Answer on question #59994, Physics / Other

Question What is the index of refraction of a substance that light travels through at $2.83 \cdot 10^8$m/s

Solution Snell's law tell us that

$$\frac{\sin\theta_1}{\sin\theta_2} = \frac{v_1}{v_2} = \frac{\lambda_1}{\lambda_2} = \frac{n_2}{n_1}$$

In vacuum $n_1 = 1$ and $v_1 = 3 \cdot 10^8\, m/s$. Hence, substance's index of refraction is

$$n_2 = \frac{v_1}{v_2} = \frac{3}{2.83} \approx 1.06$$