Planet Holloway **websheet 19.2**
AP Physics 2 - Chapter 11 Magnetism
You may print this out and write on it or work on your own paper.
Show all work.

1. A circular loop of wire with a radius of 10 cm sits perpendicular to and in a magnetic field of 1.6 T. What is the magnetic flux through the loop?

2. Two long wires are 5 cm apart. One carries 5 A and the other carries 7 A in the opposite direction. What is the magnetic field at the midpoint between them? ($\mu_0 = 4\pi \times 10^{-7}$)

3. In the problem above, what is the force on the 5 A wire?

4. A square loop of wire, 5 cm on each side sits in a magnetic field of 1.2 T such that maximum flux occurs. If the loop of wire has 2 A run through it, what is the initial torque on the wire?

5. In the problem above, the loop begins oriented so the flux through the loop is zero. What is the initial torque on the wire when the current begins?

Answers:

1. 0.05 T-m^2

2. 1.92 x 10^{-4} T

3. 1.4 x 10^{-4} N

4. zero. The force will try to either expand the loop or collapse the loop

5. 0.006 m-N