

12.5b

distances between points, lines, planes

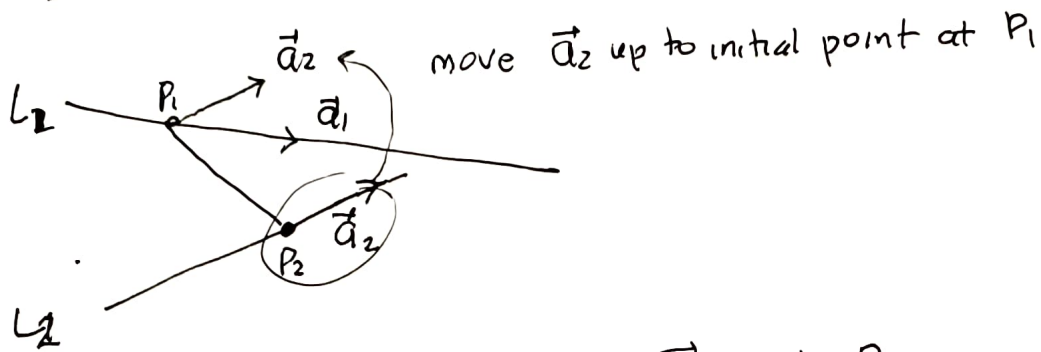
4a

a bit more on "skew" lines.

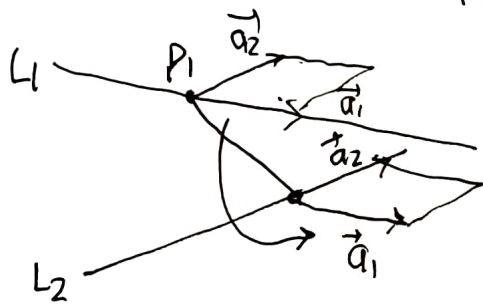
[skew referring to lines or directions means "not parallel"]

Given 2 such skew lines

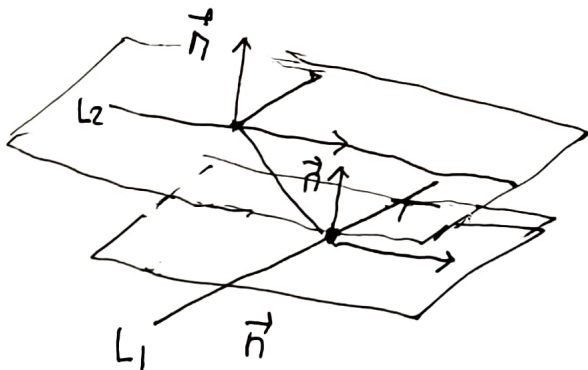
$$\left. \begin{aligned} L_1: \vec{r} &= \vec{r}_1 + t \vec{a}_1 \\ L_2: \vec{r} &= \vec{r}_2 + s \vec{a}_2 \end{aligned} \right\} \text{ where } \vec{a}_1 \times \vec{a}_2 \neq \vec{0} \text{ (not parallel)}$$



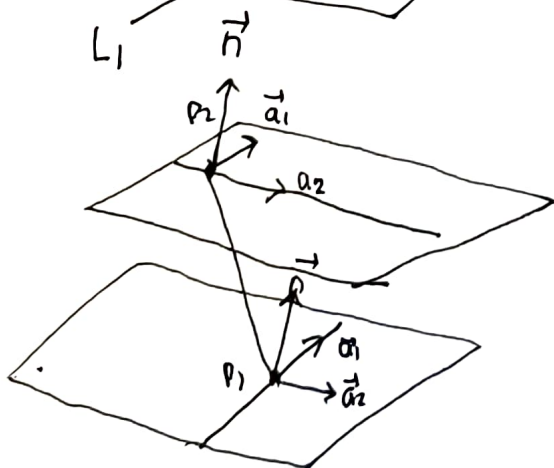
then bring \vec{a}_1 down to P_2



now we have $\vec{a}_1 \times \vec{a}_2 = \vec{n}$ for the orientation of the pair of parallel planes that contain the pair of lines.



but \vec{n} at P_1 and P_2 is clear.



so we try again, separating the two planes.

All plotting with technology requires thinking about the view and often some trial and error.