

Single Slit Diffraction Summary

Condition for **halves** of slit to destructively interfere

$$\sin(\theta) = \frac{\lambda}{w}$$

Condition for **quarters** of slit to destructively interfere

$$\sin(\theta) = 2 \frac{\lambda}{w}$$

Condition for **sixths** of slit to destructively interfere

$$\sin(\theta) = 3 \frac{\lambda}{w}$$

All together... $\sin \theta = m \frac{\lambda}{w}$ ($m = \pm 1, \pm 2, \pm 3, \dots$)

THIS FORMULA LOCATES MINIMA!!

Narrower slit => broader pattern

Note: interference only occurs when $w > \lambda$