

$$R_2 - R_1 \quad \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 4 & 2 & 0 \\ \textcircled{1} & 2 & 2 \\ 2 & 2 & 3 \end{bmatrix}$$

$$R_3 - \frac{1}{2}R_1 \quad \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 4 & 2 & 0 \\ \textcircled{1} & 2 & 2 \\ \textcircled{\frac{1}{2}} & 1 & 3 \end{bmatrix}$$

$$R_3 - \frac{1}{2}R_2 \quad \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 4 & 2 & 0 \\ \textcircled{1} & 2 & 2 \\ \textcircled{\frac{1}{2}} & \textcircled{\frac{1}{2}} & 2 \end{bmatrix}$$

$$\begin{array}{ccc} P & L & u \\ \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} & \begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ \frac{1}{2} & \frac{1}{2} & 1 \end{bmatrix} & \begin{bmatrix} 4 & 2 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix} \end{array}$$

$$1. \quad Lc = Pb$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ \frac{1}{2} & \frac{1}{2} & 1 \end{bmatrix} \begin{bmatrix} c_1 \\ c_1 \\ c_3 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 4 \\ 6 \end{bmatrix} = \begin{bmatrix} 2 \\ 4 \\ 6 \end{bmatrix}$$

$$\begin{array}{l} 2 + c_2 = 4 \\ \frac{1}{2}(2) + \frac{1}{2}(2) + c_3 = 6 \end{array} \quad \begin{array}{l} c_1 = 2 \\ \Rightarrow c_2 = 2 \\ \Rightarrow c_3 = 4 \end{array}$$

$$2. \quad Ux = L$$

$$\begin{bmatrix} 4 & 2 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 2 \\ 2 \\ 4 \end{bmatrix}$$

$$\begin{array}{l} 2x_3 = 4 \\ 2x_2 = 2 \\ 4x_1 + 2 = 2 \end{array} \quad \begin{array}{l} \Rightarrow x_3 = 2 \\ \Rightarrow x_2 = 1 \\ \Rightarrow x_1 = 0 \end{array}$$

Suo lausnin er $[2, 1, 0]$