Name: _____
Number: _____
Date: ____/____/____

Unit 14: Physical Optics
LAB 1: Single Slit Diffraction Patterns

Objective:

- Accurately predict location of maxima and minima when monochromatic light passes through a single slit and falls onto a screen that is very far away.
- Analyze the relationship between slit width and diffraction pattern.
- Analyze the relationship between wavelength and diffraction pattern.

Equipment:

- Two laser pointers of different wavelengths
- Single slit apparatus (with varying slit widths)

Phase[1] 1: Accurately predict location of maxima and minima when monochromatic light passes through a single slit and falls onto a screen that is very far away.

Background: Be sure to define all relevant terms and formula(s) and explain why your procedure will allow you to meet the objective.

Procedure:

[1] Interference humor

Data:

Perform an appropriate error analysis.

Conclusion:

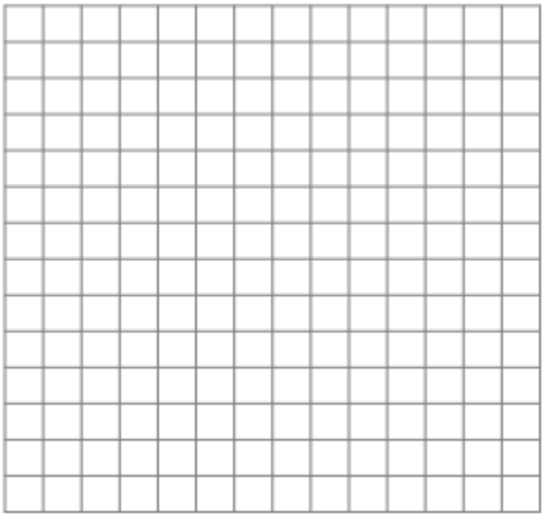
Phase 2: Analyze the relationship between slit width and diffraction pattern.

Hypothesis:

Background: Be sure to define all relevant terms and formula(s) and explain why you made the prediction in your hypothesis. You may write this as an extension of your earlier background and do not have to rewrite what you've already written. Simply focus on the relationship between slit width and the diffraction pattern.

Procedure: Use at least four trials, and incorporate a graph to help prove your hypothesis.

Data:



Conclusion:

Phase 3: Analyze the relationship between wavelength and diffraction pattern.

Hypothesis:

Background: Background: Be sure to define all relevant terms and formula(s) and explain why you made the prediction in your hypothesis. You may write this as an extension of your earlier background and do not have to rewrite what you've already written. Simply focus on the relationship between wavelength and the diffraction pattern.

Procedure:

Data:

Conclusion: