

36)

A

$$\left(\begin{array}{ccc|cc} 3 & 2 & 0 & 1 & 0 \\ 1 & 1 & 1 & -1 & 1 \\ -1 & 3 & 2 & 1 & 0 \end{array} \right) \rightarrow \left(\begin{array}{ccc|cc} 1 & 1 & 1 & -1 & 1 \\ 3 & 2 & 0 & 1 & 0 \\ -1 & 3 & 2 & 1 & 0 \end{array} \right) \rightarrow$$

$$\rightarrow \left(\begin{array}{ccc|cc} 1 & 1 & 1 & -1 & 1 \\ 0 & -1 & -2 & 4 & -3 \\ 0 & 4 & 3 & 0 & 1 \end{array} \right) \rightarrow \left(\begin{array}{ccc|cc} 1 & 0 & -2 & 3 & -2 \\ 0 & 1 & 3 & -4 & 3 \\ 0 & 0 & -9 & 16 & -11 \end{array} \right)$$

$$\rightarrow \left(\begin{array}{ccc|cc} 1 & 0 & -2 & 3 & -2 \\ 0 & 1 & 3 & -4 & 3 \\ 0 & 0 & 1 & -\frac{16}{9} & \frac{11}{9} \end{array} \right) \rightarrow \left(\begin{array}{ccc|cc} 1 & 0 & 0 & -\frac{5}{9} & \frac{4}{9} \\ 0 & 1 & 0 & \frac{4}{3} & -\frac{2}{3} \\ 0 & 0 & 1 & -\frac{16}{9} & \frac{11}{9} \end{array} \right)$$

Sp. v. A sind Basis

Theorie siehe Homepage PAUER,
Lösungen zu Blatt 6.

$$35) K_1: I_2 = I_1 + I_3$$

$$K_2: I_2 = I_1 + I_3$$

$$M_1: I_1 \cdot R_1 + I_2 \cdot R_2 = U_{q1}$$

$$M_2: I_2 \cdot R_2 + I_3 \cdot R_3 = U_{q2}$$

$$M_3: I_1 \cdot R_1 + U_{q2} = I_3 R_3 + U_{q1}$$

K_2 folgt aus K_1 , M_3 aus M_1 u. M_2

$$\begin{array}{ccc} I_1 & I_2 & I_3 \\ \left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 1000 & 600 & 0 & 12 \\ 0 & 600 & 700 & 10 \end{array} \right) \rightarrow \end{array}$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 0 & 1600 & -1000 & 12 \\ 0 & 600 & 700 & 10 \end{array} \right) \rightarrow$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 0 & 1800 & 2700 & 30 \\ 0 & 1600 & -1000 & 12 \end{array} \right) \rightarrow$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 0 & 200 & 3100 & 18 \\ 0 & 1600 & -1000 & 12 \end{array} \right) \rightarrow$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 0 & 200 & 3100 & 18 \\ 0 & 0 & -25800 & -132 \end{array} \right) \rightarrow$$

$$\begin{array}{r} \frac{3100 \cdot 8}{24800} \quad \frac{18 \cdot 8}{144} \quad \frac{132}{25800} = \frac{11}{2150} \\ - \quad \frac{12}{132} = 12 \cdot 11 \end{array}$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 1 & 0 \\ 0 & 1 & \frac{31}{2} & \frac{9}{100} \\ 0 & 0 & 1 & \frac{11}{2150} \end{array} \right) \rightarrow$$

$$\left(\begin{array}{ccc|c} 1 & -1 & 0 & -\frac{11}{2150} \\ 0 & 1 & 0 & \frac{23}{2150} \\ 0 & 0 & 1 & \frac{11}{2150} \end{array} \right) \rightarrow$$

$$\frac{9}{100} - \frac{31}{2} \cdot \frac{11}{2150} = \frac{9}{100} - \frac{341}{4300}$$

$$\begin{array}{r|l} 31, 11 & = \frac{387 - 341}{4300} = \frac{46}{4300} \\ \hline 31 & \\ \hline 341 & \end{array} = \frac{23}{2150}$$

$$\frac{43 \cdot 9}{387}$$

$$\rightarrow \left(\begin{array}{ccc|c} 1 & 0 & 0 & \frac{5}{1075} \\ 0 & 1 & 0 & \frac{23}{2150} \\ 0 & 0 & 1 & \frac{11}{2150} \end{array} \right) \begin{array}{l} = I_1 \\ = I_2 \\ = I_3 \end{array}$$

$$\frac{12}{2150} = \frac{6}{1075}$$

$$\begin{bmatrix} 1. & 0. & 0. & 0.005581395349 \\ 0. & 1. & 0. & 0.01069767442 \\ 0. & 0. & 1. & 0.005116279070 \end{bmatrix} = \begin{matrix} I_1 \\ I_2 \\ I_3 \end{matrix}$$