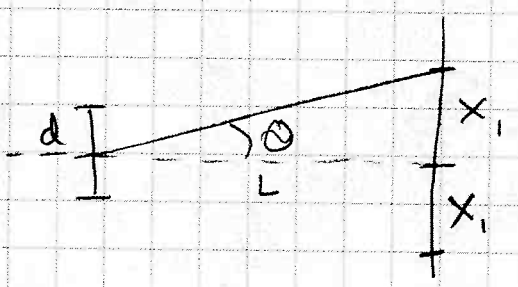
P#32

Ch 24

$\lambda = 5.00 \text{ cm} = .05 \text{ m}$

$d = 36.00 \text{ cm} = .36 \text{ m}$

$L = 6.50 \text{ m}$



$m = 1$ for 1st minimum in single slit interference

Find θ: $d \cdot \sin\theta = m \cdot \lambda$

$(.36 \text{ m}) \cdot \sin\theta = (1) \cdot (.05 \text{ m})$

$\theta = 7.98°$ (Note that small θ equation actually could have been used

Find x_1: $\tan\theta = \frac{x_1}{L}$ so $\tan(7.98°) = \frac{x_1}{6.5 \text{ m}}$

$x_1 = .91 \text{ m}$