Parallel Plate Capacitor Practice Problems: SHOW WORK

1. A parallel plate capacitor is constructed of metal plates, each with an area of 0.6 m2. The capacitance is 9.876 nF ($9.876×10^{-9}F$). Determine the plate separation distance, if teflon (permittivity of 2.1) is used as the dielectric.
2. You have constructed a parallel plate capacitor using Teflon (ε = 2.1) as the dielectric material. The area overlap of the plates is 0.72 m2, and the distance between the plates in 0.6 mm. When applying 5 V to the capacitor, the capacitance is \_\_\_\_\_\_\_\_\_ $μF$.
3. A parallel plate capacitor is constructed of metal plates, each with an area of 0.8 m2. The plate separation distance is 0.5mm. If teflon (permittivity of 2.1) is used as the dielectric, find the capacitance.