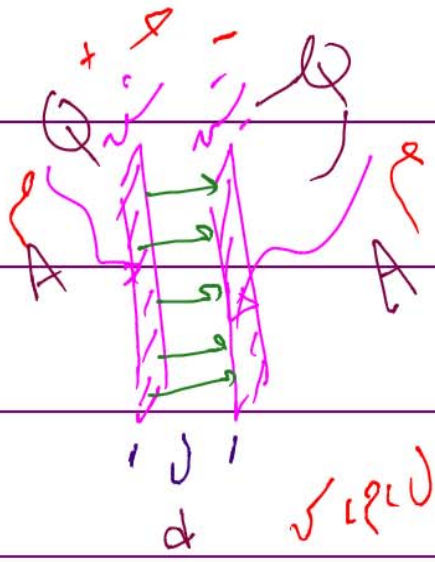


$\frac{\nu \hat{}}{\rho} \equiv \nu$

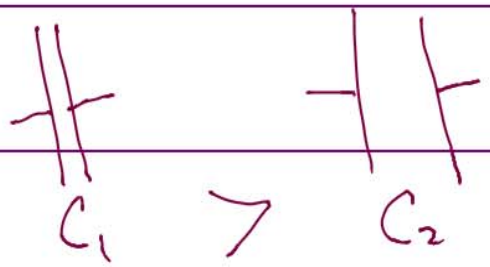
permeability $\mu_0 = 4\pi \times 10^{-7}$

$\varepsilon_0 = 8.85 \times 10^{-12}$ permittivity

$\frac{\rho \cdot \delta}{J} = \nu$

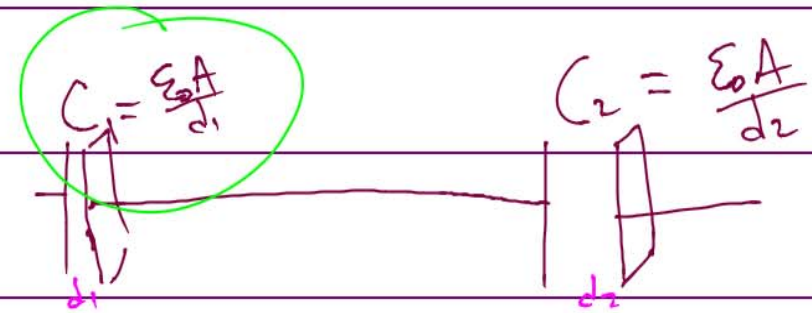
parallel plate capacitor

$C = \frac{\varepsilon_0 A}{d}$



$C_1 = \frac{\varepsilon_0 A}{d_1}$

$C_2 = \frac{\varepsilon_0 A}{d_2}$



$C_{eq} = \frac{C_1 C_2}{C_1 + C_2}$

$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2}$

$\frac{1}{C_{eq}} = \frac{C_1 + C_2}{C_1 C_2}$

$C_{eq} = \frac{\varepsilon_0 A/d_1 \cdot \varepsilon_0 A/d_2}{\varepsilon_0 A/d_1 + \varepsilon_0 A/d_2} = \frac{\varepsilon_0 A}{d_1 d_2} \cdot \frac{d_1 d_2}{d_1 + d_2}$

$\frac{1}{\quad} \quad \frac{1}{\frac{d_1 + d_2}{\quad}}$

$\frac{1}{d_1} + \frac{1}{d_2} = \frac{}{d_1 d_2}$

$C_{eq} = \frac{\varepsilon_0 A}{d_1 + d_2}$

$d_1 + d_2$

S , P

$C_s^{-1} = \frac{1}{C_1} + \frac{1}{C_2}$

$R_p^{-1} = \frac{1}{R_1} + \frac{1}{R_2}$

$C_p = C_1 + C_2$

$R_s = R_1 + R_2$

C_1 C_2

$C = \frac{\varepsilon_0 A}{d}$

d_2 d_1 $d_1 + d_2$

$C_{eq} = \frac{\varepsilon_0 A}{d_1 + d_2}$

$R_1 = 4\Omega$ l_1 A

$R_2 = 10\Omega$ l_2 A

$R_1 = \frac{\rho l_1}{A}$ $R_2 = \frac{\rho l_2}{A}$

$R_{eq} = R_1 + R_2$

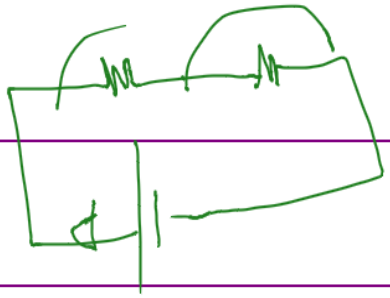
R_1 R_2

$C = \frac{\varepsilon_0 A}{d}$

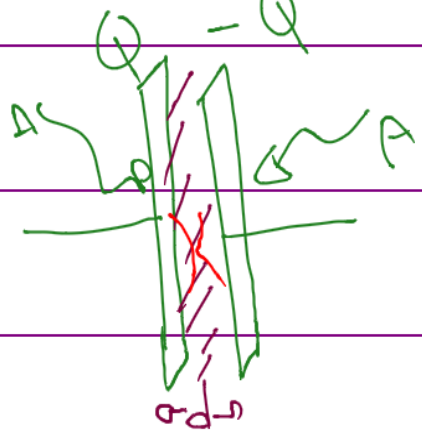
R_{eq} l_1 ρ l_2

$R = \frac{\rho l}{A}$

$$R_{eq} = \frac{\rho(l_1+l_2)}{A} \equiv \frac{\rho l_1}{A} + \frac{\rho l_2}{A} = R_1 + R_2$$



$$R_{eq} = R_1 + R_2$$



dielectric χ constant

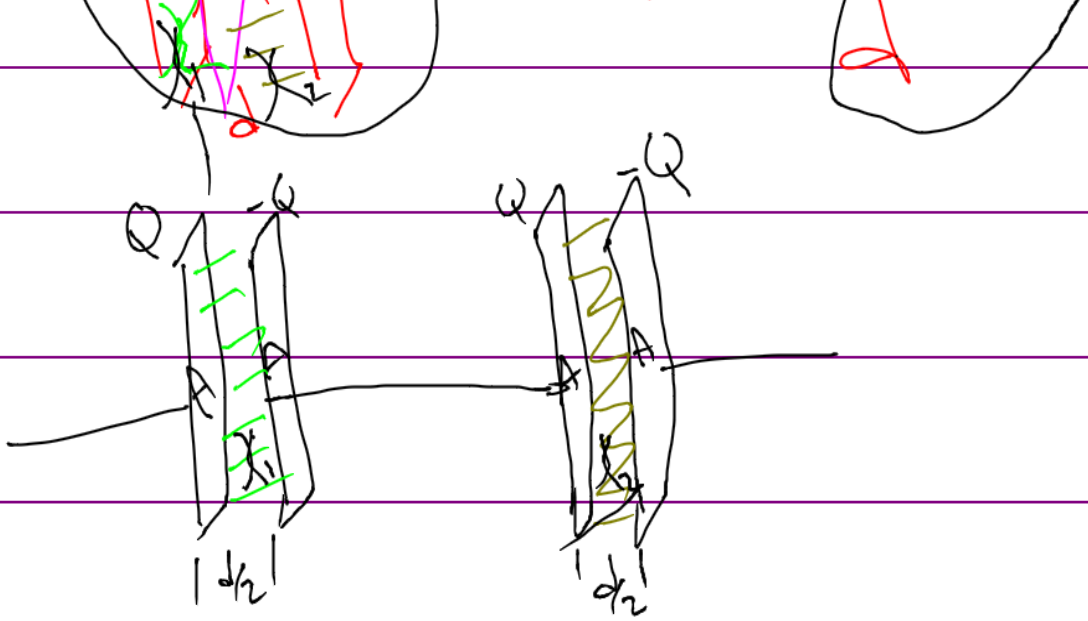
$$C = \chi \frac{\varepsilon_0 A}{d}$$

$$\chi_{vacuum} \equiv 1$$

$$\chi_{air} \cong 1.000293 \simeq 1$$

$$\chi > 1$$

$$C = \frac{\chi \varepsilon_0 A}{d}$$



$$C_1 = \frac{K_1 \varepsilon_0 A 2}{d/2} \qquad C_2 = \frac{K_2 \varepsilon_0 A 2}{d}$$

$$C_{eq} = \frac{C_1 * C_2}{C_1 + C_2}$$

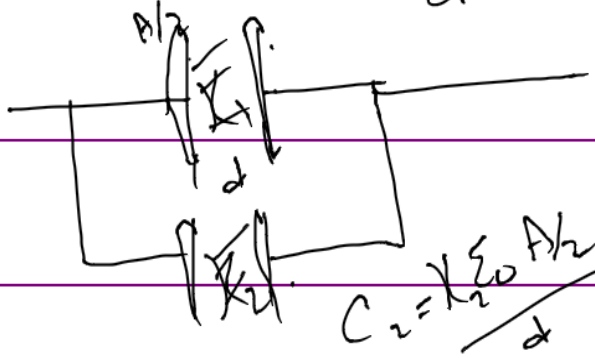
$$= \frac{\frac{2K_1 \varepsilon_0 A}{d} * \frac{2K_2 \varepsilon_0 A}{d}}{\frac{2A\varepsilon_0}{d}(K_1 + K_2)}$$

$$C_{eq} = \frac{2K_1K_2}{K_1+K_2} \underbrace{\frac{\varepsilon_0 A}{d}}_{\equiv C_0}$$

$$C_{eq} = \frac{2K_1K_2}{K_1+K_2} * C_0$$

$C_1 = \chi_1 \varepsilon_0 A/2 / d$

$\varepsilon_0 A/d \equiv C_0$



$C_2 = \chi_2 \varepsilon_0 A/2 / d$

$$C_{eq} = C_1 + C_2$$

$$= \frac{\varepsilon_0 A}{2d} (\chi_1 + \chi_2)$$

$$= \frac{(\chi_1 + \chi_2)}{2} \frac{\varepsilon_0 A}{d}$$

$$= \frac{\chi_1 + \chi_2}{2} * C_0$$