

Aufgabe 3

1.
$$\begin{array}{ccc|ccc} 1 & 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{I} - \text{II}$$

~~$$\begin{array}{ccc|ccc} 1 & 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}$$~~

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & -1 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{II} - \text{III}$$

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & -1 & 0 \\ 0 & 1 & 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \leftarrow \text{Inverse}$$

2.
$$\begin{array}{ccc|ccc} 2 & 0 & 2 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{I} : 2$$

$$\begin{array}{ccc|ccc} 1 & 0 & 1 & 1/2 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{I} - \text{III}$$

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1/2 & 0 & -1 \\ 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \leftarrow \text{Inverse}$$

3.
$$\begin{array}{ccc|ccc} 1 & 0 & 2 & 1 & 0 & 0 \\ 2 & 3 & 4 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{I} - 2 \cdot \text{III}$$

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 2 & 3 & 4 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{II} : 3$$

~~$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 2 & 3 & 4 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}$$~~

~~$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 2 & 3 & 4 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}$$~~

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 2/3 & 1 & 4/3 & 0 & 1/3 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{II} - \frac{2}{3} \text{I}$$

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 0 & 1 & 4/3 & -2/3 & 1/3 & 4/3 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \quad \text{II} - \frac{4}{3} \text{III}$$

$$\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & -2 \\ 0 & 1 & 0 & -2/3 & 1/3 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array}$$

Inverse