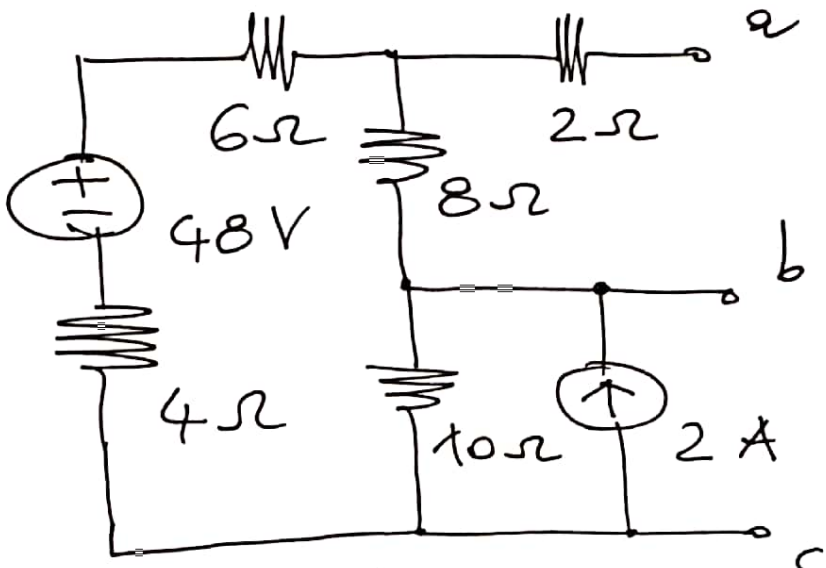
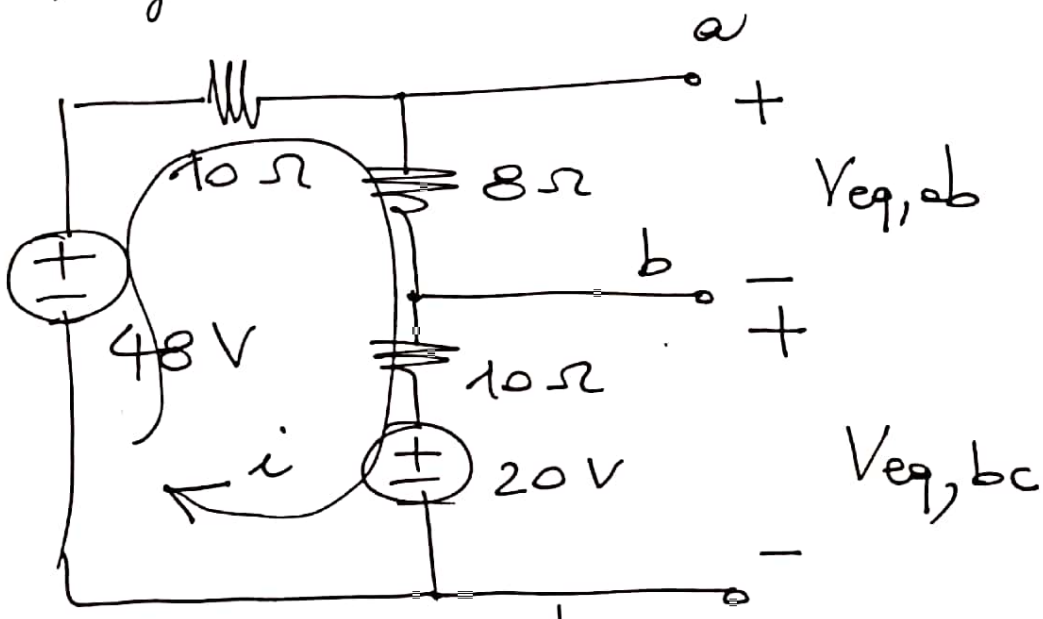
Esempio ? Thevenin bipolo ab e bipolo bc



Soluzione Mi riconduco a un circuito ad una sola maglia



Tensioni equivalenti:

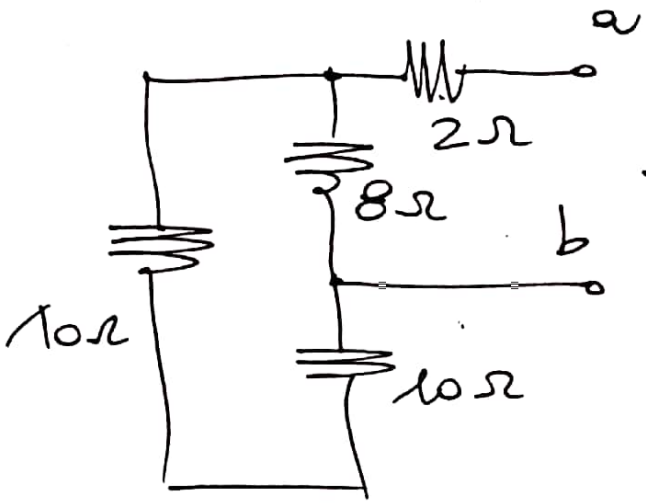
KV: $-48 + 10i + 8i + 10i + 20 = 0 \Rightarrow$

$i = 1\ A$

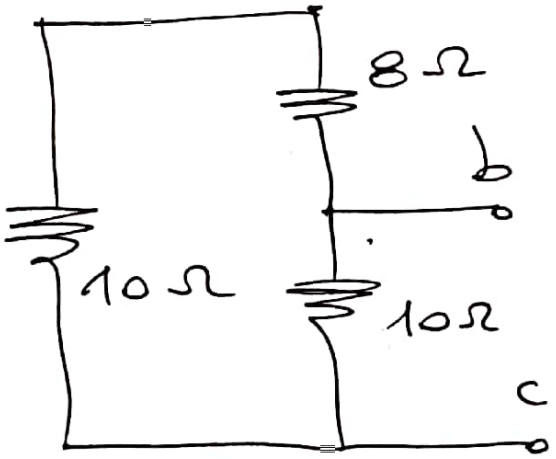
$V_{eq,ab} = 8i = 8\ V$

$V_{eq,bc} = 10i + 20 = 30\ V$

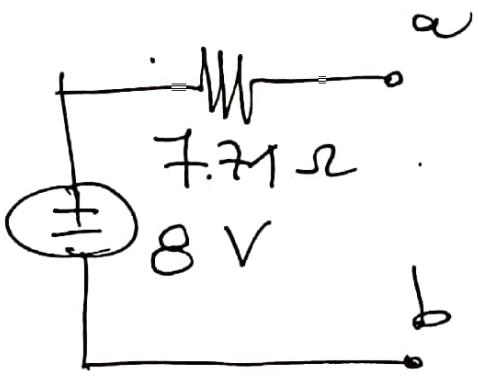
Resistenze equivalenti:

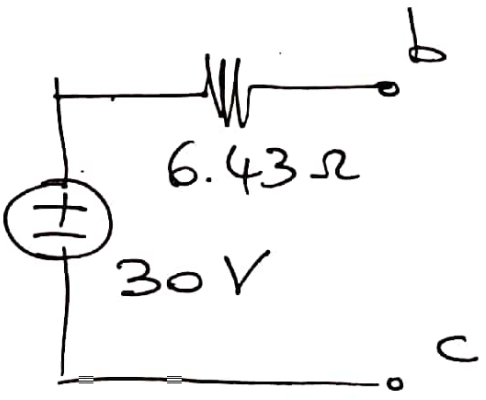


$R_{eq,ab} = 2 + 8 // 20$
$\simeq 7.71\ \Omega$

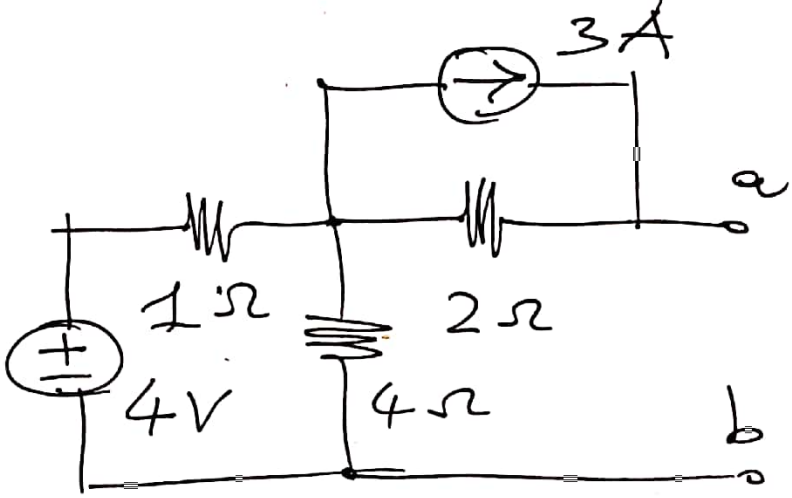


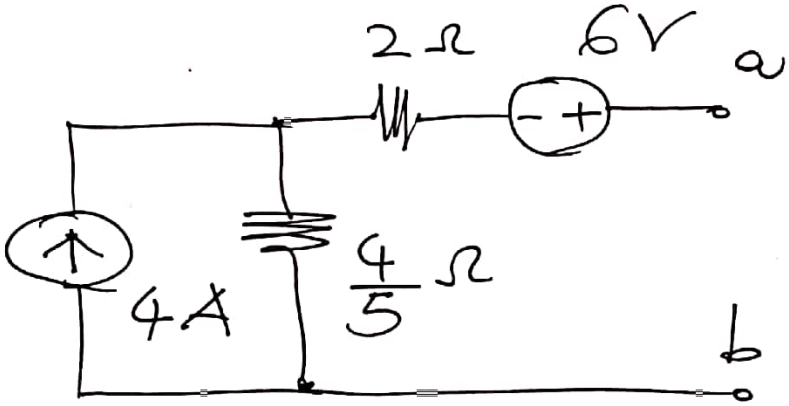
$R_{eq,bc} = 10 // 18$
$\simeq 6.43\ \Omega.$

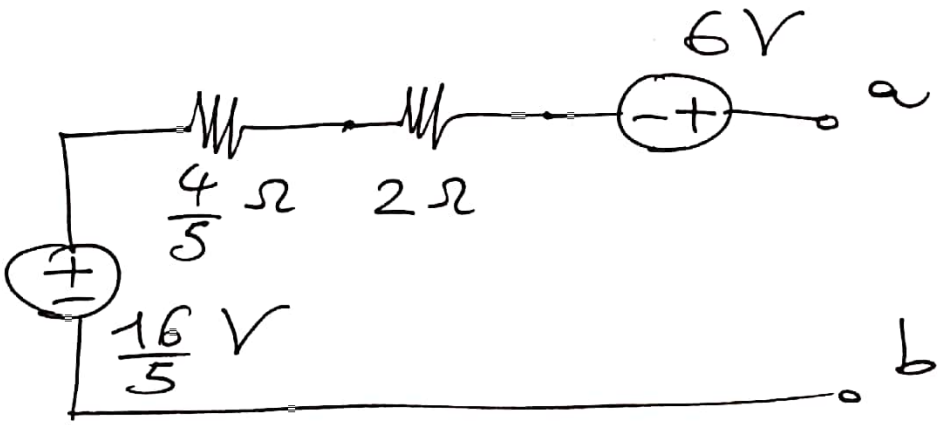


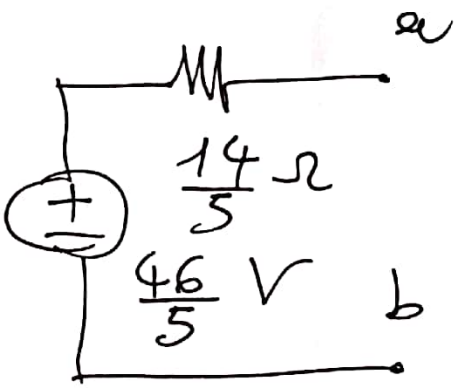


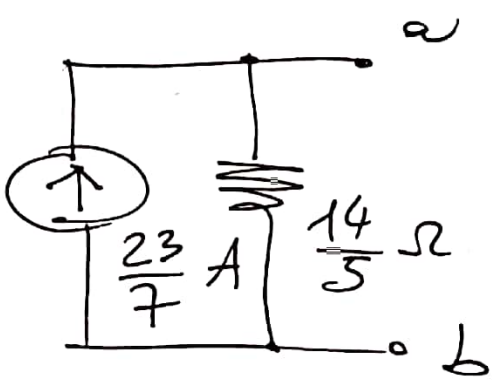
Esempio 3: Norton bipolo ab



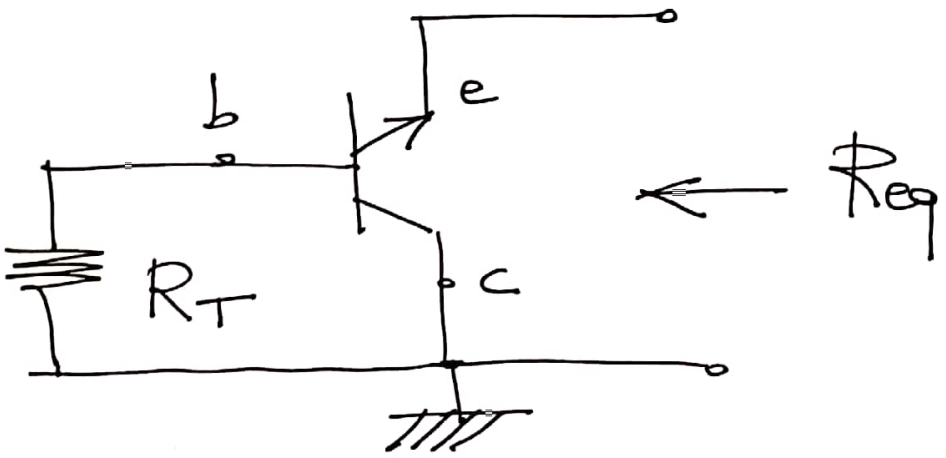




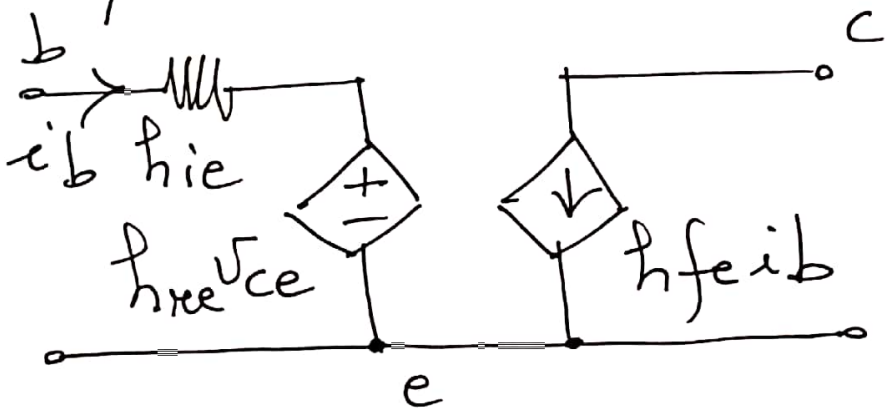


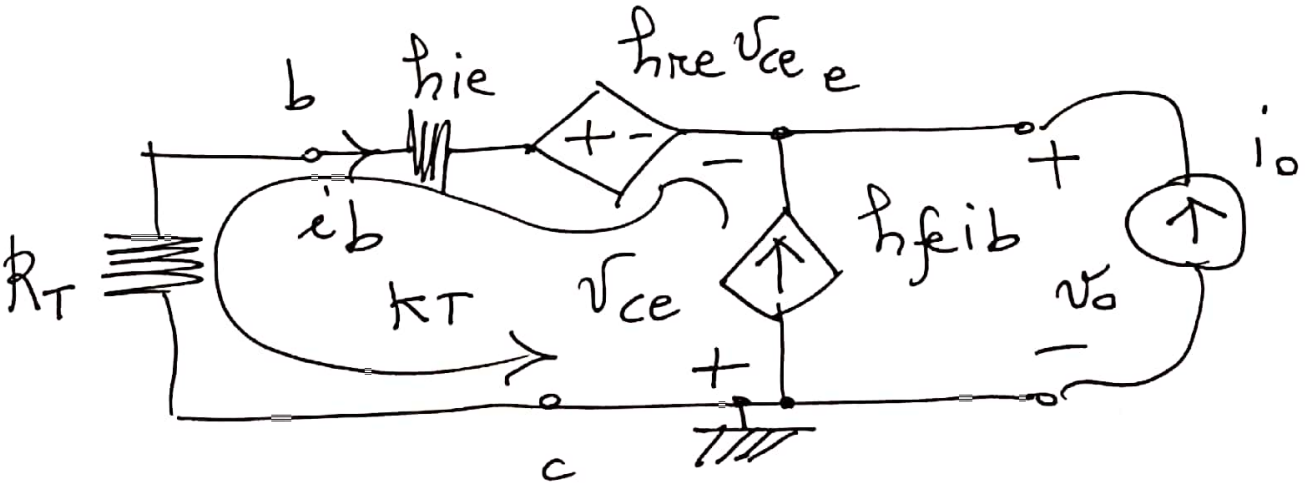


Esempio : Determinare R_{eq} usando per il BJT il modello a parametri ibridi a emettitore comune con $h_{oe} = 0\ \Omega^{-1}$.



Soluzione : usiamo il modello con $h_{oe} = 0\ \Omega^{-1}$





Troviamo le grandezze di controllo i_b e v_{ce} in funzione di i_o, v_o, e altri parametri noti. Si ha:

$$v_{ce} = -v_o$$

KI nodo (e) $\Rightarrow$

$$i_b + h_{fe} i_b = (1 + h_{fe}) i_b = -i_o$$

$$\Rightarrow i_b = -\frac{i_o}{1 + h_{fe}}.$$

KV maglia indicata $\Rightarrow$

$$v_o = -h_{re} v_{ce} - (h_{ie} + R_T) i_b$$

$$= h_{re} v_o + \frac{h_{ie} + R_T}{1 + h_{fe}} i_o \Rightarrow$$

$$v_o (1 - h_{re}) = \frac{h_{ie} + R_T}{1 + h_{fe}} i_o \Rightarrow$$

$$R_{eq} = \frac{v_o}{i_o} = \frac{h_{ie} + R_T}{(1 + h_{fe})(1 - h_{re})}.$$