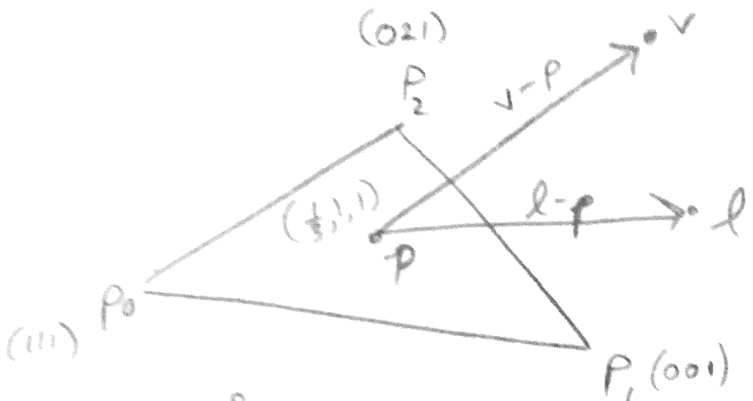
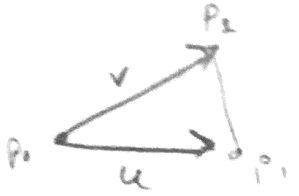


(111) (0,2,1) (001)

$p = \frac{1}{3}p_0 + \frac{1}{3}p_1 + \frac{1}{3}p_2$

$p = \left(\frac{1}{3}, 1, 1\right)$



$u \times v$ = Normal =

normalized ↓

vector $\vec{v}$ $\hat{v}$

$\left(\frac{2}{3\sqrt{30}}, \frac{1}{\sqrt{30}}, \frac{4}{\sqrt{30}}\right)$

normalized normal: $\begin{bmatrix}0\\0\\1\end{bmatrix}$

" l : $\begin{bmatrix}.164\\0\\.986\end{bmatrix}$

$V = (1, 2, 5)$

normalize & find vector like w/ l

get magnitude: $\sqrt{x^2+y^2+z^2}$

$\sqrt{1^2+2^2+5^2} = \sqrt{1+4+25}$

$= \sqrt{30}$

normalize:

get vector?: $\begin{matrix}1\\2\\5\end{matrix} - \begin{matrix}\frac{1}{3}\\1\\1\end{matrix} = \begin{matrix}2/3\\1\\4\end{matrix}$

normalized $V = \begin{bmatrix}\frac{2}{3\sqrt{30}}\\ \frac{1}{\sqrt{30}}\\ \frac{4}{\sqrt{30}}\end{bmatrix}$

~~not normalized l~~

~~$r = 2(l \cdot n)n - l$~~

~~$= 2\left(\begin{bmatrix}2/3\\0\\4\end{bmatrix} \cdot \begin{bmatrix}0\\0\\2\end{bmatrix}\right)\begin{matrix}0\\0\\2\end{matrix} - \begin{matrix}2/3\\0\\4\end{matrix}$~~

~~$(8)\begin{bmatrix}0\\0\\2\end{bmatrix}$~~

normalized $\begin{matrix}0\\0\\1\end{matrix}$

$r = 2\begin{pmatrix}.164 & 0\\0 & 0\\.986 & 1\end{pmatrix}\begin{matrix}0\\0\\1\end{matrix} - l$

$2(0+0+.986)\begin{matrix}0\\0\end{matrix}$

$(1.972)\begin{matrix}0\\0\end{matrix} - \begin{bmatrix}.164\\0\\.986\end{bmatrix}$

$\begin{bmatrix}0\\0\\1.972\end{bmatrix} - \begin{bmatrix}.164\\0\\.986\end{bmatrix}$

$r = \begin{bmatrix}-.164\\0\\.986\end{bmatrix}$