

83. (a) In this case, the film has a smaller index material on one side (air) and a larger index material on the other (glass), and we are dealing (in part (a)) with strongly transmitted light, so the condition is given by Eq. 36-35 (which would give dark *reflection* in this scenario)

$$L = \frac{\lambda}{2n_2} \left( m + \frac{1}{2} \right) = 110 \text{ nm}$$

for  $n_2 = 1.25$  and  $m = 0$ .

- (b) Now, we are dealing with strongly reflected light, so the condition is given by Eq. 36-34 (which would give no *transmission* in this scenario)

$$L = \frac{m\lambda}{2n_2} = 220 \text{ nm}$$

for  $n_2 = 1.25$  and  $m = 1$  (the  $m = 0$  option is excluded in the problem statement).