

Homework #9; Phys 110A, Due Tues 11/1

1. For last week's capacitor problem (4.18), find A) the total energy stored in the system, and B) How much force you would need to apply to pull out slab #1. For both of these problems you can assume the plates are square, with a distance "L" on each side.
2. Problem 4.26. (The spherical conductor surrounded with a dielectric.) Careful: there's an E-field outside the dielectric, too!
3. Problem 4.28 (the one with the rising oil); hint, you can do this just with energy, without calculating any forces, but it's too hard that way (the energy in the battery matters), so just find the capacitance as a function of h, and balance the forces.
4. Problem 4.34. (The capacitor with the continuously-varying-dielectric.)