

6. We use $C = A\epsilon_0/d$. Thus

$$d = \frac{A\epsilon_0}{C} = \frac{(1.00 \text{ m}^2) \left(8.85 \times 10^{-12} \frac{\text{C}^2}{\text{N} \cdot \text{m}^2} \right)}{1.00 \text{ F}} = 8.85 \times 10^{-12} \text{ m} .$$

Since d is much less than the size of an atom ($\sim 10^{-10} \text{ m}$), this capacitor cannot be constructed.