

Oef 2 (b) p A.29

$$\begin{cases} x + y + z = 0 \\ 12x + 2y - 3z = 5 \\ 3x + 4y + z = -4 \end{cases}$$

$$\left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 12 & 2 & -3 & 5 \\ 3 & 4 & 1 & -4 \end{array} \right)$$

$$R_2 - 12R_1 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 0 & -10 & -15 & 5 \\ 3 & 4 & 1 & -4 \end{array} \right)$$

$$R_3 - 3R_1 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 0 & -10 & -15 & 5 \\ 0 & 1 & -2 & -4 \end{array} \right)$$

$$R_2 \leftrightarrow R_3 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 0 & 1 & -2 & -4 \\ 0 & -10 & -15 & 5 \end{array} \right)$$

$$R_3 + 10R_2 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 0 & 1 & -2 & -4 \\ 0 & 0 & -35 & -35 \end{array} \right) \rightarrow \text{gauss}$$

geheim
vom.

$$\Rightarrow \begin{cases} x + y + z = 0 \\ y - 2z = -4 \\ -35z = -35 \end{cases} \Rightarrow \begin{cases} x = -y - z = 1 \\ y = 2z - 4 = -2 \\ z = 1 \end{cases}$$

gauss Jordan:

$$R_1 - R_2 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 0 & 3 & 4 \\ 0 & 1 & -2 & -4 \\ 0 & 0 & 1 & 1 \end{array} \right)$$

$$-\frac{1}{35}R_3 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & 1 & 1 \end{array} \right)$$

$$R_1 - 3R_3 \rightsquigarrow \left(\begin{array}{ccc|c} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & 1 & 1 \end{array} \right)$$

$$\rightarrow \begin{cases} x = 1 \\ y = -2 \\ z = 1 \end{cases}$$