Take Home – Transmission Lines

Download the slides from Intel's Bus Boot Camp on Transmission Line Basics
http://download.intel.com/education/highered/signal/ELCT762/Class06_Transmission_line_basics.ppt
Reproduce the results for the case shown in slide 46 both by doing the analytical calculation and by setting the problem up in PSpice.
If you are interested the full set of slides is at
http://www.intel.com/education/highered/signal/elct762.htm

Take Home Magnetostatics

An ion beam has a current density flowing in the + z direction given by

$$\vec{J} = \hat{z} J_o$$

in the cylindrical region $a < r < b$ and a current density of zero elsewhere. Note that there is a hole in the beam so that there is no current in the region $r < a$.

a. Sketch the current distribution in a way that helps you to understand the problem better. That is, sketch the beam.

b. Find the magnetic field **B**(r,ϕ,z) of the beam for the region outside of the beam ($r>a$).

c. Find the magnetic field **B**(r,ϕ,z) of the beam for the region inside of the beam ($a < r < b$). *Free information: in the hole in the beam ($r < a$), the magnetic field is zero, which you should already know.*