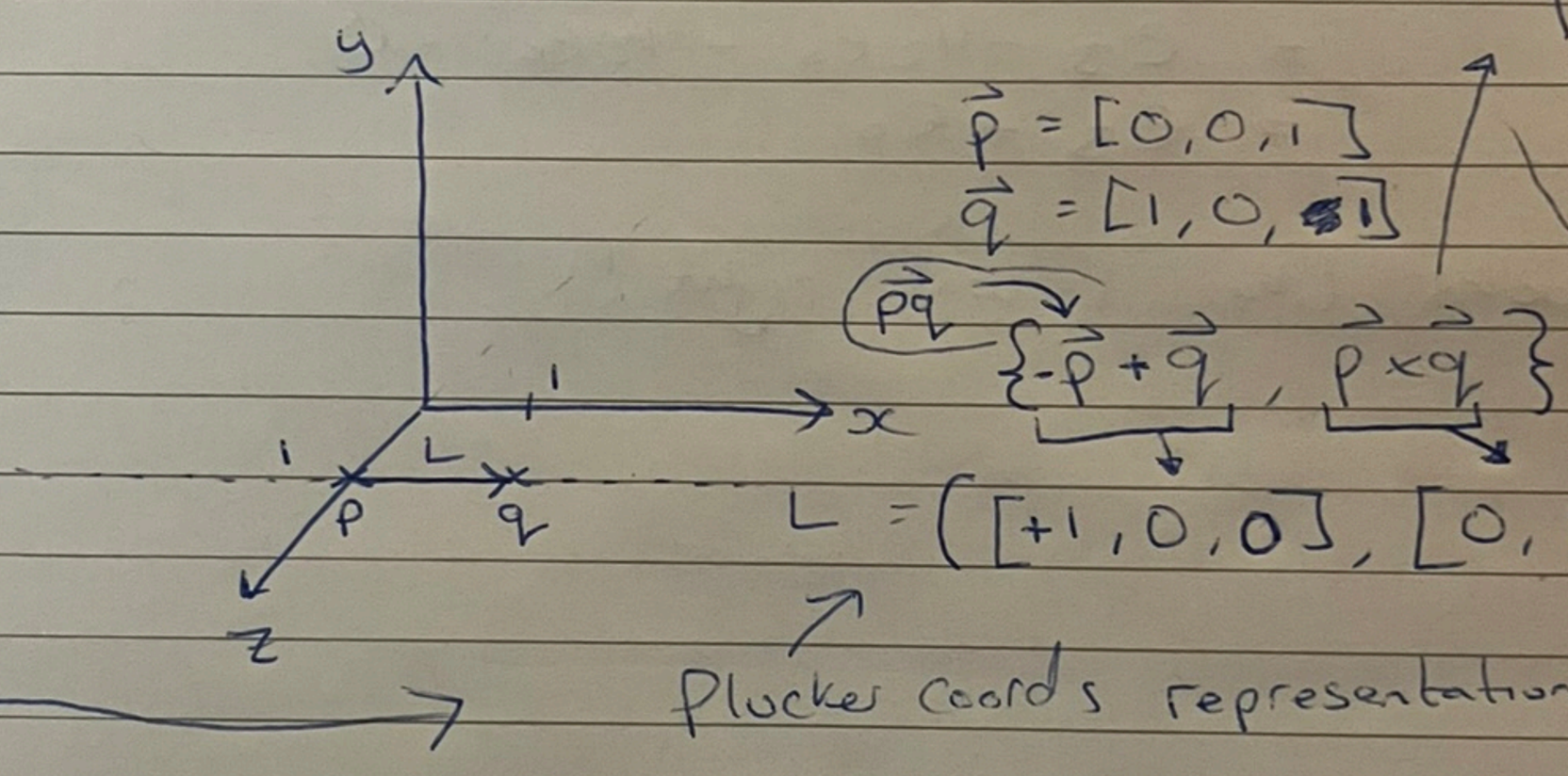
2024-02-15 - UN

What is a line? Apparently * plucker coords looks like this

$\{(-\vec{p} + \vec{q}), \vec{p} \times \vec{q}\}$ ← vector from $\vec{p}$ to $\vec{q}$

Where $\vec{p}$ & $\vec{q}$ are two points on a line. Apparently this is how a line is defined in PGA. Lets see...

Howabout the line below:



$\begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{vmatrix}$

$= \hat{i}(0) - \hat{j}(-1) + \hat{k}(0)$

$= \hat{j}$

What about PGA?

The line is the meet of the x-z plane going through the origin and the x-y plane going one unit away from origin

$\text{Plane}_1 = e_2$ ↳ use $ax + by + cz - d = 0$

$\text{Plane}_2 = e_3 - e_0$ ↳ $ae_1 + be_2 + ce_3 - de_0 = 0$

$L = \text{Plane}_1 \wedge \text{Plane}_2$

$= e_2 \wedge (e_3 - e_0)$

$= e_{23} - e_{20}$

$= e_{23} + e_{02}$

$L = ([1,0,0], [0,1,0])$ or $= ([-1,0,0], [0,-1,0])$

$e_{23}\ e_{31}\ e_{12}\ e_{01}\ e_{02}\ e_{03}$ ✓ Exactly the same as Plucker coords

or $\text{Plane}_2 \wedge \text{Plane}_1$

$= (e_3 - e_0) \wedge e_2$

$= e_{32} - e_{02}$

$= -e_{23} - e_{02}$