Worksheet 6.4 Magnetic Fields

1. A 25.0 cm solenoid has 1800 loops and a diameter of 3.00 cm. Calculate the magnetic field in the air core of the solenoid when a current of 1.25 A is flowing.   (1.13x10^{-2}T)

2. An air core solenoid is 25 cm long and carries a current of 0.72 A If the magnetic field in the core is 2.1x10^{-3}T how many turns does this solenoid have?   (580)

3.An air core solenoid is 30.0 cm and has 775 turns. If the magnetic field in the core is 0.100 T what is the current flowing through this solenoid?   (31 A)

4. What is the magnetic field near the center of a 0.30m long solenoid that has 800 turns of wire if it carries a electric current of 2.0 A?   (6.7x10^{-3}T)

5. A hollow solenoid is 25 cm long and has 1000 loops. If the solenoid has a diameter of 4.0 cm and a current of 9.0 A what is the magnetic field in the solenoid?   (0.045T)