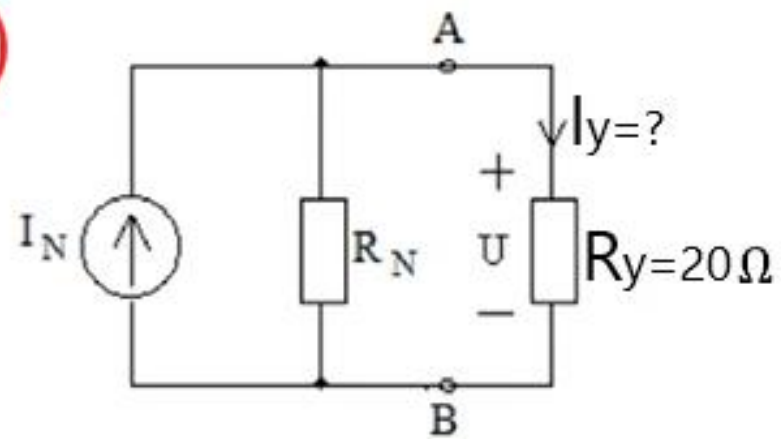
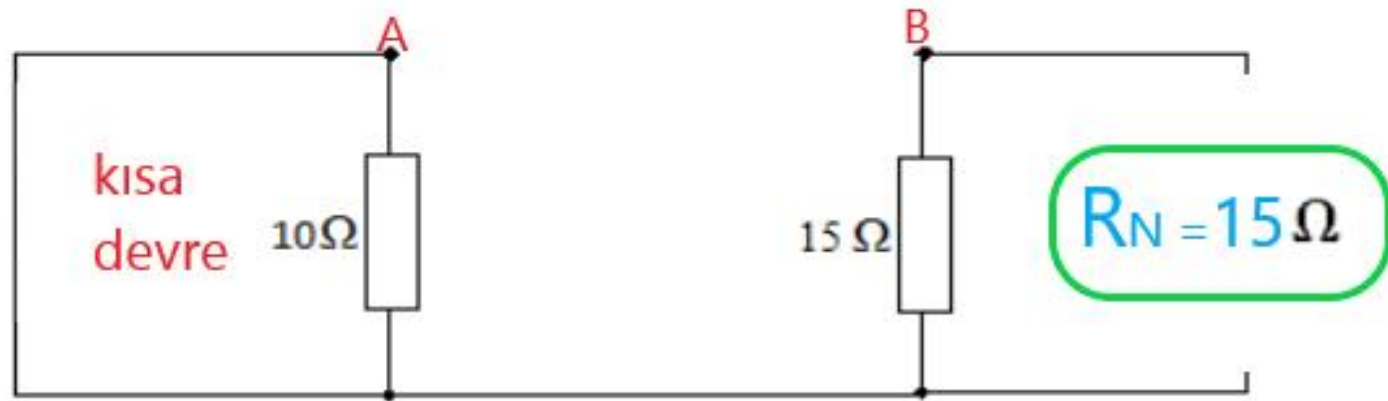
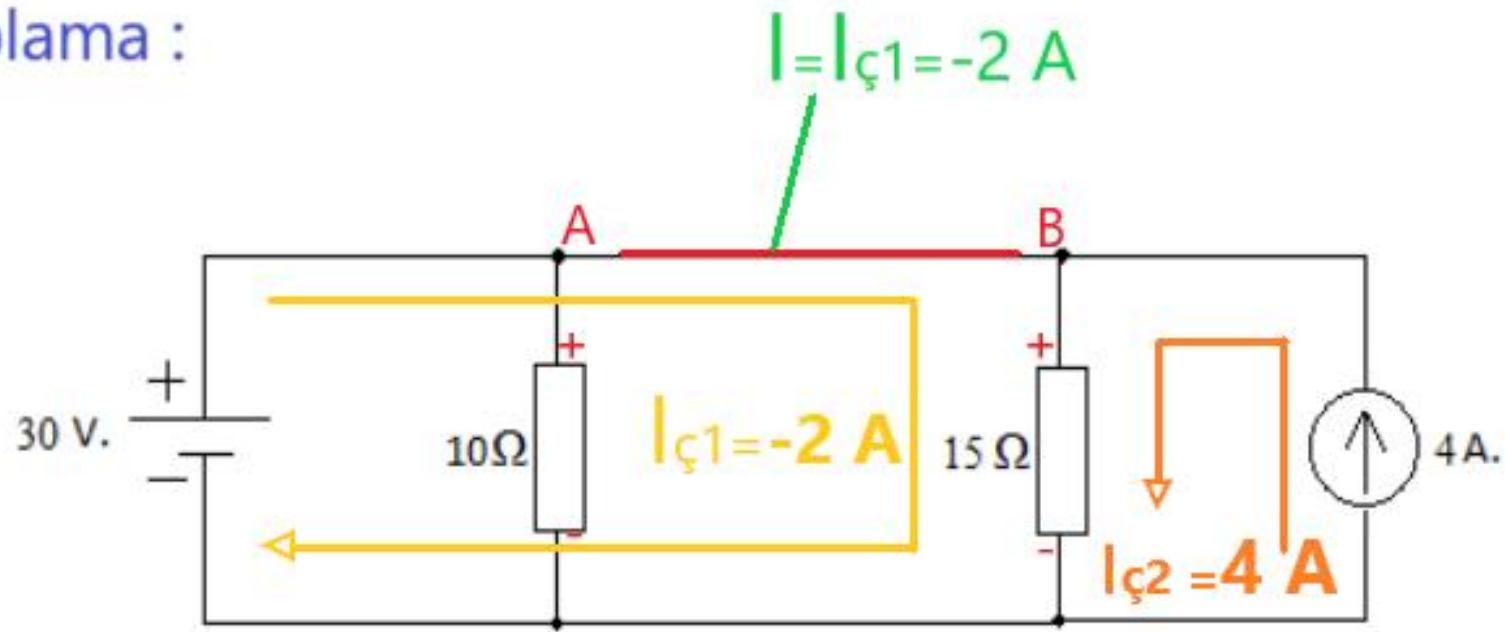


a)

\*  $R_N$  Hesaplama :

\*  $I_N$  Hesaplama :



$$I_N = -2\text{ A}$$

\*  $I_N$  Hesaplaması:

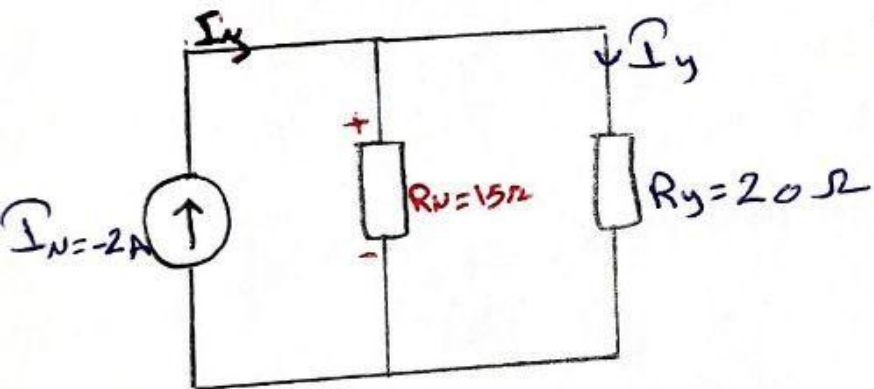
$$15 I_{s1} + 15 I_{s2} = 30$$

$$I_{s2} = 4 \text{ A}$$

$$\Rightarrow 15 I_{s1} + 60 = 30 \Rightarrow I_{s1} = -2 \text{ A}$$

$$\Rightarrow I_N = -2 \text{ A}$$

$\Rightarrow$  \*  $I_y$  Hesaplaması



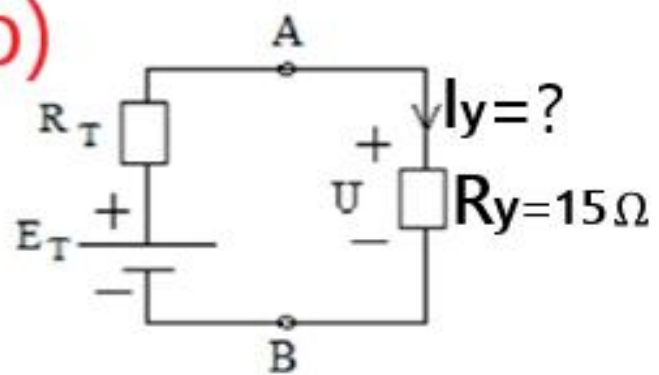
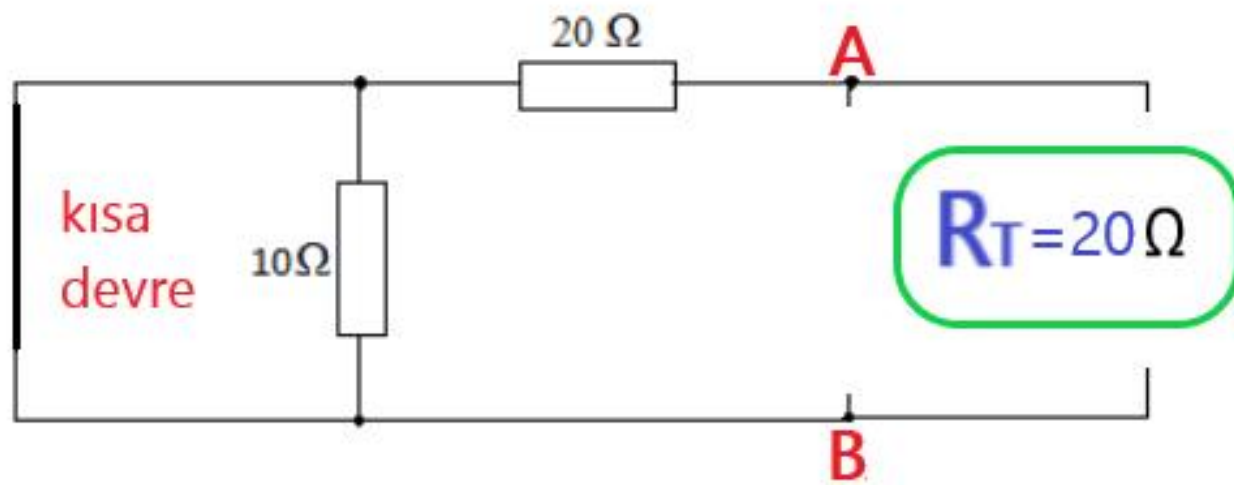
$$\Rightarrow I_y = \frac{R_N}{R_y + R_N} \cdot I_N$$

$$\Rightarrow I_y = \frac{15}{35} \cdot -2 = -0,857 \text{ A}$$

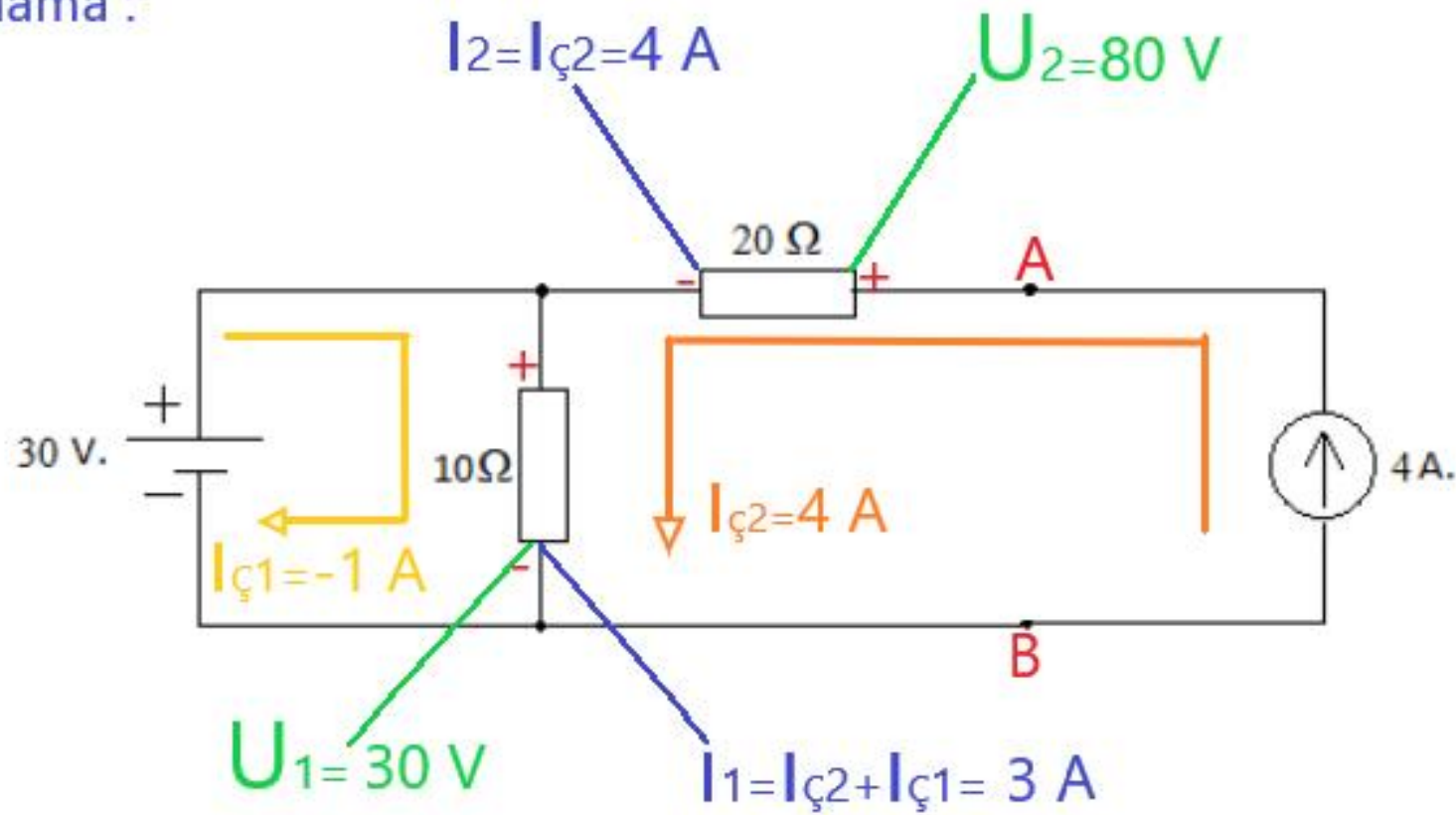
$$I_y = -0,857 \text{ A}$$

$\Rightarrow$   $20\Omega$ 'dan geçen akım değeri

b)

\*  $R_T$  Hesaplama :

\*  $E_T$  Hesaplama :



$$E_T = 110 \text{ V}$$

\*  $E_T$  Hesaplama:

$$10 I_{s1} + 10 I_{s2} = 30 \quad \boxed{I_{s2} = 4}$$

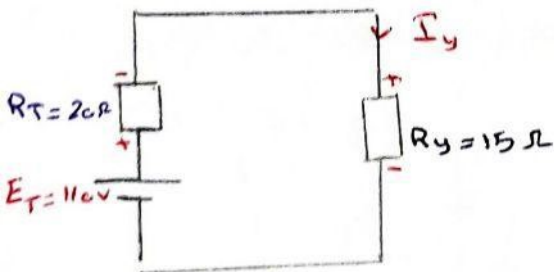
$$10 I_{s1} + 40 = 30 \Rightarrow \boxed{I_{s1} = -1}$$

$$* U_1 = R_1 \cdot I = 10 \cdot (I_{s1} + I_{s2}) = 10 \cdot (-1 + 4) = \boxed{30 \text{ V} = U_1}$$

$$* U_2 = R_2 \cdot I = 20 \cdot I_{s2} = 20 \cdot 4 = \boxed{80 \text{ V} = U_2}$$

$$\Rightarrow \boxed{E_T = 80 + 30 = 110 \text{ V}}$$

\*  $I_y$  Hesaplama:



$$\Rightarrow I_y = \frac{E_T}{R_T + R_y} = \frac{110}{20 + 15} = 3,142 \text{ A}$$

$I_y = 3,142 \text{ A} \Rightarrow 15\Omega$ 'dan geçen akım değeri

c)

$$I_1 = I_{\zeta 1} + I_{\zeta 2} = 2,143 \text{ A}$$

$$I_4 = I_{\zeta 2} = -0,857 \text{ A}$$

$$U_4 = -17,14 \text{ V}$$

$$U_2 = -47,115 \text{ V}$$

$$U_1 = 30 \text{ V}$$

$$30 \text{ V.}$$

$$I_{\zeta 1} = 3 \text{ A}$$

$$10 \Omega$$

$$R_1$$

$$I_{\zeta 2} = -0,857 \text{ A}$$

$$15 \Omega$$

$$R_3$$

$$I_{\zeta 3} = 4 \text{ A}$$

$$4 \text{ A.}$$

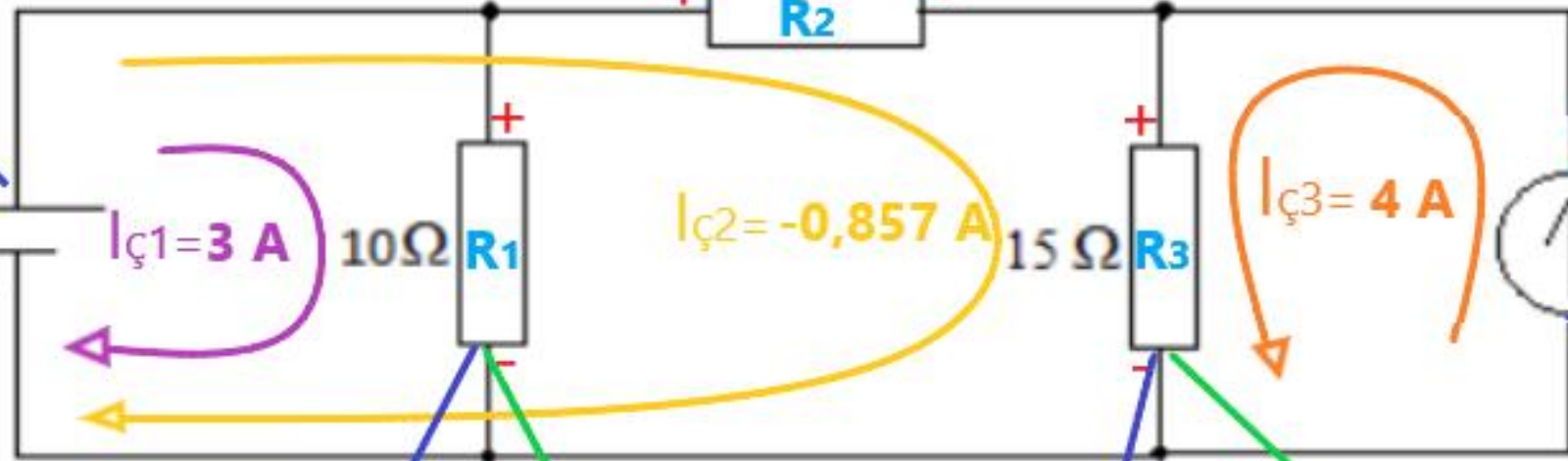
$$I_2 = 4 \text{ A}$$

$$I_3 = I_{\zeta 1} = 3 \text{ A}$$

$$U_3 = 30 \text{ V}$$

$$I_5 = (I_{\zeta 2} + I_{\zeta 3}) = 3,143 \text{ A}$$

$$U_5 = 47,145 \text{ V}$$





$$* I_{s1} \cdot 10 = 30 \Rightarrow \boxed{I_{s1} = 3A} \quad \boxed{I_{s3} = 4A}$$

$$* 35 I_{s2} + 15 I_{s3} = 30 V$$

$$\Rightarrow 35 I_{s2} + 60 = 30$$

$$\Rightarrow \boxed{I_{s2} = -0,857A}$$

$$* 15 I_{s3} + 15 I_{s2} + U_2 = 0$$

$$60 - 12,885 + U_2 = 0$$

$$\Rightarrow \boxed{U_2 = -47,115}$$

$$* U_3 = R_1 \cdot I_3 = 10 \cdot 3 = 30V$$

$$* U_4 = R_2 \cdot I_4 = 20 \cdot -0,857 = \boxed{-17,14V}$$

$$* U_5 = R_3 \cdot I_5 = 15 \cdot 3,143 = 47,145V$$

$$* U_2 = -47,115V$$

$$* U_1 = 30V$$

$$* \boxed{I_3 = I_{s1} = 3A}$$

$$* I_4 = I_{s2} = -0,857A$$

$$* I_5 = (I_{s2} + I_{s3}) = 3,143A$$

$$* I_1 = (I_{s1} + I_{s2}) = 2,143A$$

$$* I_2 = 4A$$