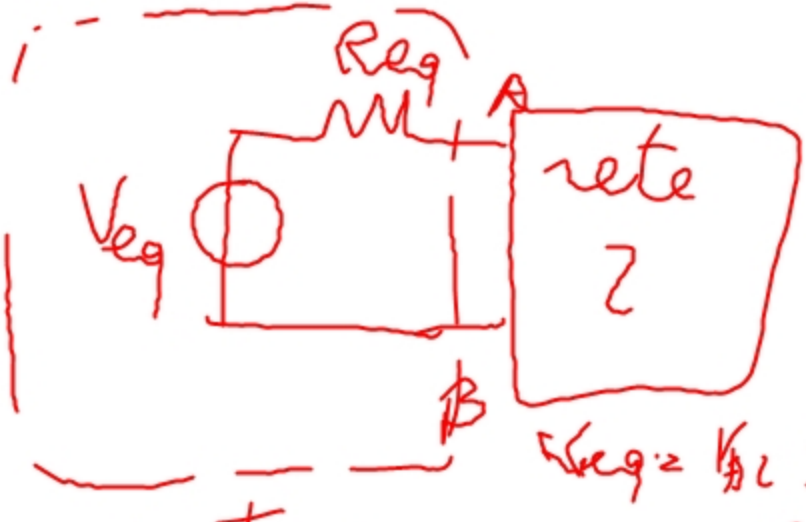
Teorema di NORTON

passo

rete 1

NORTON



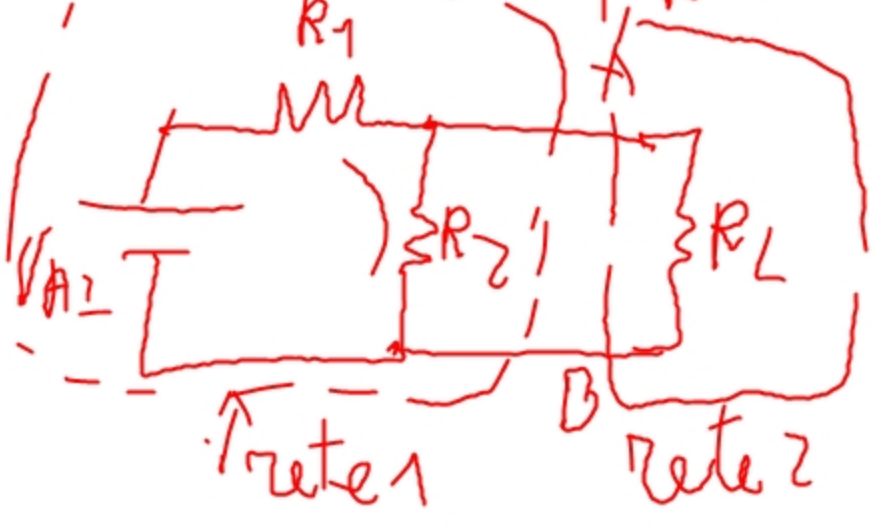
$V_{eq} = V_{AL} \cdot \frac{R_2}{R_1 + R_2}$

rete 1

THEVENIN

$$I_{eq} = \frac{V_{AL}}{R_2}$$

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



GRANDEZZE FISICHE

q = carica elettrica = [Coulomb]

$$i = \frac{dq}{dt} = \text{corrente} = [\text{Ampère}]$$

FORZA DI COULOMB

$$\vec{F} = \frac{1}{4\pi\varepsilon_0} \cdot \frac{q_1 \cdot q_2}{r^2} = [N]$$

ε_0 = costante dielettrica nel vuoto

$$\varepsilon = \varepsilon_0 \cdot \varepsilon_r$$

Campo Elettrico

$$\vec{E} = \frac{\vec{F}}{q_1} \dots \left[\frac{N}{C}\right]$$

q = carica di prova molto piccola

$$\vec{F} = \frac{1}{4\pi\varepsilon_0} \cdot \frac{q_1 \cdot Q}{r^2}$$

$$\vec{E} = \frac{F}{q_1} = \frac{1}{4\pi\varepsilon_0} \frac{Q}{r^2} \dots \left[\frac{V}{m}\right] = \left[\frac{N}{C}\right]$$

L'A d.d.p tra due punti

$$V_A - V_B = \frac{L}{q} = \left[\frac{\text{Joule}}{C}\right]$$

B

A

$$L = q \cdot (V_A - V_B) = [\text{JOULE}] = [J]$$

LA POTENZA

$$P = \frac{L}{\Delta t} = [\text{Watt}] = [W] = \left[\frac{J}{s}\right]$$

1 Wh = corrisponde all'energia fornita alla potenza di un Watt per il periodo di 1h = 3.600 s

= Energia

$$R = \frac{V}{I} = \text{Resistenza} \quad (\text{legge di Ohm})$$

$$R = \rho \cdot \frac{\ell}{S}$$

conduttività

$$\frac{1}{\rho} = \gamma = \left[\frac{S}{m}\right]$$

ρ = resistività = $[\Omega \cdot m]$

ℓ = lunghezza = $[m]$

S = sezione = $[m^2]$

Variazione della resistività con la Temperatura

$$\rho(T) = \rho_0 \left[1 + \alpha (T - T_0) \right]$$

$$R[T] = R_0 \left[1 + \alpha (T - T_0) \right]$$

Potenza

$$P = V \cdot I = R I^2 = \frac{V^2}{R} = [W]$$

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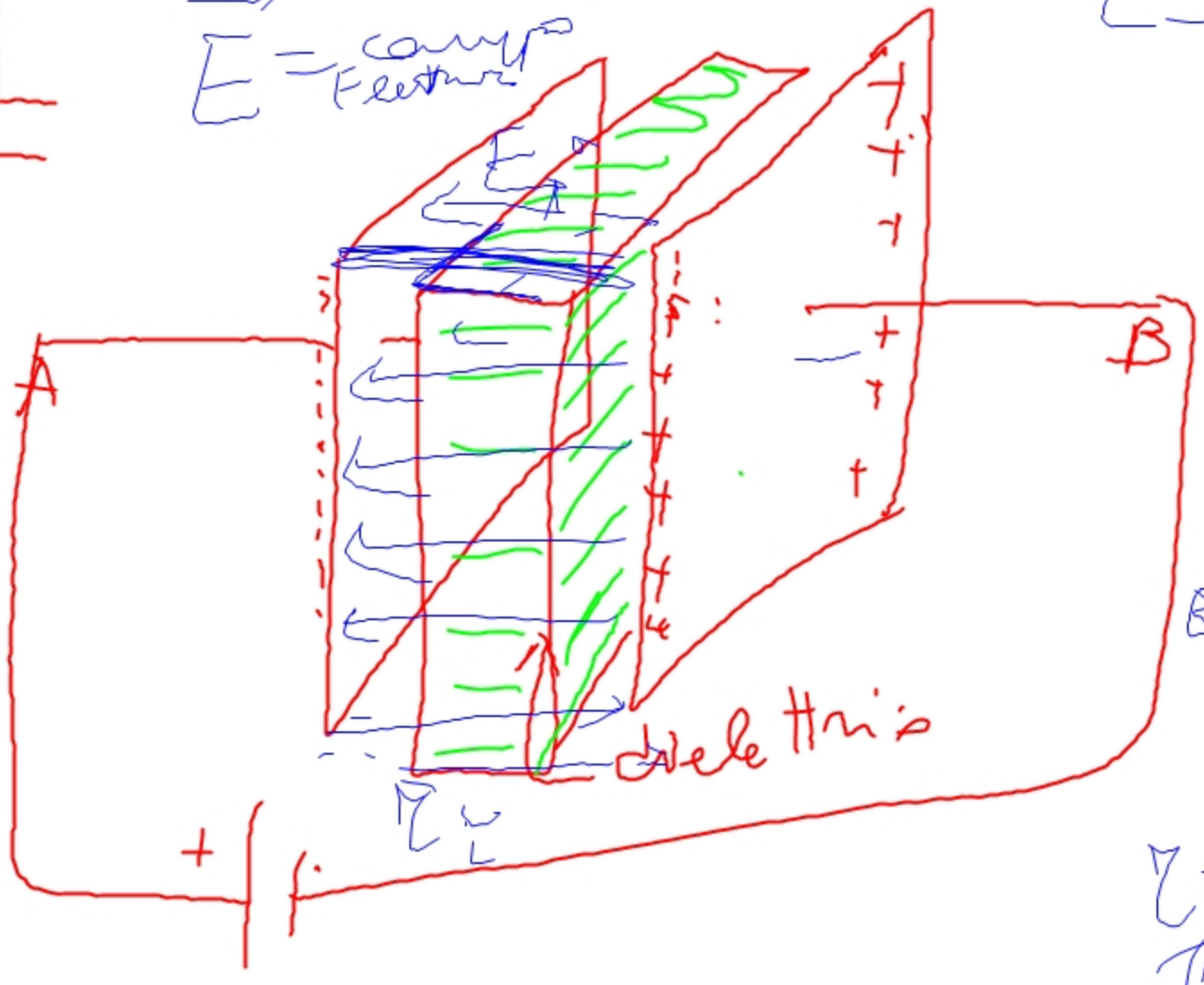
IL CONDENSATORE O CAPACITOR

$\vec{E} = \frac{\vec{F}}{q}$

$\vec{E}$ = campo elettrico

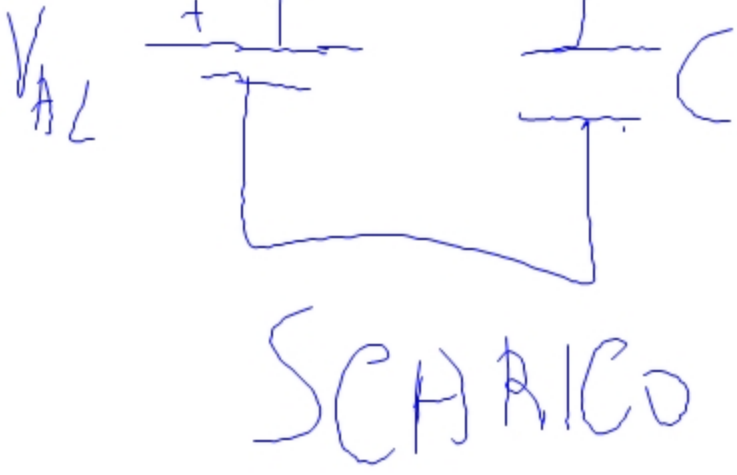


$E = \frac{1}{4\pi\varepsilon_0} \frac{Q}{r^2}$

r = distanza tra le lastre

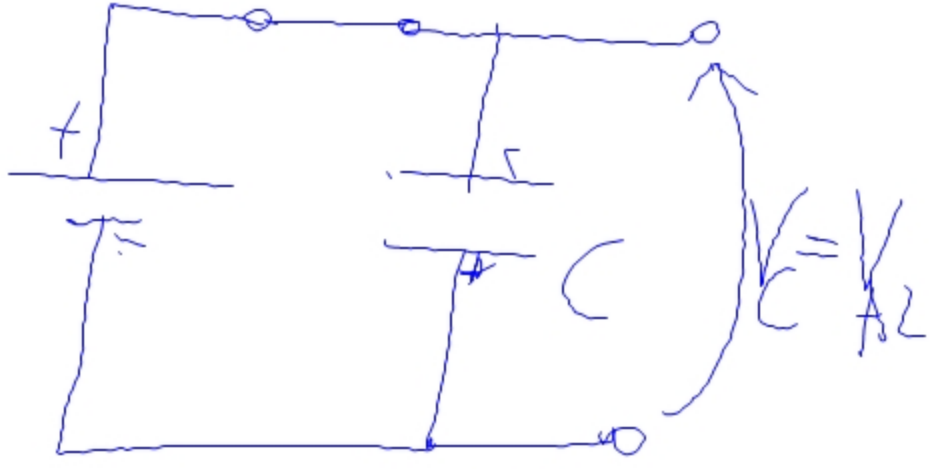
$$C = \frac{Q}{V} \quad = [\text{FARAD}]$$

C.A.



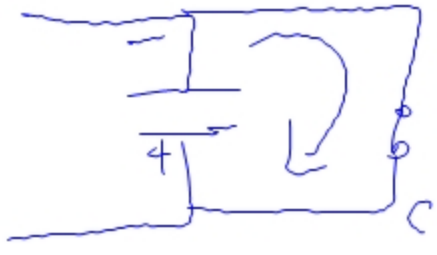
SCARICO

C.C.



CARICO

CONDENSATORE CARICO



$$i = \frac{\Delta Q}{\Delta t}$$

$$C = \frac{Q}{V} \rightarrow Q = C \cdot V \Rightarrow$$

$$i = \frac{\Delta (C \cdot V)}{\Delta t} = C \cdot \frac{\Delta V}{\Delta t}$$