

Homework #8; Phys 110A, Due Tues 10/25

1. In Problem 4.5, two perpendicular dipoles are shown. Instead of answering this question, find the **force** on each dipole, due to the other dipole. There are various ways to do this problem, but the easiest is to figure out how to take the derivative of the E-field while maintaining everything in spherical coordinates (hint: for one of the dipoles you will want to vary "r", and for the other one you will want to vary theta.) Don't plug in values for r and theta until **after** you take your derivative!
2. Problem 4.10 (same in 3rd and 4th editions; $P(r)=kr$ in a sphere.)
3. Problem 4.15 (similar to 4.10, except now $P=k/r$, and there's a way to check your answer using D.)
4. Problem 4.18 (same in both editions).