



$$\omega = 314 \text{ rad s}^{-1}$$

$$Y_{L1} = \frac{1}{j\omega L_1} = \frac{1}{j314 \cdot 250 \cdot 10^{-3}} = -j 1,274 \cdot 10^{-2} \text{ S}$$

$$G_1 = \frac{1}{220} = 4,55 \cdot 10^{-3} \text{ S}$$

$$Y_{L2} = \frac{1}{j314 \cdot 0,1} = -j 3,18 \cdot 10^{-2} \text{ S}$$

$$G_2 = 5 \cdot 10^{-3} \text{ S}$$

$$Y_C = j\omega C = j314 \cdot 20 \cdot 10^{-6} = j6,28 \cdot 10^{-3} \text{ S}$$

$$G_3 = 1 \cdot 10^{-2} \text{ S}$$

$$U_1 = \frac{U_{1\text{max}}}{\sqrt{2}} = 14,14 \text{ V}, \quad U_2 = \frac{U_{2\text{max}}}{\sqrt{2}} \cdot e^{-j\pi} = (-3,536 - j6,124) \text{ V}$$

$$\bar{I}_1 = Y_{L1} \cdot U_1 = -j 1,274 \cdot 10^{-2} \cdot 14,14 = j 1,8 \cdot 10^{-1} \text{ A}$$

$$\bar{I}_2 = G_3 \cdot U_2 = (-3,536 \cdot 10^{-2} - j6,124 \cdot 10^{-2}) \text{ A}$$

$$\begin{bmatrix} Y_{L1} + G_1 + Y_{L2} & -Y_{L2} \\ -Y_{L2} & G_2 + G_3 + Y_C + Y_{L2} \end{bmatrix} \cdot \begin{bmatrix} U_{10} \\ U_{20} \end{bmatrix} = \begin{bmatrix} \bar{I}_1 \\ \bar{I}_2 \end{bmatrix}$$

$$\begin{bmatrix} 4,55 \cdot 10^{-3} - j 4,454 \cdot 10^{-2} & j 3,18 \cdot 10^{-2} \\ j 3,18 \cdot 10^{-2} & 1,5 \cdot 10^{-2} - j 2,55 \cdot 10^{-2} \end{bmatrix} \cdot \begin{bmatrix} U_{10} \\ U_{20} \end{bmatrix} = \begin{bmatrix} j 1,8 \cdot 10^{-1} \\ -3,536 \cdot 10^{-2} - j 6,124 \cdot 10^{-2} \end{bmatrix}$$

$$\Delta = -5,628 \cdot 10^{-5} - j 7,842 \cdot 10^{-4}$$

$$U_{10} = -5,0930 + 3,005 = 5,913 \angle 149,5^\circ \text{ V}$$

$$\Delta_1 = 2,643 \cdot 10^{-3} + j 3,824 \cdot 10^{-3}$$

$$U_{20} = -1,903 + 3,480 = 3,966 \angle 118,7^\circ \text{ V}$$

$$\Delta_2 = 2,835 \cdot 10^{-3} + j 1,296 \cdot 10^{-3}$$

$$U_{12} = U_{10} - U_{20} = -3,190 - j 4,7450 = 3,225 \angle -171,5^\circ \text{ V}$$

$$\underline{I}_{L2} = U_{12} \cdot Y_{L2} = -1,510 \cdot 10^{-2} + j 1,014 \cdot 10^{-1} = 1,026 \cdot 10^{-1} \angle 98,47^\circ \text{ A}$$

$$\underline{u_{12}(t)} = 3,225 \cdot \sqrt{2} \sin(314t - 171,5^\circ) \text{ V}$$

$$\underline{i_{L2}(t)} = 1,026 \cdot 10^{-1} \cdot \sqrt{2} \sin(314t + 98,47^\circ) \text{ A}$$