Homework 5

Due in class on September 29, 2011

1. 2.4-8 from textbook
2. 2.4-9- Also: sketch the far field intensity of diffracted light
3. Derive the far-field diffraction from a slit that has the (amplitude) transmission function of a triangular shape,

$$\wedge(t) \overset{\text{def}}{=} \max(1-|t|,0)$$
$$= \begin{cases} 1-|t|, & |t|<1 \\ 0, & \text{otherwise} \end{cases}$$

4. Derive the far-field diffraction pattern from two slits of infinitely small size, separated by distance a. Compare the result with that in 7. Discuss.
5. Problem 4.2-3
6. Problem 4.3-4
7. Problem 4.3-5
8. Problem 4.3-7

<u>Note:</u> For the midterm exam you will be allowed to bring a scientific calculator and one (and only one) sheet of paper with whatever information you like on it (e.g. equations). This will be the only material allowed (other than pen).