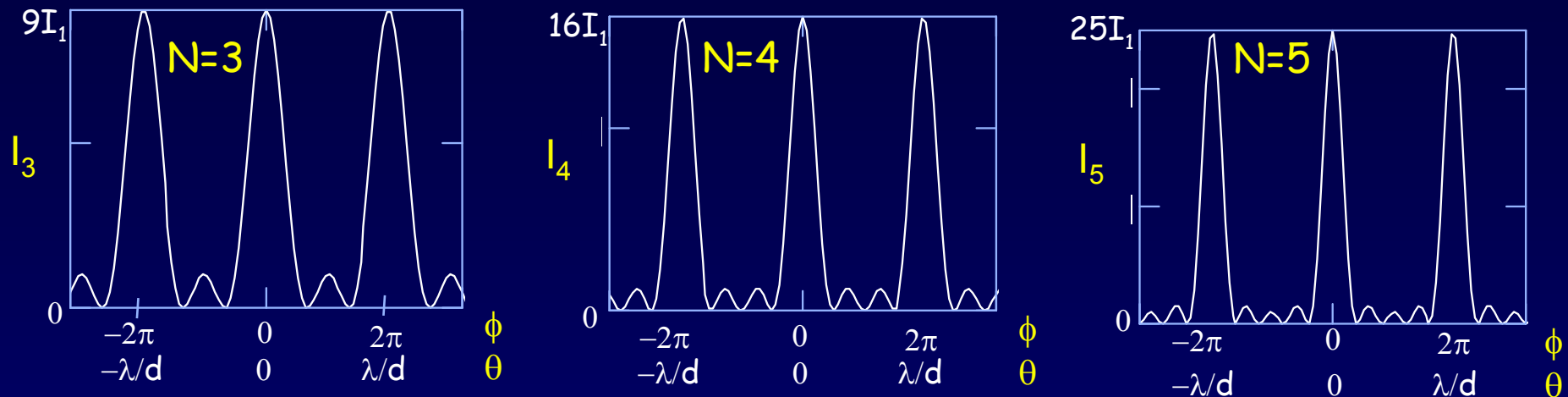# Multiple-Slit Interference (2)

The positions of the principal maxima occur at $\phi = 0, \pm 2\pi, \pm 4\pi, ...$
where ϕ is the phase between adjacent slits. $\theta = 0, \pm\lambda/d, \pm 2\lambda/d, ...$

The intensity at the peak of a principal maximum goes as N^2.
3 slits: $A_{tot} = 3A_1 \Rightarrow I_{tot} = 9I_1$. N slits: $I_N = N^2 I_1$.

Between two principal maxima there are N-1 zeros and
N-2 secondary maxima $\Rightarrow$ The peak width $\propto$ 1/N.

The total power in a principal maximum is proportional to $N^2(1/N) = N$.