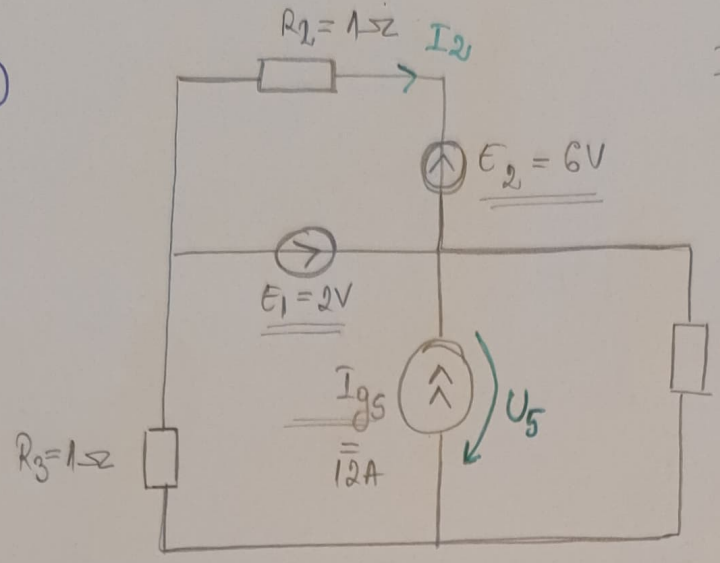
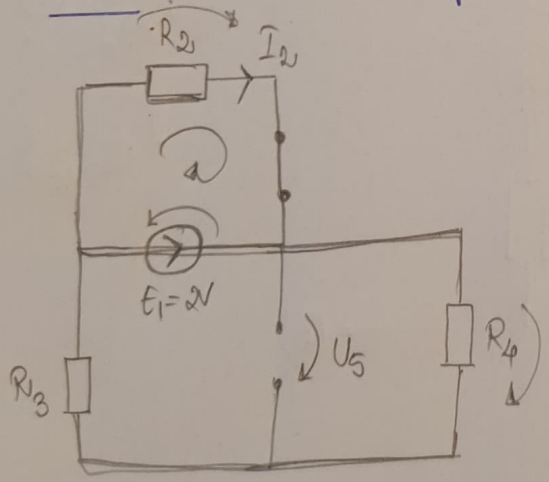
TEMĂ CURS 7

1. 

$I_2 = ?$, $U_5 = ?$ (utilizând teorema superpoziției)

* Dacă circuitul ar fi avut, pe lângă cele trei surse independente și una comandată, am fi avut tot trei pași de aplicat utilizând teorema superpoziției, deoarece sursele comandate sunt deja pasive.

Pas 1: Păstrez E_1, pasivizez restul

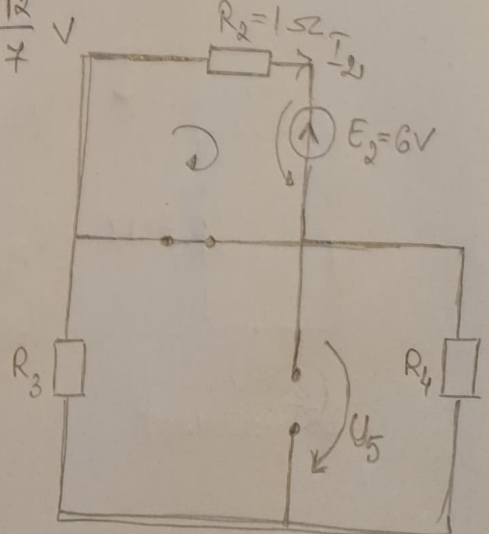


$$I_2^{(1)} = \frac{-E_1}{R_2} = -\frac{2}{1} = -2A$$

$$U_5^{(1)} = +E_1 \cdot \frac{R_4}{R_2 + R_4} = \quad \text{divizor de tensiune}$$

$$= 2 \cdot \frac{6}{7} = \frac{12}{7} V$$

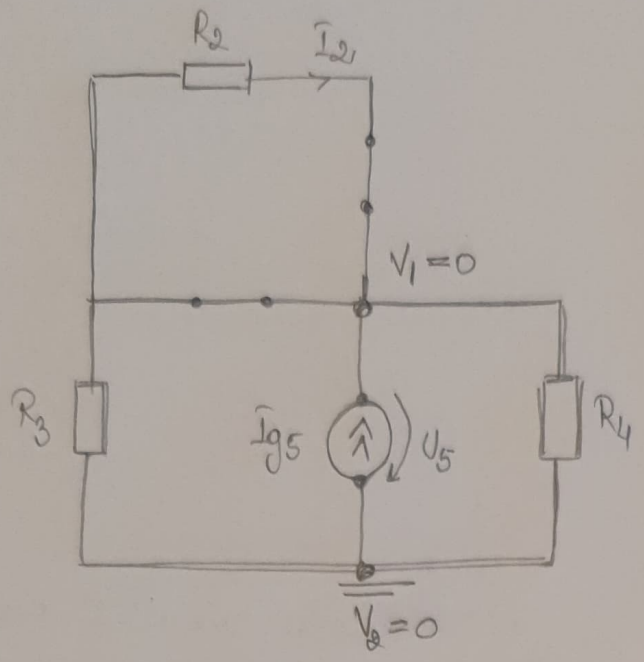
Pas 2: Păstrez E_2, pasivizez restul



$$I_2^{(2)} = \frac{-E_2}{R_2} = \frac{-6}{1} = -6A$$

$$U_5^{(2)} = 0\ V$$

Pas 3 : Păstrez $\bar{I}_{g5}$, pasivizez restul.



$$I_2^{(3)} = 0\,A$$

$$V_1\left(\frac{1}{R_3} + \frac{1}{R_4}\right) = I_{g5}$$

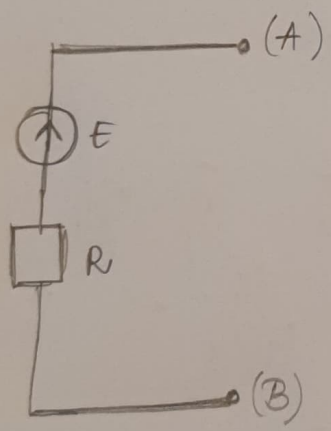
$$V_1 = \frac{R_3 R_4}{R_3 + R_4} \cdot I_{g5} = 12 \cdot \frac{6}{7} = \frac{72}{7}\,V$$

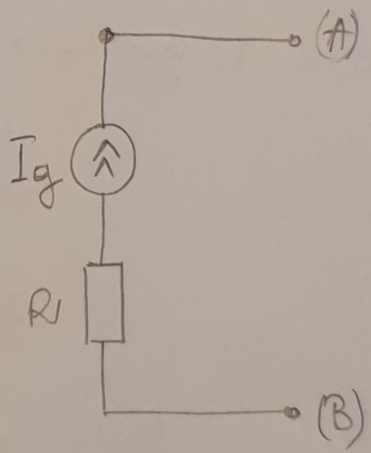
$$U_5 = V_1 - V_2 = \frac{72}{7} - 0 = \frac{72}{7}\,V$$

$$I_2 = I_2^{(1)} + I_2^{(2)} + I_3^{(3)} = -2 - 6 + 0 = -8\,A$$

$$U_5 = U_5^{(1)} + U_5^{(2)} + U_5^{(3)} = \frac{12}{7} + 0 + \frac{72}{7} = \frac{84}{7} = 12\,V$$

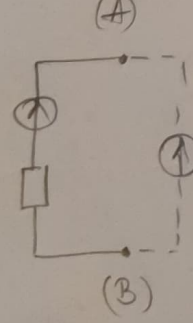
2.





$R_{AB_0} = ?$

$I_{AB_0 sc} = ?$



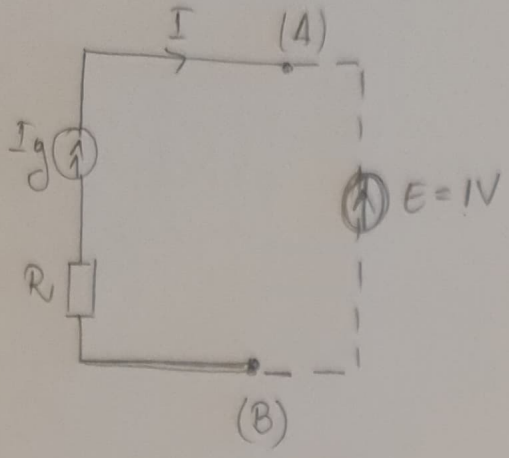
GET pasivizat

$$I = \frac{E}{R_{AB_0}}$$

$$R_{AB_0} = R$$

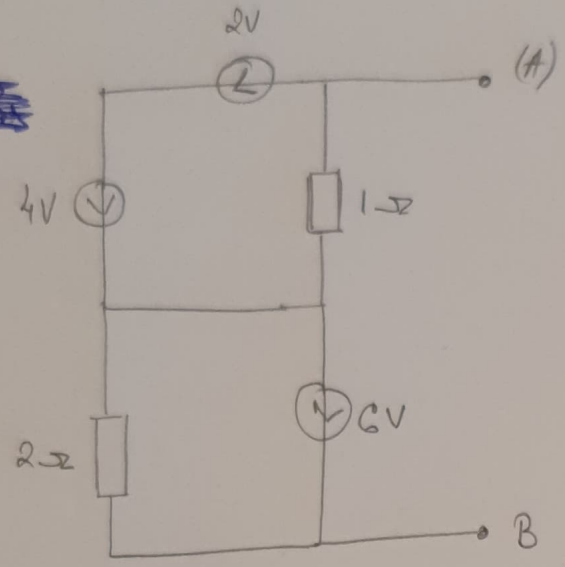
$$U_{AB_0} = E$$

$$\Rightarrow R_{AB_0} = \frac{U_{AB_0}}{I_{sc}} \Rightarrow I_{sc} = \frac{E}{R}$$

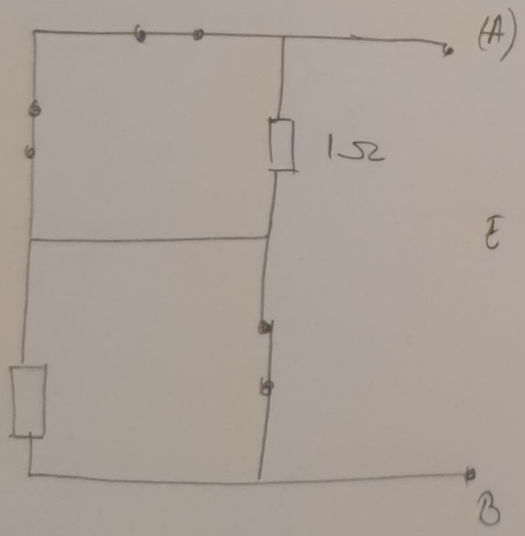


$$R_{AB_0} = \frac{U_{AB_0}}{I_{ABsc}} \Rightarrow U_{AB_0} = R_{AB_0} \cdot I_{ABsc}$$

3.



Pas 1 : Pasivizez circuitul



E conectat în scurtcircuit

$R_{AB_0} = 0\ \Omega$

Dipolul admite doar GET.