

Ch 19 HW Quiz #4A

A parallel-plate capacitor has a charge of 1.4×10^{-10} Coulombs on the positive plate and a plate separation of 0.33 mm. It is connected to a 12-Volt battery.

- a) What is the cross-sectional area of the positive plate, in cm^2 ?

The battery is disconnected, and a $K = 4.4$ dielectric is inserted between the plates.

- b) What is the electric field before the dielectric is inserted?
c) What is the electric field after the dielectric is inserted?

The battery is now reconnected with the dielectric inserted in between the plates of the capacitor.

- d) What is electric field between the plates in this state?
e) What is the charge on the positive plate in this state?