Name: _____ Lab Section: _____ Date: _____

Prelab: Diffraction and Interference

Instructions: Prepare for this lab activity by answering the questions below. Note that this is a **Pre**Lab. It must be turned in at the start of the lab period. Time cannot be given in lab to perform PreLab activities. After the start of lab activities, PreLabs cannot be accepted. Points will be taken off if your work is not neat and well organized. **To receive credit you must show your work.**

1. (5 points) What does "monochromatic" mean? Is the light from an incandescent lamp monochromatic? Explain your answer.

2. (5 points) A He-Ne laser (wavelength λ = 600 nm) shines through a double slit of unknown separation d onto a screen 1.44 m away from the slit. The distance on the screen between the m = 4 maxima and the central maximum of the two-slit diffraction pattern is measured and is found to be 3.5 cm. What is the separation d of the two slits?

3. (5 points) A He-Ne laser (wavelength λ = 600 nm) shines through a single slit of unknown width D onto a screen 1.44 m away from the slit. The distance on the screen between the m=4 minima and the central maximum of the diffraction pattern is measured and is found to be 3.0 cm. What is the width D of the slit? (Show all your work.)