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

   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.

Ampere's Law

$$\oint \vec{B} dl = \mu_0 I$$

   b) 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.