

Question 3.

Polarization angle , θ_b

$$\tan \theta_b = n_2/n_1$$

$$= 1.48/1$$

$$= 1.48$$

$$\theta_b = \tan^{-1}(1.48)$$

$$\theta_b = 55.95^\circ$$

Solve for incident angle , θ_i ,

Light travels from water to air

$$n_1 = 1.48$$

$$n_2 = 1$$

$$n_1 \sin \theta_i = n_2 \sin \theta_b$$

$$1.48(\sin \theta_i) = 1(\sin 55.95)$$

$$\theta_i = \sin^{-1}(0.56)$$

$$\theta_i = 34^\circ$$

Question 5.

$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$1(\sin \theta_1) = 1.35(\sin 29)$$

$$\sin \theta_1 = 0.65$$

$$\theta_1 = \sin^{-1}(0.65)$$

$$\theta_1 = 40.88^\circ$$

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