



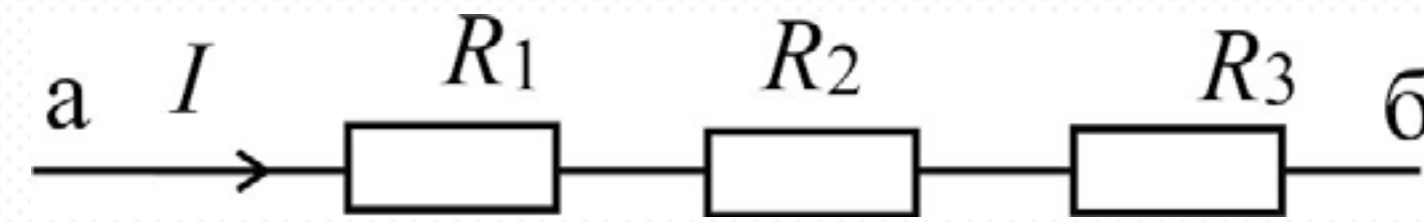
ОСНОВНЫЕ ОПРЕДЕЛЕНИЯ, ЭЛЕМЕНТЫ И ЗАКОНЫ ЭЛЕКТРИЧЕСКИХ ЦЕПЕЙ

Кафедра «ЭиЭ»



ТЕОРЕТИЧЕСКИЕ ОСНОВЫ ЭЛЕКТРОТЕХНИКИ

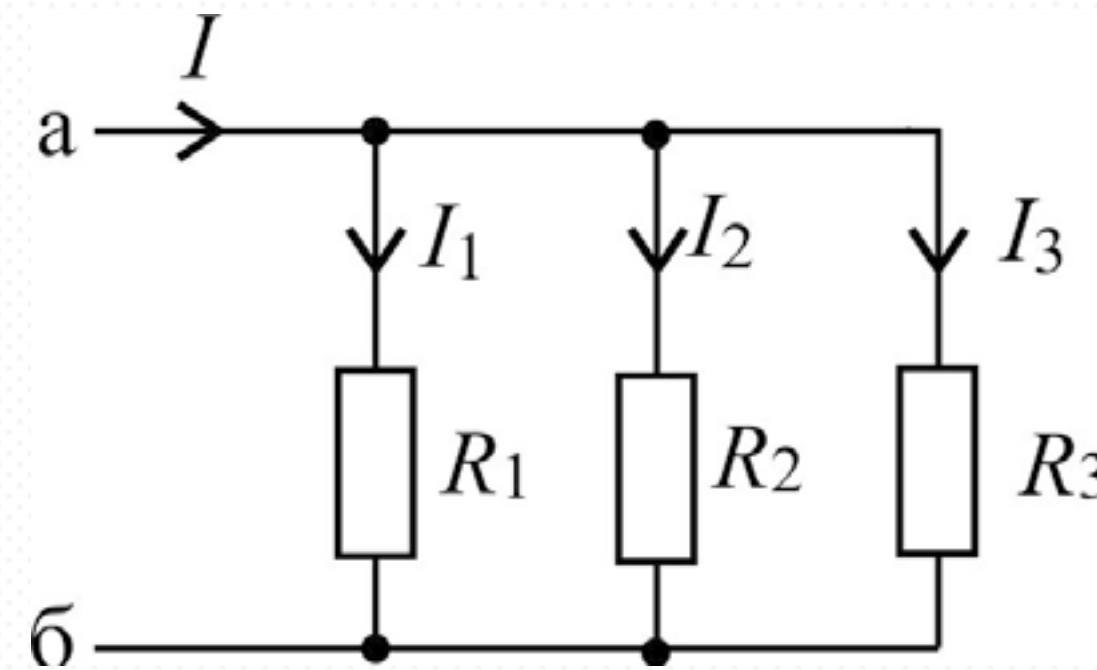
ПОСЛЕДОВАТЕЛЬНОЕ СОЕДИНЕНИЕ



$$U_{aб} = I(R_1 + R_2 + R_3) = IR_{aб}$$

$$R_{aб} = R_1 + R_2 + R_3$$

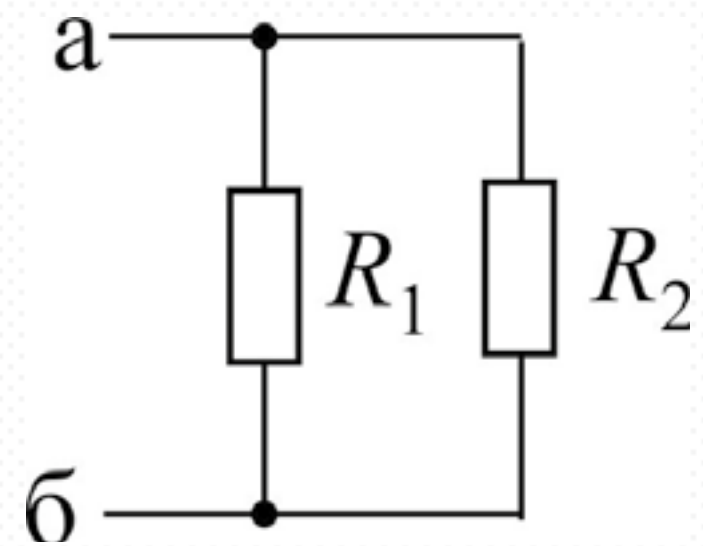
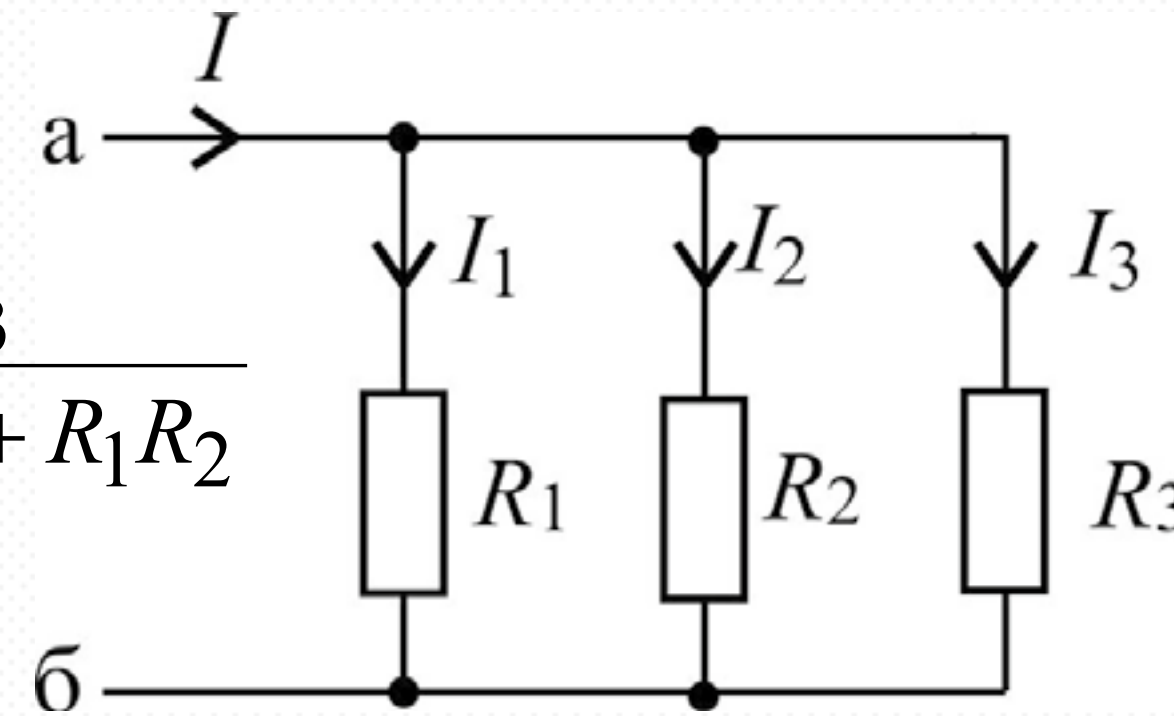
ПАРАЛЛЕЛЬНОЕ СОЕДИНЕНИЕ



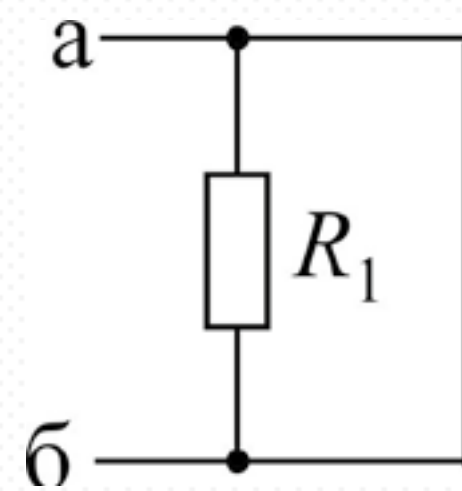
$$\begin{aligned}
 I = I_1 + I_2 + I_3 &= \frac{U_{aб}}{R_1} + \frac{U_{aб}}{R_2} + \frac{U_{aб}}{R_3} = \\
 &= U_{aб} \left(\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \right) = U_{aб} (G_1 + G_2 + G_3) = U_{aб} G_{aб} .
 \end{aligned}$$

ПАРАЛЛЕЛЬНОЕ СОЕДИНЕНИЕ

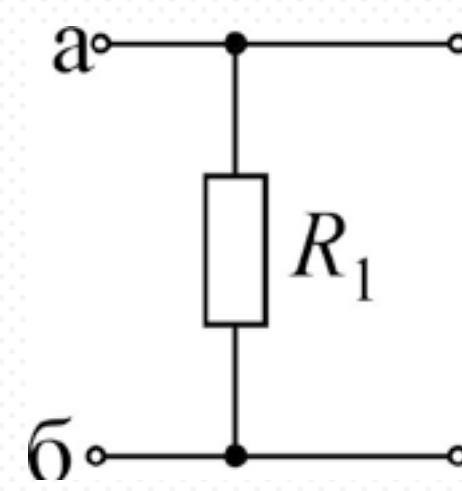
$$R_{\Sigma} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}} = \frac{R_1 R_2 R_3}{R_2 R_3 + R_1 R_3 + R_1 R_2}$$



$$R_{\Sigma} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}} = \frac{R_1 R_2}{R_1 + R_2}$$

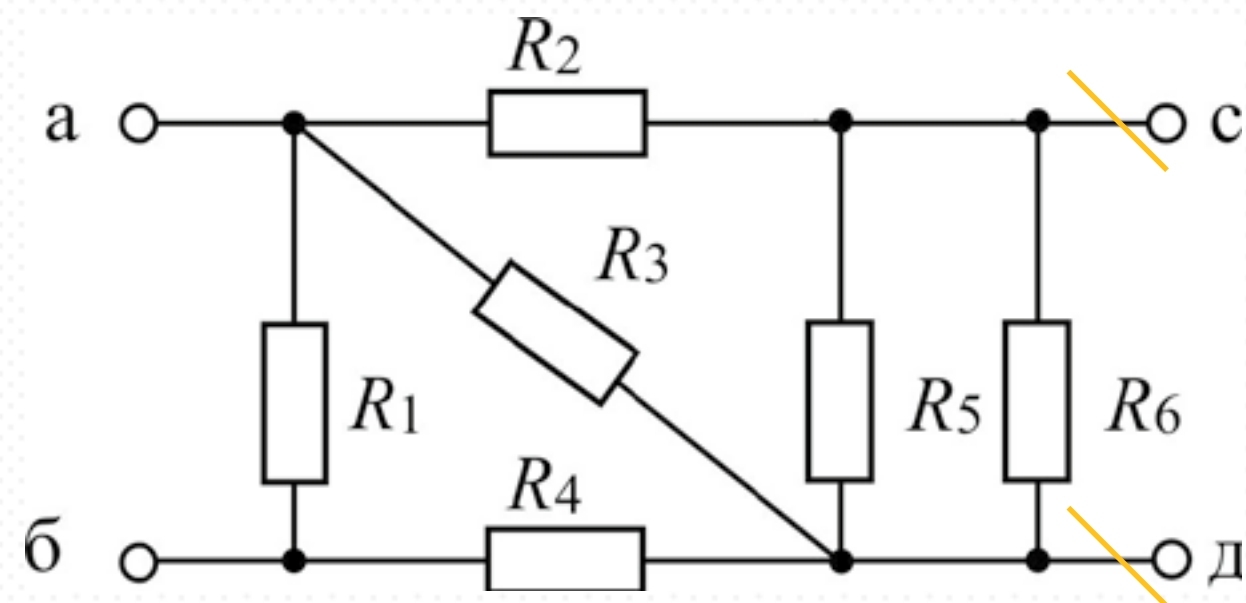


$$R_{\Sigma} = \frac{R_1 \cdot 0}{R_1 + 0} = 0$$

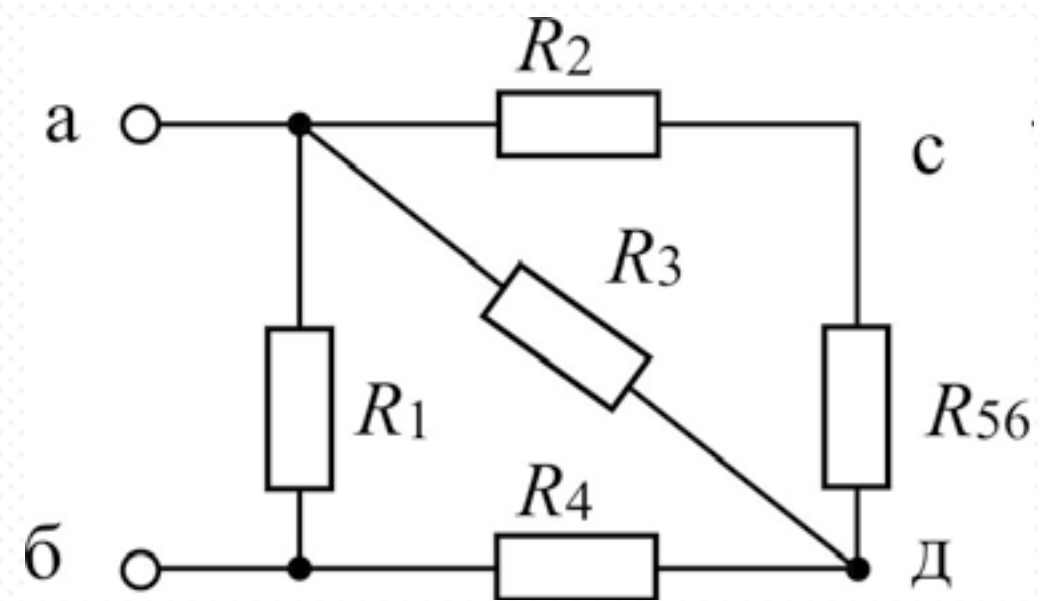


$$R_{\Sigma} = \frac{R_1 \cdot \infty}{R_1 + \infty} = R_1$$

СМЕШЕННОЕ СОЕДИНЕНИЕ

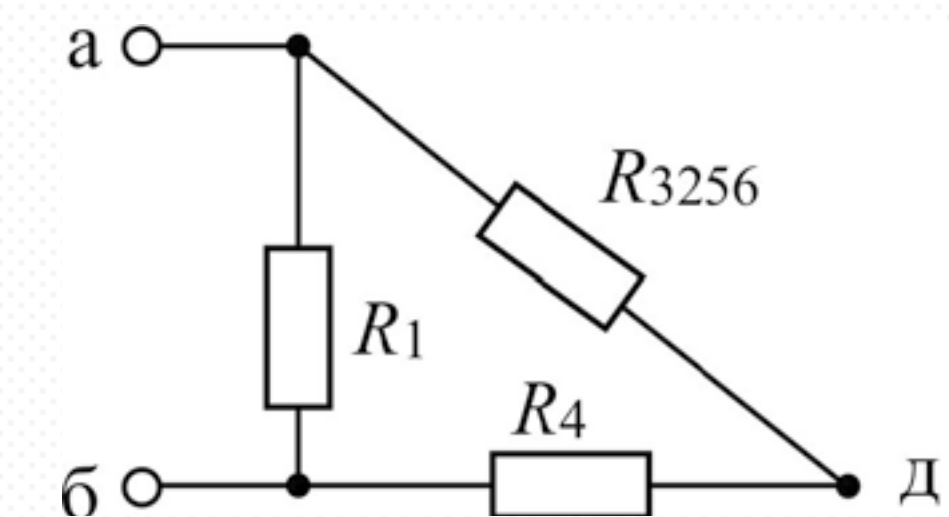


$$R_{56} = \frac{R_5 R_6}{R_5 + R_6}$$



$$R_{256} = R_2 + R_{56}$$

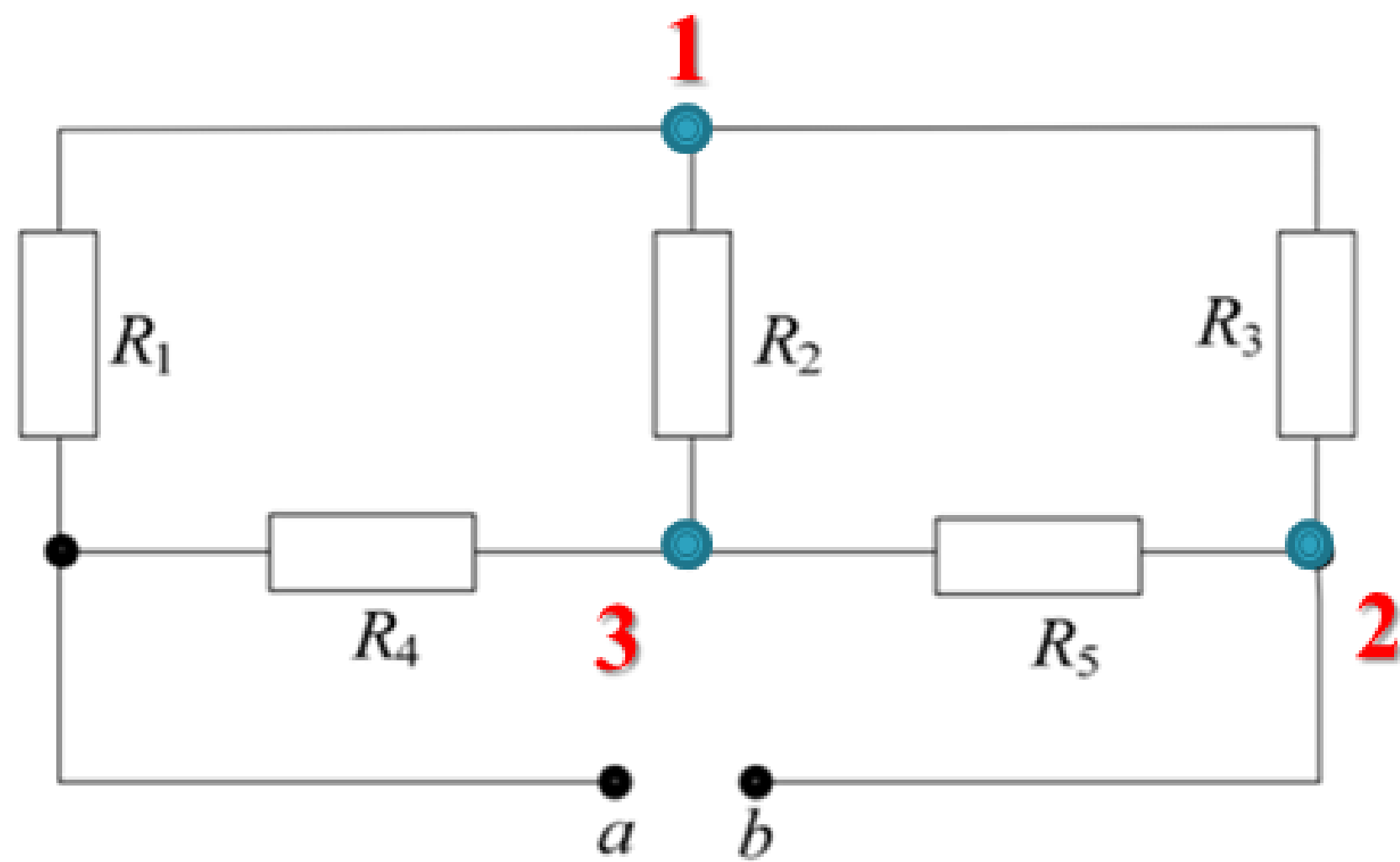
$$R_{3256} = \frac{R_3 R_{256}}{R_3 + R_{256}}$$



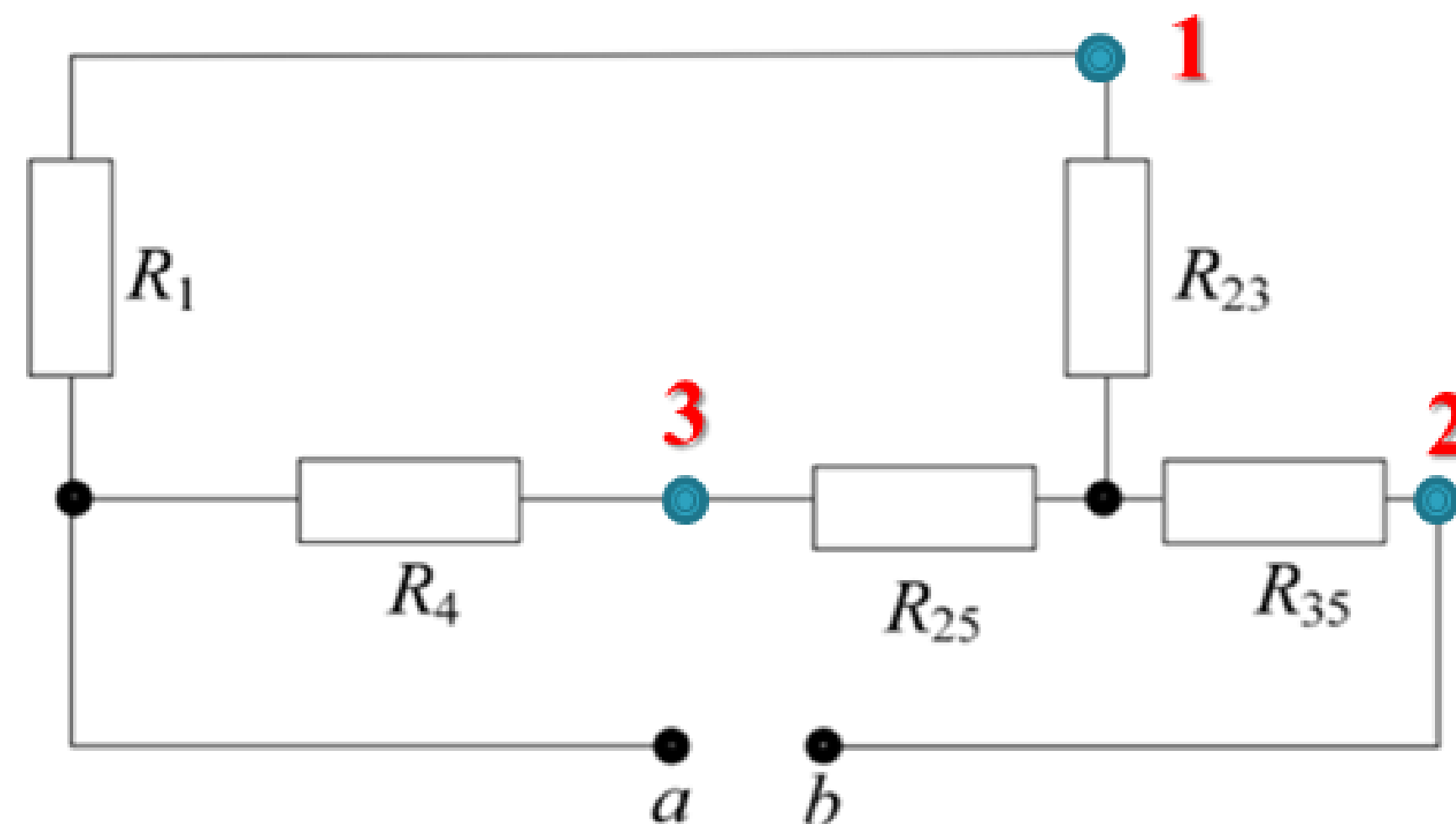
$$R_{43256} = R_4 + R_{3256}$$

$$R_{aб} = \frac{R_1 R_{43256}}{R_1 + R_{43256}}$$

«ТРЕУГОЛЬНИК»



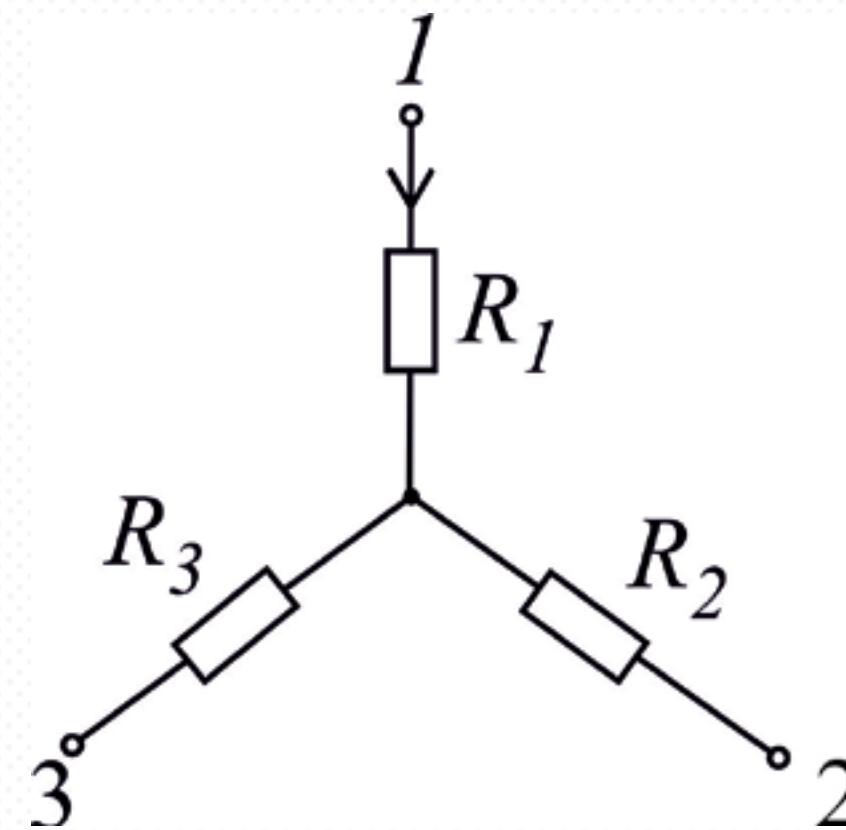
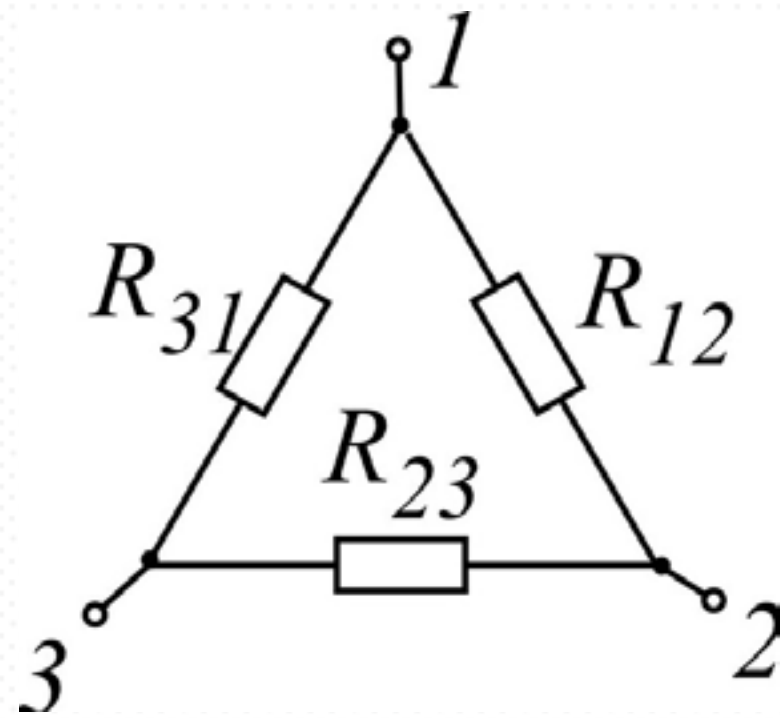
«ЗВЕЗДА»



«ТРЕУГОЛЬНИК»



«ЗВЕЗДА»



$$R_1 = \frac{R_{12} R_{31}}{R_{12} + R_{23} + R_{31}}$$

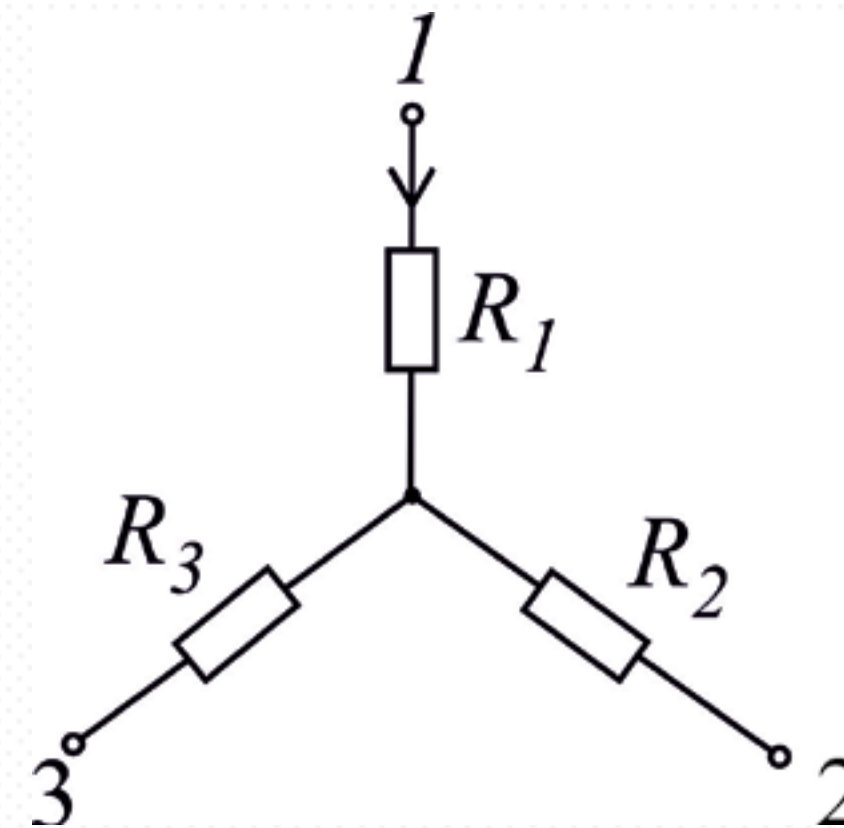
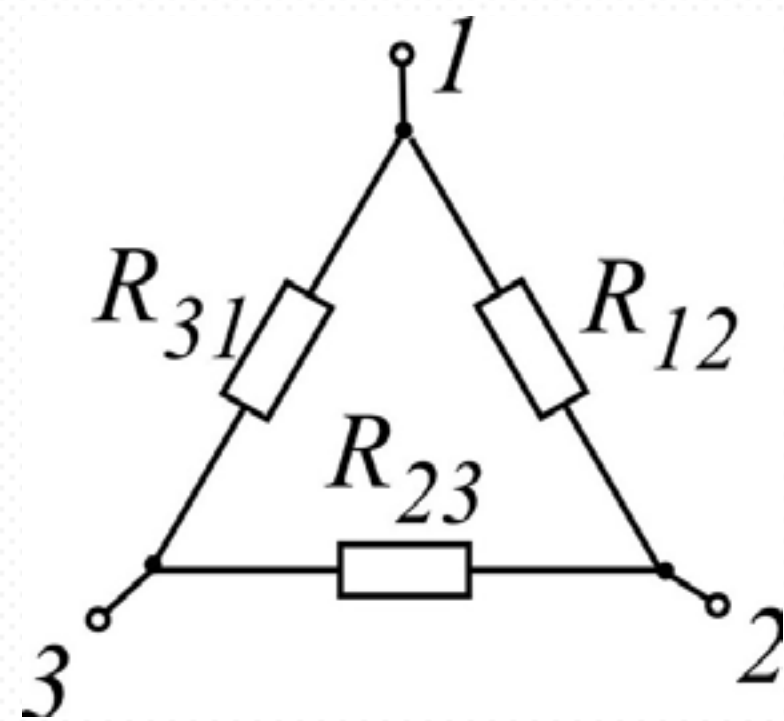
$$R_2 = \frac{R_{12} R_{23}}{R_{12} + R_{23} + R_{31}}$$

$$R_3 = \frac{R_{31} R_{23}}{R_{12} + R_{23} + R_{31}}$$

«ТРЕУГОЛЬНИК»



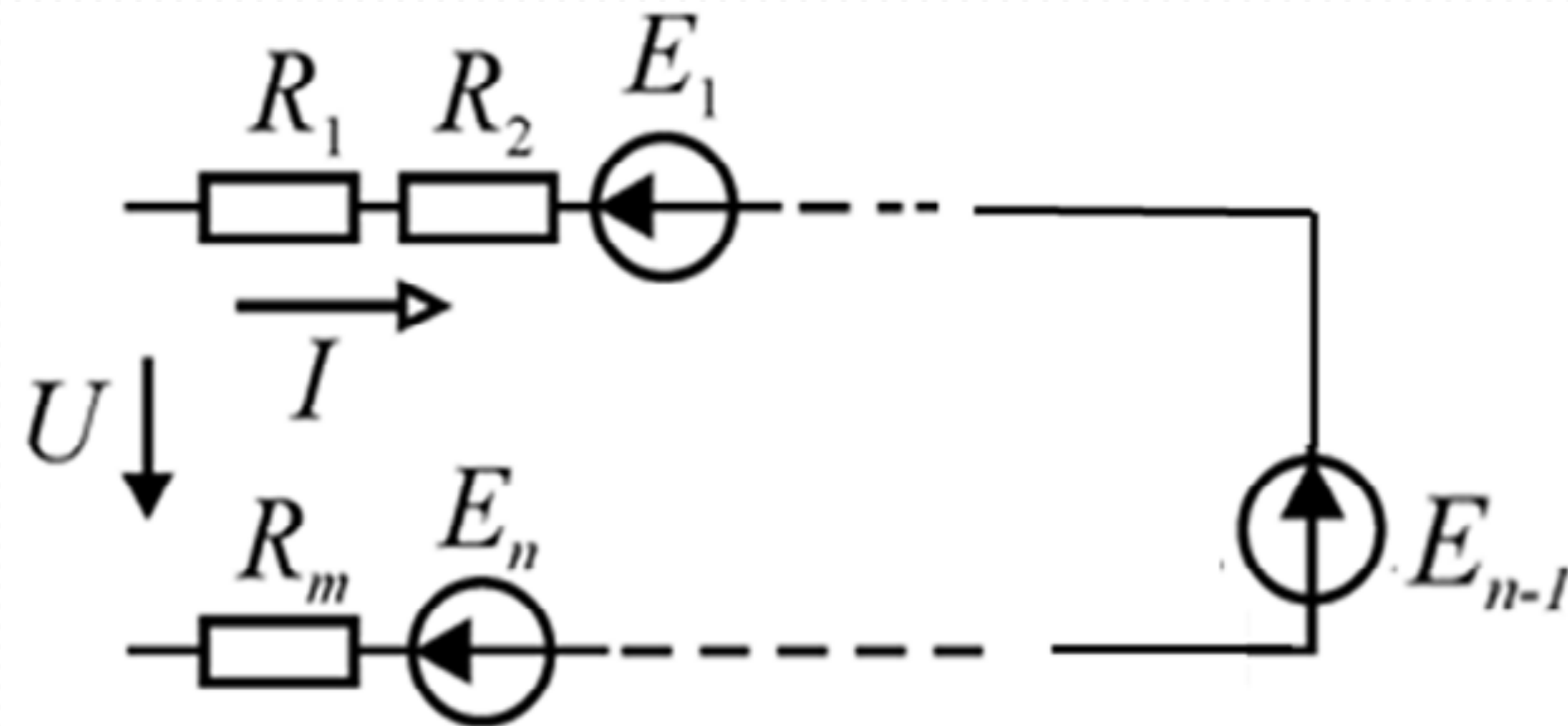
«ЗВЕЗДА»



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

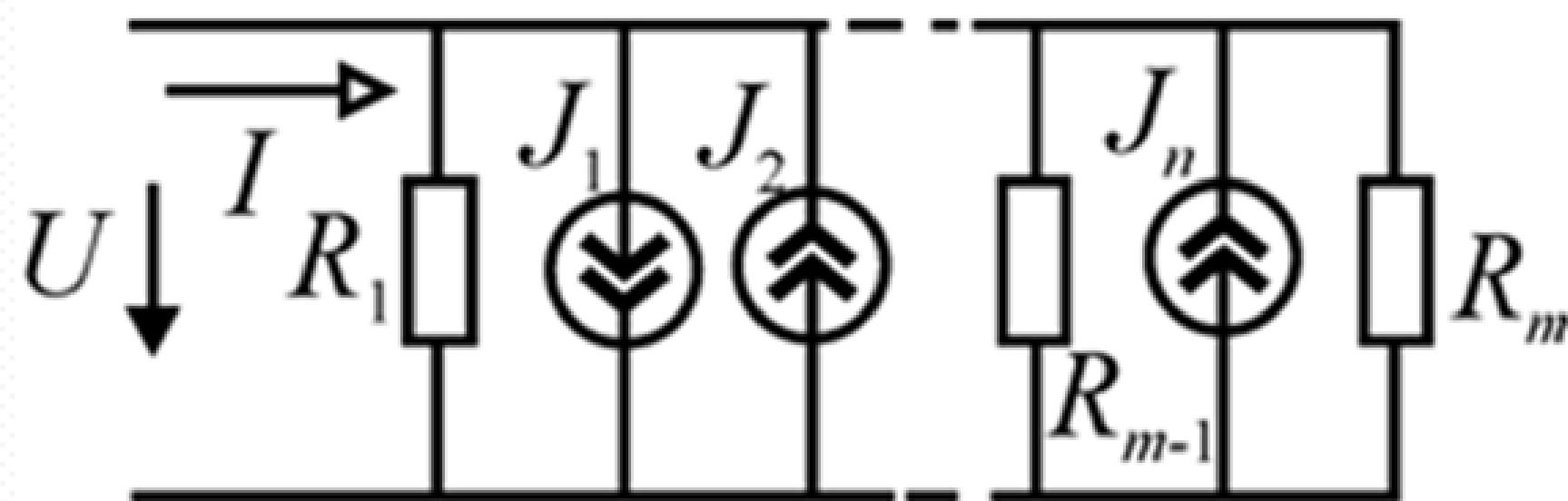
$$R_{23} = \frac{R_1 R_2 + R_2 R_3 + R_3 R_1}{R_1}$$

$$R_{31} = \frac{R_1 R_2 + R_2 R_3 + R_3 R_1}{R_2}$$



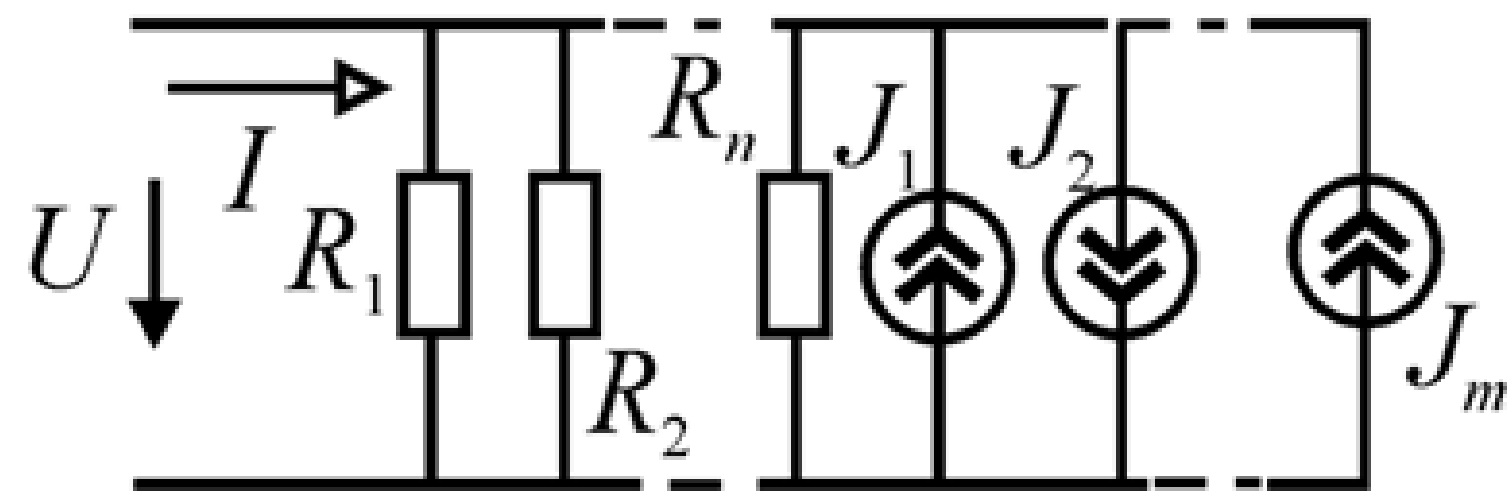
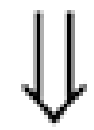
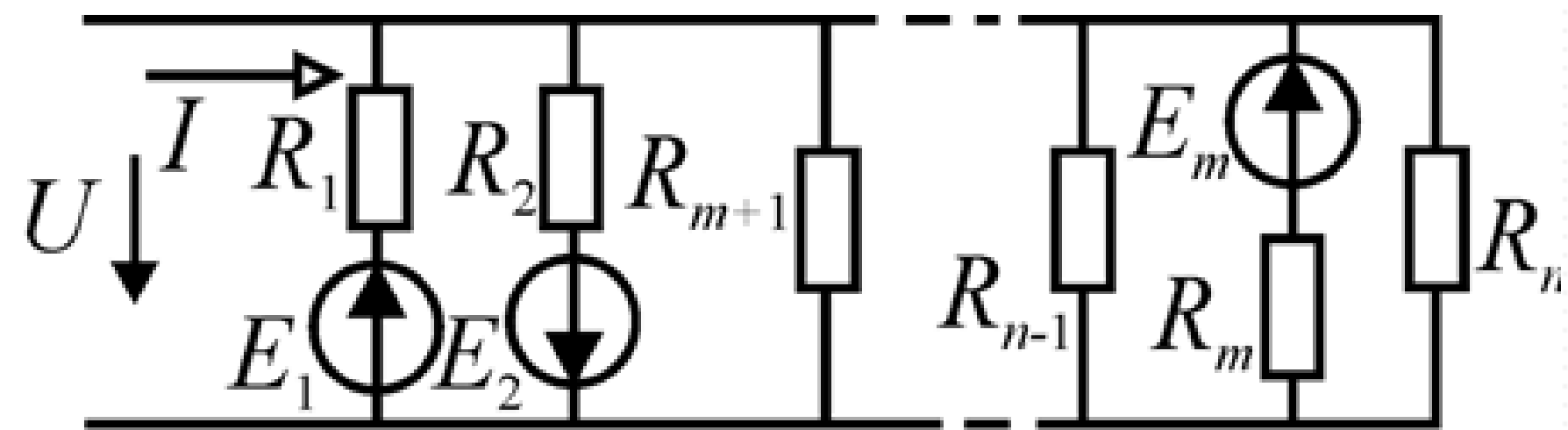
$$R_{a\delta} = R_1 + R_2 + \dots + R_m$$

$$E = E_1 + \dots + E_{n-1} - E_n$$

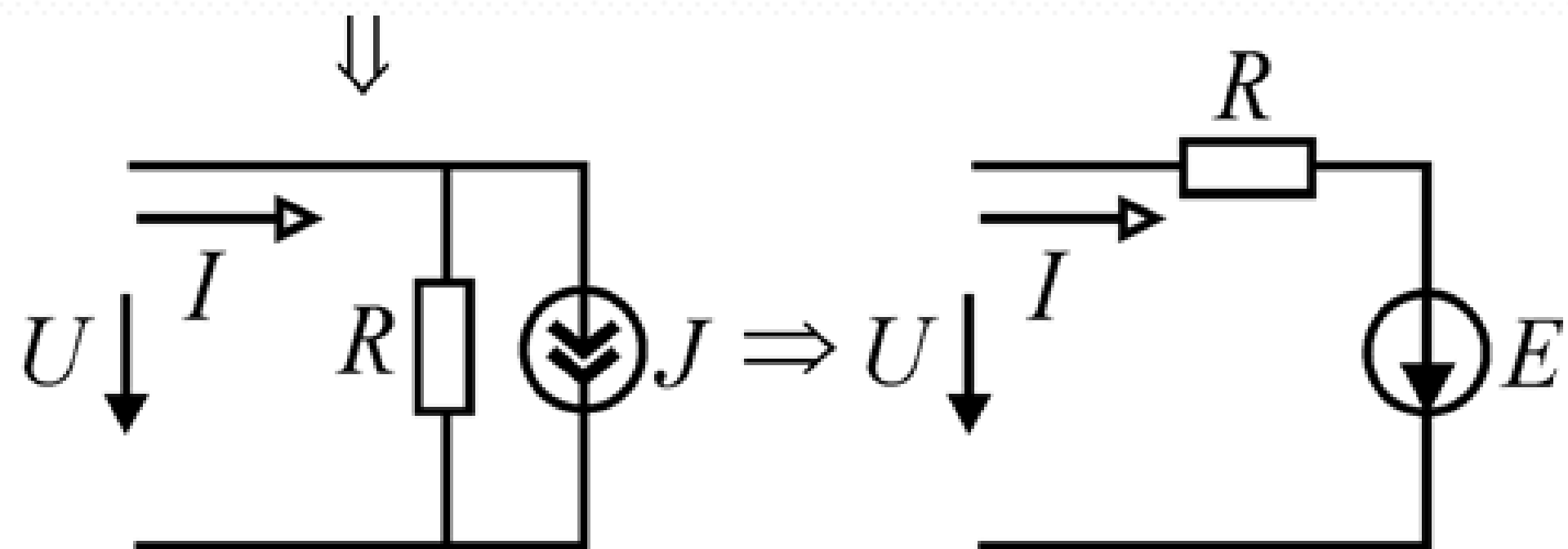


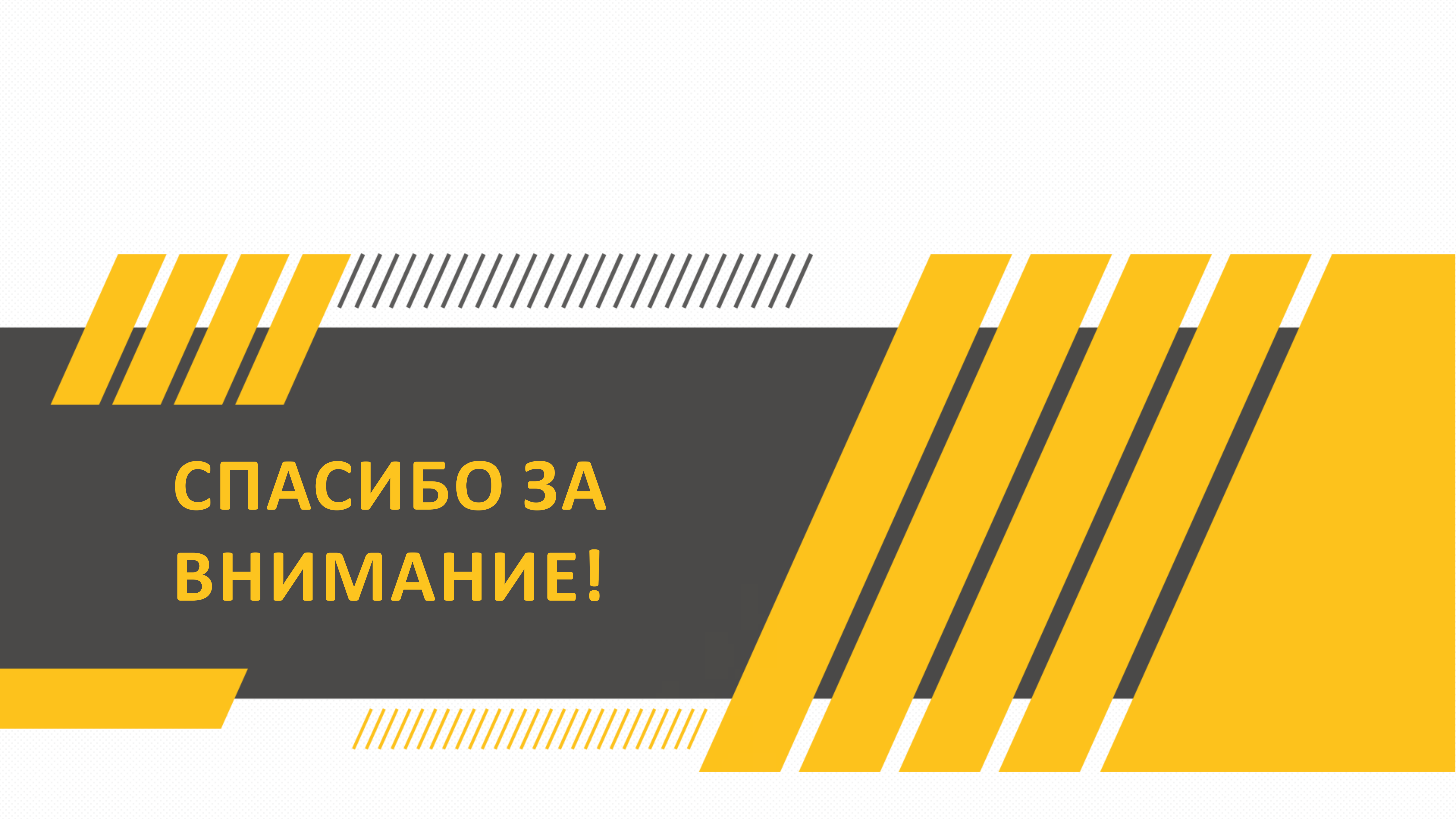
$$J = J_1 - J_2 + \dots - J_n$$

$$R_{\mathcal{O}} = \frac{1}{\frac{1}{R_1} + \dots + \frac{1}{R_{m-1}} + \frac{1}{R_m}}$$



$$E = J \cdot R$$





**СПАСИБО ЗА
ВНИМАНИЕ!**