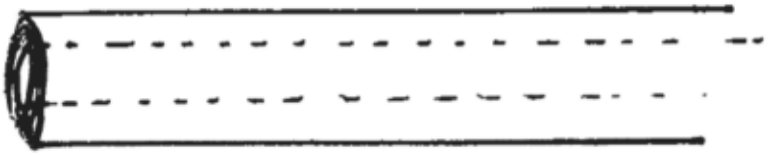
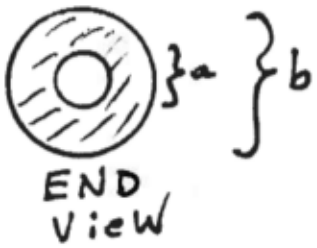
2. (20 points) Consider an infinitely long, hollow cylindrical wire. The wire has outer diameter b and the cylindrical hole at its center has diameter a.

Find the magnetic field everywhere if a known current i flows from left to right and the current is uniformly spread over the region between a and b.

(5 points) Find the force that this wire would exert on a thin, straight length of wire W located a distance $2b$ from the axis of the cylinder if that thin wire had a current $3i$ flowing from left to right.





Law

Application

Result