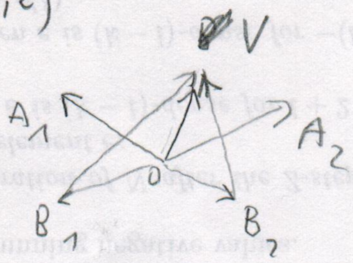
FOLD2) Unormowane A_1, A_2, B_1, B_2 ; K – strona płaszczyzny

$$\cancel{A} \; |A_1| = |A_2| = |B_1| = |B_2| = 1$$

Szukamy $\cancel{B}$ $V = (x, y, z)$



1° $V \cdot V = 1$

2° $A_2 (V - B_2) = 0$, $A_1 (V - B_1) = 0$ // $V - B_i \perp A_i$

3° $x^2 + y^2 + z^2 = 1$ // z 1°

4° $$\left.\begin{array}{l} A_i \cdot V = A_i \cdot B_i \\ \shortparallel \\ x A_i[x] + y A_i[y] + z A_i[z] = A_i B_i \end{array}\right\} \text{dla } i = 1,2$$ // z 2°

5° $$x A_1[x] \cdot A_2[x] = (A_1 B_1 - y A_1[y] - z A_1[z]) A_2[x]$$
$$x A_2[x] \cdot A_1[x] = (A_2 B_2 - y A_2[y] - z A_2[z]) A_1[x]$$ // z 4°

6° $$(A_1 B_1 - y A_1[y] - z A_1[z]) A_2[x] = (A_2 B_2 - y A_2[y] - z A_2[z]) \cdot A_1[x]$$

7° $$z (A_2[z] A_1[x] - A_1[z] A_2[x]) = y (A_1[y] \cdot A_2[x] - A_2[y] \cdot A_1[x]) + A_2 B_2 A_1[x] - A_1 B_1 A_2[x]$$

założ, że $m = A_2[z] A_1[x] - A_1[z] A_2[x] \neq 0$

$$z = y \cdot p + q$$

gdzie $$p = \frac{A_1[y] \cdot A_2[x] - A_2[y] A_1[x]}{m}$$

$$q = \frac{A_2 B_2 A_1[x] - A_1 B_1 A_2[x]}{m}$$

FOLD 2)

$8^\circ \quad x^2 = 1 - y^2 - z^2$ // z 3°

$$x^2 A_2^2[x] = (1-y^2-z^2)\, A_2^2[x]$$

$9^\circ \quad x^2 A_2^2[x] = \left(A_2 B_2 - y A_2[y] - z A_2[z]\right)^2$ // z 4° dla $i=2$

10°

$$\left(1-y^2-z^2\right) A_2^2[x] = \left(A_2 B_2 - y A_2[y] - z A_2[z]\right)^2$$

$$\left(1-y^2-(py+q)^2\right) A_2^2[x] = \left(A_2 B_2 - y A_2[y] - (py+q) A_2[z]\right)^2$$

$$\left(1-y^2-p^2y^2-2pqy-q^2\right) A_2^2[x] = \left(A_2 B_2 - q A_2[z] - y\left(A_2[y] + p A_2[z]\right)\right)^2$$

$$\left(-y^2(1+p^2) - y(2pq) + 1 - q^2\right) A_2^2[x] =$$

$$\left(A_2 B_2 - q A_2[z]\right)^2 - y\cdot 2\left(A_2 B_2 - q A_2[z]\right)\left(A_2[y] + p A_2[z]\right) +$$

$$+ \; y^2 \left(A_2[y] + p A_2[z]\right)^2$$

$$0 = y^2\left((1+p^2) A_2^2[x] + \left(A_2[y] + p A_2[z]\right)^2\right) +$$

$$y\left(2pq A_2^2[x] - 2\left(A_2 B_2 - q A_2[z]\right)\left(A_2[y] + p A_2[z]\right)\right) +$$

$$\left(q^2-1\right) A_2^2[x] + \left(A_2 B_2 - q A_2[z]\right)^2$$

FOLD 3)

11° $a = (1+p^2) A_2^2[x] + (A_2[y] + p A_2[z])^2$

$b = 2 \left(pq A_2^2[x] - (A_2 B_2 - q A_2[z])(A_2[y] + p A_2[z]) \right)$

$c = (q^2 - 1) A_2^2[x] + (A_2 B_2 - q A_2[z])^2$

11' to samo z zamianą $A_1, B_1 \leftrightarrow A_2, B_2$ → wybrać z większym a

12. $\Delta = b^2 - 4ac$

$\Delta < 0 \rightarrow$ nie ma rozwiązania

$y_1 = \frac{-b - \sqrt{\Delta}}{2a}$

$y_2 = \frac{-b + \sqrt{\Delta}}{2a}$

dla $i = 1, 2$:

$x_i = (B_2 A_2 - y_i A_2[y] - z_i A_2[z]) / A_2[x]$ // $\leftarrow$ 4°

$= (B_1 A_1 - y_i A_1[y] - z_i A_1[z]) / A_1[x]$ $\leftarrow$ gdyby $A_2[x] = A_1[x] = 0$ to $m = 0\ 1\ 2$

if $\det[A_1, A_2, K] * \det\left[A_1, A_2, \begin{bmatrix} x_1 \\ y_1 \\ z_1 \end{bmatrix}\right] > 0$

then $V := \begin{bmatrix} x_1 \\ y_1 \\ z_1 \end{bmatrix}$

else $V := \begin{bmatrix} x_2 \\ y_2 \\ z_2 \end{bmatrix}$

if $(a == 0)$: $0 = bx + c$

~~$x = -\frac{c}{b}$~~

if $(b = 0)$: → błąd   if $b \neq 0$ $x = \frac{-c}{b}$