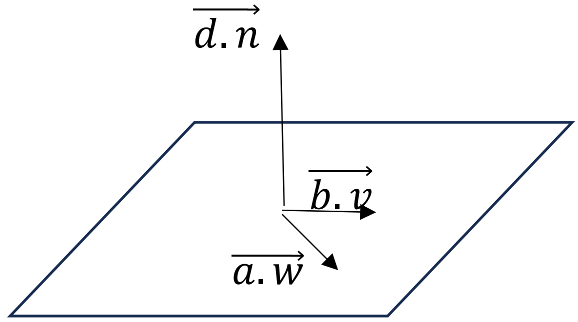
Normal vector inside a plane:

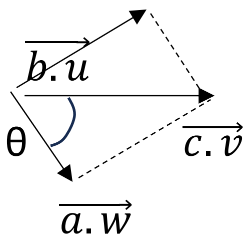


Where $\overrightarrow{a.w}$ and $\overrightarrow{b.v}$ form a 90º angle

Dilucidate that : $\overrightarrow{c.v}$= $\overrightarrow{a.w}$ + $\overrightarrow{b.u}$

$\overrightarrow{a.w}$= a.$\hat{w}$ $\overrightarrow{b.u}$= b.$\hat{u}$ and $\overrightarrow{d.n}$= d.$\hat{n}$

$\hat{w}$, $\hat{u}$, $\hat{n}$ are unitary vectors and ⊥ between them



$\frac{\overrightarrow{b.u}}{\overrightarrow{c.v}}$= Sin θ $\overrightarrow{b.u}$= $\overrightarrow{c.v}.Sin\theta$ $\overrightarrow{b.u}$= ($\overrightarrow{a.w}$ + $\overrightarrow{b.u}$).Sinθ

$\hat{u}$= $\frac{a}{b}.\hat{w}$.Sinθ+ $\hat{u}.\mathrm{Sin}\theta$

o $\overrightarrow{c.v}$= $\frac{\overrightarrow{b.u}}{Sin\theta}$ $\hat{v}$= $\frac{b}{c}\frac{\hat{u}}{\mathrm{Sin}\theta}$

being aware that $\hat{u}$= (0,1,0) $\hat{w}$= (1,0,0) and $\hat{n}$= (0,0,1):

$0= \frac{a}{b}.1.\mathrm{Sin}\theta + 0.\mathrm{Sin}\theta$

$1= \frac{a}{b}.0.\mathrm{Sin}\theta + 1.\mathrm{Sin}\theta$

$0= \frac{a}{b}.0.\mathrm{Sin}\theta + 0.\mathrm{Sin}\theta$

We may include the case of a determinant:

$$A=\begin{vmatrix} \vec{i} & \vec{j} & \vec{k}\\ a.1 & 0 & 0\\ 0 & b.1 & 0\end{vmatrix}\begin{array}{l} \\ \longrightarrow \overrightarrow{a.w} \\ \longrightarrow \overrightarrow{b.u}\end{array}$$

A= 0. $\vec{i}$+ 0. $\vec{j}$+ a.b. $\vec{k}$