

71. We use Eq. 36-34 for constructive interference: $2n_2L = (m + 1/2)\lambda$, or

$$\lambda = \frac{2n_2L}{m + 1/2} = \frac{2(1.50)(410 \text{ nm})}{m + 1/2} = \frac{1230 \text{ nm}}{m + 1/2},$$

where $m = 0, 1, 2, \dots$. The only value of m which, when substituted into the equation above, would yield a wavelength which falls within the visible light range is $m = 1$. Therefore,

$$\lambda = \frac{1230 \text{ nm}}{1 + 1/2} = 492 \text{ nm}.$$