EELE533Homework 1
Due Friday, 09/19/14

Problem 1 (ch2):

Define the following terms as discussed in chapter 2 of Balanis:

a) Antenna
b) Radiation or antenna pattern
c) Beamwidth (HPBW)
d) Isotropic, Direction, Omnidirectional patterns
e) Radiation Intensity U, Radiation density W, Power density P
f) Directivity

Problem 2 (lect1 and ch2):

Prove that $A_e = G\left(\frac{\lambda^2}{4\pi}\right)$ as in lecture 1. Note: assume G (gain in my notes), and D, (directivity in the text) are the same.

Problem 3 (notes)

Find:

a) The sense of polarization
b) AR, the Axial Ratio
c) Ψ, the tilt angle

Given:

$i.\quad \vec{E} = \hat{x} + j(1+0.1)\hat{y}$

$ii.\quad \vec{E} = (1-0.1)\hat{x} + j\,\hat{y}$

Do the following problems in the text:
2.1, 2.3, 2.7a, 2.10