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

INEL 4151 Asignacion #8: Semana de lunes 18 de noviembre de 2013.

Nombre:_____ Sección:_____

1. An infinite length line with a 3.0 A current in the +y direction lies on the y axis. Find the magnetic flux density at P(7, 0 , 0) in (a) Tesla, (b) Wb/m^2, (c) gauss.

2. A 1.0 nC charge with velocity of 100. m/s in the +y direction enters a region where the electric field intensity is 100 V/m $\mathbf{a_z}$ and the magnetic flux density is 5.0 Wb/m^2 $\mathbf{a_x}$. Determine the force vector acting on the charge.

3. Prove Stoke's Theorem for the function $\mathbf{H} = y^2\,\mathbf{a_x} + x^2\,\mathbf{a_y}$ A/m using the rectangle ABCD with A(2, 0, 0), B(2, 4, 0), C(0, 4, 0), and D(0, 0, 0). (Clue: differential surface normal should be directed in same direction of line integral circulation.)