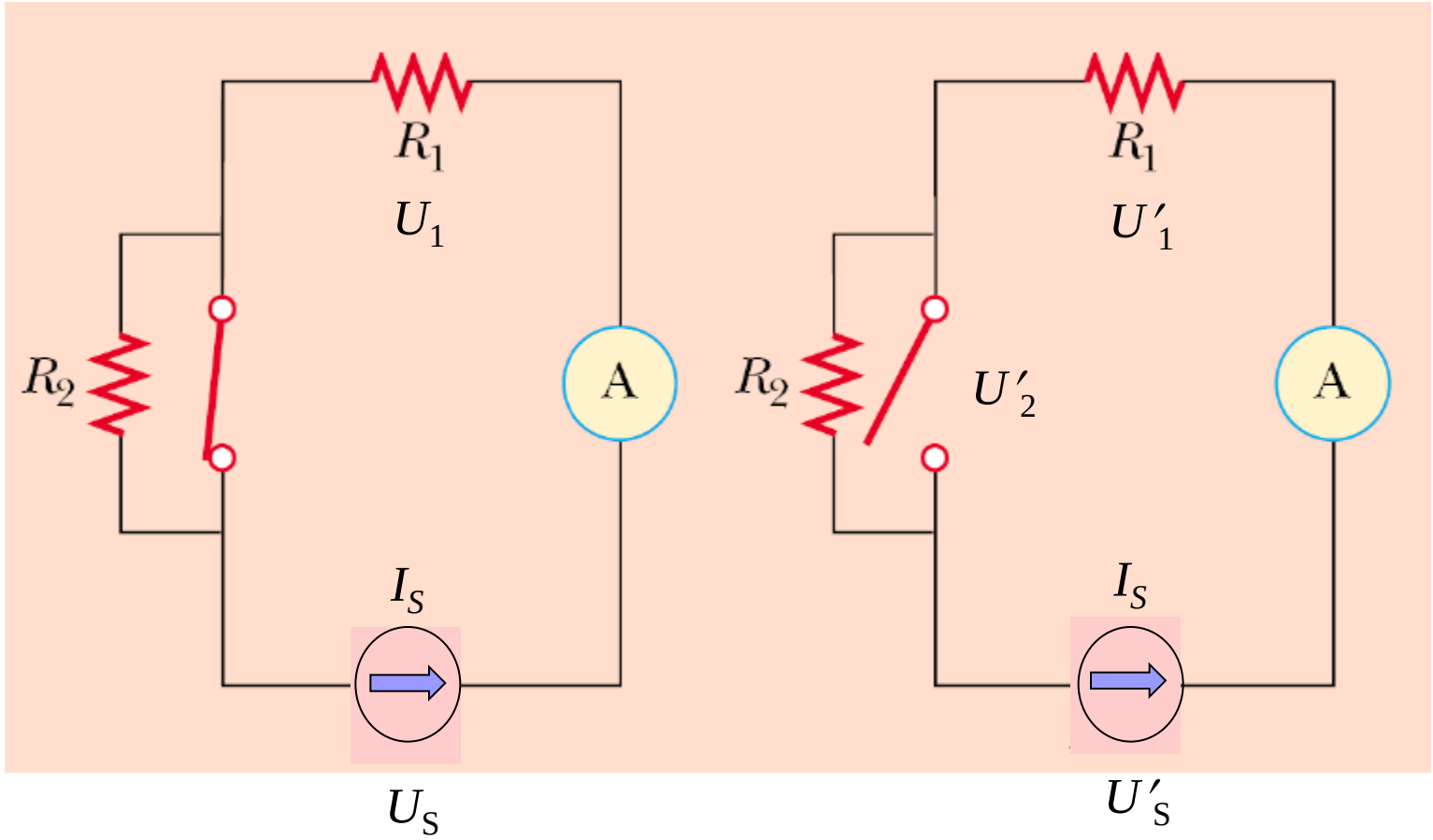
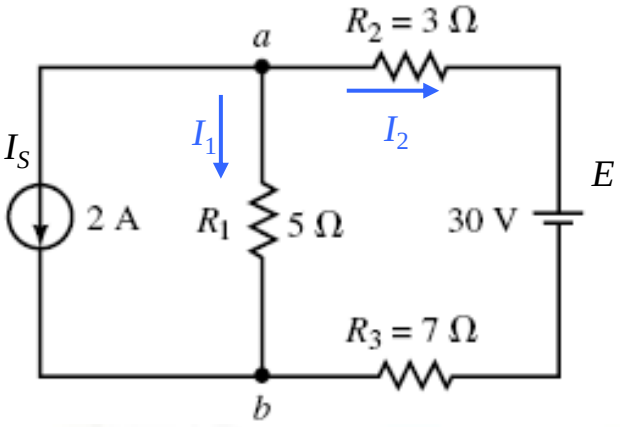
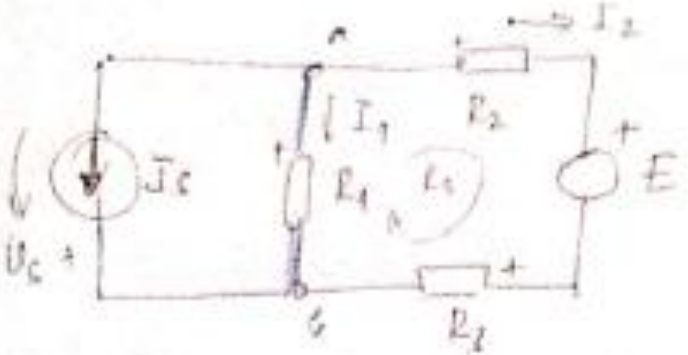
При отворен и затворен прекинувач да се определат сите напони на елементите од колото.



Кирхофови закони





$n_j = 2$

$n_g = 3$

$n' = n_j - 1 = 1$

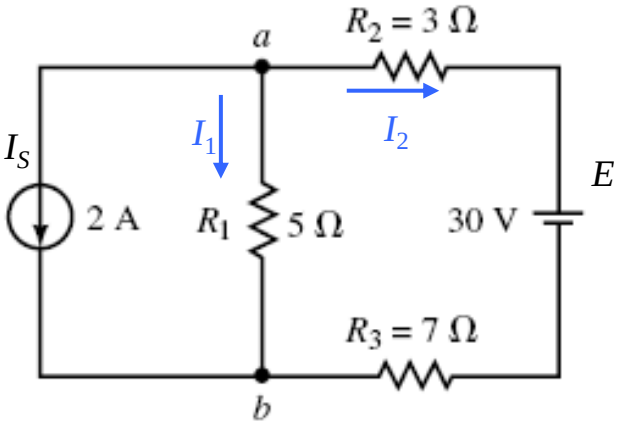
$n'' = n_g - (n_j - 1) = 3 - 1 = 2$

$n_g = n' + n'' = 3$

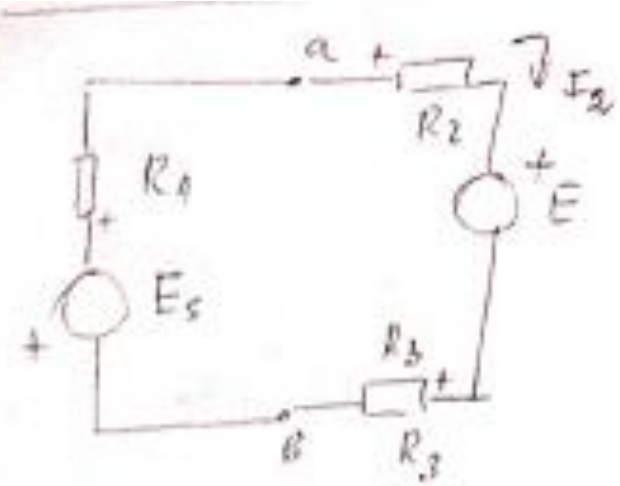
$U_{ab} = R_1 I_1 = R_2 I_2 + E + R_3 I_2$

$U_S = U_{ba} = -U_{ab}$

$P_{I_S} = U_S I_S$



Еквивалентирање



$$E_s = I_s R_1$$

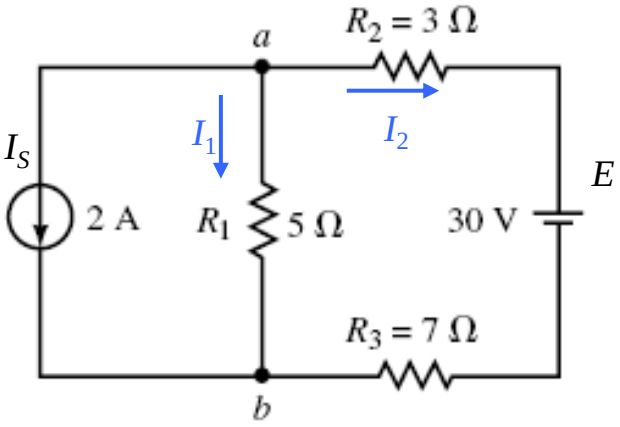
$$\sum U = 0$$

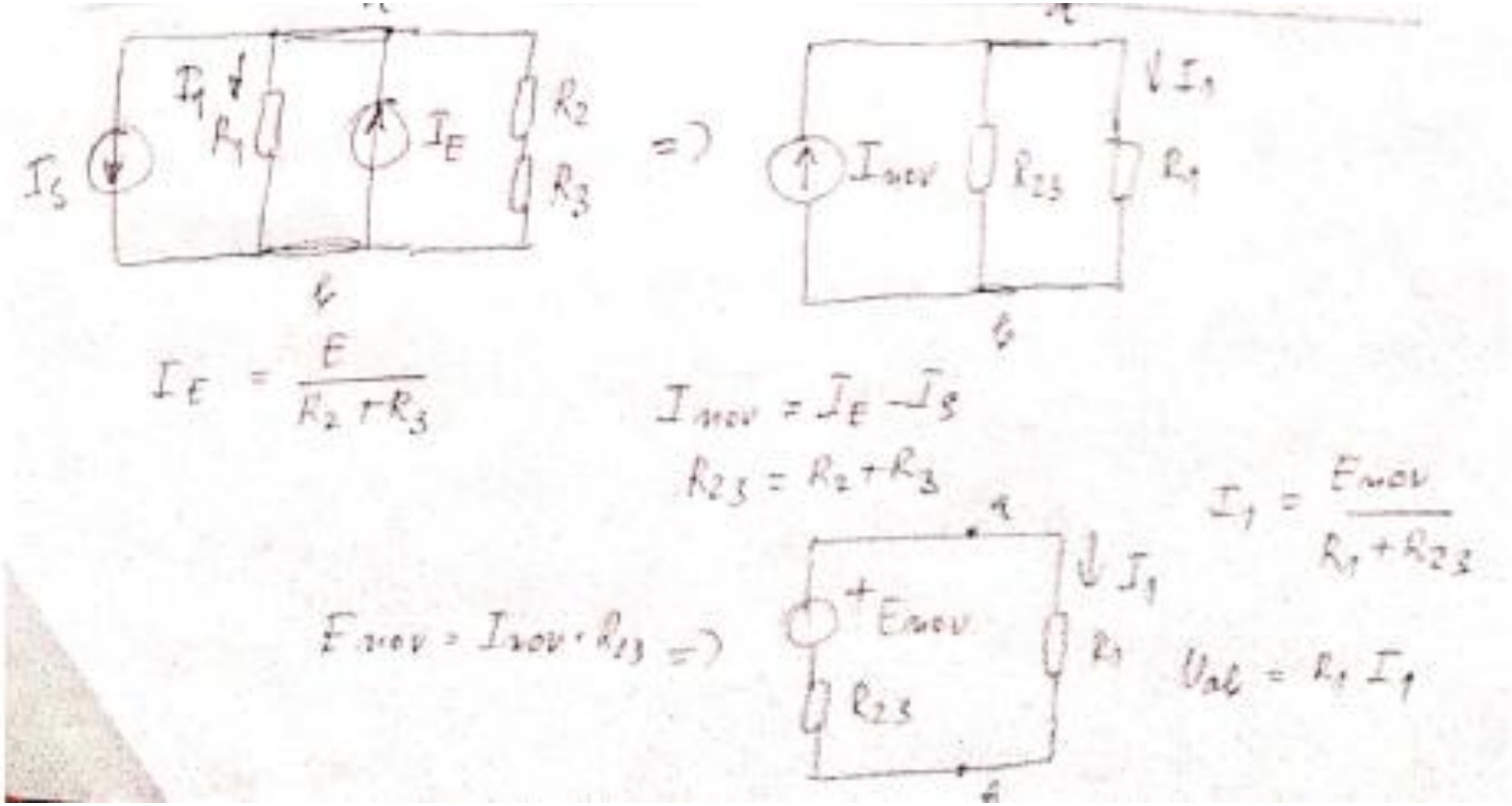
$$-E - R_3 I_2 - E_s - R_3 I_2 - R_1 I_2 = 0$$

$$I_2 = -\frac{E_s + E}{R_1 + R_2 + R_3}$$

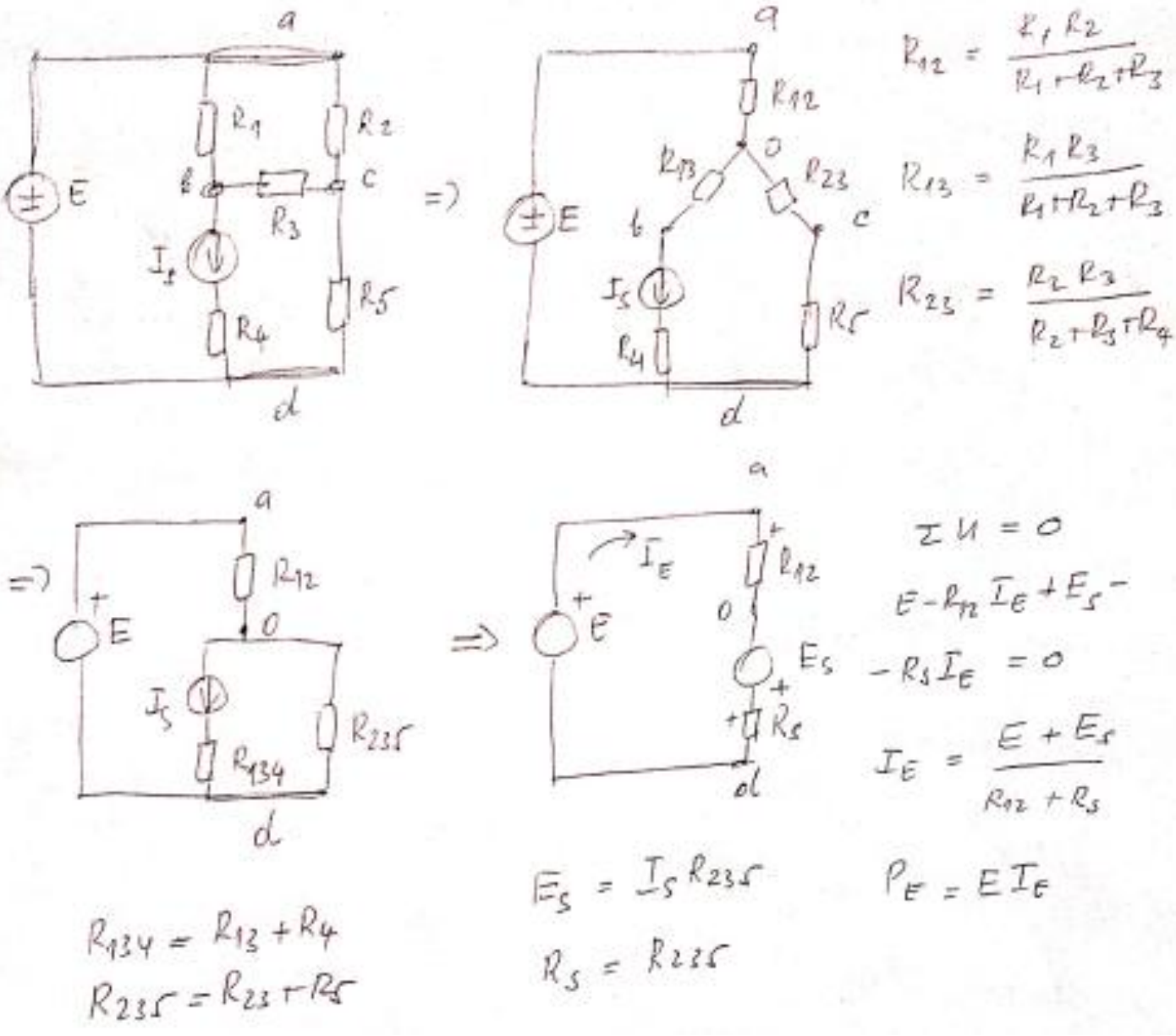
$$U_{ab} = (R_2 + R_3) I + E$$

Еквивалентирање





Трансфигурација Y→Δ



$$R_{12} = \frac{R_1 R_2}{R_1 + R_2 + R_3}$$

$$R_{13} = \frac{R_1 R_3}{R_1 + R_2 + R_3}$$

$$R_{23} = \frac{R_2 R_3}{R_2 + R_3 + R_4}$$

$$\Sigma U = 0$$

$$E - R_{12} I_E + E_s - R_s I_E = 0$$

$$I_E = \frac{E + E_s}{R_{12} + R_s}$$

$$E_s = I_s R_{235}$$

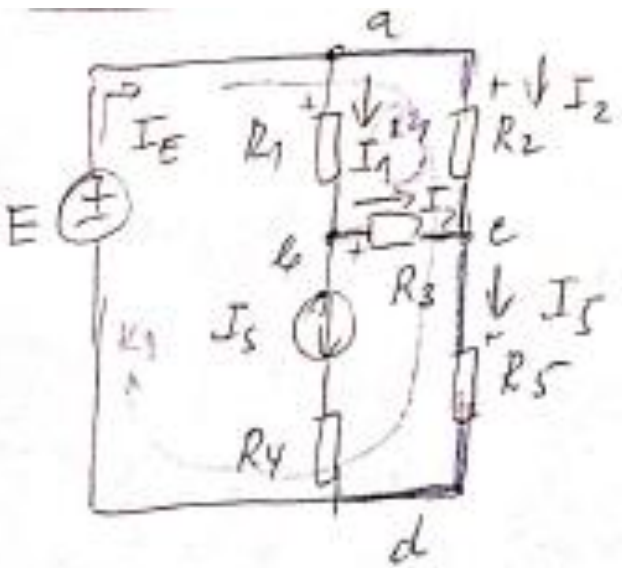
$$R_s = R_{235}$$

$$P_E = E I_E$$

$$R_{134} = R_{13} + R_4$$

$$R_{235} = R_{23} + R_5$$

Кирхофови закони



$$
\left.\begin{aligned}
j\,a: &\quad I_1 + I_2 - I_E = 0\\
j\,b: &\quad I_3 + I_5 - I_1 = 0\\
j\,d: &\quad I_E - I_3 - I_5 = 0\\
K_1: &\quad E - R_2 I_2 - R_5 I_5 = 0\\
K_2: &\quad -R_2 I_2 + R_3 I_3 + R_1 I_1 = 0
\end{aligned}\right\}
$$

I_1, I_2, I_3, I_5, I_E

$n_j' = 4$

$n_g = 6$

$n' = n_j' - 1 = 4 - 1 = 3$

$n'' = n_g - (n_j' - 1) = 6 - 3 = 3$

Бидејќи $n' + n'' = n_g = 6$ Неподзнаени струи $n_g - 1 = 5$

равенки