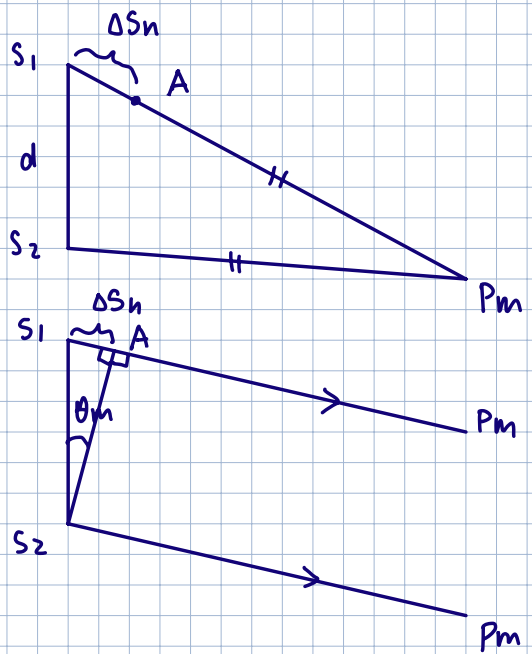
$\Delta S_m = m\lambda$



$\sin\theta_m = \frac{\Delta S_n}{d}$

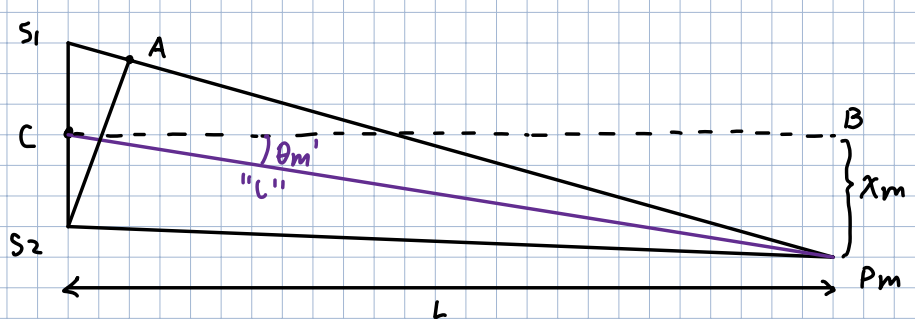
$d\sin\theta_m = \Delta S_m$

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

textbook w

# of slits 1000 slits/cm

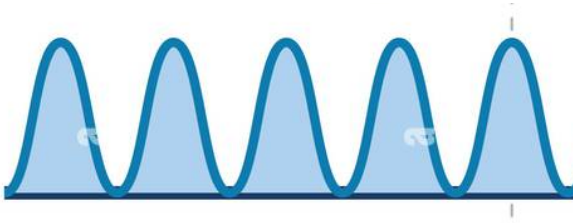
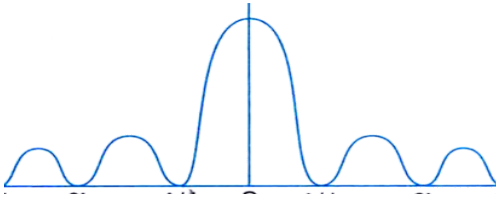
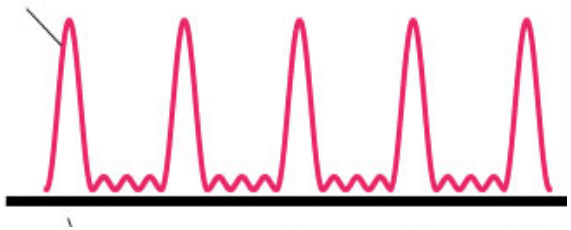
$\frac{1\,cm}{1000\,slits} \cdot \frac{1\,m}{100\,cm} = 1\times10^{-5}\,m$



$\sin\theta_m = \frac{x_m}{L}$

$\frac{m\lambda}{d} = \frac{x_m}{L}$

Summary Chart

	Double Slit	Single Slit	Diffraction Grating
Interference Pattern			
Measure?			
sinθ	$\sin\theta_n = (n-0.5)\frac{\lambda}{d}$ $\sin\theta_m = \frac{m\lambda}{d}$	$\sin\theta_n = \frac{n\lambda}{w}$ $\sin\theta_m = (\frac{2m+1}{2})\frac{\lambda}{w}$	$\sin\theta = \frac{m\lambda}{d}$
Xn/Xm	$\frac{x_n}{L} = (n-0.5)\frac{\lambda}{d}$ $\frac{x_m}{L} = \frac{m\lambda}{d}$	$\frac{x_n}{L} = \frac{n\lambda}{w}$ $\frac{x_m}{L} = (\frac{2m+1}{2})\frac{\lambda}{w}$	$\frac{x_m}{L} = \frac{m\lambda}{d}$
Δx	$\Delta x_z = \frac{z\lambda L}{d}$	$\Delta x_z = \frac{z\lambda L}{w}$	$\Delta x_z = \frac{z\lambda L}{d}$

Δx_1 = n=1 to n=1

$\Delta x_1 = x_1$

(center of central max to n=1)

Δx_1 = n=1 to n=1

z is how many nodes you are counting