

# Lösung Langzeit

(2)

P 6)  
(3P)

$$\begin{aligned} a + 2b + 4c &= 0 \\ -a + b - c &= 0 \\ a + b + 3c &= 0 \end{aligned}$$

I + II  
II + III

$$3b + 3c = 0$$

$$2b + 2c = 0$$

$$b = -c$$

$$a - 2c + 4c = 0$$

$$a = -2c$$

$$-2c \cdot \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} - c \begin{pmatrix} 2 \\ 1 \\ 1 \end{pmatrix} + c \begin{pmatrix} 4 \\ -1 \\ 3 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}$$

für alle  $c \rightarrow$  lin. abh

P 7)

$$\vec{n}_E = \begin{pmatrix} 0 \\ 1 \\ 1 \end{pmatrix}$$

$$\vec{n}_g = \begin{pmatrix} -1 \\ 1 \\ -1 \end{pmatrix}$$

$$\vec{n}_E \cdot \vec{n}_g = 0$$

(3P)

$\Rightarrow g \parallel E$

$$(7|4|4) \notin E$$

$x_3$

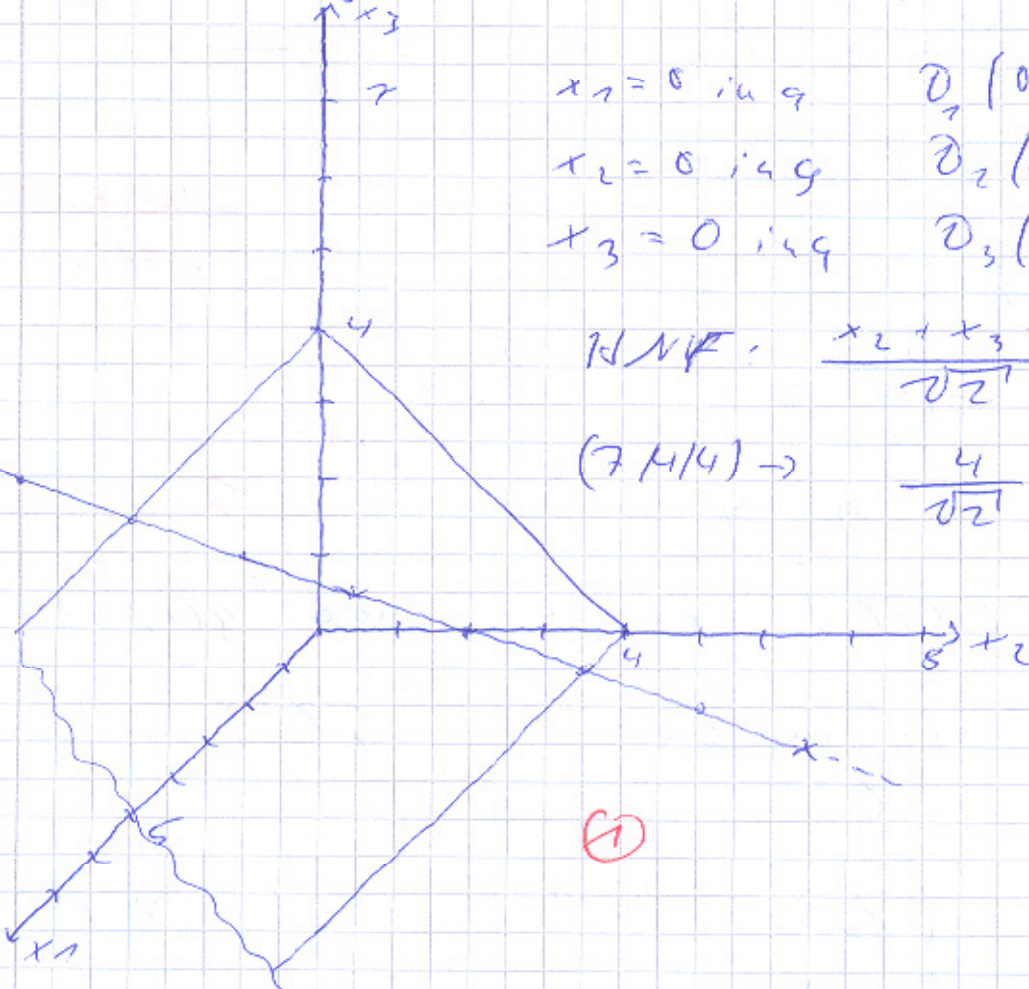
$$x_1 = 0 \text{ in } g \quad \mathcal{D}_1 (0|1|1|-3)$$

$$x_2 = 0 \text{ in } g \quad \mathcal{D}_2 (1|1|0|8)$$

$$x_3 = 0 \text{ in } g \quad \mathcal{D}_3 (3|8|0|1)$$

$$\text{HNF: } \frac{x_2 + x_3 - 4}{\sqrt{2}} = 0$$

$$(7|4|4) \rightarrow \frac{4}{\sqrt{2}} = d = 2\sqrt{2}$$



(1)