

36. Let the thicknesses (which appear in Fig. 36-31 as different heights h) of the structure be $h = kL$, where k is a pure number. In section (b), for example, $k = 2$. Using Eq. 36-34, the condition for constructive interference becomes

$$2h = 2(kL) = \frac{(m + 1/2)\lambda}{n_2} \quad \text{where } m = 0, 1, 2, \dots$$

which leads to

$$k = \frac{(m + 1/2)\lambda}{2n_2L} = \frac{(m + 1/2)(600 \text{ nm})}{2(1.50)(4.00 \times 10^3 \text{ nm})} = \frac{2m + 1}{40},$$

or $40k - 1 = 2m$. This means that $40k - 1$ would have to be an even integer. One can check that none of the given values of k ($1, 2, \frac{1}{2}, 3, \frac{1}{10}$) will satisfy this condition. Therefore, none of the sections provides the right thickness for constructive interference.