Settimana: 10

Materia: Fisica
Classe: 5F
Data: 17/11 /25

Argomenti:

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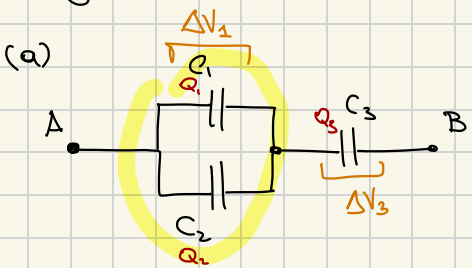
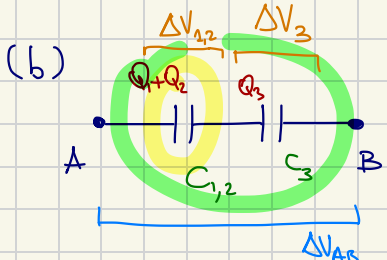


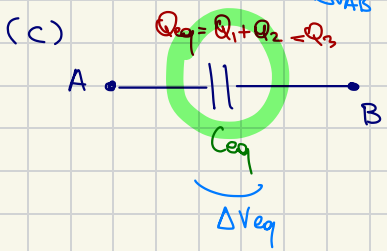
$C_1 = 350\,pF = 350 \cdot 10^{-12}\,F$
$C_2 = 520 \cdot 10^{-12}\,F$
$C_3 = 230 \cdot 10^{-12}\,F$

$\Delta V_{AB} = 350\,kV = 350 \cdot 10^3\,V$
1) $C_{eq} = ?$
2) $Q_1, Q_2, Q_3, \Delta V_1, \Delta V_2, \Delta V_3$



$C_{1,2} = C_1 + C_2$ per le formule viste in classe

$Q_3 = Q_1 + Q_2$ perché le cariche si dispongono nel filo



$\frac{1}{C_{eq}} = \frac{1}{C_{1,2}} + \frac{1}{C_3}$ Per le formule in classe

Ho tutto: $C_{eq} = \frac{C_{1,2} \cdot C_3}{C_{1,2} + C_3} = \frac{(C_1 + C_2) C_3}{C_1 + C_2 + C_3} \simeq 182\,pF$

(2) Torniamo indietro: (c) $C_{eq} = \frac{Q_{eq}}{\Delta V_{eq}}$

$$\rightsquigarrow Q_{eq} = Q_3 = C_{eq} \underbrace{\Delta V_{eq}}_{\Delta V_{AB}} = 273\,nC$$

(b) $C_3 = \frac{Q_3}{\Delta V_3} \rightarrow \Delta V_3 = \frac{Q_3}{C_3} = 1{,}19 \cdot 10^3\,V$

$$C_{1,2} = \frac{Q_1+Q_2}{\Delta V_{1,2}} \rightarrow \Delta V_{1,2} = \frac{Q_1+Q_2}{C_{1,2}} = 313\,V$$

(a) Dall'equiv. tra (a) e (b) scopro che

$$\Delta V_{1,2} = \Delta V_1 \quad e$$

$$\Delta V_{1,2} = \Delta V_2$$

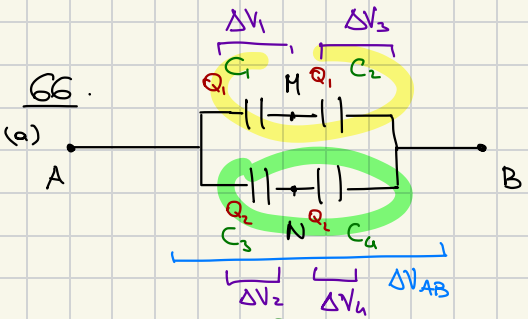
Calcolo Q_1 e Q_2 avendo il resto:

$$C_1 = \frac{Q_1}{\Delta V_1} \Rightarrow Q_1 = C_1 \Delta V_1 = 110\,nC$$

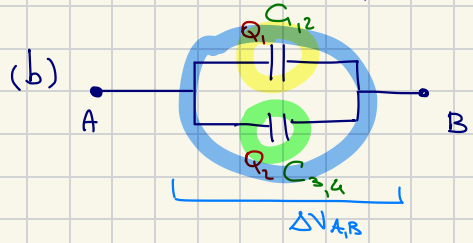
$$Q_2 = C_2 \Delta V_2 = 163\,nC$$

66.

(a)



(b)



$C_1 = 1\,nF$ $\quad C_4 = ?$

$C_2 = 2\,nF$

$C_3 = 3\,nF$

Sai che $V_M - V_N = 0$

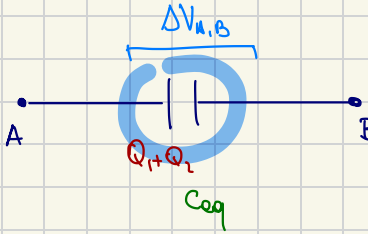
$V_M = V_N$

↳ Ottengo che $\Delta V_1 = V_M - V_A$ è uguale a $\Delta V_2 = V_N - V_A$

$$\Delta V_1 = \Delta V_2$$

Allo stesso modo $\Delta V_3 = \Delta V_4$

(c)



$$C_{eq} = C_{1,2} + C_{3,4}$$

(c) $$C_{eq} = \frac{C_1 C_2}{C_1 + C_2} + \frac{C_3 C_4}{C_3 + C_4}$$

Formule capacità

(c) $$C_{eq} = \frac{Q_1 + Q_2}{\Delta V_{eq}}$$

(b) $$C_{3,4} = \frac{Q_2}{\Delta V_{eq}}$$

$$C_{1,2} = \frac{Q_1}{\Delta V_{eq}}$$

(a) $\Delta V_1 = \Delta V_2$; $$\frac{Q_1}{C_1} = \frac{Q_2}{C_2}$$ nseq. da cui dò il problema. IMP!!!