Universidad de Puerto Rico
Recinto Universitario de Mayagüez
Departamento de Ingeniería Eléctrica y Computadoras

INEL 4151 Asignacion #6: Semana de lunes 4 de noviembre de 2013.

Nombre:_____ Sección:_____

1. Write a MatLab m-file script that will allow you to enter ε_{r1}, ε_{r2}, and $\mathbf{E}_1$ for a dielectric-dielectric boundary at z = 0 and determine $\mathbf{E}_2$ and the angles that $\mathbf{E}_1$ and $\mathbf{E}_2$ make with a normal to the surface. Run the script and turn in the script and results for $\varepsilon_{r1} = 2.0$, $\varepsilon_{r2} = 1.0$, and $\mathbf{E}_1 = 2\,\mathbf{x} + 3\,\mathbf{y} + 2\,\mathbf{z}$ (V/m).

2. Determine the cross product $\mathbf{A} \times \mathbf{B}$, where $\mathbf{A} = 3\,\mathbf{x} + 4\,\mathbf{y}$ and $B = 3\,\mathbf{y}$.

3. A square conductive loop of side 10.0 cm is centered in the x-y plane. It carries a 10.0 mA current clockwise when viewed from the +z direction. Find $\mathbf{H}(0, 0, 16\text{ cm})$.