Physics 161, spring 2015

HW # 5

Due Wednesday 25 February by 4 pm.

I will be in my office on Tuesday afternoon.

For problems related to the curl, Schey's chapter III between pages 75 and 104 is an excellent reference. P&M's treatment is in chapter 2, sections 2.14 and 2.17.

1. P&M 6.10. Rings with opposite currents (Taylor series practice)

2. P&M. 6.44 Line integral along the axis.

3. P&M. 6.54 Force between a wire and a loop.

4. The square coil.
Consider a square coil with the length of each side is a. A current I is passed through the ring. Calculate the magnetic field on the vertical axis that passes through the center of the square. Compare this field to that of a circular loop with the same current and a diameter a.

5. Schey III-8.

6. Schey III-9

7. Schey III-15

8. Schey III-16

9. Schey III-19

10. Schey III-22