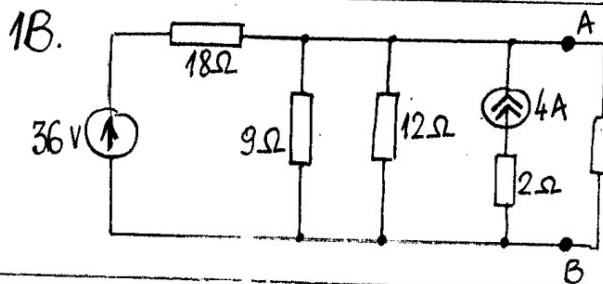
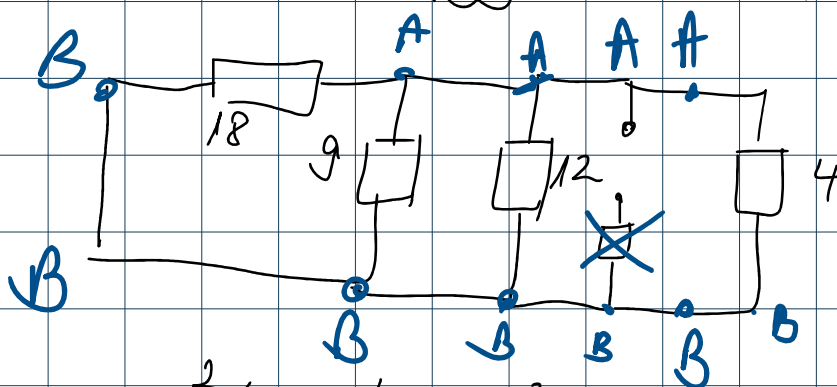


1 m cu 1-2 ore 1-1-1 v.



Pasivizați circuitul din figură.
Calculați-i rezistența față de bornele A și B.

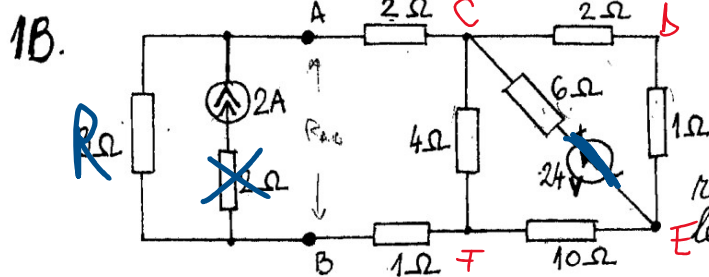
sursa de tensiune → linie



$$\frac{1}{R_p} = \frac{1}{18} + \frac{1}{9} + \frac{1}{12} = \frac{4}{36} = \frac{1}{9}$$

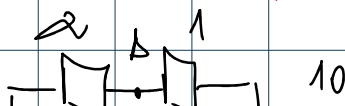
$$R_p = 9 \Omega$$

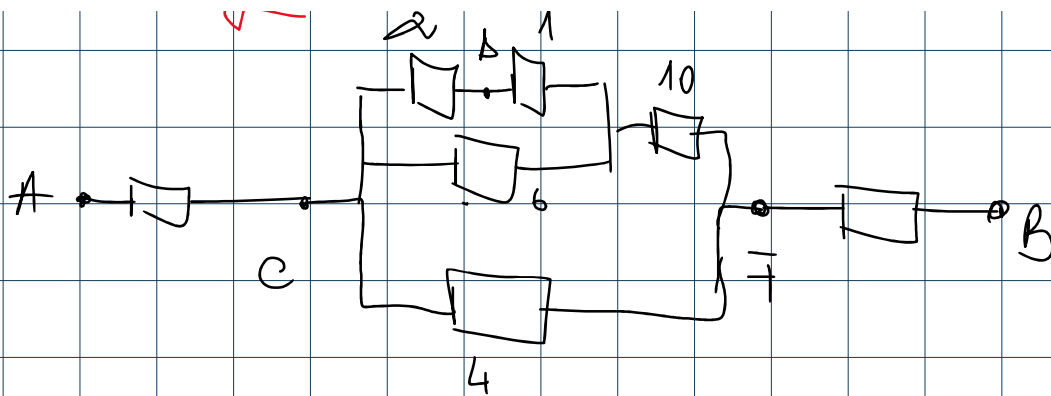
$$R_{eq} = \frac{4 \cdot 4}{4 + 4} = 2 \Omega$$



Pasivizați circ. cu schema din figură.
Calculați-i rezistența echivalentă față de bornele A și B.

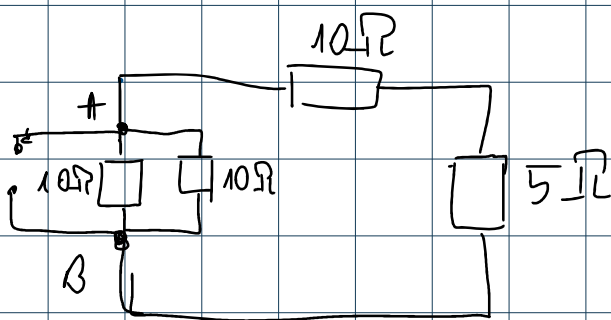
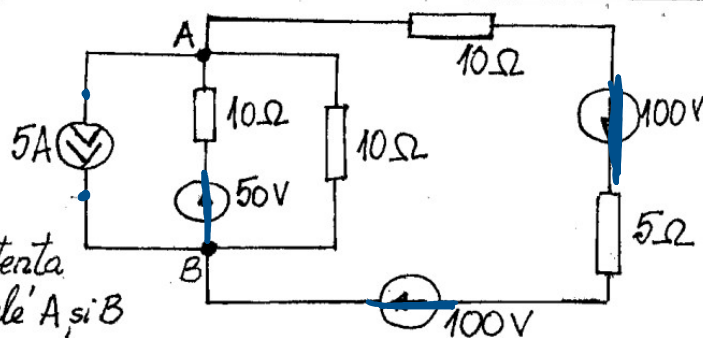
$R = R_{eq}$ (transfer maxim de putere)





1B.

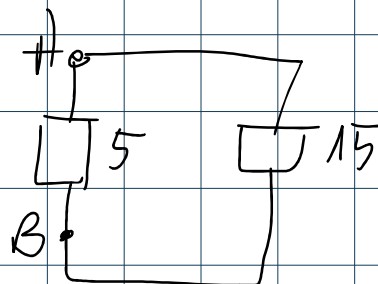
Posivizați
circuitul din
figură și
calculați rezistența
față de bornele A și B



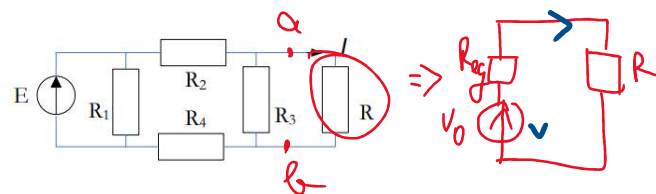
$$R_p = \frac{10 \cdot 10}{20} = 5 \Omega$$

$$R_s = 15 \Omega$$

$$R_{eq} = \frac{5 \cdot 15}{20} = \dots$$



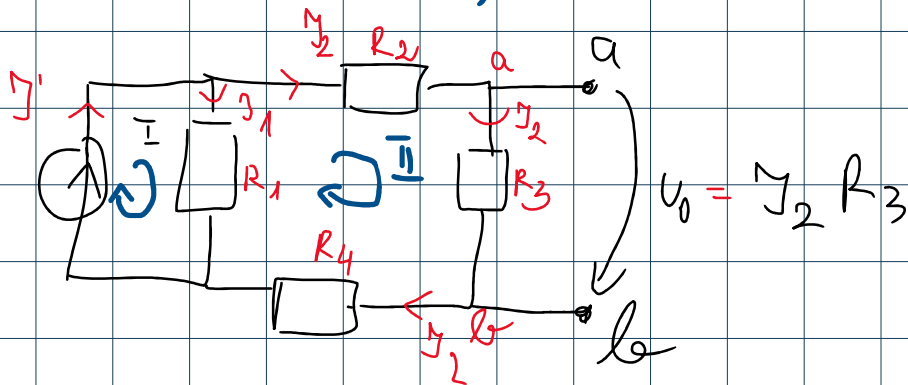
2-21 Determine the **Thevenin** equivalent circuit (R_{eq} , U_0), viewed by the resistance R for the circuit below. Find the current I through the resistance R . Circuit parameters: $E=15V$, $R_1=220\Omega$, $R_2=150\Omega$, $R_3=R_4=R=100\Omega$.



Problem 2-21

I. U_0 (currentii)

$$U = I \cdot R$$



$$I' = I_1 + I_2$$

I. $I_1 R_1 = E \Rightarrow I_1 = \frac{E}{R_1} = \frac{15}{220} = \frac{3}{44} \text{ A}$

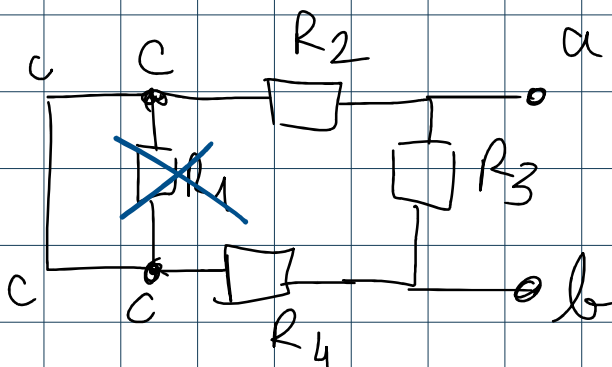
II $I_2 R_2 + I_2 R_3 + I_2 R_4 - I_1 R_1 = 0$

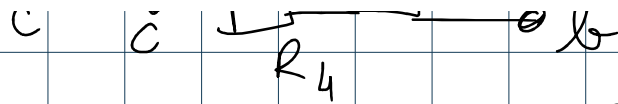
$$I_2 (R_2 + R_3 + R_4) - I_1 R_1 = E$$

$$I_2 = \frac{E}{R_2 + R_3 + R_4} = \frac{15}{350} = \frac{3}{70} \text{ A}$$

$$U_0 = I_2 R_3 = \frac{3}{70} \cdot 100 = \frac{30}{7} \text{ V}$$

II R_{eq}





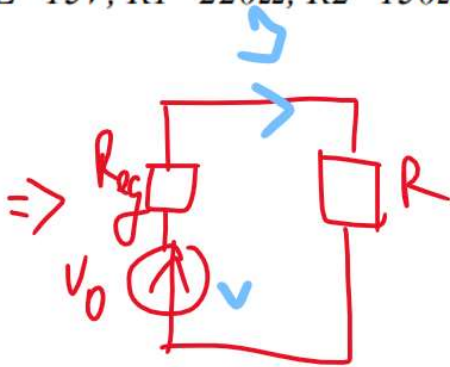
R_2, R_4 - serie $R_{24} = 250 \Omega$

R_{24}, R_3 - paralel $R_{eq} = \frac{250 \cdot 100}{250 + 100} = \frac{500}{7} \Omega$

III $I = ?$

$$V = IR$$

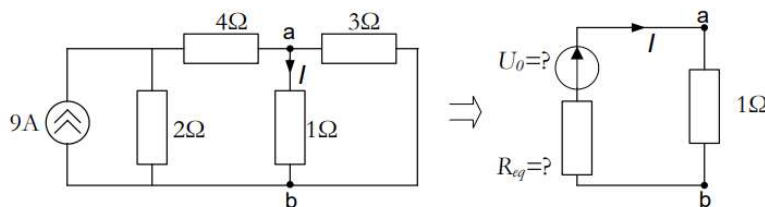
$E = 15V, R_1 = 220\Omega, R_2 = 150\Omega,$



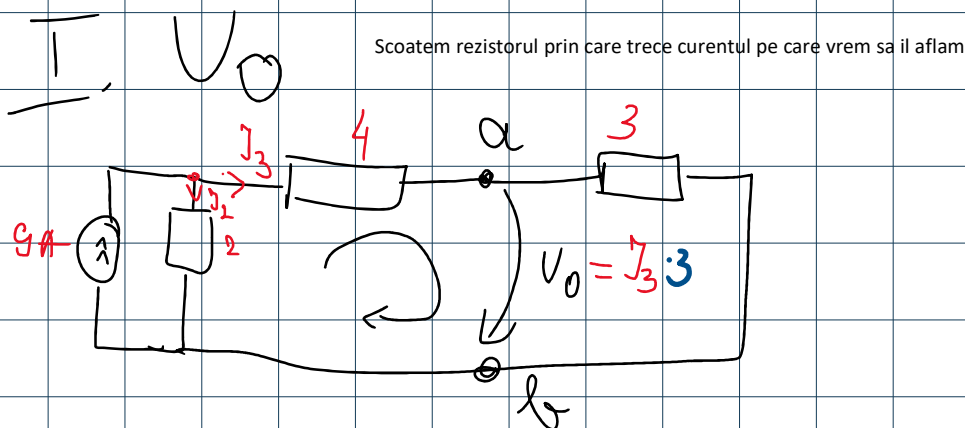
$$V_0 = IR_{eq} + IR$$

$$\Rightarrow I = \frac{V_0}{R_{eq} + R}$$

2-24 Determine the **Thevenin** equivalent circuit (R_{eq} , U_0), viewed by the 1Ω s resistance (terminals a and b) for the circuit below. Find the current I through the 1Ω s resistance.



Problem 2-24



$$9 = I_2 + I_3 \Rightarrow I_2 = 9 - I_3$$

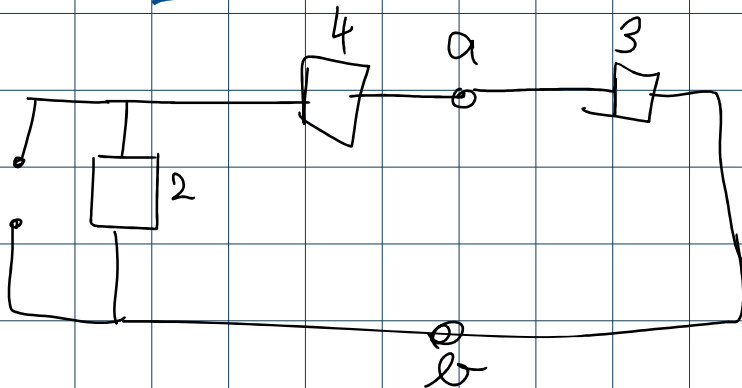
$$4I_3 + 3I_3 - 2I_2 = 0$$

$$7I_3 - 18 + 2I_3 = 0$$

$$I_3 = 2A$$

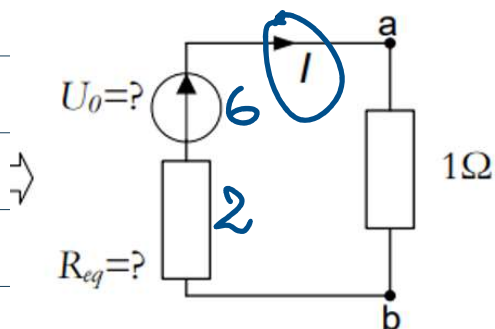
$$U_0 = 6V$$

II $R_{eq} = ?$



$$4 + 2 = 6$$

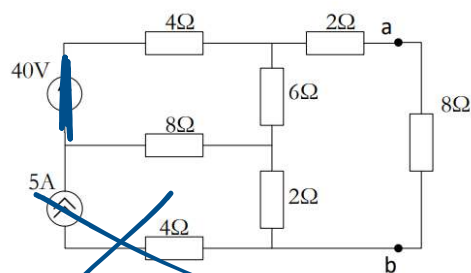
$$R_{eq} = \frac{6 \cdot 3}{9} = 2 \Omega$$



$$2I + I = 6$$

$$I = 2A$$

2-17 Suppress all the sources in the circuit below and calculate the equivalent resistance, R_{eq} , regarding to the terminals a and b.



Problem 2-17

$$4 + 8 = 12$$

12; 6 parallel

series w 2

series w 2

parallel w 8