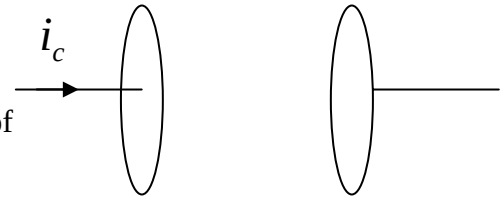
Maxwell's Equations/Magnetism in Matter
Ch 32 Example

A circular parallel plate capacitor with closely spaced plates of radius R = 13 cm, is being discharged and has a uniform current density of 15 $Amps/m^2$ for the displacement current in between the plates.

(a) Determine the direction of (i) $\vec{E}$

(ii) i_d



(b) Determine the magnitude and direction of the magnetic field a distance r = 10 cm from the axis of symmetry in the region between the plates.

(c) Calculate $\frac{dE}{dt}$ in the region described in part (b).