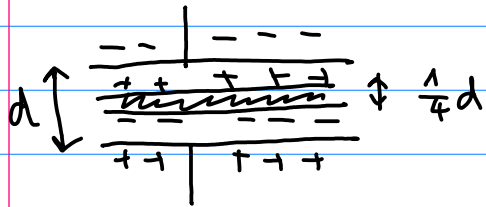
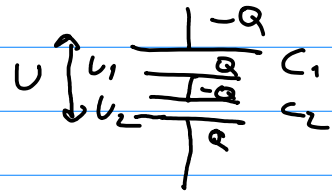


# CRVENY' TEST

1.2.11 DESKOVY' KOND.  $C = 100 \text{ pF}$

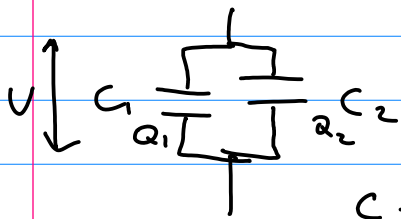


$$C' = ?$$



$$C = \frac{\epsilon_0 S}{d}$$

$$C = \frac{Q}{U}$$



$$C = C_1 + C_2$$

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$$

$$\frac{Q}{C} = U = U_1 + U_2 = \frac{Q}{C_1} + \frac{Q}{C_2}$$

$$\frac{1}{C'} = \frac{d_1}{\epsilon_0 S} + \frac{d_2}{\epsilon_0 S} = \frac{\frac{3}{4}d}{\epsilon_0 S}$$

$$C' = \frac{4}{3} C$$

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$q_1$     $q_2$

$$\vec{F} = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r_{12}^2}$$

$$E = \int_{r_{12}}^{\infty} \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{x^2} \cdot dx =$$

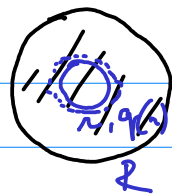
$$\frac{q_1 q_2}{4\pi\epsilon_0} \cdot \left[ -\frac{1}{x} \right]_{r_{12}}^{\infty} = \frac{q_1 q_2}{4\pi\epsilon_0} \cdot \frac{1}{r_{12}}$$

$$= U_1(r_{12}) \cdot q_2$$

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$$E = \frac{1}{2} \sum_{i \neq j} \frac{q_i q_j}{4\pi\epsilon_0 r_{ij}}$$

• ΝΑΒΙΤΕΉ ΚΩΛΕ (Η-ΟΜΟΓ.)



$\rho, Q$

$r, q(r) + dq \quad r \rightarrow r+dr$

$$dE(r) = \frac{q \cdot dq}{4\pi\epsilon_0 r^2}$$

$$q = \rho \cdot \frac{4}{3}\pi r^3$$

$$\frac{dq}{dr} = \rho \cdot 4\pi r^2$$

$$dq = \rho \cdot 4\pi r^2 dr$$

$$W = \int_0^R dE(r) = \int_0^R \frac{\rho^2 \frac{16}{3}\pi r^4}{4\pi\epsilon_0} dr$$

$$= \frac{\pi}{4} \rho^2 \frac{16}{3\epsilon_0} \cdot \frac{r^5}{5} = \frac{4\pi}{15} \rho^2 \frac{r^5}{\epsilon_0}$$

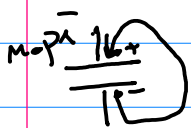
$$Q = \frac{4}{3}\pi R^3 \cdot \rho$$

$$W = \frac{\rho R^2 Q}{5\epsilon_0} = \frac{3}{20} \frac{1}{\pi\epsilon_0} \frac{Q^2}{R}$$

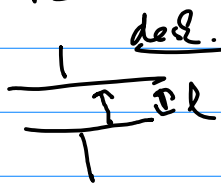
$$= \frac{3}{5} \cdot \frac{1}{4\pi\epsilon_0} \frac{Q^2}{R}$$

-DÜ : ENERΓIE ΝΑΒΙΤΕΉ ΚΩΛΟΉ ΣΛΩΨΗ

• ENERΓIE ΚΩΝΔΑΝΖΗΤΩΣ



$C \quad U = \frac{Q}{C}$



$$\vec{E} = \frac{Q}{\epsilon_0} = \frac{q}{5\epsilon_0}$$

$$dW = \int_0^Q \vec{E} dq d\vec{r} =$$

$$= \int_0^Q \frac{q}{5\epsilon_0} dq dr = \frac{Q dq}{5\epsilon_0}$$

$$W = \int_0^Q dW = \frac{Q}{5\epsilon_0} \int_0^Q q dq = \frac{1}{5\epsilon_0} \frac{1}{2} Q^2$$

$$W = \frac{1}{2} \frac{Q^2}{C} = \frac{1}{2} C \cdot U^2$$

jin. 2 ODZCWE

$$dW = U \cdot dq = \frac{q \cdot dq}{C}$$

$$W = \int_0^Q \frac{q \cdot dq}{C} = \frac{1}{2} \frac{Q^2}{C}$$