Physics 200

Chapter 30: Sources of Magnetic Fields (Lecture Examples)

Ex:1 Calculate the strength of the magnetic field surrounding an infinitely long straight wire which is carrying a current.

Ex:2 Calculate the strength of the magnetic field a distance, a, from the end of a straight wire segment.

Ex:3 Calculate the strength of the magnetic field at the center of circular loop.

Ex:4 Calculate the strength of the magnetic field at center of two concentric circular sections which are subtended by angle, ϕ, and are connected by radial straight wire segments.

Ex:5 Calculate the force/unit length between two parallel wires if they carry a current, I, in opposite directions and are a distance, a, apart.

Ex:6 Using Ampere's law calculate the strength of the magnetic field surrounding an infinitely long straight wire which is carrying a current.

Ex:7 Calculate the strength of the magnetic field inside a toroid.

Ex:8 Calculate the strength of the magnetic field at the center of an infinitely long solenoid.

Ex:9 Calculate the magnetic flux through a rectangular loop which is next to a current carrying wire.

Ex:10 Calculate B at the edge of a gap in a current carrying wire.

Ex:11 Calculate B a distance r from the center of a circular parallel plate capacitor that is charging through a resistance, R. The capacitor plates have radius, a, and a separation distance, x. (r < a)