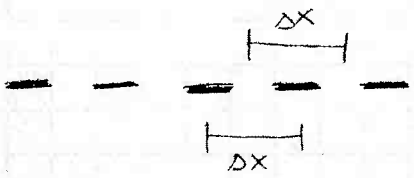
P#4

Ch 24 - Pg 774

$\lambda = 460\ nm = 460 \times 10^{-9}\ m$

$d = .300\ mm = 3 \times 10^{-4}\ m$



- the distance between the 1st & 2nd dark fringes is the same as the distance between the central max and x_1

- So... $x_1 = 4.00\ mm = .004\ m$

$$x \approx \frac{m \cdot \lambda \cdot L}{d}$$

$$.004m \approx \frac{(1)(460 \times 10^{-9}\ m) \cdot L}{(3 \times 10^{-4}\ m)}$$

$$L = 2.61\ m$$