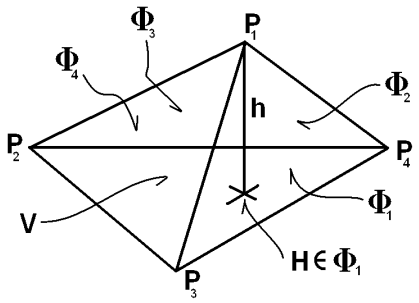
Übungen in AlgGeo ◇ Exercices en AlgGéo ◇ T. B1 ◇ I / 15

Probl. 1

$$\begin{array}{lrcl} \Phi_1 & : \; x+y+z+1 & = & 0 \\ \Phi_2 & : \; x+y+2\,z-2 & = & 0 \\ \Phi_3 & : \; x+2\,y+4\,z+10 & = & 0 \\ \Phi_4 & : \; -x+y-3\,z+7 & = & 0 \end{array}$$

$h = ?$ $\quad H = ?$ $\quad V = ?$

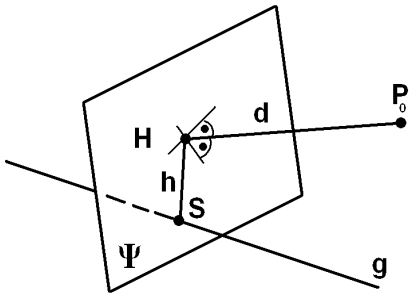


Probl. 2 $\Psi \; : \; \vec{r} = \begin{pmatrix} 0 \\ 1 \\ 1 \end{pmatrix} + \lambda \cdot \begin{pmatrix} -1 \\ 2 \\ 3 \end{pmatrix} + \mu \cdot \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}$

$d = |\overline{HP_0}| = ?$ $\quad H = ?$

$g \; : \; \vec{r} = \begin{pmatrix} 2 \\ -1 \\ 5 \end{pmatrix} + t \cdot \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$ $\qquad S = g \cap \Psi$

$S = ?$ $\quad h = ?$ $\quad h = |\overline{HS}|$



Probl. 3 $g_1 \; : \; \vec{r} = \begin{pmatrix} 2 \\ 1 \\ 3 \end{pmatrix} + t \cdot \begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix}$

$g_2 \; : \; \vec{r} = \begin{pmatrix} -3 \\ -1 \\ 1 \end{pmatrix} + t \cdot \begin{pmatrix} -2 \\ 1 \\ 4 \end{pmatrix}$

$\Phi \; : A\,x + B\,y + C\,z + D = 0, \;\; \Phi \| g_1 \wedge \Phi \| g_2,$

$|\overline{AM}| = |\overline{MB}|, \;\; \begin{pmatrix} A \\ B \\ C \end{pmatrix} = \vec{e}_n, \;\; |\vec{e}|_n = 1$

$A, \;\; B, \;\; C, \;\; D = ?$