Метод узловых потенциалов

$ORIGIN := 1 \qquad j := \sqrt{-1}$

$$Z := \begin{bmatrix} 12\text{j} \\ 56+33\text{j} \\ 81-52\text{j} \\ 79 \\ 39-21\text{j} \\ 43-26\text{j} \end{bmatrix} \qquad E := \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 11 \cdot e^{j \cdot 246°} \end{bmatrix}$$

$$ZD := \mathrm{diag}(Z) \qquad G := \frac{1}{ZD} \qquad ZD = \begin{bmatrix} 12\text{j} & 0 & 0 & 0 & 0 & 0 \\ 0 & 56+33\text{j} & 0 & 0 & 0 & 0 \\ 0 & 0 & 81-52\text{j} & 0 & 0 & 0 \\ 0 & 0 & 0 & 79 & 0 & 0 \\ 0 & 0 & 0 & 0 & 39-21\text{j} & 0 \\ 0 & 0 & 0 & 0 & 0 & 43-26\text{j} \end{bmatrix}$$

$$A := \begin{bmatrix} -1 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 & 1 & -1 \\ 1 & 0 & 1 & -1 & 0 & 0 \end{bmatrix} \qquad B := \begin{bmatrix} -1 & -1 & 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & -1 & 0 & -1 \\ 1 & 0 & 0 & 1 & -1 & 0 \end{bmatrix}$$

$$\Phi := \left(A \cdot G \cdot A^{\mathrm{T}}\right)^{-1} \cdot \left(-A \cdot G \cdot E\right) \qquad \Phi = \begin{bmatrix} -0.244-3.948\text{j} \\ -1.545-6.48\text{j} \\ -0.41-4.372\text{j} \end{bmatrix}$$

$U := A^{\mathrm{T}} \cdot \Phi$

$$U^{\mathrm{T}} = \begin{bmatrix} -0.166-0.424\text{j} & -0.244-3.948\text{j} & -0.41-4.372\text{j} & -1.135-2.108\text{j} & -1.301-2.532\text{j} & 1.545+6.48\text{j} \end{bmatrix}$$

$$IZ := G \cdot \left(U + E\right) \qquad IZ = \begin{bmatrix} -0.035+0.014\text{j} \\ -0.034-0.05\text{j} \\ 0.021-0.041\text{j} \\ -0.014-0.027\text{j} \\ 0.001-0.064\text{j} \\ -0.013-0.091\text{j} \end{bmatrix}$$