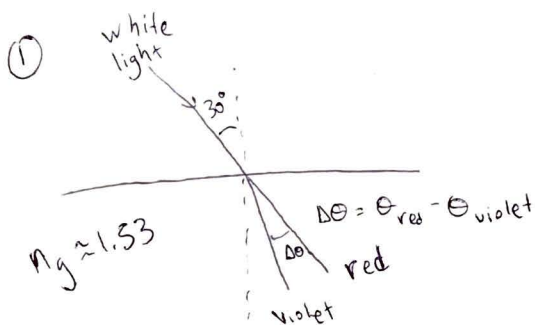


Reading 3/12



Based on Fig. 35.18 in book,

$$n_g^{\text{red}} \approx 1.5164$$

$$n_g^{\text{violet}} \approx 1.5393$$

$$n \sin \theta = (1) \sin(30^\circ)$$

$$\Rightarrow \theta = \arcsin\left(\frac{1}{2n}\right)$$

plugging
in n's :

$$\theta_{\text{red}} - \theta_{\text{violet}} = 0.0052 \text{ rad} \approx 0.30^\circ$$

- ② (i) First, "purple" is a polychromatic color (mix of red and blue wavelengths).
- (ii) As for why it's not "violet", this is because the sun's emission spectrum peaks in red/yellow and falls from there.
- (iii) Finally, our eyes are also less sensitive to deep violet light than blue light.