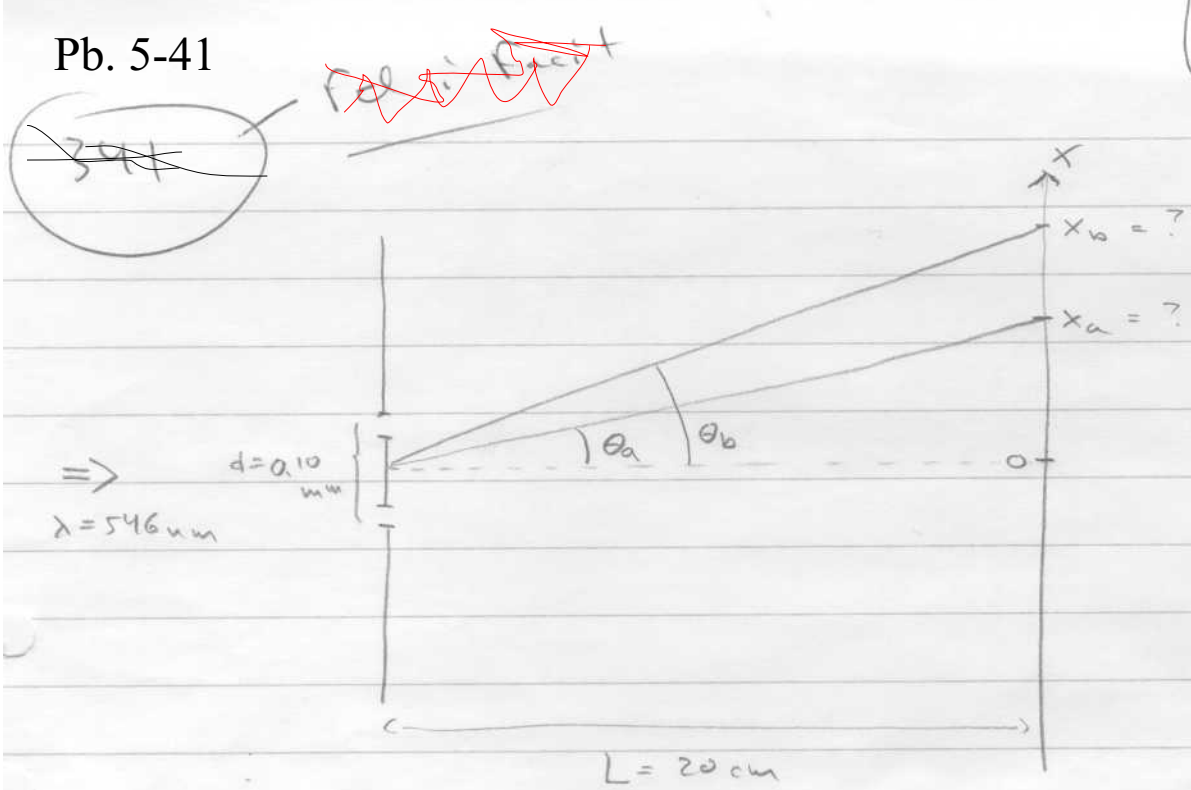
Pb

Pb. 5-41



$\Rightarrow$ $\lambda = 546$ nm

Vägskillnad: $\Delta = d \cdot \sin\theta$

Villkor för max: $d \sin\theta = m\lambda$, $m = 0, 1, 2 \ldots$

— " — min: $d \sin\theta = (m+\frac{1}{2})\lambda$, $m = 0, 1, 2 \ldots$

5:e max $\Rightarrow$ $d \sin\theta_a = 5 \cdot \lambda$

$L \gg d \Rightarrow \theta_a$ litet $\Rightarrow \sin\theta_a \approx \theta_a \approx \tan\theta_a = \frac{x_a}{L}$

$\Rightarrow \frac{d x_a}{L} = 5\lambda \Rightarrow x_a = 0{,}00546\ \text{m} \approx 5{,}5\ \text{mm}$

test: (vår approx) $\Rightarrow \sin\theta_a = \frac{5\lambda}{d} \Rightarrow \theta_a \approx 0{,}027$ rad

$x_a = \tan\theta_a \cdot L \approx 0{,}0054620$ m

7:e min $\Rightarrow$ $d \sin\theta_b = (7+\frac{1}{2}) \cdot \lambda = \frac{15\lambda}{2}$

$\frac{d x_b}{L} = \frac{15\lambda}{2} \Rightarrow x_b = 0{,}00819\ \text{m} \approx 8{,}2\ \text{mm}$