1. From the diagram below find: a) The 3 currents b) power through the 2 ohm resistor

- + 1 Ω

12v

2 Ω

6Ω + -

3Ω 16 V

1. Explain Kirchhoff’s rules.
2. A piece of wire has a resistivity of 1 X 10-6 (Ω▪m) and a length of 1 meter. If the resistance of the wire is 1 Ω, find the diameter of the wire.
3. An open RC circuit has a battery of 9.0 V, a resistor of 60 kΩ, and a capacitor of 10 μF. After the circuit is closed, find the charge on the capacitor plates after 2.00 seconds.
4. A particle 350 nC charge is moving at 1 m/s through a 200 mT northward magnetic field. What is the minimum and maximum force felt on the particle and at what directions?
5. If a 60 microgram particle is traveling through a 600 mT magnetic field at 0.5 m/s. If the charge on the particle is 5μC, find the radius of it circular path.
6. A loop of wire consists of 12 turns and is suspended in a 0.3 T magnetic field. The current through the loop is 20 mA. If the loop is 0.2 m in diameter find the max torque felt on the wire loop.
7. Two wires in parallel are 2 meters long and 8 mm apart. If one wire has a 2 A current flowing to the north and the second wire has a 3 A current flowing to the south, find the force on the wires. Are they repulsed or attracted?
8. Draw magnetic field lines through a bar magnet.
9. A solenoid is wound 100 times per meter. Find the magnetic field through a 12 cm portion with 2 A of current running through it.