

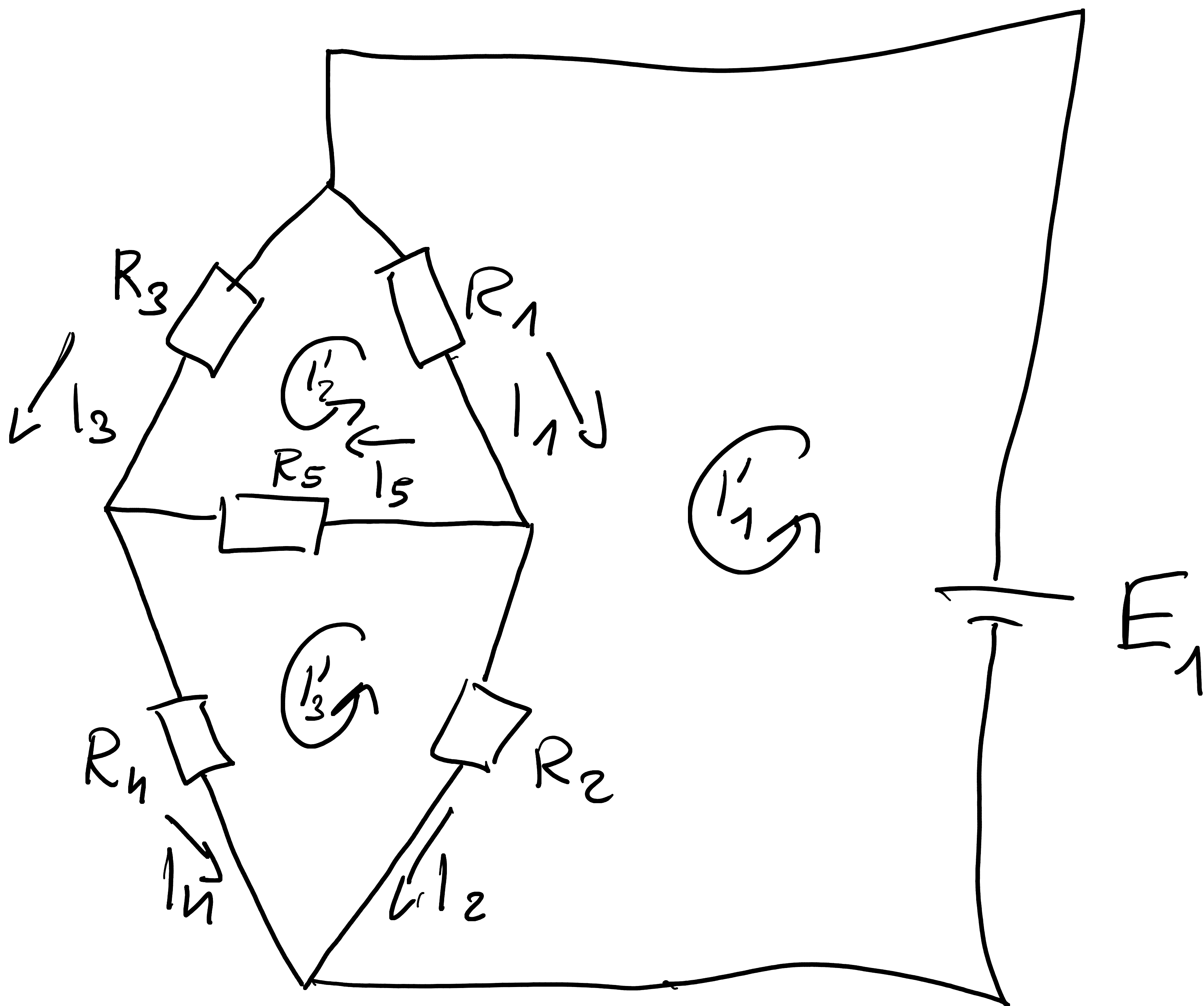
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Grupa 8 Numer schematu: A

Wartość źródeł $[V]$: $E_1 = 2$

Wartości rezystorów $[\Omega]$:

$R_1 = 4, R_2 = 2, R_3 = 4, R_4 = 2, R_5 = 4$



$$I_1 = I_1' - I_2'$$

$$I_2 = I_1' - I_3'$$

$$I_3 = I_2'$$

$$I_4 = I_3'$$

$$I_5 = I_3' - I_2'$$

$$\begin{cases} E = R_1 I_1 + R_2 I_2 \\ 0 = R_3 I_3 - R_5 I_5 - R_1 I_1 \\ 0 = R_5 I_5 + R_4 I_4 - R_2 I_2 \end{cases}$$

$$\begin{cases} E = R_1(I_1' - I_2') + R_2(I_1' - I_3') \\ 0 = R_3(I_2') - R_5(I_3' - I_2') - R_1(I_1' - I_2') \\ 0 = R_5(I_3' - I_2') + R_4(I_3') - R_2(I_1' - I_3') \end{cases}$$

$$[R] = \begin{bmatrix} R_1 + R_2 & -R_1 & -R_2 \\ -R_1 & R_3 + R_5 + R_1 & -R_5 \\ -R_2 & -R_5 & R_2 + R_5 + R_4 \end{bmatrix}$$

$$[V] = \begin{bmatrix} E_1 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 2 \\ 0 \\ 0 \end{bmatrix}$$

$$[R] = \begin{bmatrix} 6 & -4 & -2 \\ -4 & 12 & -4 \\ -2 & -4 & 8 \end{bmatrix} = 2k\Omega$$

$$W_{I_1} = \begin{bmatrix} 2 & -4 & -2 \\ 0 & 12 & -4 \\ 0 & -4 & 8 \end{bmatrix} = 160 \quad I_1' = \frac{2}{3} \text{ A}$$

$$W_{I_2} = \begin{bmatrix} 6 & 2 & -2 \\ -4 & 0 & -4 \\ -2 & 0 & 8 \end{bmatrix} = 80 \quad I_2' = \frac{1}{3} \text{ A}$$

$$W_{I_3} = \begin{bmatrix} 6 & -4 & 2 \\ -4 & 12 & 0 \\ -2 & -4 & 0 \end{bmatrix} = 80 \quad I_3' = \frac{1}{3} \text{ A}$$

$$I_1 = I_1' - I_2' = \frac{1}{3} \text{ A}$$

$$I_2 = I_1' - I_3' = \frac{1}{3} \text{ A}$$

$$I_3 = I_2' = \frac{1}{3} \text{ A}$$

$$I_4 = I_3' = \frac{1}{3} \text{ A}$$

$$I_5 = I_3' - I_2' = 0$$