

Snell's Law

$$n_i \sin \theta_i = n_R \sin \theta_R$$

Index of Refraction

$$n = \frac{c}{v} \quad \text{or} \quad n = \frac{\sin \theta_i}{\sin \theta_R}$$

(for being incident in vacuum (air))

mp1399

air \rightarrow unk liq.

$$n_i = 1.00$$

$$\theta_i = 65.0^\circ$$

$$n_R = ?$$

$$\theta_R = 42.0^\circ$$

air \rightarrow unk. liq

$$n_i \sin \theta_i = n_R \sin \theta_R$$

$$(1.00)(\sin 65.0^\circ) = n_R (\sin 42.0^\circ)$$

$$n_R = \frac{(1.00)(\sin 65.0^\circ)}{\sin 42.0^\circ}$$

$n_R = 1.35$ ← The index of refraction.

mp/404

air \rightarrow ruby

$$n_i = 1.00$$

$$\theta_i = 45^\circ$$

$$n_R = 1.54$$

$$\theta_R = ?$$

air \rightarrow ruby

$$n_i \sin \theta_i = n_R \sin \theta_R$$

$$(1.00)(\sin 45^\circ) = (1.54) \sin \theta_R$$

$$\sin \theta_R = \frac{(1.00)(\sin 45^\circ)}{1.54}$$

$\sin \theta_R = 0.459$
 $\theta_R = \sin^{-1}(0.459)$ $\theta_R = 27^\circ$

use \sin^{-1}

To DO

PP/400 + PP/405

DUE MON

Assignment: p444/40-43, 49-54, 56-62
 (ADV 52 + 58)