

S 95 Nr 5b)

$$g \cap h = \{A\}$$

$$\begin{pmatrix} 0 \\ -1 \\ 2 \end{pmatrix} + r \begin{pmatrix} -2 \\ 2 \\ 1 \end{pmatrix} = \begin{pmatrix} 3 \\ -1 \\ -2 \end{pmatrix} + s \begin{pmatrix} -2 \\ -4 \\ 6 \end{pmatrix} \Rightarrow$$

$$\begin{array}{l|l|l} -2r + 2s = 3 & \cdot 1 & \cdot 1 \\ 2r + 4s = 0 & \cdot 1 & \\ \hline r - 6s = -4 & & \cdot 2 \end{array}$$

$$\begin{array}{l|l} -2r + 2s = 3 \\ 6s = 3 & \cdot 5 \\ \hline -10s = -5 & \cdot 3 \end{array}$$

$$\begin{array}{l} -2r + 2s = 3 \\ 6s = 3 \\ \hline 0 = 0 \Rightarrow \text{Geraden schneiden sich} \\ s = \frac{1}{2} \end{array}$$

$$\vec{OA} = \begin{pmatrix} 3 \\ -1 \\ -2 \end{pmatrix} + \frac{1}{2} \begin{pmatrix} -2 \\ -4 \\ 6 \end{pmatrix} = \begin{pmatrix} 2 \\ -3 \\ 1 \end{pmatrix}; \underline{\underline{A(2|-3|1)}}$$

$$g \cap i = \{B\}$$

$$\begin{pmatrix} 0 \\ -1 \\ 2 \end{pmatrix} + r \begin{pmatrix} -2 \\ 2 \\ 1 \end{pmatrix} = \begin{pmatrix} 5 \\ 3 \\ -8 \end{pmatrix} + t \begin{pmatrix} 11 \\ -2 \\ -13 \end{pmatrix} \Rightarrow$$

$$\begin{array}{l|l|l} -2r - 11t = 5 \\ 2r + 2t = 4 \\ \hline r + 13t = -10 \end{array} \Rightarrow \begin{pmatrix} -2 & -11 & | & 5 \\ 2 & 2 & | & 4 \\ 1 & 13 & | & -10 \end{pmatrix}$$

mit GTR: $r \text{ref} \begin{pmatrix} -2 & -11 & | & 5 \\ 2 & 2 & | & 4 \\ 1 & 13 & | & -10 \end{pmatrix} \Rightarrow \begin{pmatrix} 1 & 0 & | & -3 \\ 0 & 1 & | & -1 \\ 0 & 0 & | & 0 \end{pmatrix} \Rightarrow r = -3$
 $\Rightarrow t = -1$
 \Rightarrow Geraden schneiden sich

$$\vec{OB} = \begin{pmatrix} 5 \\ 3 \\ -8 \end{pmatrix} - 1 \begin{pmatrix} 11 \\ -2 \\ -13 \end{pmatrix} = \begin{pmatrix} -6 \\ 5 \\ 5 \end{pmatrix}; \underline{\underline{B(-6|5|5)}}$$

$$h \cap i = \{C\}$$

$$\begin{pmatrix} 3 \\ -1 \\ -2 \end{pmatrix} + s \begin{pmatrix} -2 \\ -4 \\ 6 \end{pmatrix} = \begin{pmatrix} 5 \\ 3 \\ -8 \end{pmatrix} + t \begin{pmatrix} 11 \\ -2 \\ -13 \end{pmatrix} \Rightarrow$$

$$\begin{array}{l|l|l} -2s - 11t = 2 \\ -4s + 2t = 4 \\ \hline 6s + 13t = -6 \end{array} \Rightarrow \begin{pmatrix} -2 & -11 & | & 2 \\ -4 & 2 & | & 4 \\ 6 & 13 & | & -6 \end{pmatrix}$$

mit GTR: $r \text{ref} \begin{pmatrix} -2 & -11 & | & 2 \\ -4 & 2 & | & 4 \\ 6 & 13 & | & -6 \end{pmatrix} \Rightarrow \begin{pmatrix} 1 & 0 & | & -1 \\ 0 & 1 & | & 0 \\ 0 & 0 & | & 0 \end{pmatrix} \Rightarrow s = -1$
 $\Rightarrow t = 0$
 \Rightarrow Geraden schneiden sich

$$\vec{OC} = \begin{pmatrix} 5 \\ 3 \\ -8 \end{pmatrix} + 0 \cdot \begin{pmatrix} 11 \\ -2 \\ -13 \end{pmatrix} = \begin{pmatrix} 5 \\ 3 \\ -8 \end{pmatrix}; \underline{\underline{C(5|3|-8)}}$$