2, 9, 31, 44, 57

36-2

$\Delta L = m\lambda$, $L = n \cdot s$

(n: index of refraction; s: path length)

$n = 1 + \frac{m\lambda}{2d}$

$m = 10.1$

$n = 1 + \frac{10.1 \times 632.8 \times 10^{-9}}{2 \times 9.55 \times 10^{-2}}$

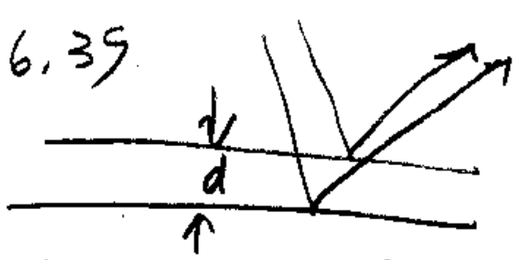
Cover same shift? same n

$n \sim P$

$\frac{P_1}{T_1} = \frac{P_2}{T_2}$ $V = \text{const}$

$P_2 = \left(\frac{273}{273+15}\right) P_1$ this would be fractional change

36.39



180° Φ shift to cancel reflection

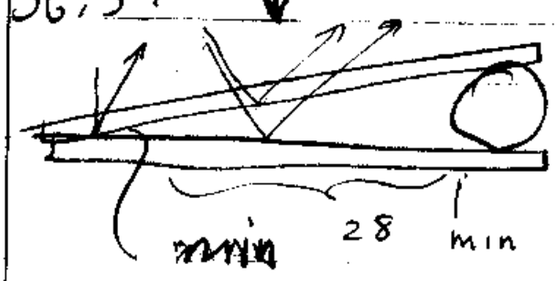
$\lambda = 1.5 \times 10^{-2}\,m$ $n = 1$

$2nd = (m + \frac{1}{2})\lambda$; $m = 0$

$d = \frac{1}{4}\lambda = 1.5 \times 10^{-2}\,m/4 =$

36.31

$589 \times 10^{-9} m = \lambda$

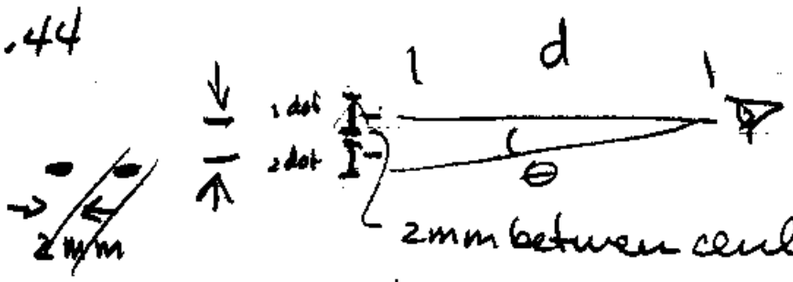


$2d = m\lambda \rightarrow m = 28$

$d = \frac{28\lambda}{2} = 14 \cdot 589 \times 10^{-9} m$

$= 8.25 \mu m$

36.44



$\theta \geq \frac{1.22\lambda}{D}$ $\lambda \sim 550 nm$

see pr 36.6 $D \sim 4mm$

$\frac{x}{d} = \theta_r = \frac{1.22 \times 550 \times 10^{-9}}{4 \times 10^{-3}} = \frac{2mm}{d}$

$d = \frac{2 \times 10^{-3} \times 4 \times 10^{-3}}{1.22 \times 550 \times 10^{-9}}$