

6th Homework
Due November 20, 2009

1. Consider a sphere that is uniformly charged with a surface charge density σ . If this sphere is rotating with an angular frequency ω around the z -axis, what is the magnetic field created?
2. Consider an L shaped wire where the end of the wire extends to infinity. If the wire carries a current I , what is the magnetic field created at a point $(x_0, y_0, z_0 = 0)$. Assume that the wire itself is in the xy plane.
3. Consider a cylinder of radius R and height h . On the side of the cylinder, there is a uniform surface charge density σ . Find the vector potential inside the cylinder.