Problem Set #4

Due Friday, March 20 by 5pm to Dickinson 104

1. Describe a two slit interference pattern made with white light. What color is the central bright fringe? Explain.
2. A soap bubble is 300 nm thick and illuminated by white light incident perpendicular to its surface. What wavelength and color of visible light is most constructively reflected? Explain, with a drawing.
3. How does the diffraction pattern from a diffraction grating having many evenly spaced slits differ from that created by a double slit?
4. A diffraction grating has 1000 lines/cm. At what angle will the first red line deviate from the central line? How far away from the center of the screen (in cm) will the first red line appear on a screen that is 70 cm away?