g: $\vec{x} = \begin{pmatrix}1\\2\\3\end{pmatrix} + k\begin{pmatrix}-3\\2\\4\end{pmatrix}$

$P(-5|6|11)$

$\overrightarrow{OP} = \begin{pmatrix}-5\\6\\11\end{pmatrix}$ $\in g$ oder $\notin g$?

$g = P$ Punktprobe

$\begin{pmatrix}1\\2\\3\end{pmatrix} + k\begin{pmatrix}-3\\2\\4\end{pmatrix} = \begin{pmatrix}-5\\6\\11\end{pmatrix} \quad \Big| -\begin{pmatrix}1\\2\\3\end{pmatrix}$

$k\begin{pmatrix}-3\\2\\4\end{pmatrix} = \begin{pmatrix}-6\\4\\8\end{pmatrix}$

$-3\,k_x = (-6) \quad |:(-3) \qquad k_x = 2$

$2\,k_y = 4 \quad |:2 \qquad k_y = 2$

$4\,k_z = 8 \quad |:4 \qquad k_z = 2$

$k_x = k_y = k_z = 2$, denn $P \in g$

g: $\vec{x} = \begin{pmatrix}-7\\6\\2\end{pmatrix} + s\begin{pmatrix}8\\-1\\5\end{pmatrix}$

$P(-1|3|-5)$

$\overrightarrow{OP} = \begin{pmatrix}-1\\3\\-5\end{pmatrix}$

$\begin{pmatrix}-7\\6\\2\end{pmatrix} + s\begin{pmatrix}8\\-1\\5\end{pmatrix} = \begin{pmatrix}-1\\3\\-5\end{pmatrix} \quad \Big| -\begin{pmatrix}-7\\6\\2\end{pmatrix}$

$s\begin{pmatrix}8\\-1\\5\end{pmatrix} = \begin{pmatrix}6\\-3\\-7\end{pmatrix}$

$8\,s_x = 6 \quad |:8 \qquad s_x = 0{,}75$

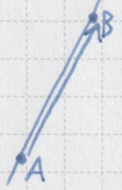
$-1\,s_y = (-3) \quad |:(-1) \qquad s_y = 3$

$5\,s_z = (-7) \quad |:5 \qquad s_z = -1{,}4$

$s_x \neq s_y \neq s_z \qquad P \notin g$

$A(1|3|-4) \quad B(-3|2|8)$

g_{AB}: $\vec{x} = \begin{pmatrix}1\\3\\-4\end{pmatrix} + s\begin{pmatrix}-3-1\\2-3\\8-(-4)\end{pmatrix}$



g_{AB}: $\vec{x} = \begin{pmatrix}1\\3\\-4\end{pmatrix} + s\begin{pmatrix}-4\\-1\\12\end{pmatrix}$

g_1: $\vec{x} = \begin{pmatrix}1\\2\\-3\end{pmatrix} + k\begin{pmatrix}-3\\4\\9\end{pmatrix} \qquad g_2$: $\vec{x} = \begin{pmatrix}-7\\8\\5\end{pmatrix} + s\begin{pmatrix}6\\-8\\-18\end{pmatrix}$

Richtungsvektoren kollinear?

$\begin{pmatrix}-3\\4\\9\end{pmatrix} t = \begin{pmatrix}6\\-8\\-18\end{pmatrix} \qquad t_x = (-2),\ t_y = (-2),\ t_z = (-2)$

$t_x = t_y = t_z = (-2)$, denn Richtungsvektoren sind kollinear.