

NACHTRAG ZU DEN ÜBUNGEN

Aufgabe 37 (*Inverse Matrizen*):

b) Wir berechnen:

$$\begin{array}{lcl}
 & \left(\begin{array}{ccc|ccc} 2 & 1 & 0 & 1 & 0 & 0 \\ 0 & 2 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 \end{array} \right) & -1 \cdot \text{III} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 1 & -1 & 1 & 0 & -1 \\ 0 & 2 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 \end{array} \right) & -1 \cdot \text{I} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 1 & -1 & 1 & 0 & -1 \\ 0 & 2 & 1 & 0 & 1 & 0 \\ 0 & -1 & 2 & -1 & 0 & 2 \end{array} \right) & 1 \cdot \text{III} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 1 & -1 & 1 & 0 & -1 \\ 0 & 1 & 3 & -1 & 1 & 2 \\ 0 & -1 & 2 & -1 & 0 & 2 \end{array} \right) & 1 \cdot \text{II} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 1 & -1 & 1 & 0 & -1 \\ 0 & 1 & 3 & -1 & 1 & 2 \\ 0 & 0 & 5 & -2 & 1 & 4 \end{array} \right) & \cdot \frac{1}{5} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 1 & -1 & 1 & 0 & -1 \\ 0 & 1 & 3 & -1 & 1 & 2 \\ 0 & 0 & 1 & -\frac{2}{5} & \frac{1}{5} & \frac{4}{5} \end{array} \right) & -1 \cdot \text{II} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 0 & -4 & 2 & -1 & -3 \\ 0 & 1 & 3 & -1 & 2 & 2 \\ 0 & 0 & 1 & -\frac{2}{5} & \frac{1}{5} & \frac{4}{5} \end{array} \right) & \begin{array}{l} 4 \cdot \text{III} \\ -3 \cdot \text{III} \end{array} \\
 \sim & \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & \frac{2}{5} & -\frac{1}{5} & \frac{1}{5} \\ 0 & 1 & 0 & -\frac{2}{5} & \frac{1}{5} & \frac{4}{5} \\ 0 & 0 & 1 & -\frac{2}{5} & \frac{1}{5} & \frac{4}{5} \end{array} \right) &
 \end{array}$$