

$$\begin{aligned}
& \left( \begin{array}{ccc|ccc} 1 & 2 & 4 & 1 & 0 & 0 \\ 1 & -4 & 2 & 0 & 1 & 0 \\ -3 & 1 & 1 & 0 & 0 & 1 \end{array} \right) \\
&= \begin{array}{c} W_1 \\ W_2 - W_1 \\ 3W_1 + W_3 \end{array} \left( \begin{array}{ccc|ccc} 1 & 2 & 4 & 1 & 0 & 0 \\ 0 & -6 & -2 & -1 & 1 & 0 \\ 0 & 7 & 13 & 3 & 0 & 1 \end{array} \right) \\
&= \begin{array}{c} W_1 + 1/3W_2 \\ -1/6W_2 \\ 7/6W_2 + W_3 \end{array} \left( \begin{array}{ccc|ccc} 1 & 0 & 10/3 & 2/3 & 1/3 & 0 \\ 0 & 1 & 1/3 & 1/6 & -1/6 & 0 \\ 0 & 0 & 32/3 & 11/6 & 7/6 & 1 \end{array} \right) \\
&= \begin{array}{c} W_1 + -5/16W_3 \\ W_2 + -1/32W_3 \\ 3/32W_3 \end{array} \left( \begin{array}{ccc|ccc} 1 & 0 & 0 & 3/32 & -1/32 & -5/16 \\ 0 & 1 & 0 & 7/64 & -13/64 & -1/32 \\ 0 & 0 & 1 & 11/64 & 7/64 & 3/32 \end{array} \right)
\end{aligned}$$