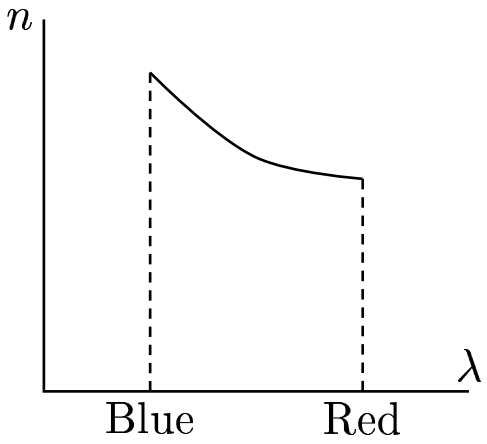
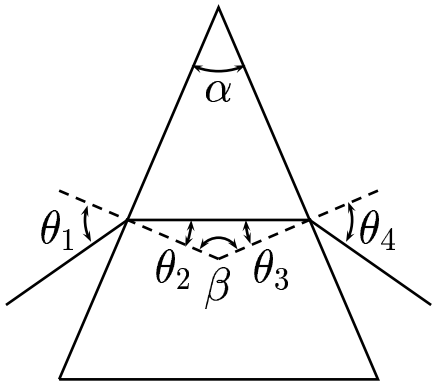
In a glass medium, the index of refraction of a blue ray is higher than that for a red ray. Consider red and blue rays through a glass prism.





Compare θ_2^{blue}, θ_2^{red} and θ_3^{blue}, θ_3^{red}.

A) $\theta_2^{blue} > \theta_2^{red}$ $\theta_3^{blue} > \theta_3^{red}$

B) $\theta_2^{blue} < \theta_2^{red}$ $\theta_3^{blue} > \theta_3^{red}$

C) $\theta_2^{blue} > \theta_2^{red}$ $\theta_3^{blue} < \theta_3^{red}$

D) $\theta_2^{blue} < \theta_2^{red}$ $\theta_3^{blue} < \theta_3^{red}$

$n_{blue} > n_{red}$, so $\theta_2^{blue} < \theta_2^{red}$. In other words, upon entrance into the prism, the blue ray bends more toward the normal.

Inspection of the geometric relations: $\theta_2^{red} + \theta_3^{red} + \beta = 180^\circ$ and

$\theta_2^{blue} + \theta_3^{blue} + \beta = 180^\circ$ leads to $\theta_3^{blue} > \theta_3^{red}$.

Answer **B**.

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