

Oef 5 | A.29

$$(b) \begin{cases} x_1 - x_2 + 3x_3 - x_4 = 0 \\ x_1 + 4x_2 - x_3 + x_4 = 3 \\ 3x_1 + 7x_2 + x_3 + x_4 = 6 \\ 3x_1 + 2x_2 + 5x_3 - x_4 = 3 \end{cases}$$

$$\begin{pmatrix} \textcircled{1} & -1 & 3 & -1 & | & 0 \\ 1 & 4 & -1 & 1 & | & 3 \\ 3 & 7 & 1 & 1 & | & 6 \\ 3 & 2 & 5 & -1 & | & 3 \end{pmatrix}$$

$$\begin{array}{l} R_2 - R_1 \\ \sim \\ R_3 - 3R_1 \\ R_4 - 3R_1 \end{array} \begin{pmatrix} 1 & -1 & 3 & -1 & | & 0 \\ 0 & \textcircled{5} & -4 & 2 & | & 3 \\ 0 & 10 & -8 & 4 & | & 6 \\ 0 & 5 & -4 & 2 & | & 3 \end{pmatrix}$$

$$\begin{array}{l} R_3 - 2R_2 \\ \sim \\ R_4 - R_2 \\ \frac{1}{5}R_2 \\ \sim \\ R_1 + R_2 \\ \sim \end{array} \begin{pmatrix} 1 & -1 & 3 & -1 & | & 0 \\ 0 & 5 & -4 & 2 & | & 3 \\ 0 & 0 & 0 & 0 & | & 0 \\ 0 & 0 & 0 & 0 & | & 0 \\ 1 & 0 & 11/5 & -3/5 & | & 3/5 \\ 0 & 0 & -4/5 & 2/5 & | & 3/5 \\ 0 & 0 & 0 & 0 & | & 0 \\ 0 & 0 & 0 & 0 & | & 0 \end{pmatrix}$$

basis verand. vrije veranderlijken

$$\begin{cases} x_1 + 11/5 x_3 - 3/5 x_4 = 3/5 \\ x_2 - 4/5 x_3 + 2/5 x_4 = 3/5 \\ 0 = 0 \\ 0 = 0 \end{cases} \Leftrightarrow \begin{cases} x_1 = 3/5 - 11/5 k + 3/5 l \\ x_2 = 3/5 + 4/5 k - 2/5 l \\ x_3 = k \\ x_4 = l \\ k, l \in \mathbb{R} \end{cases}$$