

Double - Slit Interference Worksheet

$$\begin{aligned} \textcircled{1} \quad \lambda &= \frac{\Delta x d}{L} \\ &= \frac{(.06 \text{ m})(2 \times 10^{-6} \text{ m})}{.14 \text{ m}} = \underline{8.6 \times 10^{-7} \text{ m}} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad \lambda &= \frac{\Delta x d}{L} \\ 6 \times 10^{-7} \text{ m} &= \frac{\Delta x (2.0 \times 10^{-6} \text{ m})}{.55 \text{ m}} \quad \Delta x = \underline{0.17 \text{ m}} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad \lambda &= \frac{\Delta x d}{L} \\ 6.0 \times 10^{-7} \text{ m} &= \frac{(.28 \text{ m}) d}{.55 \text{ m}} \quad d = \underline{1.2 \times 10^{-6} \text{ m}} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad \lambda &= \frac{\Delta x d}{L} \\ 1.70 \times 10^{-6} \text{ m} &= \frac{(0.22 \text{ m})(2 \times 10^{-6} \text{ m})}{L} \quad L = \underline{0.26 \text{ m}} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad \lambda &= \frac{\Delta x d}{L} \\ &= \frac{(.07 \text{ m})(8 \times 10^{-6} \text{ m})}{(.14 \text{ m})} = \underline{4 \times 10^{-6} \text{ m}} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad \lambda &= \frac{\Delta x d}{L} \\ 9.0 \times 10^{-7} \text{ m} &= \frac{\Delta x (1.85 \times 10^{-6} \text{ m})}{.55 \text{ m}} \quad \Delta x = \underline{0.27} \end{aligned}$$

$$\textcircled{7} \quad \lambda = \frac{\Delta x d}{L}$$

$$1.8 \times 10^{-6} \text{ m} = \frac{(.28 \text{ m}) d}{(.45 \text{ m})} \quad \underline{d = 2.9 \times 10^{-6} \text{ m}}$$

$$\textcircled{8} \quad \lambda = \frac{\Delta x d}{L}$$

$$1.90 \times 10^{-6} \text{ m} = \frac{(0.22 \text{ m})(1.00 \times 10^{-6} \text{ m})}{L} \quad \underline{L = 0.12 \text{ m}}$$