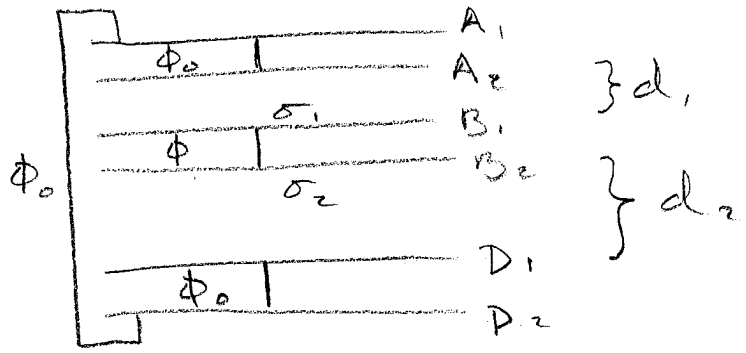
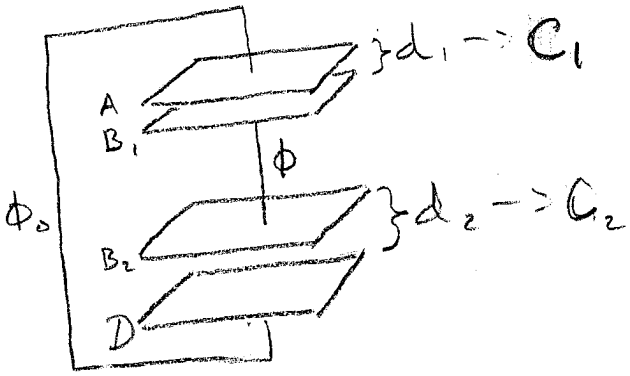
The system



Is equivalent to a circuit with capacitors:



where C_1 and C_2 are capacitances.

$$\begin{cases} \sigma_1 = Q_1/A = \dfrac{C_1 V}{A} = \dfrac{A}{4\pi d_1}\dfrac{V}{A} \\ \sigma_2 = Q_2/A = \dfrac{C_2 V}{A} = \dfrac{A}{4\pi d_2}\dfrac{V}{A} \end{cases}$$

(A = capacitance for // plates)

$$\boxed{\frac{\sigma_1}{\sigma_2} = \frac{d_2}{d_1}}$$

and $\sigma_1 + \sigma_2 = \sigma = 10\ \text{esu/cm}^2$

so $\sigma_1 = \dfrac{d_2}{d_1}\sigma_2 = \dfrac{d_2}{d_1}(\sigma - \sigma_1)$

$$\sigma_1 = \frac{\sigma d_2}{d_1 + d_2} = \frac{50}{13} \Rightarrow \boxed{\sigma_1 = \frac{50}{13}\ \frac{\text{esu}}{\text{cm}^2}}$$

$$\sigma_2 = \sigma - \sigma_1 = \frac{50}{13} \Rightarrow \boxed{\sigma_2 = \frac{50}{13}\ \frac{\text{esu}}{\text{cm}^2}}$$