$R1 := 57 \quad R2 := 14 \quad R3 := 48 \quad R4 := 0 \quad R5 := 65 \quad R6 := 0 \quad R7 := 0 \quad R8 := 0$

$Xl1 := 0 \quad Xl2 := 0 \quad Xl3 := 0 \quad Xl4 := 31 \quad Xl5 := 0 \quad Xl6 := 29 \quad Xl7 := 28 \quad Xl8 := 36$

$Xc1 := 83 \quad Xc2 := 0 \quad Xc3 := 23 \quad Xc4 := 0 \quad Xc5 := 0 \quad Xc6 := 91 \quad Xc7 := 0 \quad Xc8 := 19$

$E6м := 67 \quad E6a := 214$

$Z1 := R1 + 1\text{j}\ (-Xc1) = 57 - 83\text{j}$

$Z2 := R2 = 14$

$Z34 := R3 + 1\text{j}\ (Xl4 - Xc3) = 48 + 8\text{j}$

$Z56 := R5 + 1\text{j}\ (Xl6 - Xc6) = 65 - 62\text{j}$

$Z7 := 1\text{j}\ (Xl7) = 28\text{j}$

$Z8 := 1\text{j}\ (Xl8 - Xc8) = 17\text{j}$

$E := E6м \cdot e^{1\text{j} \cdot E6a^{\circ}} = -55.546 - 37.466\text{j}$

Найдем контурные токи:

$J1 := 0 \quad J2 := 0 \quad J3 := 0$

$$J1 \cdot (Z1 + Z56 + Z7) - J2 \cdot Z7 - J3 \cdot Z1 = -E$$
$$J2 \cdot (Z2 + Z34 + Z7) - J1 \cdot Z7 - J3 \cdot Z2 = 0$$
$$J3 \cdot (Z1 + Z2 + Z8) - J1 \cdot Z1 - J2 \cdot Z2 = 0$$

$$\begin{bmatrix} J1 \\ J2 \\ J3 \end{bmatrix} := \text{Find}(J1, J2, J3) = \begin{bmatrix} 0.433 + 0.615\text{j} \\ 0.025 + 0.308\text{j} \\ 0.551 + 0.56\text{j} \end{bmatrix}$$

Комплексные токи:

$I1 := J3 - J1 = 0.118 - 0.055\text{j} \qquad I1 = 0.13 \angle -24.969^{\circ}$

$I2 := J3 - J2 = 0.526 + 0.253\text{j} \qquad I2 = 0.584 \angle 25.667^{\circ}$

$I34 := -J2 = -0.025 - 0.308\text{j} \qquad I34 = 0.309 \angle -94.687^{\circ}$

$I56 := -J1 = -0.433 - 0.615\text{j} \qquad I56 = 0.753 \angle -125.159^{\circ}$

$I7 := J2 - J1 = -0.408 - 0.308\text{j} \qquad I7 = 0.511 \angle -142.992^{\circ}$

$I8 := J3 = 0.551 + 0.56\text{j}$ $I8 = 0.786 \angle 45.473°$

Мгновенные значения токов:

$i1 = \sqrt{2} \cdot 0.13 \ sin(wt - 24.969°)$

$i2 = \sqrt{2} \cdot 0.584 \ sin(wt + 25.667°)$

$i34 = \sqrt{2} \cdot 0.309 \ sin(wt - 94.687°)$

$i56 = \sqrt{2} \cdot 0.753 \ sin(wt - 125.159°)$

$i7 = \sqrt{2} \cdot 0.511 \ sin(wt - 142.992°)$

$i8 = \sqrt{2} \cdot 0.786 \ sin(wt + 45.473°)$

Комплексная мощность:

$Sucm := E \cdot \overline{I56} = 47.129 - 17.941\text{j}$

$Pакт := |I1|^2 \cdot \text{Re}(Z1) + |I2|^2 \cdot \text{Re}(Z2) + |I34|^2 \cdot \text{Re}(Z34) + |I56|^2 \cdot \text{Re}(Z56) = 47.129$

$Pакт := Pакт + |I7|^2 \cdot \text{Re}(Z7) + |I8|^2 \cdot \text{Re}(Z8) = 47.129$

$Qреак := |I1|^2 \cdot \text{Im}(Z1) + |I2|^2 \cdot \text{Im}(Z2) + |I34|^2 \cdot \text{Im}(Z34) + |I56|^2 \cdot \text{Im}(Z56) = -35.764$

$Qреак := Qреак + |I7|^2 \cdot \text{Im}(Z7) + |I8|^2 \cdot \text{Im}(Z8) = -17.941$

$Z28 := \dfrac{Z2 \cdot Z8}{Z1 + Z2 + Z8} = -1.672 + 1.798\text{j}$

$Z12 := \dfrac{Z1 \cdot Z2}{Z1 + Z2 + Z8} = 14.191 - 3.175\text{j}$

$Z18 := \dfrac{Z1 \cdot Z8}{Z1 + Z2 + Z8} = 3.855 + 17.232\text{j}$

$Zген := \dfrac{(Z34 + Z28) \cdot (Z7 + Z12)}{Z34 + Z28 + Z7 + Z12} + Z18 = 18.193 + 30.33\text{j}$ $Ux.x := E$

$I56 := \dfrac{Ux.x}{Zген + Z56} = -0.433 - 0.615\text{j}$

Потенциалы:

$\varphi 5 := 0$

$\varphi 1 := I1 \cdot Z1 = 2.163 - 12.911\mathrm{j}$

$\varphi 6 := \varphi 1 + I2 \cdot Z2 = 9.528 - 9.372\mathrm{j}$

$\varphi 4 := \varphi 6 + I34 \cdot Z34 = 10.778 - 24.341\mathrm{j}$

$\varphi 5 := \varphi 4 + I56 \cdot Z56 - E = 0$