

5.4.5

Skriv $\vec{u} = (2, 0, 1, 3)$ som en linj: kombav $(0, 0, 2, 2)$, $(4, 1, 0, 1)$, $(6, 1, 1, 4)$ Lös

$$t_1 \vec{e} + t_2 \vec{f} + t_3 \vec{g} = \vec{u}$$

$$t_1 \begin{pmatrix} 0 \\ 0 \\ 2 \\ 2 \end{pmatrix} + t_2 \begin{pmatrix} 4 \\ 1 \\ 0 \\ 1 \end{pmatrix} + t_3 \begin{pmatrix} 6 \\ 1 \\ 1 \\ 4 \end{pmatrix} = \begin{pmatrix} 2 \\ 0 \\ 1 \\ 3 \end{pmatrix}$$

$$\left(\begin{array}{ccc|c} 0 & 4 & 6 & 2 \\ 0 & 1 & 1 & 0 \\ 2 & 0 & 1 & 1 \\ 2 & 1 & 4 & 3 \end{array} \right) \xrightarrow{(-1)} \left(\begin{array}{ccc|c} 2 & 1 & 4 & 3 \\ 2 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \\ 0 & 4 & 6 & 2 \end{array} \right)$$

$$\xrightarrow{\begin{matrix} \text{m}(1) \\ \downarrow \\ \downarrow \end{matrix}} \left(\begin{array}{ccc|c} 2 & 1 & 4 & 3 \\ 0 & -1 & -3 & -2 \\ 0 & 1 & 1 & 0 \\ 0 & 4 & 6 & 2 \end{array} \right) \xrightarrow{(-1)} \left(\begin{array}{ccc|c} 2 & 1 & 4 & 3 \\ 0 & -1 & -3 & -2 \\ 0 & 0 & -2 & -2 \\ 0 & 0 & -6 & -6 \end{array} \right)$$

$$\Rightarrow \begin{cases} t_1 = 0 \\ t_2 = -1 \\ t_3 = 1 \end{cases}$$

$$-6t_3 = -6$$

$$0 \cdot \vec{e} + (-1) \vec{f} + 1 \cdot \vec{g} = \vec{u}$$

$$\text{Koll: } -(4, 1, 0, 1) + (6, 1, 1, 4)$$

$$= (2, 0, 1, 3) = \vec{u}$$