Метод узловых потенциалов

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

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

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

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

$$\Phi := \left(A \cdot G \cdot A^{\mathrm{T}}\right)^{-1} \cdot \left(-A \cdot G \cdot E - A \cdot J\right) \qquad \Phi = \begin{bmatrix} 0.839+3.865\text{i} \\ 2.508+6.171\text{i} \\ 1.067+4.259\text{i} \end{bmatrix}$$

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

$$U^{\mathrm{T}} = \begin{bmatrix} 0.228+0.394\text{i} & 0.839+3.865\text{i} & 1.067+4.259\text{i} & 1.441+1.912\text{i} & 1.669+2.306\text{i} & -2.508-6.171\text{i} \end{bmatrix}$$

$IR := G \cdot (U + E)$

$$IR = \begin{bmatrix} 0.033-0.019\text{i} \\ 0.041+0.045\text{i} \\ -0.015+0.043\text{i} \\ 0.018+0.024\text{i} \\ 0.008+0.064\text{i} \\ 0.027+0.088\text{i} \end{bmatrix}$$