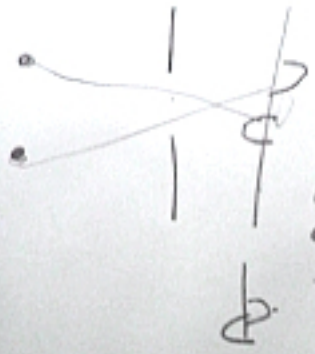
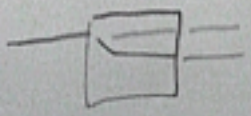
250



$\Delta\theta = 1.22 \frac{\lambda}{w}$

$\Delta\theta = 2\frac{\lambda}{w}$

$I = I_0 \cos^2\theta$



$N = .1 \times 10^{-5}$ m

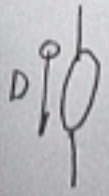
2.75°

$\lambda = W \sin\theta$

$= 1.1 \times 10^{-5} \sin(2.75^\circ)$

$\Rightarrow \lambda = 528\,nm$

$\lambda = 500\,nm$



$S = R\Delta\theta$

$.5m$

$R = 10 \times 10^3$

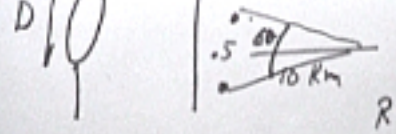
$\Delta\theta = \frac{.5}{10 \times 10^3} = 5 \times 10^{-5}$ rad

$\lambda = W \sin\theta$

$= 1.1 \times 10^{-5} \sin(2.75$

$\therefore \lambda = 528\,nm$

$\lambda = 500\,nm$



$S = R\Delta\theta$

$.5m$

$R = 10 \times 10^3$

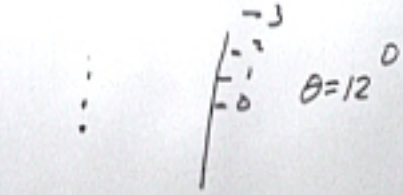
$\Delta\theta = \frac{.5}{10 \times 10^3} = 5 \times 10^{-5}\ rad$

$\Delta\theta = 1.22\frac{\lambda}{D}$

- $D = \frac{1.22\lambda}{\Delta\theta} = .012\,m$
- $= 1.22\,cm$

Just Resolved

$\lambda = 530nm$



$\sin\theta_m = \frac{m\lambda}{d}$

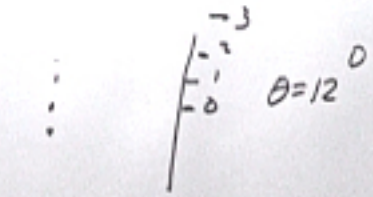
$N = \frac{1}{d}$

$m = \pm 3$

$= 1.3 \times 10^5 /_m$ $d = \frac{m\lambda}{\sin\theta_m} = \frac{3\,(530nm)}{\sin(12^\circ)}$

$= 7.6 \times 10^{-6} m$

$\lambda = 530nm$



$$\sin\theta_m = \frac{m\lambda}{d}$$

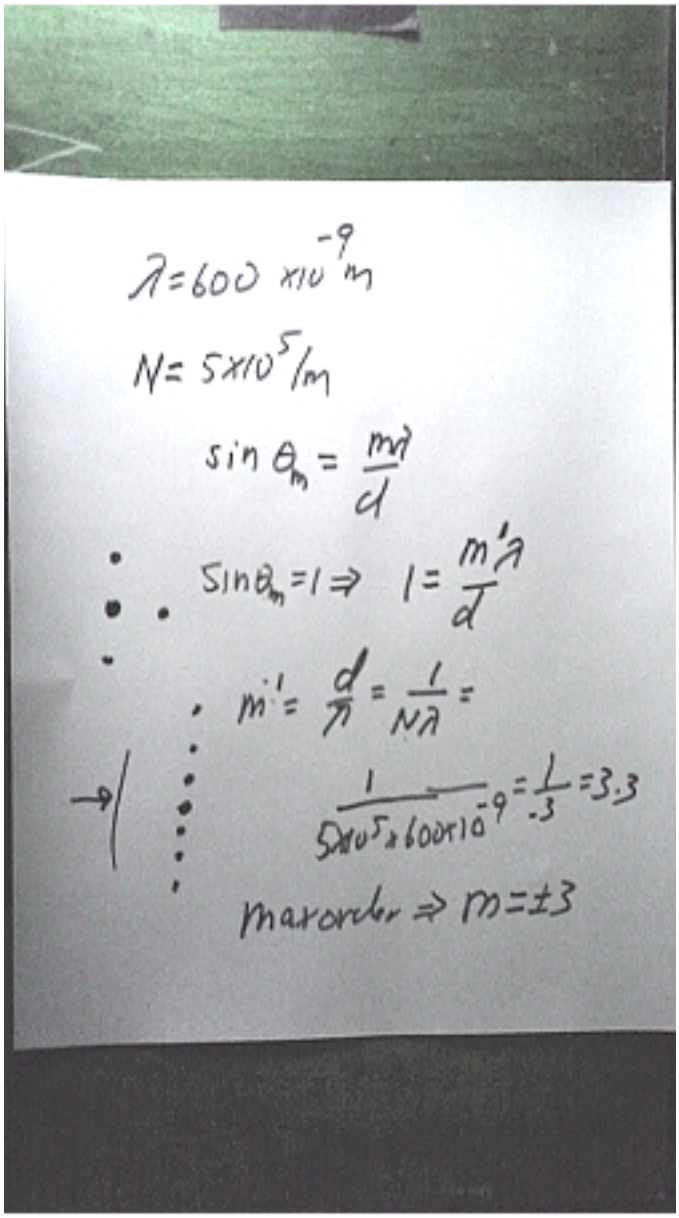
$N = \frac{1}{d}$

$= 1.3 \times 10^5 / m$

$m = \pm 3$

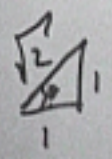
$$d = \frac{m\lambda}{\sin\theta_m} = \frac{3\,(530nm)}{\sin(12^\circ)}$$

$$= 7.6 \times 10^{-6} m$$


$\lambda = 600 \times 10^{-9}\ m$
$N = 5 \times 10^5 / m$
$\sin\theta_m = \frac{m\lambda}{d}$
$\sin\theta_m = 1 \Rightarrow 1 = \frac{m'\lambda}{d}$
$m' = \frac{d}{\lambda} = \frac{1}{N\lambda} =$
$\frac{1}{5\times10^5 \times 600\times10^{-9}} = \frac{1}{.3} = 3.3$
max order $\Rightarrow m = \pm 3$

$\frac{\langle \text{Power} \rangle}{\text{Area}}$ | $I = I_0 \cos^2\theta$

$\frac{I}{I_0} = \frac{1}{2} = \cos^2\theta$



$\cos\theta = \sqrt{\frac{1}{2}} \Rightarrow \theta = 45^\circ$