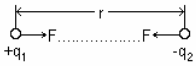
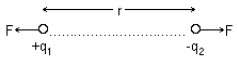
LISTRIK STATIS

01. $F = k\frac{q_1.q_2}{r^2}$





$k = \frac{1}{4\pi\varepsilon_0} = 9 \times 10^{9}\ \text{Nm}^2/\text{Coulomb}^2$

$\varepsilon_0 = 8{,}85 \times 10^{-12}\ \text{Coulomb}^2 / \text{newton m}^2$

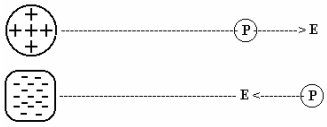
F = gaya

Q1 = muatan benda 1

Q2 = muatan benda 2

R = jarak benda 1 ke 2

02. $E = k\frac{Q}{r^2}$

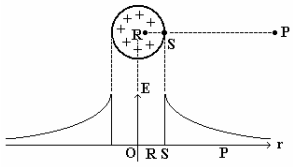


E = kuat medan listrik

Q = muatan

R = jarak

03. Kuat medan listrik oleh bola konduktor.



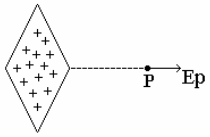
E_R=0. $Es = k\frac{Q}{R^2}$ $Ep = k\frac{Q}{r^2}$

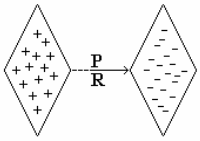
Er = kuat medan listrik di pusat bola

Es = kuat medan listrik di kulit bola

Ep = kuat medan listrik pada jarak p dari pusat bola

04. Kuat medan disekitar pelat bermuatan.





$Ep = \frac{\sigma}{2\varepsilon_0}$ $\sigma = \frac{Q}{A}$ $E_P = \frac{\sigma}{\varepsilon_0}$

σ = rapat muatan Ep = kuat medan listrik

05. $W_{A----->B} = k.Q.q.(\frac{1}{r_B} - \frac{1}{r_A})$

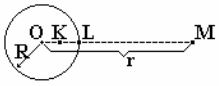
Bila $r_A = \sim$ maka $W_{\sim----->B} = k.\frac{Q.q}{r_B}$ -----→ $E_P = k\frac{Q.q}{r_B} = \frac{1}{4\pi\varepsilon_0}.\frac{Q.q}{r_B}$

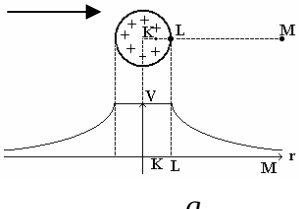
06. $V = k\frac{Q}{r_B} = \frac{1}{4\pi\varepsilon_0}.\frac{Q}{r_B}$

V = potensial listrik

07. $W_{A----->B} = q.(v_B - v_A)$

08. POTENSIAL BOLA KONDUKTOR.





$V_O = V_K = V_L = k.\frac{q}{R}$ $V_M = k.\frac{q}{r}$

09. HUKUM KEKEKALAN ENERGI

$(v_2)^2 = (v_1)^2 + \frac{2q}{m}(V_1 - V_2)$

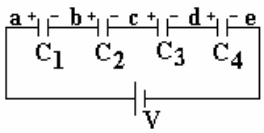
10. $C = \frac{Q}{V}$

11. $C_0 = \frac{\varepsilon_0 A}{d}$ $C = \frac{\varepsilon . A}{d}$

12. $C = C_0.K = \frac{K\varepsilon_0 A}{d}$

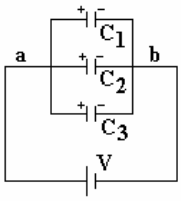
13. $W = \frac{1}{2}\frac{Q^2}{C}$ atau $W = \frac{1}{2}CV^2$

14. Susunan Seri.



- $Q_s = Q_1 = Q_2 = Q_3 = ...$
- $V_s = V_{ab} + V_{bc} + V_{cd} + V_{de} + ...$
- $\frac{1}{C_S} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + ...$

15. Susunan paralel.



- $V_p = V_1 = V_2 = V_3$
- $Qp = Q_1 + Q_2 + Q_3 + ...$
- $Cp = C_1 + C_2 + C_3 + ...$

16. $V_{GAB} = \frac{C_1V_2 + C_2V_2}{C_1 + C_2}$

C = kapasitas listrik
Q = muatan listrik
V = beda potensial
Co = Kapasitas dalam hampa udara
d = jarak antar dua keeping
A = luas masing-masing keeping
K = konstanta dielektrik
W = energi kapasitor