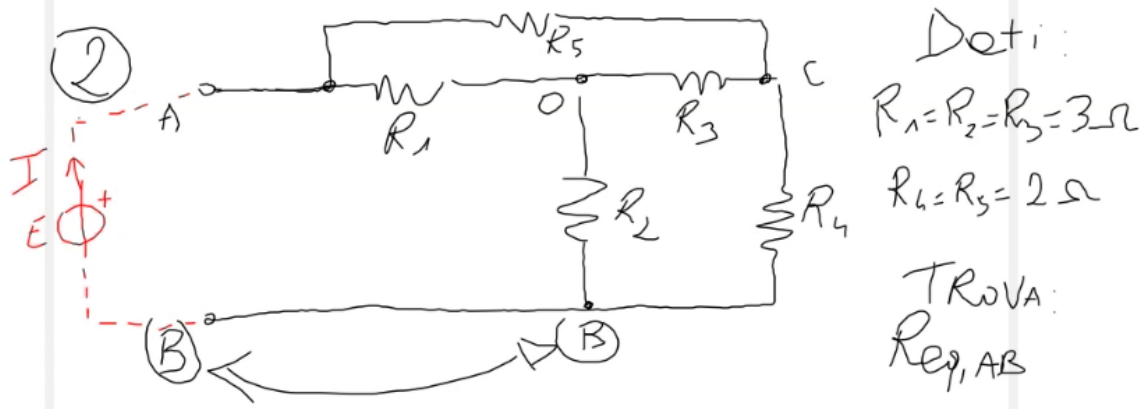
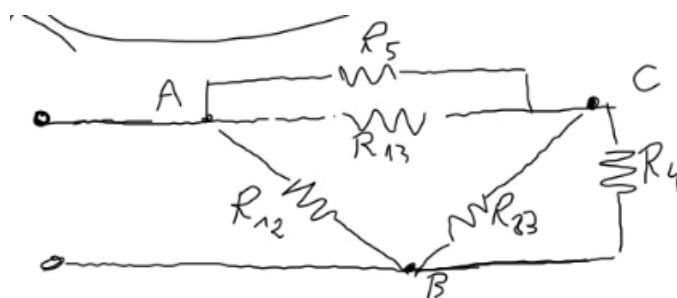
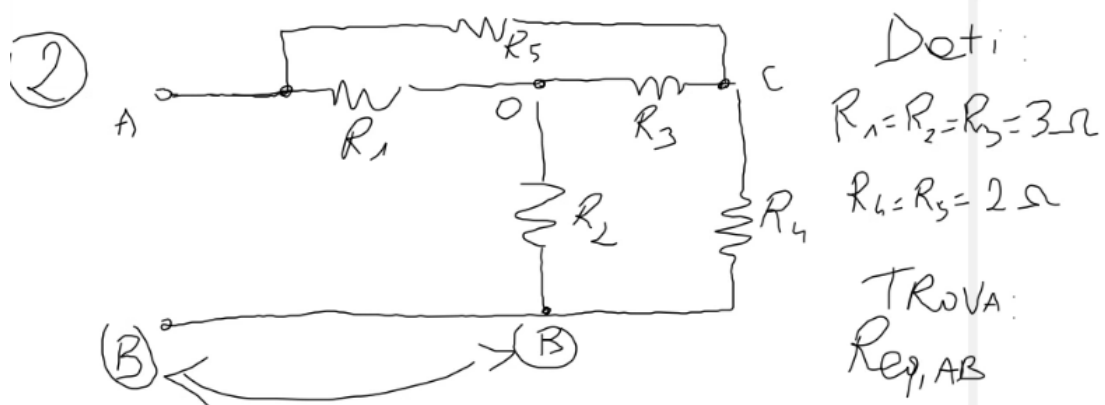
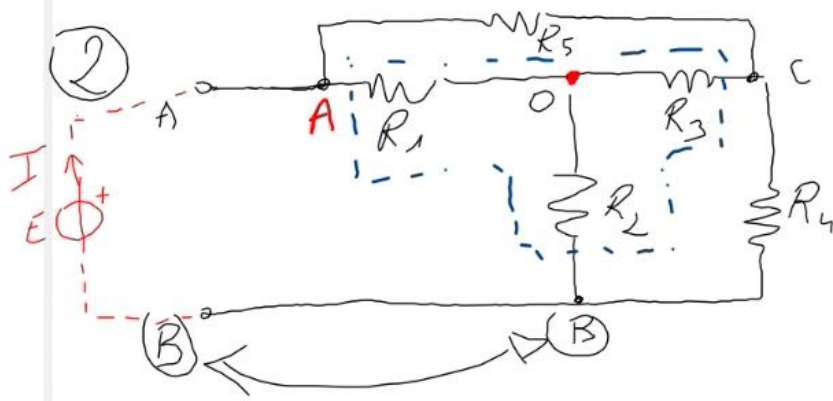


Esercitazione



I nodi A e B non sono un circuito aperto, sono i terminali della E. Il nodo B è un nodo funzionale.

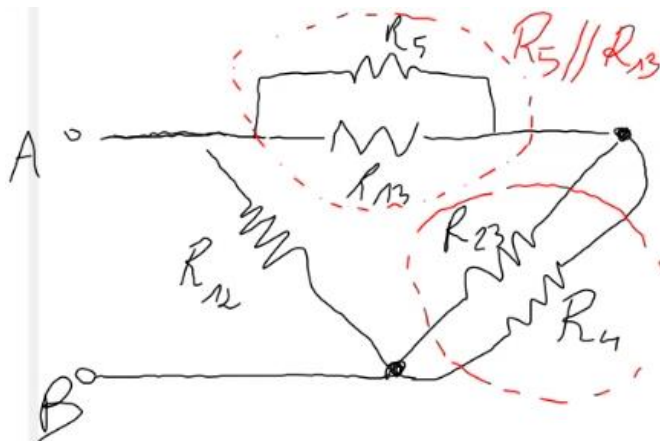


Dati:

$$R_1 = R_2 = R_3 = 3\Omega$$

$$R_4 = R_5 = 2\Omega$$

TROVA:
 $R_{eq, AB}$



$Y \rightarrow \Delta$

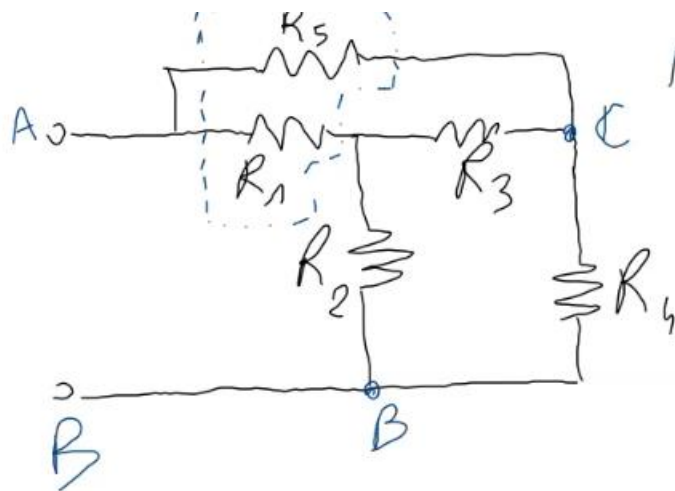
Dati da usare:

$$R_1 = R_2 = R_3 = R = 3\Omega$$

$$\Rightarrow R_{12} = R_{23} = R_{13} = 3R = 9\Omega$$

$$R_{AC} = \frac{R_5 R_{13}}{R_5 + R_{13}} = \frac{18}{11}, \quad R_{BC} = \frac{R_{23} R_4}{R_{23} + R_4} = \frac{18}{11}$$

$$R_{AC} \text{ --- } R_{BC} \Rightarrow R_{AB}' = R_{AC} + R_{BC} = \frac{36}{11} \Rightarrow R_{eq, AB} = R_{12} \parallel R_{AB}'$$



$$R_{eq, CB} = \left\{ \left[(R_1 + R_5) // R_3 \right] + R_4 \right\} // R_2$$

(3) -

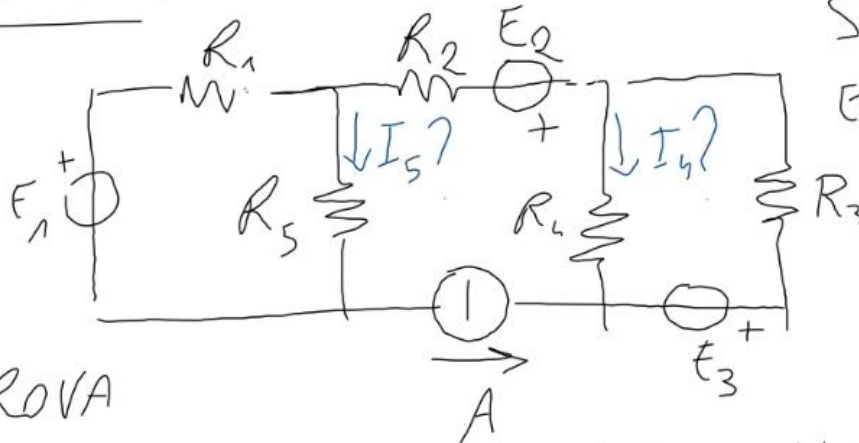
$$G_{eq, AB} = G_3 + \left(\frac{1}{G_1} + \frac{1}{G_2} \right)^{-1} ?$$

$$\Rightarrow R_{eq, AB} = G_{eq, AB}^{-1}$$



RETI DC

③



SOVRAPP.
EFFETTI

TROVA

P_h, P_s

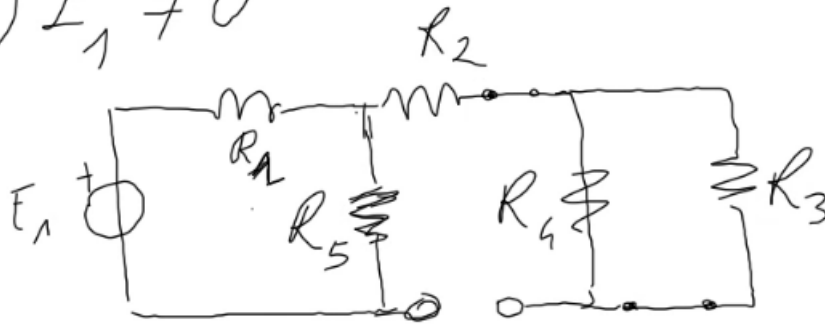
Dati: $E_1 = 50V, E_2 = 30V, E_3 = -20V$

$A = 10A, R_1 = R_5 = 5\Omega, R_2 = 2.5\Omega$

$R_3 = R_4 = 10\Omega$

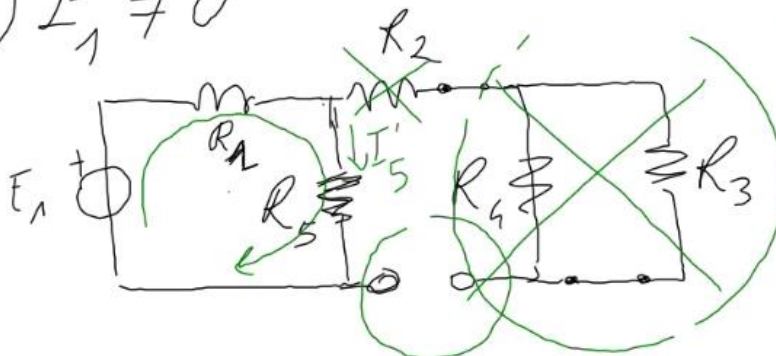
Consideriamo E1 come l'unico acceso.

Q) $E_1 \neq 0$



In quale maglia scorre la corrente?

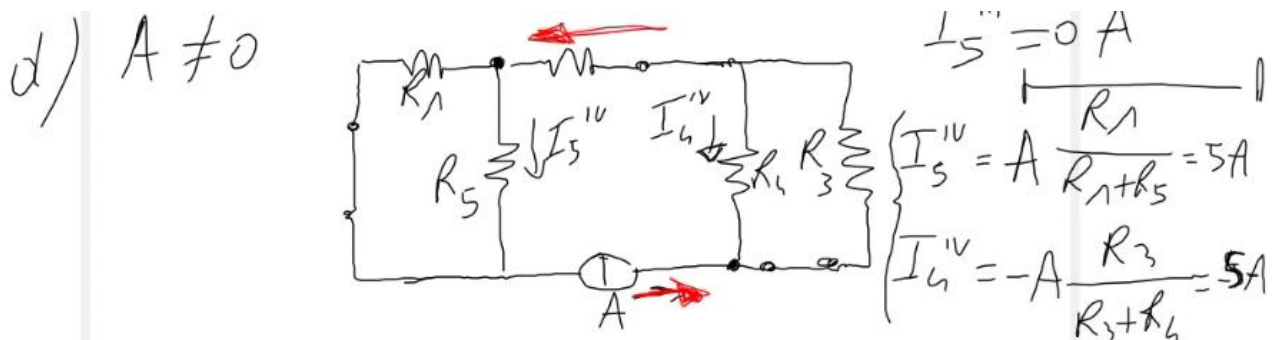
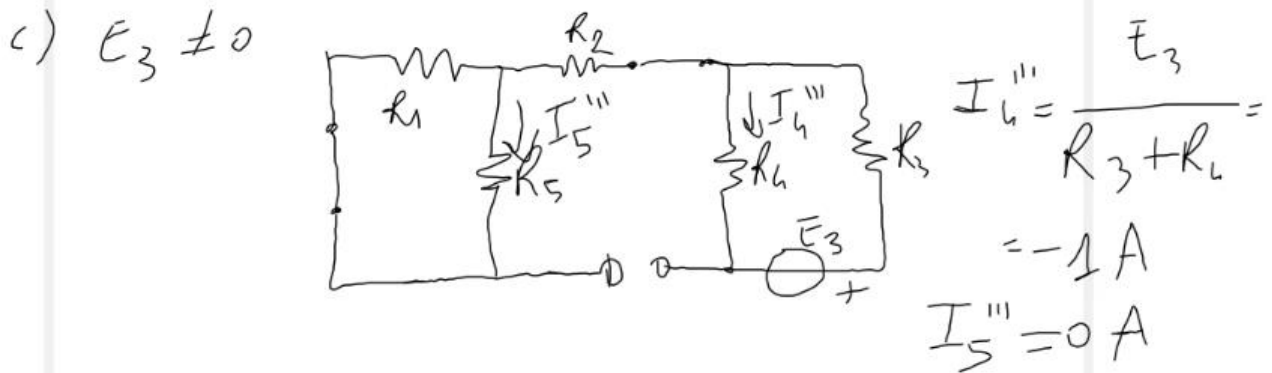
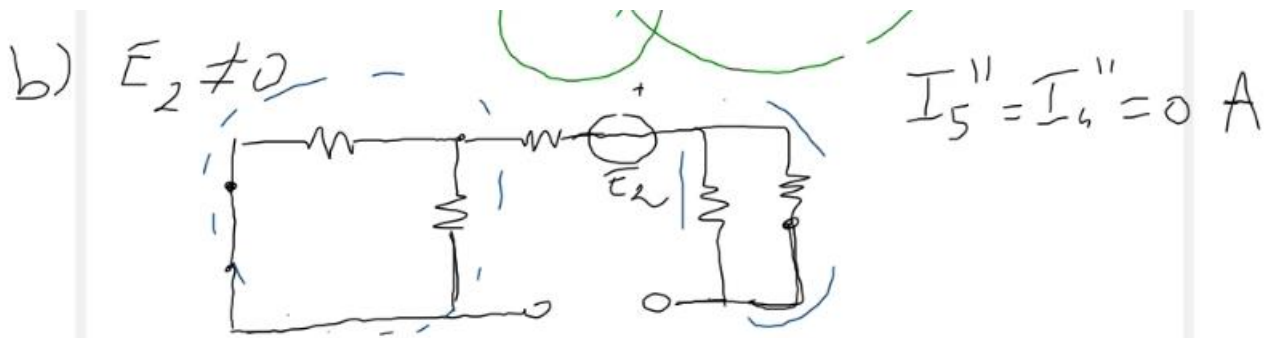
Q) $E_1 \neq 0$



$$I_5' = \frac{E_1}{R_1 + R_5} = 5A$$

$$I_4' = 0A$$

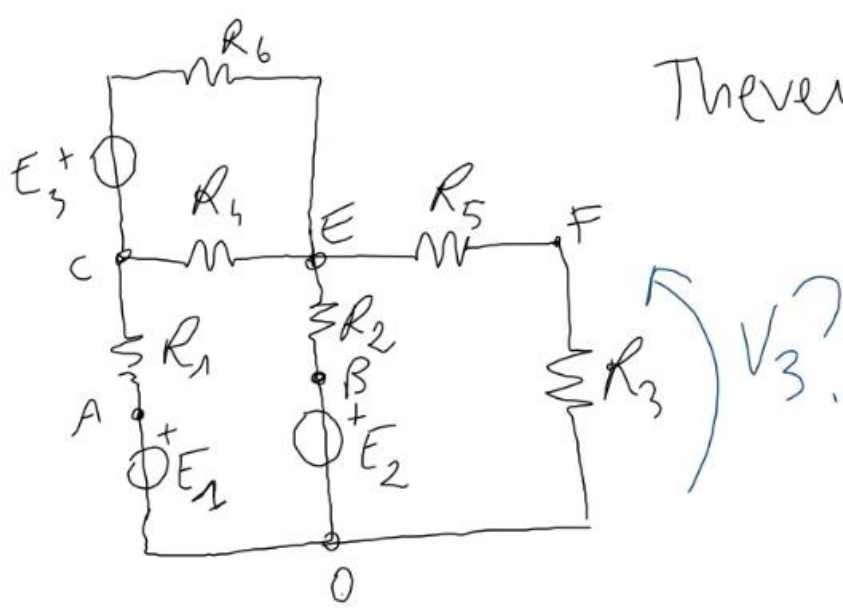
Nel secondo caso, non circola corrente, perché le maglie di destra e di sinistra sono senza corrente e l'unica maglia in cui scorre è aperta. La corrente non circola in maglie esclusivamente resistive e in circuiti non chiusi.



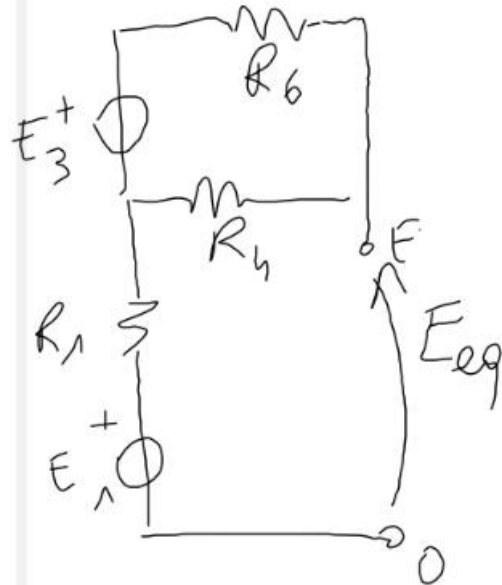
$$\Rightarrow I_4 = I_4' + I_4'' + I_4''' + I_4'''' = \frac{(E_3 - AR_3)}{R_3 + R_4}$$

$$I_5 = \dots = \frac{(E_1 + AR_1)}{R_1 + R_5} = 10 \text{ A}$$

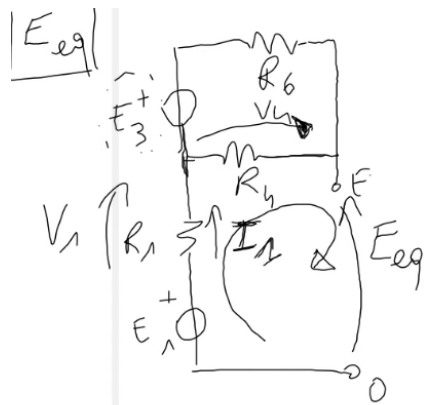
④



$|E_{eq}|$



Concentriamoci sulla maglia sopra. Come sono R_4 e R_6 ? In serie. La corrente scorre solo sulla maglia sopra, perché è chiusa. Poi, la resistenza equivalente.



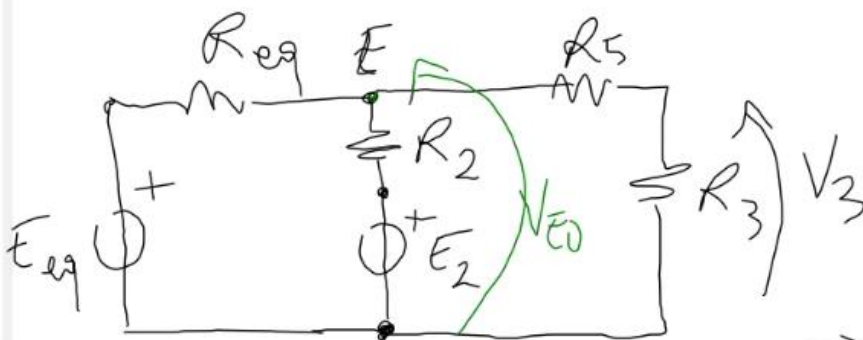
$$V_u = E_3 \frac{R_4}{R_4 + R_6}$$

LKT:

$$E_1 + V_1 + V_4 - E_{eq} = 0$$

$$E_1 + R_1 I_1 + V_4 - E_{eq} = 0$$

$$\Rightarrow E_{eq} = E_1 + V_4 + R_1 I_1 = 100 \text{ V}$$



$$\Rightarrow V_3 = V_{EO} \frac{R_3}{R_3 + R_5} = 20 \text{ V}$$

$$V_{EO} = \frac{\frac{E_{eq}}{Req} + E_2 / R_2}{\frac{1}{Req} + \frac{1}{R_2} + \frac{1}{R_3 + R_5}} = 40 \text{ V}$$