{c_{\text{glass}}}, \quad n_{\text{water}} = \frac{c}{c_{\text{water}}} \rightarrow \frac{n_{\text{glass}}}{n_{\text{water}}} = \frac{\text{-----}}{\text{-----}} = \frac{c_{\text{water}}}{c_{\text{glass}}}$$

[1]

(b) The figure shows a ray of light going from glass into water at an angle of incidence $i = 30^\circ$.



Calculate the angle of refraction r in the water.

$$n_{\text{glass}} = 1.6 \quad n_{\text{water}} = 1.3$$

$$r = \text{.....}^\circ \quad [2]$$

Total Marks for Question Set: 3

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