Esercitazione 2

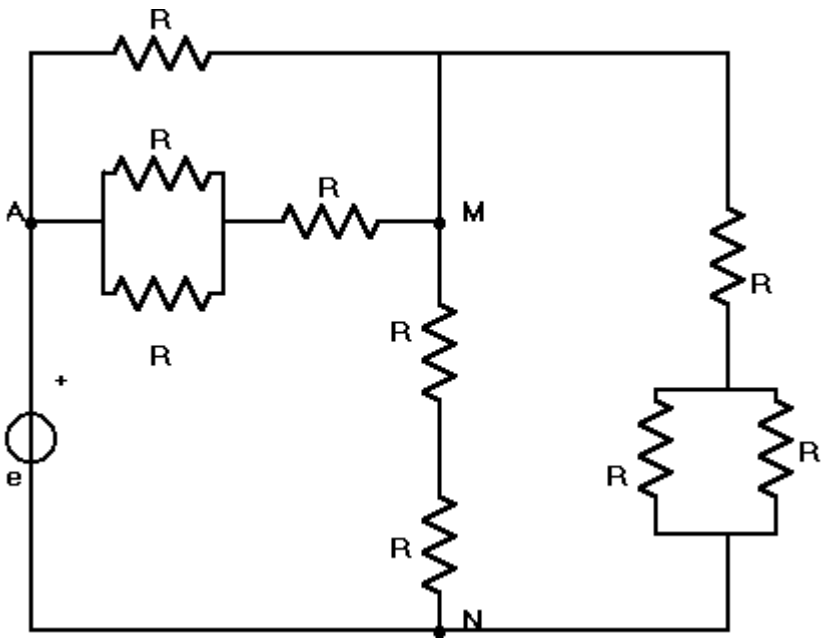
a) **Partitori**

b) **Teorema di Millman**

c) **Principio di sovrapposizione degli effetti**

d) **Circuiti equivalenti serie e parallelo**

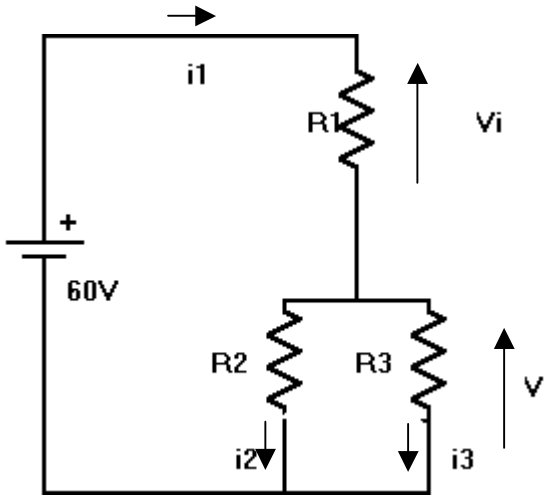
A1)



Calcolare V_{MN}.

Risultato: (5V).

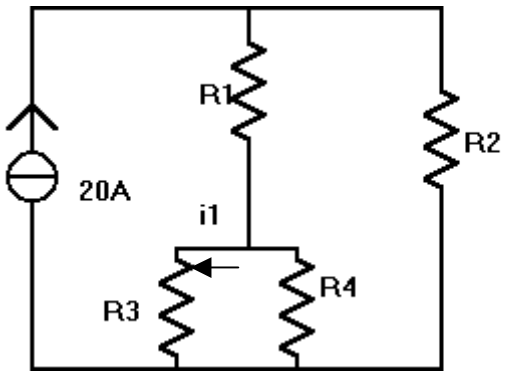
A2)
Calcolare le tensioni e le correnti indicate mediante partitori.



$R1 = 19\Omega$
$R2 = 30\Omega$
$R3 = 70\Omega$

Risultato: $\begin{pmatrix} Vi = 28.5V & i1 = 1.5A \\ V = 31.5V & i2 = 1.05A \\ & i3 = 0.4A \end{pmatrix}$.

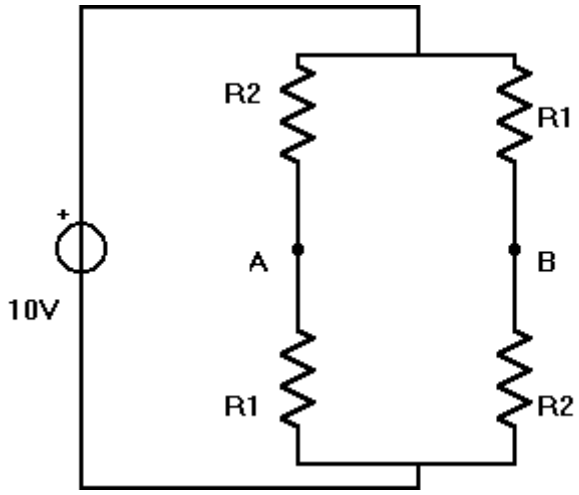
A3)
Calcolare i1.



$R1 = 32\Omega$
$R2 = 60\Omega$
$R3 = 10\Omega$
$R4 = 40\Omega$

Risultato: (9.6a)

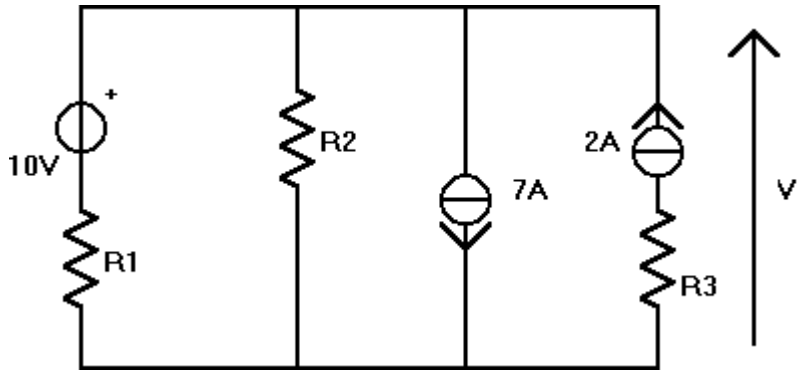
A4)
Calcolare V_{AB}.



$R1 = 1\Omega$
$R2 = 2\Omega$

Risultato: $(-\frac{10}{3}V)$.

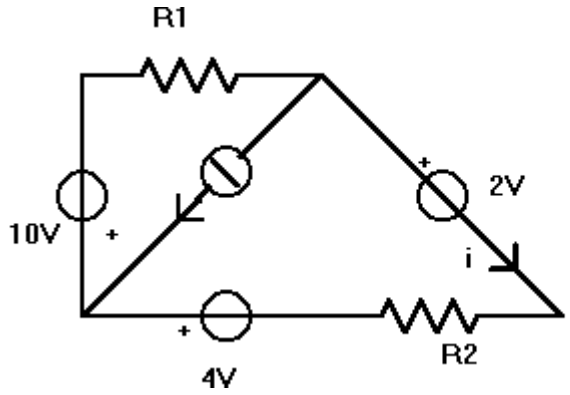
B1)
Calcolare V.



$R1 = \frac{1}{2}\Omega$
$R2 = \frac{1}{3}\Omega$
$R3 = 1\Omega$

Risultato: (3V).

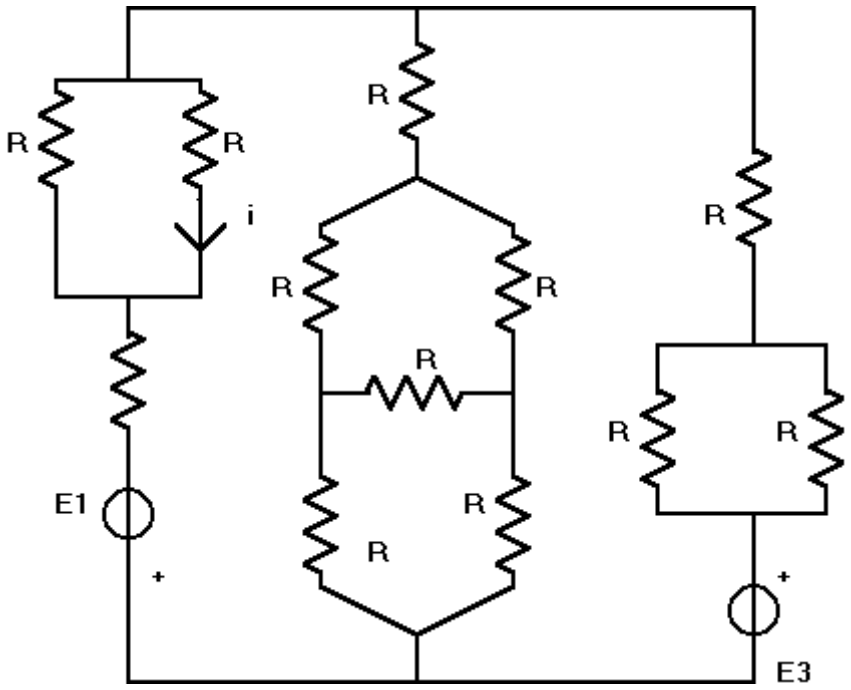
B2)
Calcolare i.



$R1 = 10\Omega$
$R2 = 5\Omega$

Risultato: $(-\frac{16}{5}A)$.

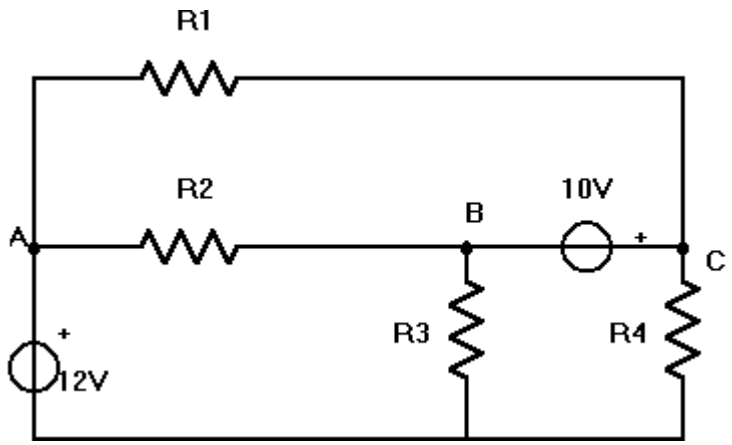
B3)
Calcolare i.



$R = 1\Omega$
$E1 = 20V$
$E3 = 15V$

Risultato: (10A).

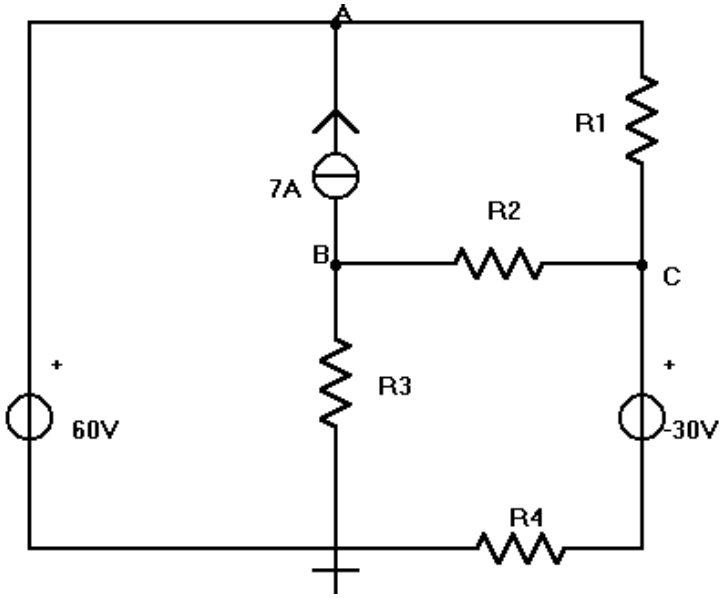
C1)
Calcolare Va, Vb, Vc.



$R1 = 8\Omega$
$R2 = 2\Omega$
$R3 = 12\Omega$
$R4 = 8\Omega$

Risultato: $\begin{pmatrix} 12V \\ 6V \\ 16V \end{pmatrix}$.

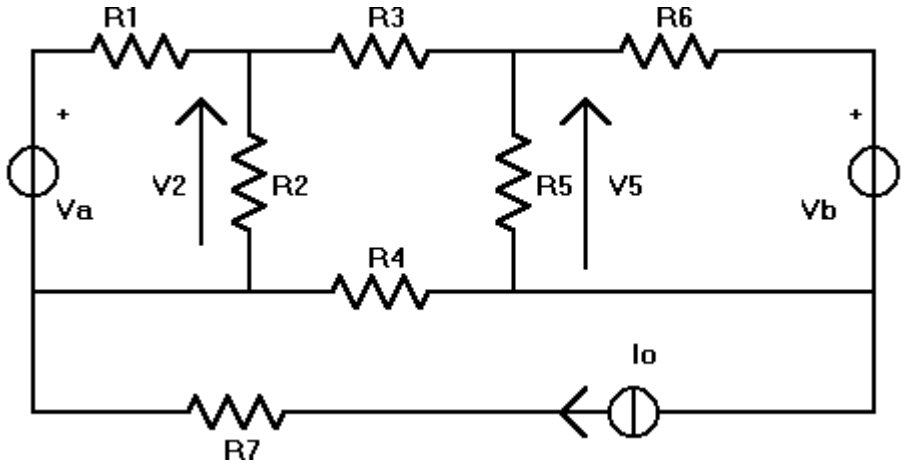
C2)
Calcolare le tensioni Va,Vb,Vc, rispetto al nodo di riferimento.



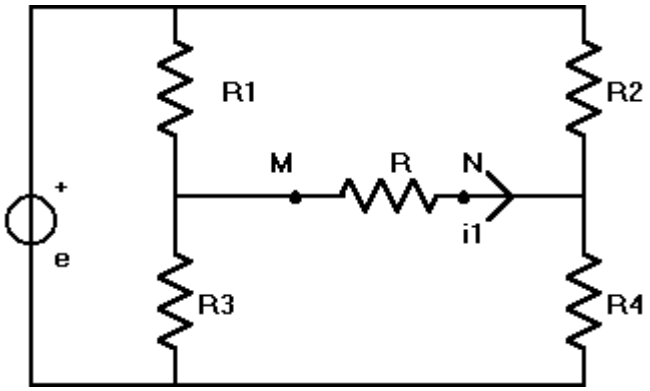
$R1 = 1\Omega$
$R2 = 30\Omega$
$R3 = 2\Omega$
$R4 = 10\Omega$

Risultato: (60V,-10V,50V).

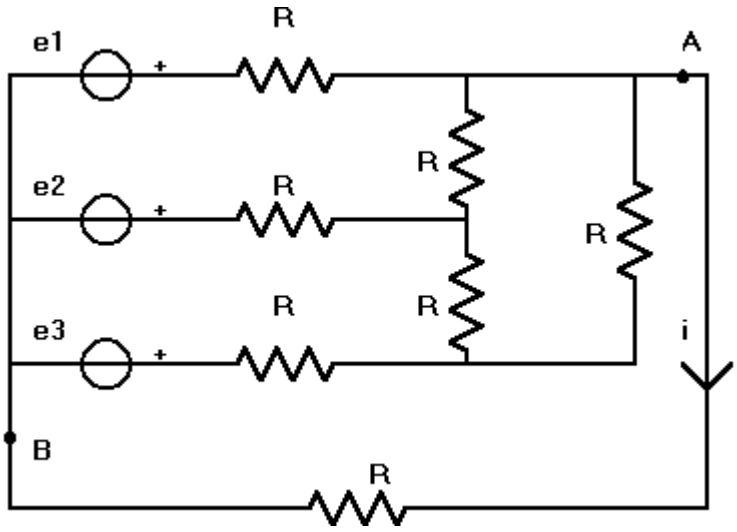
C3)
Determinare V2 e V5.



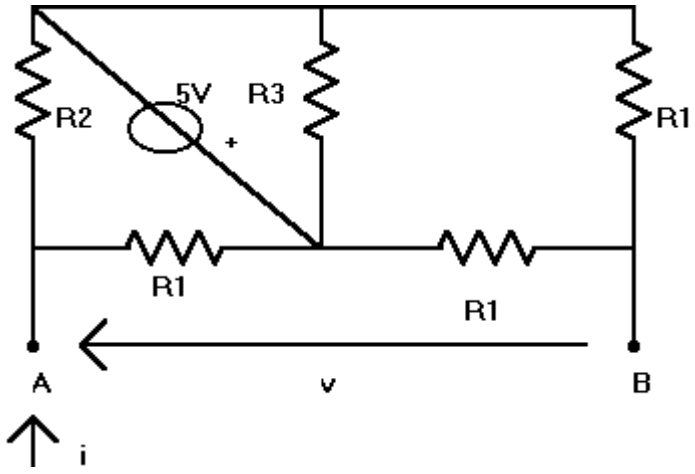
D1)
Calcolare i_1.



D2)
Calcolare i.



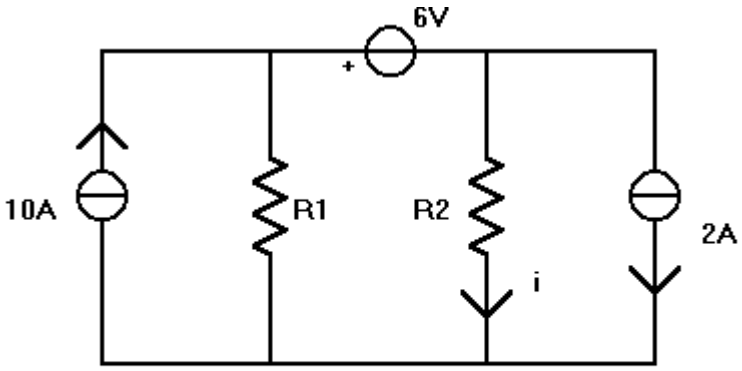
D3)
Calcolare l'equivalente Norton del bipolo A-B.



$R1 = 3\Omega$
$R2 = 2\Omega$
$R3 = 4\Omega$

Risultato: (i_{EQ}=0.18A ,R_{EQ}=2.7 Ω).

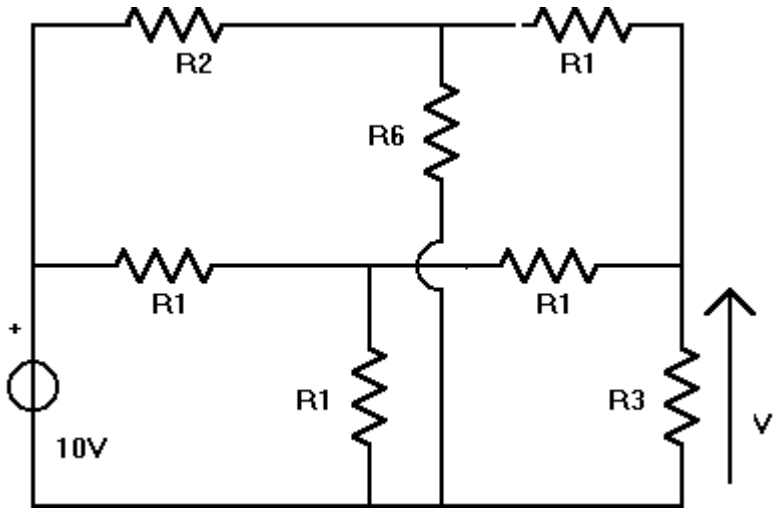
D4)
Calcolare i tramite equivalente Norton.



$R1 = 3\Omega$
$R2 = 4\Omega$

Risultato: (i=2.6A).

D5)
Calcolare V mediante sdoppiamento dei generatori e circuiti equivalenti Thevenin o Norton.



$R1 = 2\Omega$
$R2 = 3\Omega$
$R3 = 4\Omega$
$R4 = 6\Omega$