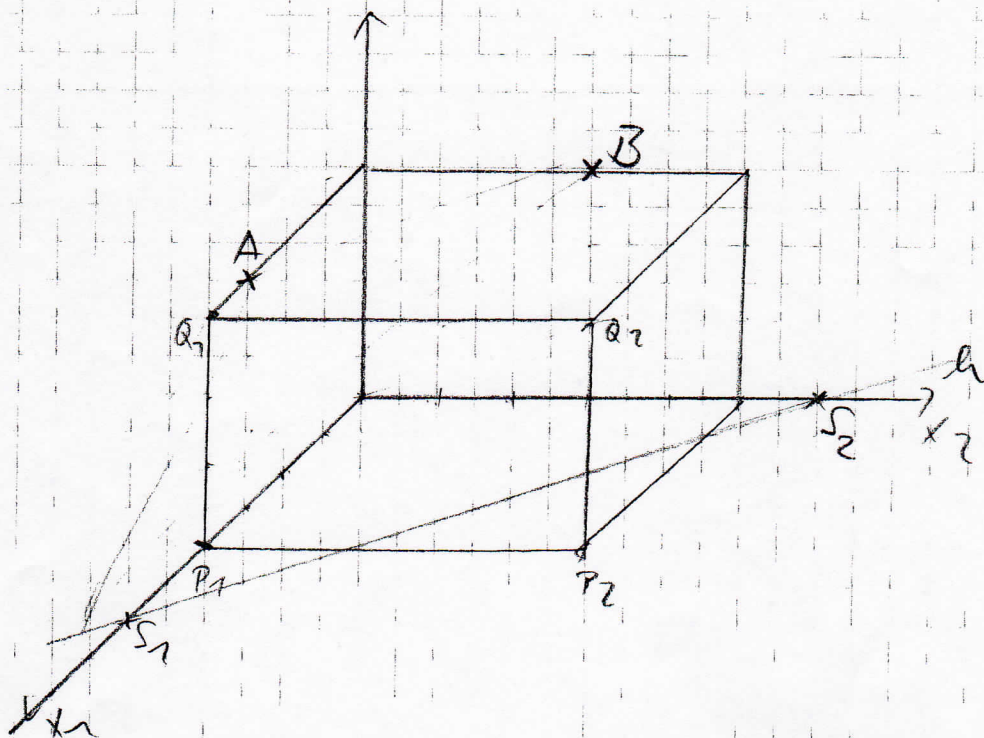


①

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$P_1(4|0|0) \quad P_2(4|5|0) \quad P_3(0|5|0)$
 $Q_1(4|0|3) \quad Q_2(4|5|3) \quad Q_3(0|5|3) \quad Q_4(0|0|3)$

i)



ii) g $\vec{x} = r \begin{pmatrix} 4 \\ 5 \\ 3 \end{pmatrix}$

$g \cap E = \{S\}$ $4r + 5r + 3r = 6$
 $12r = 6 \Rightarrow r = \frac{1}{2}$

$S(2|2,5|1,5)$

iii) Schnittwinkel

HNF_E $\frac{x_1 + x_2 + x_3 - 6}{\sqrt{3}} = 0$

$\sin \alpha = \frac{\begin{pmatrix} 4 \\ 5 \\ 3 \end{pmatrix} \cdot \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}}{\sqrt{50} \sqrt{3}} = \frac{12}{\sqrt{150}} \Rightarrow \alpha \approx 78,46^\circ$

iv) $E^* : \vec{x} = \begin{pmatrix} 4 \\ 0 \\ 0 \end{pmatrix} + \lambda \begin{pmatrix} -4 \\ 5 \\ 0 \end{pmatrix} + \mu \begin{pmatrix} -4 \\ 5 \\ 3 \end{pmatrix}$

$E \cap E^* : 4 - 4\lambda - 4\mu + 5\lambda + 5\mu + 3\mu = 6$
 $\lambda + 4\mu = 2 \quad \mu = 2 - 4\mu$

Schnittgerade $\vec{x} = \begin{pmatrix} -4 \\ 10 \\ 0 \end{pmatrix} + \mu \begin{pmatrix} 4 \\ -5 \\ 1 \end{pmatrix}$

B.W