

78. (a) Using the notation of Sample Problem 37-6,

$$L = \frac{D}{1.22\lambda/d} = \frac{2(50 \times 10^{-6} \text{ m})(1.5 \times 10^{-3} \text{ m})}{1.22(650 \times 10^{-9} \text{ m})} = 0.19 \text{ m} .$$

(b) The wavelength of the blue light is shorter so $L_{\text{max}} \propto \lambda^{-1}$ will be larger.