Physics 2102 Section 6 Christian Buth

Activity 6, February 09, 2009

A parallel plate capacitor is, connected to a battery that maintains a potential difference V between the two plates of the capacitor. Each plate is circular, with a radius *R*. The distance between the plates is *d*.

(a) What is the capacitance *C* of this capacitor? Express your answer in terms of ε_0, *R* and *d*.

(b) The plates are now pulled apart so that the distance between them is *2d*. What is the new capacitance?

(c) What happens to the charge on the capacitor? Is the charge on the capacitor **bigger** or **smaller** on the capacitor in (b), compared to the one in (a)? (Remember, the battery is connected all the time, and maintains a potential difference of *V*).