D2FASLITS

Diffraction on a slit of width d at wavelength λ.
X is distance: Slit-Screen,
Y is coordinate on Screen.
For small angles, Y/X is proportional to the diffraction angle θ.
All length in mm.

MCAD notice the singularity at 0. for the graph we get around it using the range Y = -100.1, -99.1 to 100.1

Three slits with different width d1, d2, and d3

$X := 4000 \quad \lambda \equiv .0005$

$d1 \equiv .08$

$$I1(\theta) := \left[\frac{\sin\left(\pi \cdot \frac{d1}{\lambda} \cdot \sin\left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right)}{\left[\pi \cdot \frac{d1}{\lambda} \cdot \left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right]} \right]^2$$

$d2 \equiv .12$

$$I2(\theta) := \left[\frac{\sin\left(\pi \cdot \frac{d2}{\lambda} \cdot \sin\left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right)}{\left[\pi \cdot \frac{d2}{\lambda} \cdot \left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right]} \right]^2$$

$d3 \equiv .16$

$$I3(\theta) := \left[\frac{\sin\left(\pi \cdot \frac{d3}{\lambda} \cdot \sin\left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right)}{\left[\pi \cdot \frac{d3}{\lambda} \cdot \left(\frac{2 \cdot \pi}{360} \cdot \theta\right)\right]} \right]^2$$

$\theta \equiv -2, -1.99 .. 2$