Waves A & B Worksheet

Your Name: _____ **Signature:** _____

Lab partner(s): _____

Course & Section: _____ **Station #** _____ **Date:** _____

Waves – A

Single Slit Diffraction (Section D.1)

What is the total separation between the first minima on either side of the central maxima for slit B?
_____ ± _____ (units) _____

Your estimate of λ:

Slope = _____ ± _____ _____(units)

λ = _____ ± _____ _____(units)

Double Slit Diffraction (Section D.2)

Single slit diffraction features from slits "A": the total separation in mm between the first **minima** corresponding to single slit diffraction is: _____ ± _____ _____(units)

Double-slit interference pattern:

Number n of bright spots in the central *diffraction* maximum: _____

Width s of central *diffraction* **maximum**: _____ ± _____ _____(units)

Mean separation Δy of *interference* maxima: _____± _____ _____(units)

λ from your data and Eq. 5 _____± _____ _____(units)

Diffraction Grating (Section D.3)

Measure the positions of the left y_- and right y_+ maxima in first and second order. Calculate λ using Eq. 3 for each measurement and then combine all four to obtain a mean λ.

m = 1: y_+ = _____ ± _____ _____(units) λ = _____ _____(units)

y_- = _____ ± _____ _____(units) λ = _____ _____(units)

m = 2: y_+ = _____ ± _____ _____(units) λ = _____ _____(units)

y_- = _____ ± _____ _____(units) λ = _____ _____(units)

λ_{mean} = _____ _____(units)

Waves – B

Polarization by Transmission (Section C.3 & C.4)

Attach your *Origin* plot and least-squares fit of the intensity I *vs.* angle θ.

List here your fitted parameters: A = _____ ± _____ _____(units)

I_o = _____ ± _____ _____(units)

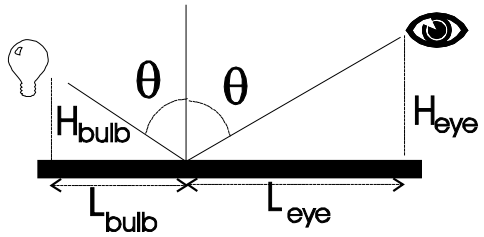
ϕ = _____ ± _____ _____(units)

Polarization by Reflection (Section D.2 & D.3)

H_{eye} = _____ ± _____ _____(units) L_{eye} = _____ ± _____ _____(units) $\tan\theta_{eye}$ = ____ ± ____

H_{bulb}= _____ ± _____ _____(units) L_{bulb}= _____ ± _____ _____(units) $\tan\theta_{bulb}$ = ____ ± ____

Index of refraction: _____



Michelson Interferometer (Section E.2 & E.3)

Each lab partner must count her or his own N = 50 or so fringes.

Number of fringes, N = _____ ± _____

Micrometer Reading, Δd = _____ ± _____ _____(units)

λ = _____ ± _____ _____(units)

GRADE:_____ (out of 30 points)

GRADED BY _____ (TA's initials)