EE351 / Fall 2005	Home work # 8	Due: Wednesday 11/9/05

1. Determine the electric field intensity at a distance 5 km from an antenna having a directive gain of 5 dB and total radiated power of 10 kW.

2. For the following radiation intensities, determine the directivities of the antenna.
   a. $I(\theta,\phi) = \begin{cases} 2\sin\theta\sin^3\phi & 0 \le \theta \le \pi, 0 \le \phi \le \pi \\ 0, & \text{otherwise} \end{cases}$
   b. $I(\theta,\phi) = \begin{cases} \sin\theta & 0 \le \theta \le \pi/2, 0 \le \phi \le \pi \\ 0, & \text{otherwise} \end{cases}$

3. Determine the directivity and directive gain of a λ/2 antenna.
4. An array of two Hertizian dipoles separated by a distance d are parallel to and symmetrically located relative to the x-axis (i.e. the centers of dipoles are at z = d/2 and the other at z = -d/2 along the z-axis as discussed in class). Sketch the normalized field pattern when the antenna currents are:
   a. Fed in phase (α=0), d= λ/2.
   b. Fed 90 degrees out of phase ($\alpha = \pi/2$), d= λ/4.

Text Book::

Chapter 9:
Problems: 7, 9