

33. For constructive interference, we use Eq. 36-34:  $2n_2L = (m + 1/2)\lambda$ . For the two smallest values of  $L$ , let  $m = 0$  and 1:

$$L_0 = \frac{\lambda/2}{2n_2} = \frac{624 \text{ nm}}{4(1.33)} = 117 \text{ nm} = 0.117 \mu\text{m}$$

$$L_1 = \frac{(1 + 1/2)\lambda}{2n_2} = \frac{3\lambda}{2n_2} = 3L_0 = 3(0.1173 \mu\text{m}) = 0.352 \mu\text{m} .$$