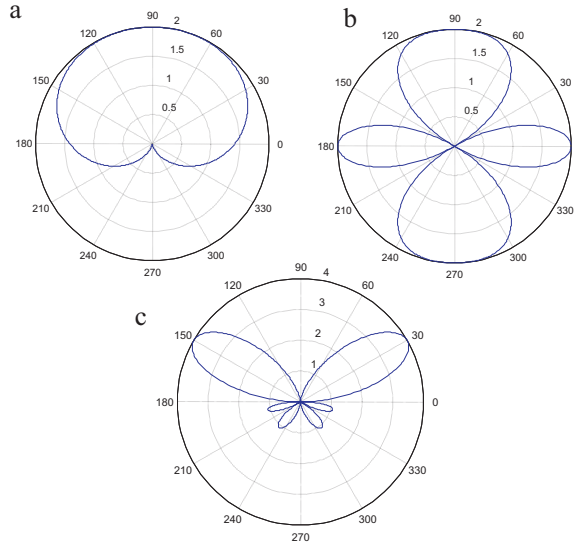# ECE 4370: Antenna Engineering
Solutions to TEST 2 (Fall 2011)

1. **Linear Antenna Arrays:** Below are the true patterns for each array factor. Full credit was given for anything remotely close.

2. **Fading:**

   (a) 600 W/m^2

   (b) K = 3 dB

   (c) A probability of 0.05 read from the graph

   (d) Both antennas would have to be independently in the same fade, with probability of .05 x .05 = 0.0025

3. **Shape Factors:** The exact answers are given below. Full credit was given for any geometrical guess that was remotely logical (for example, granularity of 1, 0, or in between for the shape factors).

   (a) $\Lambda = 1$, $\gamma = 0.975$, $\phi_{\max} = 90°$, $D_c = 1.3\lambda$

   (b) $\Lambda = 0.11$, $\gamma = 0.995$, $\phi_{\max} = 90°$, $D_c = 25.7\lambda$

   (c) $\Lambda = 1$, $\gamma = 0$, $\phi_{\max} = $ N/A, $D_c = 0.21\lambda$