Lösung eines linearen Gleichungssystems

$$
\begin{aligned}
x_1 + 2x_2 + x_3 + x_4 + x_5 &= 2 \\
-x_1 - 2x_2 - 2x_3 + 2x_4 + x_5 &= 3 \\
2x_1 + 4x_2 + 3x_3 - x_4 &= -1 \\
x_1 + 2x_2 + 2x_3 - 2x_4 + x_5 &= 2
\end{aligned}
$$

$$
\left(\begin{array}{rrrrr|r}
1 & 2 & 1 & 1 & 1 & 2 \\
-1 & -2 & -2 & 2 & 1 & 3 \\
2 & 4 & 3 & -1 & 0 & -1 \\
1 & 2 & 2 & -2 & 1 & 2
\end{array}\right)
$$

$$
\left(\begin{array}{rrrrr|r}
1 & 2 & 1 & 1 & 1 & 2 \\
0 & 0 & -1 & 3 & 2 & 5 \\
0 & 0 & 1 & -3 & -2 & -5 \\
0 & 0 & 1 & -3 & 0 & 0
\end{array}\right)
\rightarrow
\left(\begin{array}{rrrrr|r}
1 & 1 & 2 & 1 & 1 & 2 \\
0 & 1 & 0 & -3 & -2 & -5 \\
0 & 1 & 0 & -3 & -2 & -5 \\
0 & 1 & 0 & -3 & 0 & 0
\end{array}\right)
$$

$$
\left(\begin{array}{rrrrr|r}
1 & 1 & 2 & 1 & 1 & 2 \\
0 & 1 & 0 & -3 & -2 & -5 \\
0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & 5
\end{array}\right)
\rightarrow
\left(\begin{array}{rrrrr|r}
1 & 1 & 1 & 1 & 2 & 2 \\
0 & 1 & -2 & -3 & 0 & -5 \\
0 & 0 & 2 & 0 & 0 & 5 \\
0 & 0 & 0 & 0 & 0 & 0
\end{array}\right)
$$