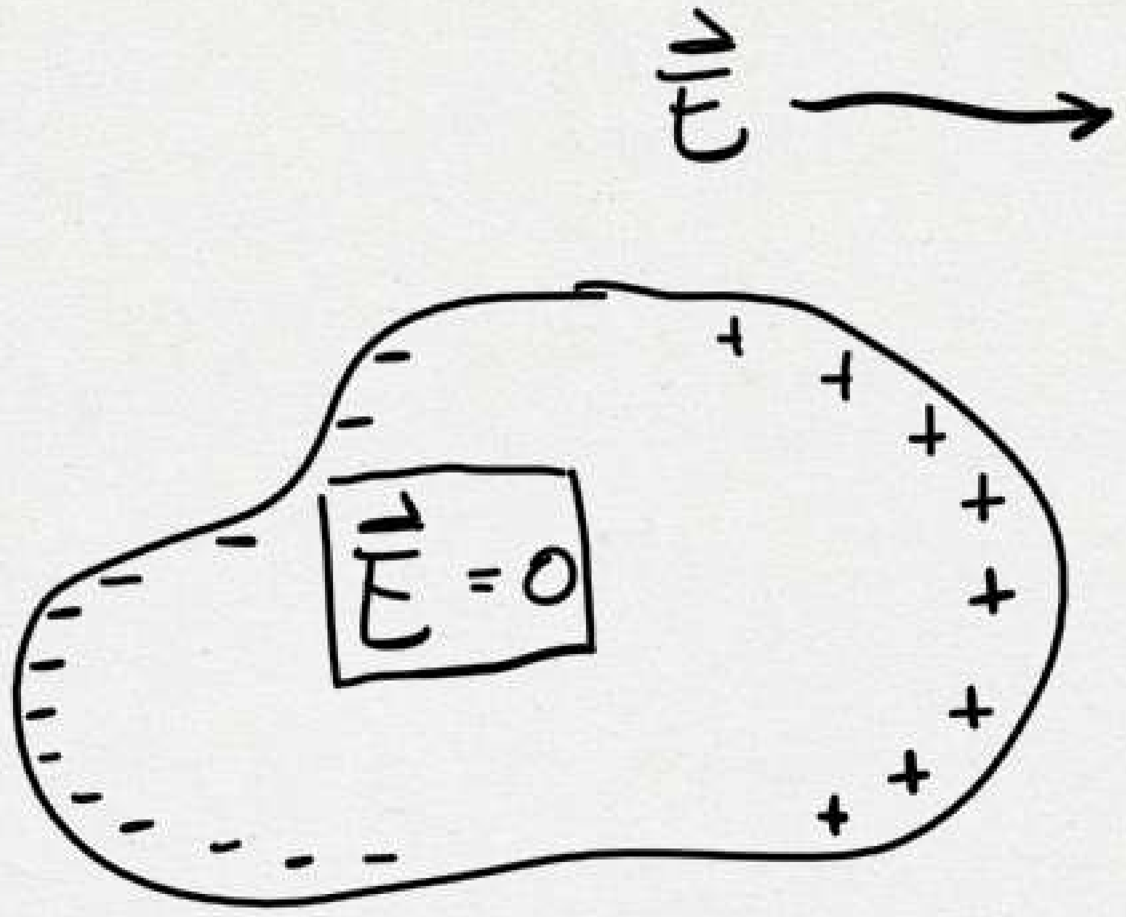
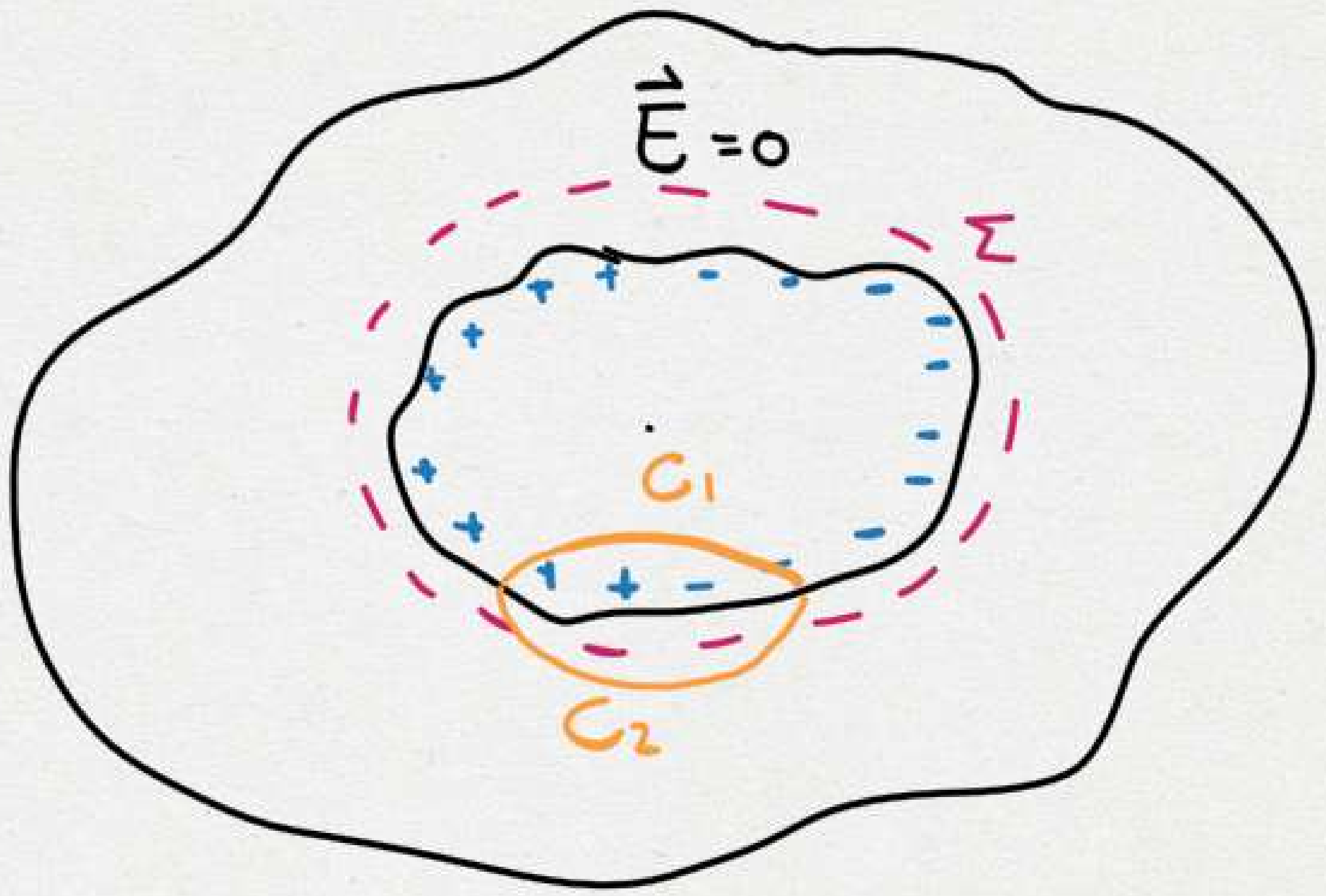

$\vec{E}$
$\boxed{\vec{E} = 0}$




$$\Phi_\Sigma = 0 = \frac{Q_\Sigma}{\varepsilon_0} \Rightarrow Q_\Sigma = 0$$

$$\oint_{C_1+C_2} \vec{E}\cdot d\vec{s} = \int_{C_1} \vec{E}\cdot d\vec{s} + \cancel{\int_{C_2} \vec{E}\cdot d\vec{s}} = \int_{C_1} \vec{E}\cdot d\vec{s} \neq 0$$

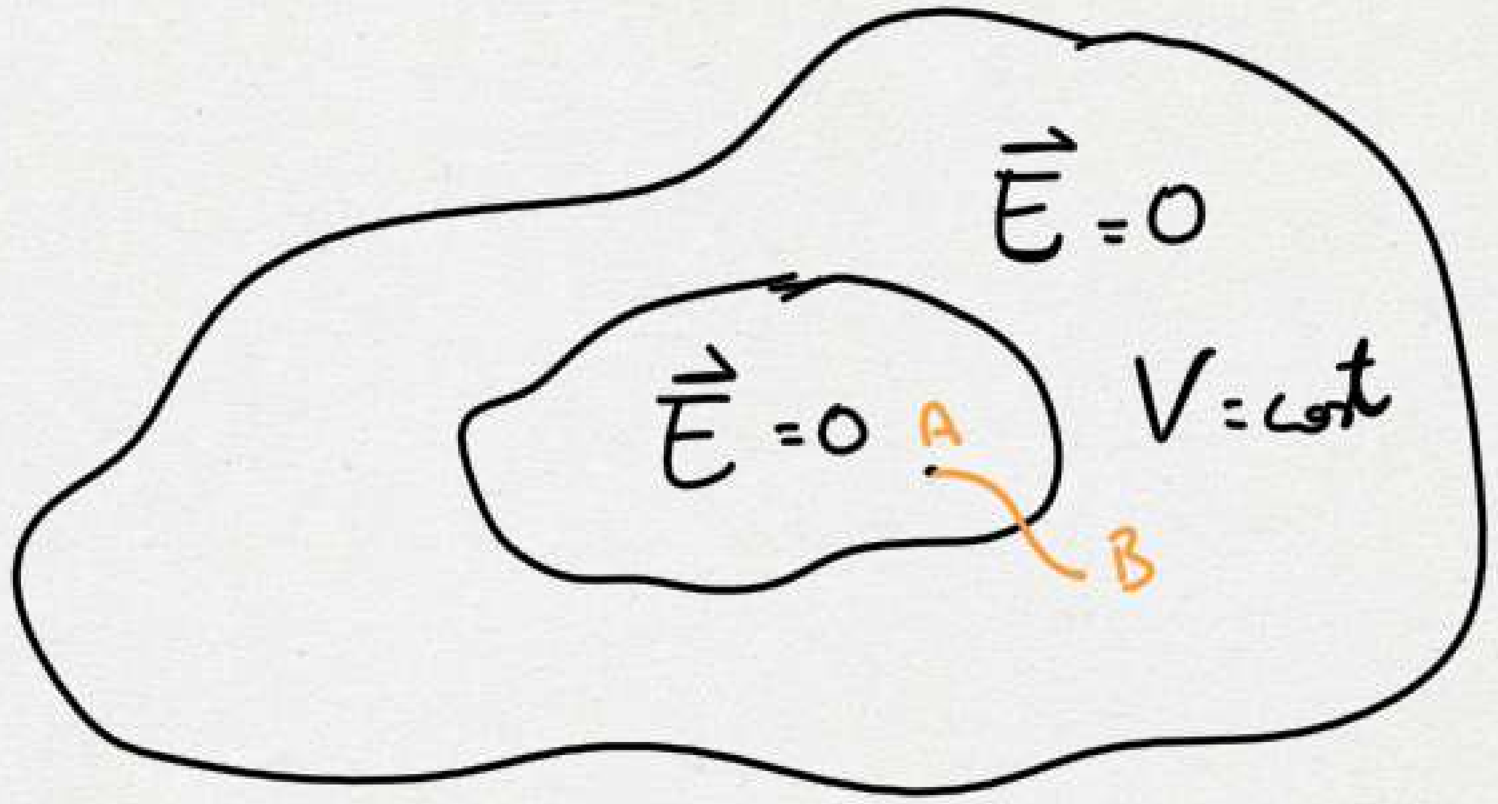
$$\parallel$$

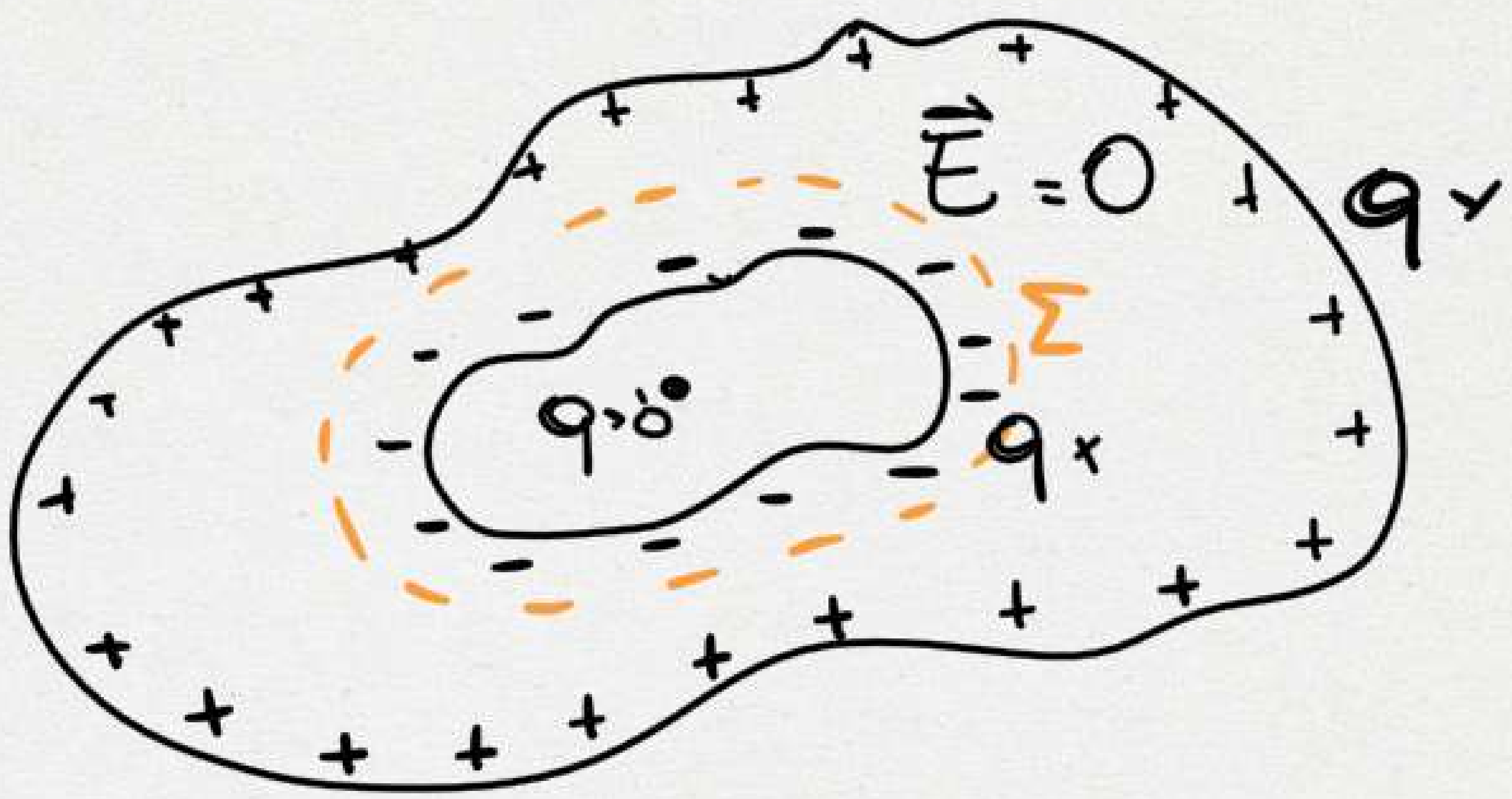
$$0$$

perché $\vec{E}$ è conservativo

$$\Downarrow$$

$$\Delta V_{AB} = 0$$






$$\int_\Sigma \vec{E}\cdot\hat{n}\, d\Sigma = 0 = \frac{Q_\Sigma}{\varepsilon_0} = \frac{1}{\varepsilon_0}(q + q_x) \Rightarrow$$

$$\boxed{q_x = -q}$$

$q_x$ carica di induzione

$q_y$ carica libera

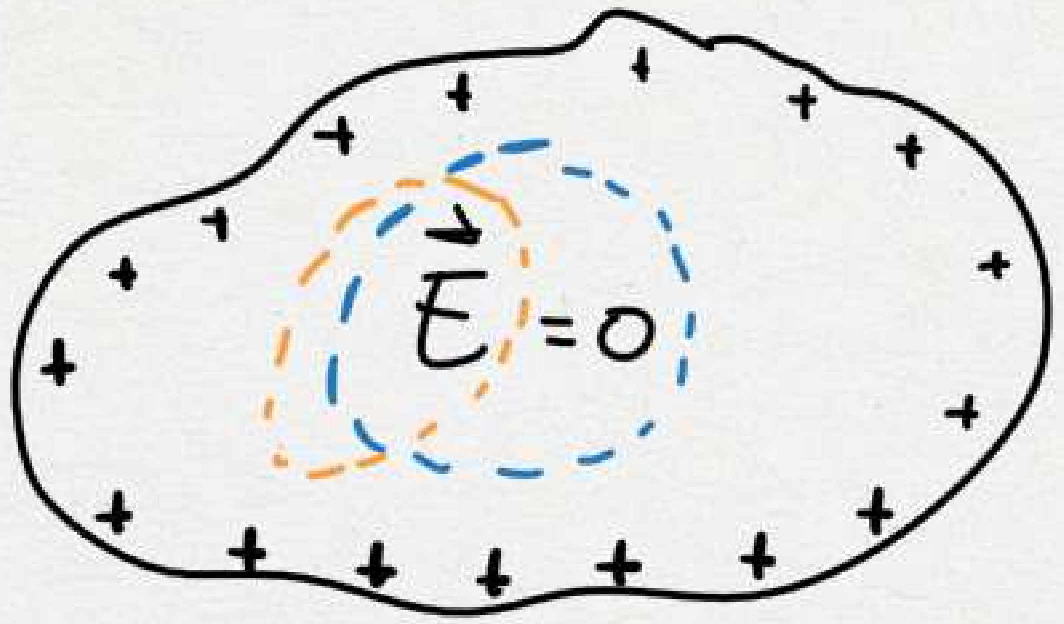
$t = 0$ $\qquad$ $t > t_{TRANSIENTE}$

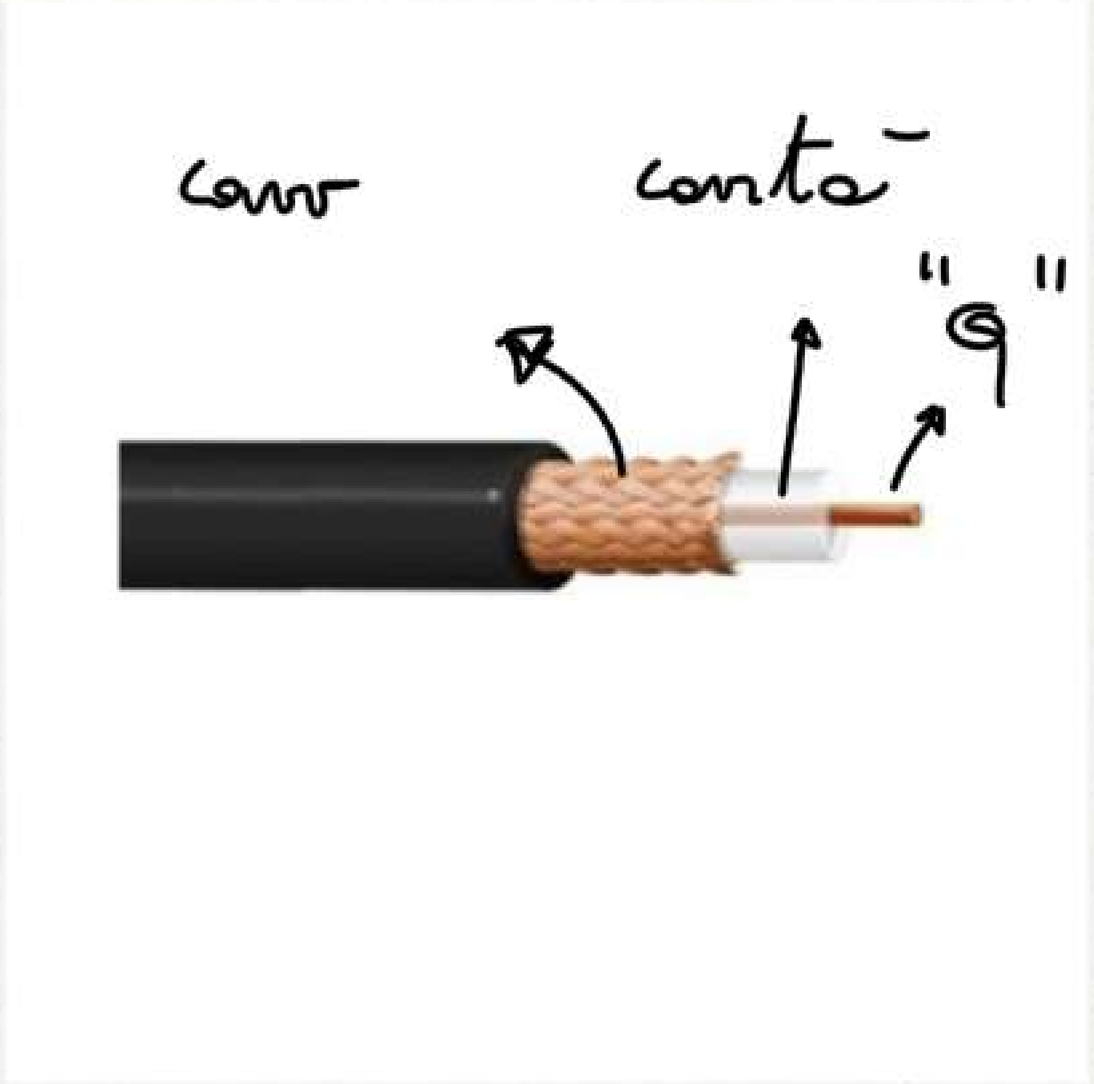
$$q \quad = \quad q + q_x + q_y =$$

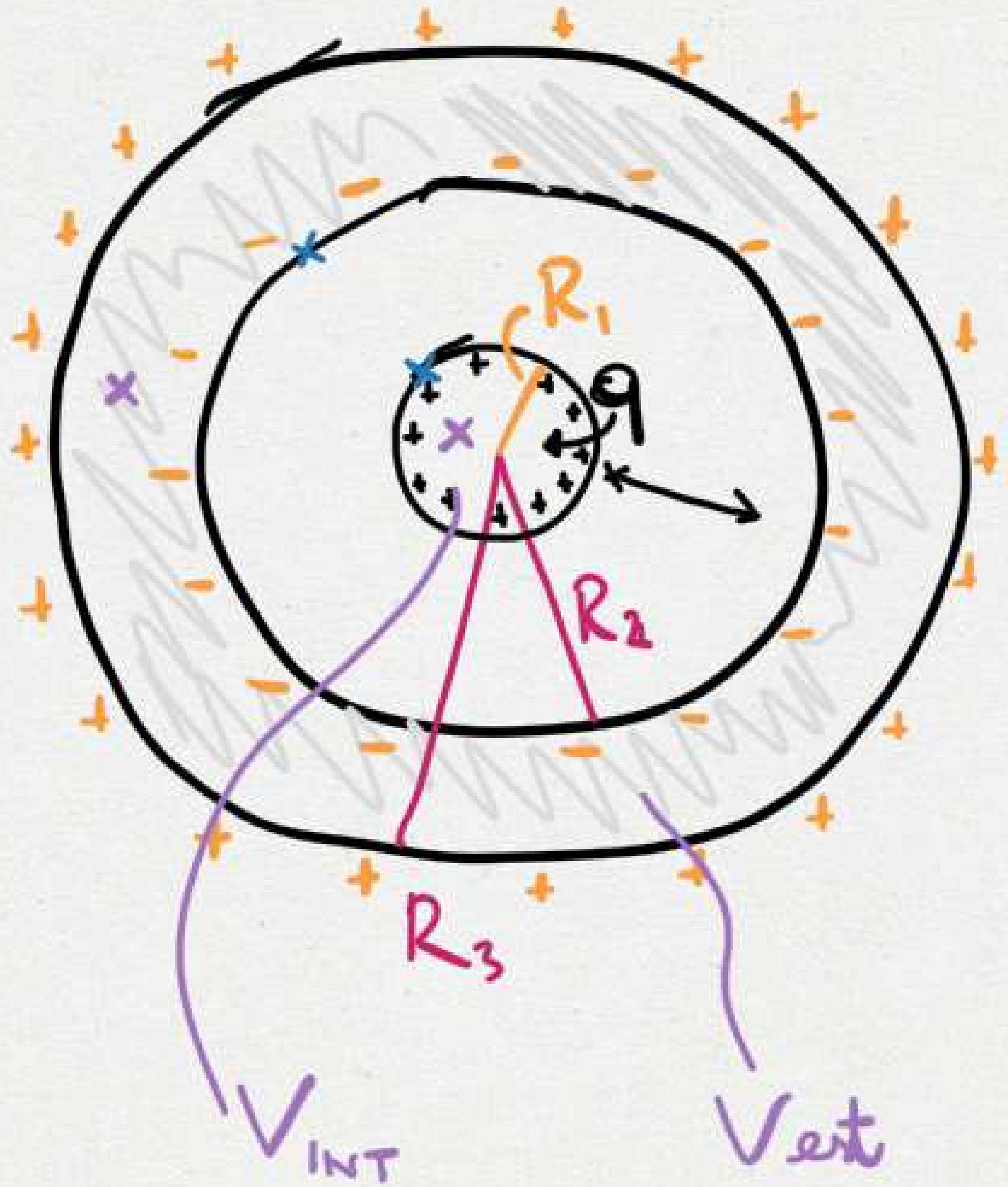
$$= \cancel{q} - q + q_y = q_y$$

$$\Downarrow$$

$$q_y = q$$






$$E(r) = \frac{q}{4\pi\varepsilon_0}\frac{1}{r^2}$$

$$\Delta V = V(R_1) - V(R_2) > 0$$

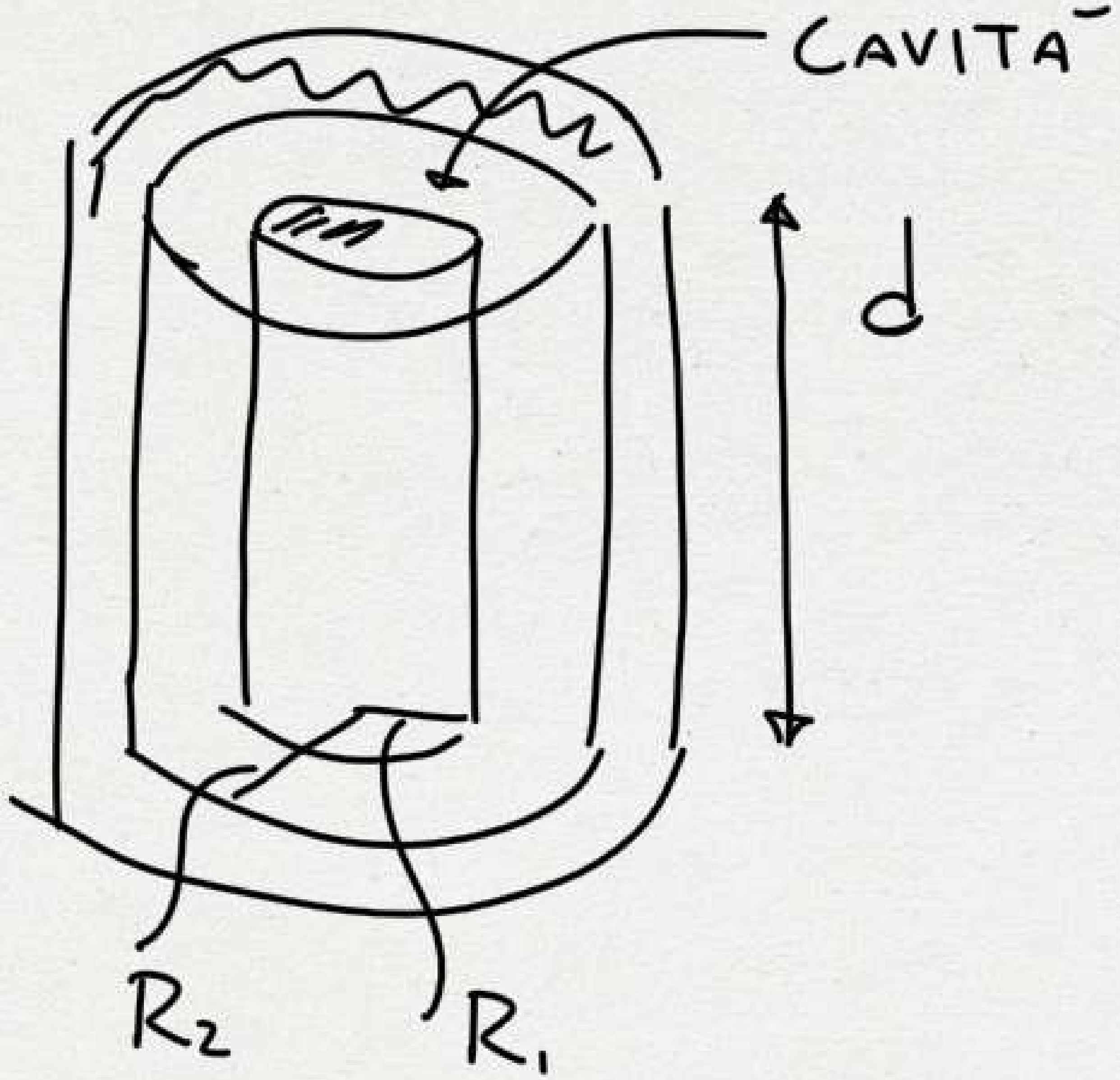
$$V(R_1) - V(R_2) = \int_{R_1}^{R_2} E(r)\,dr = \frac{q}{4\pi\varepsilon_0}\left(\frac{1}{R_1} - \frac{1}{R_2}\right) =$$

$$\longrightarrow = \frac{q}{4\pi\varepsilon_0}\left(\frac{R_2 - R_1}{R_1 R_2}\right) = V_{INT} - V_{EST}$$

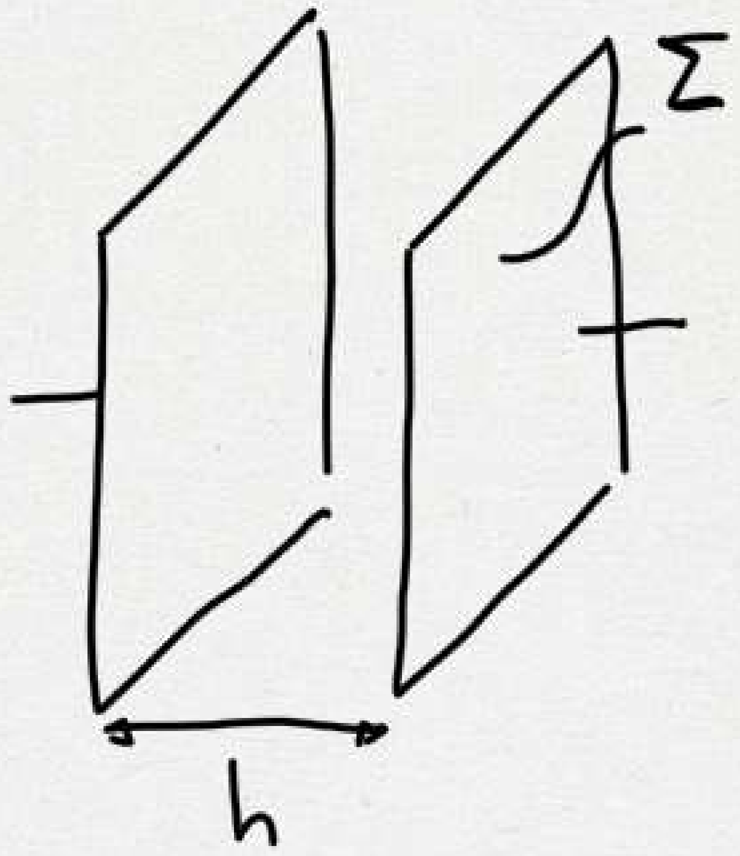
CONDENSATORE

SFERICO

CAPACITÀ $\quad C \equiv \dfrac{q}{\Delta V} \overset{\downarrow}{=} \dfrac{4\pi\varepsilon_0 R_1 R_2}{R_2 - R_1}$, $\quad [C] = \dfrac{C}{V} = F$ (FARAD)

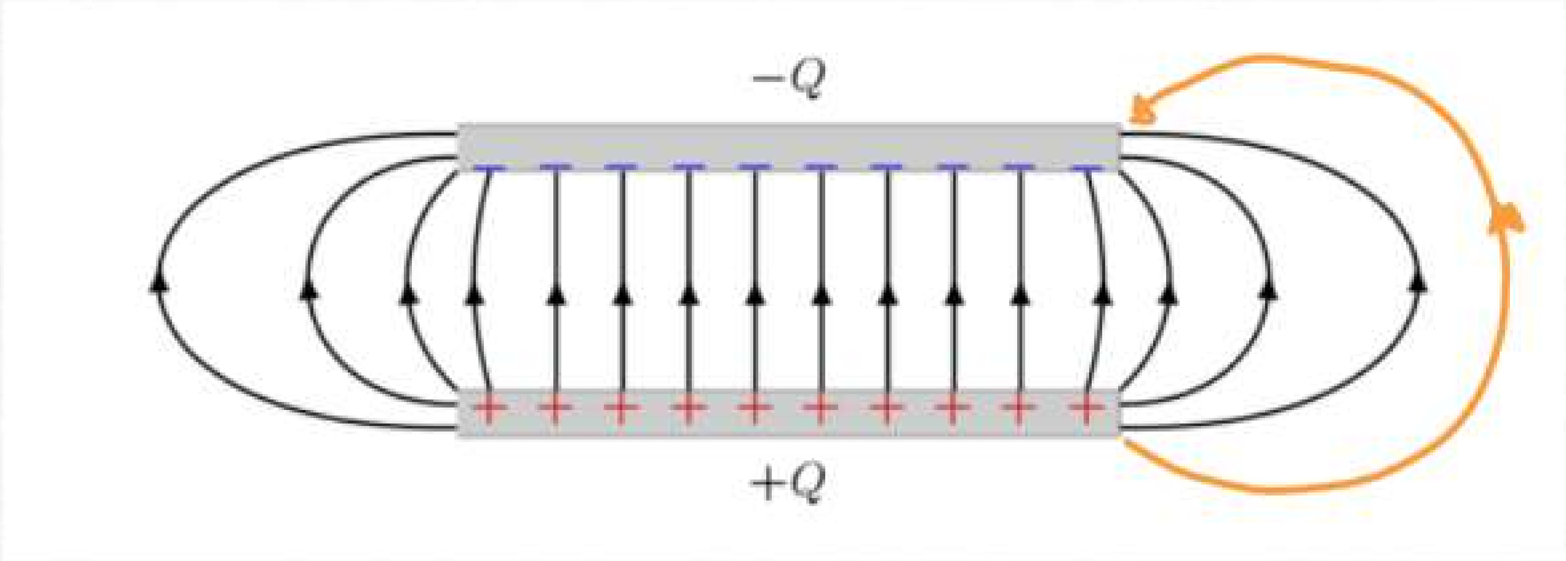




$$C = \frac{q}{\Delta V} = \frac{2\pi\varepsilon_0 d}{\log\left(\frac{R_2}{R_1}\right)}$$

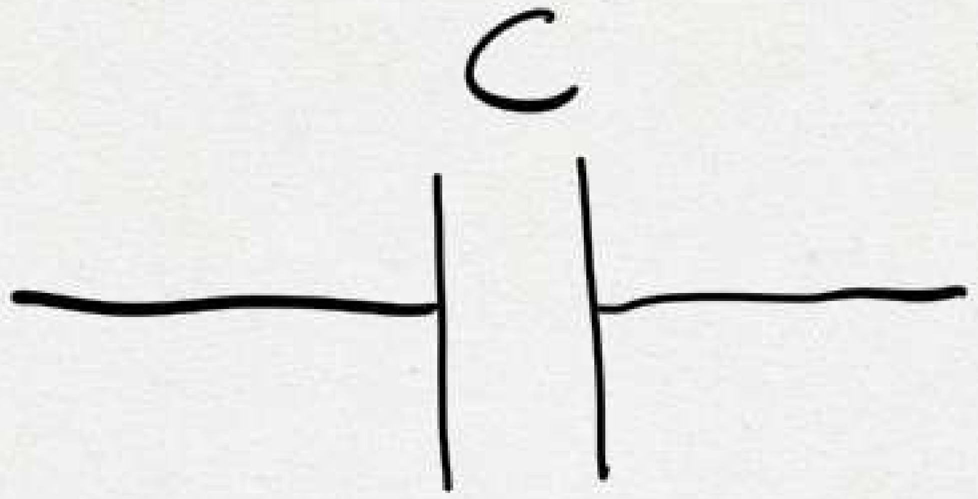



$$E = \frac{\sigma}{\varepsilon_0} \quad , \quad \Delta V = \frac{\sigma}{\varepsilon_0} h \Rightarrow$$

$$C = \frac{q}{\Delta V} = \frac{q\,\varepsilon_0}{\sigma h} = \frac{\cancel{q}\,\Sigma\,\varepsilon_0}{\cancel{q}\,h} = \frac{\Sigma\,\varepsilon_0}{h}$$



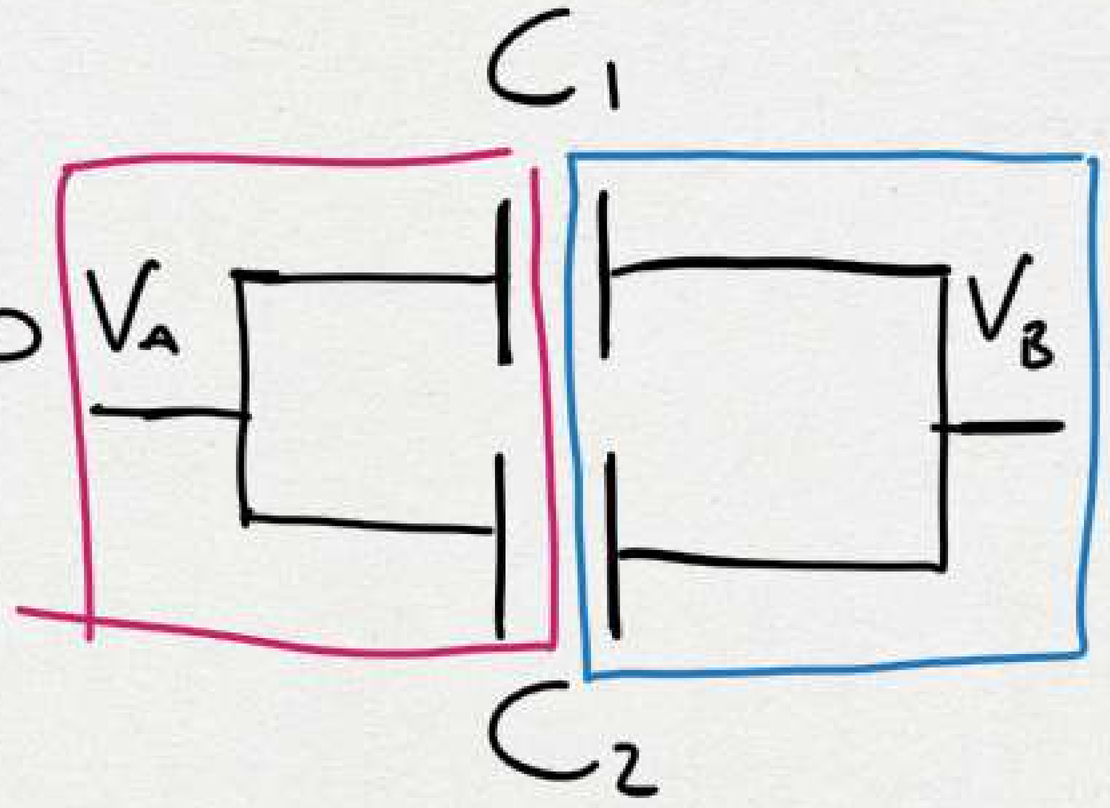
# ELEMENTI CIRCUITALI




$$C = \frac{q}{\Delta V} \Rightarrow q = C\,\Delta V$$

$$\hookrightarrow \Delta V = \frac{q}{C}$$

① IN PARALLELO

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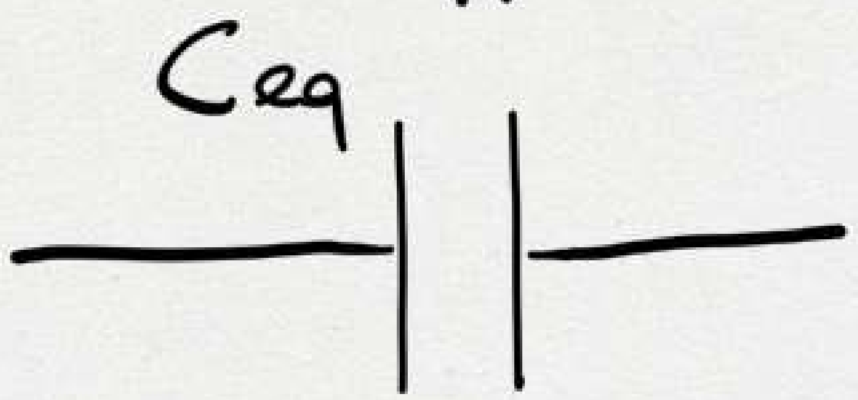



$$\left.\begin{aligned} q_1 &= C_1\,\Delta V = C_1 (V_A - V_B) \\ q_2 &= C_2\,\Delta V \end{aligned}\right\} \Rightarrow$$

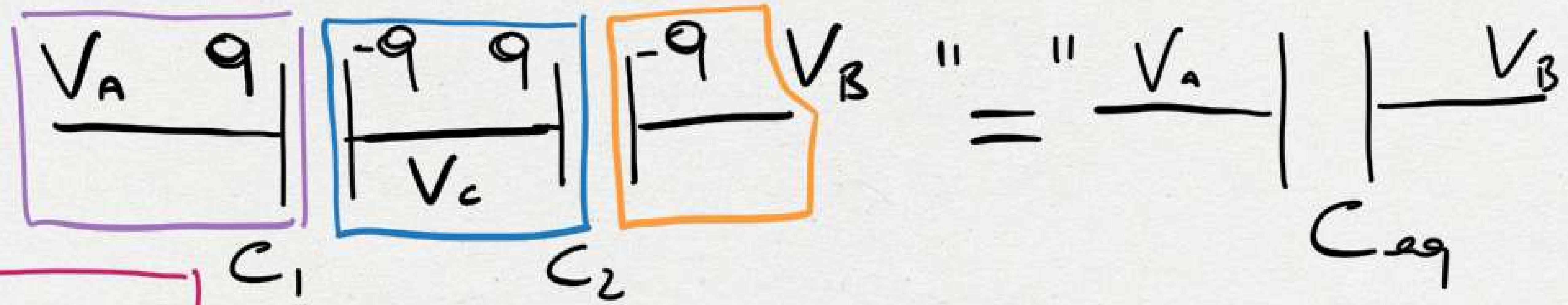
$$q_1 + q_2 = (C_1 + C_2)\,\Delta V$$

$$\Downarrow$$

$$q_{eq} = C_{eq}\,\Delta V$$

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

② IN SERIE




$\downarrow$

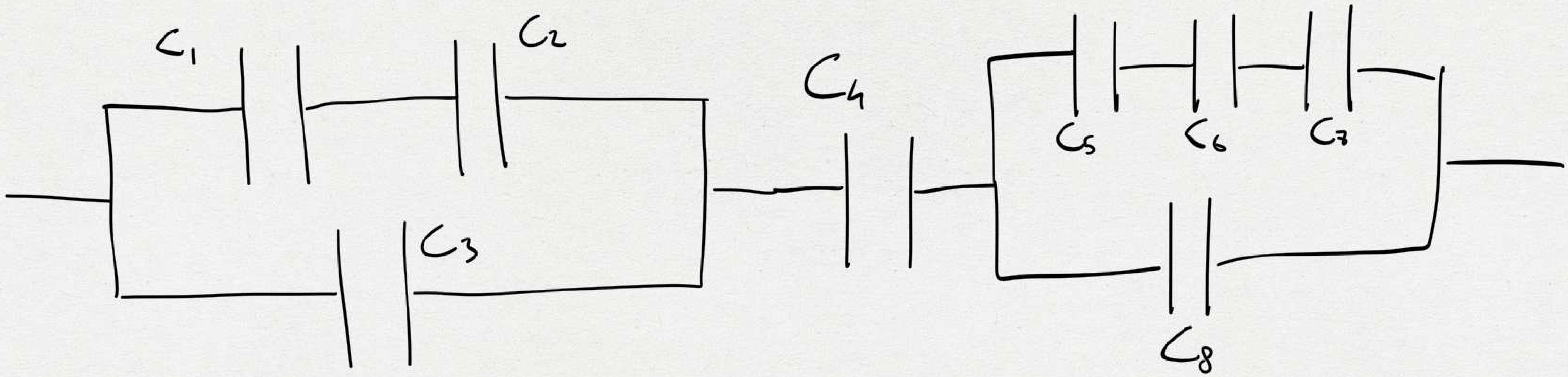
$q = C\Delta V$, $\boxed{\Delta V = \dfrac{q}{C}}$

$$V_A - V_C = V_A \underbrace{(-V_B + V_B)}_{=\,0} - V_C = \overbrace{(V_A - V_B)}^{\Delta V_1 \,\equiv} + \overbrace{(V_B - V_C)}^{\Delta V_2 \,\equiv}$$

$$\Delta V_1 = \frac{q}{C_1}\,, \quad \Delta V_2 = \frac{q}{C_2}$$

$$\Delta V_1 + \Delta V_2 = q\left(\frac{1}{C_1} + \frac{1}{C_2}\right) = \Delta V \Rightarrow \Delta V = \frac{q}{C_{eq}}\,, \quad \frac{1}{C_{eq}} \equiv \frac{1}{C_1} + \frac{1}{C_2}$$

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



$C_1$
$C_2$
$C_3$
$C_4$
$C_5$
$C_6$
$C_7$
$C_8$