Answer to Question #52059 - Physics - Optics

Question

A ray of light is incident on the surface of a block of clear ice at an angle of 40.0 degrees with the normal. Part of the light is reflected, and part is refracted. Find the angle between the reflected and refracted light.

Solution

$n_{ice} = 1.309$;

$\frac{\sin \alpha}{\sin \beta} = n$;

$\sin \beta = 0.49$;

$\beta \approx 30° \implies \theta = 180° - \alpha - \beta = 110°$;

Answer: $110°$;