Electricity & Magnetism I, Homework #10 Fall 2016, (Due Wednesday, Dec. 2, 2016)

- 1. Problem 5.14
- 2. Problem 5.23
- 3. A long coaxial cable carries a current of I in the direction of +z-axis (Out of the paper). The outer conductor carries a return current of $-I\hat{z}$. Between the conductors there is free space. Find the B field in all four different regions. (for r < a, a < r < b, b < r < c, and r > c). (a is the radius of inner conductor, b is the inner radius of the outer conductor and c is the outer radius of the outer conductor)



- 4. The vector potential of an arbitrary current density is given by the equation (5.65) on page 244 of Griffiths. Show that this equation satisfies $\nabla \cdot \vec{A} = 0$, and also eq. (5.64).
- 5. Problem 6.5.