Homework 5

Due: Start of class, November 16th

- 1. Griffiths Problem 5.1 **[6pts]** *Hints:* This is cyclotron motion. The bending radius ρ can be found with ρ , $\rho - d$, and a as three legs of a triangle [Draw it.]
- 2. Griffiths Problem 5.2 [4pts]
- Griffiths Problem 5.4 [7pts] *Hints:* The loop segments can be treated as individual wires and you can then sum the forces.
- 4. Griffiths Problem 5.8 [10pts] *Hints:* Each side of the loop is just a single line segment, which we solved in class. Feel free to pick-up from the middle of that result. For the n-sided polygon, recall that the sum over all angles of a polygon is 2π, so the angle subtended by one side is 2π/n. For part c, note that the small-angle approximation will apply.
- 5. Griffiths Problem 5.16 (4th Edition; called 5.15 in the 3rd Edition) **[8pts]** *Hints:* Use superposition and the solenoid result from class.