

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\sin \theta_2 = \frac{n_1 \sin \theta_1}{n_2} = \frac{1.0 \sin 40^\circ}{1.5} = 0.428 \Rightarrow \theta_2 = 25^\circ$

2.2

- it decreases

2.3

- the light must go from a denser to a less dense medium at an angle above the critical angle

3.1 A

3.2 B

3.3

(a)

- $\sin \theta_c = \frac{n_2}{n_1} = \frac{1.0}{1.33} = 0.752 \Rightarrow \theta_c = 48.8^\circ$

(b)

- it is totally internally reflected