INEL 4151 Asignacion #7:   Semana de lunes 11 de noviembre de 2013.

Nombre:_____   Sección:_____

1. Given the field **H** = $3y^2$ **a$_x$** find the current passing through a square in the xy-plane that has a corner in the origin and the opposite corner at (2, 2, 0).

2. An very thin metallic cylindrical shell of radius 4.0 cm is centered on the z-axis and carries an evenly distributed current of 10.0 mA in the +z direction. (a) Determine the value of the surface current density on the conductive shell. (b) Plot H as a function of radial distance from the z-axis over the range $0 < \rho < 12$ cm.

3. Prove Stoke's Theorem for the function **H** = y^2 **a$_x$** + x^2 **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.)