

## Homework Problem Set 9 – Due TUESday, Nov. 22

### **Problem 1**

Why do some clothes (especially those containing synthetic fibers) tend to stick to each other when you take them out of the dryer? Describe the process that leads to that attraction in detail.

### **Problem 2**

Two charges are held 4 m apart, experiencing a Coulomb force  $F$  each. What will be the relative magnitude of the force on each of them (relative to  $F$ ) if we bring them closer to each other, to 2 m distance? What about 1 m distance? What about at 16 m distance?

### **Problem 3**

Two charges – one positive, one negative, but both with magnitude  $1\ \mu\text{C}$  – are separated along the x-axis by a distance of 3 cm. What is the force that the leftmost charge exerts on the rightmost charge? Will that force point left or right?

### **Problem 4**

Can an object with net charge 0 be attracted to an object with positive charge? Give an example. Would your answer change if the 2<sup>nd</sup> object had negative charge?

### **Problem 5**

If both humans and the planet Earth were made only out of protons (no electrons around), would we still be held in place on the surface of Earth by gravity?