c) ~~$\left(\vec{r}\cdot\begin{pmatrix}3\\2\\1\end{pmatrix}\right)\cdot\frac{1}{\sqrt{5}}\begin{pmatrix}-1\\2\\0\end{pmatrix}=0$~~ (incorrect)

Let $\vec{r}$ = the position vector of the point on the plane closest to the origin

$\therefore \vec{r} = \lambda\hat{n}$ where λ = the perpendicular distance to the plane from the origin

$(\vec{r}-\vec{a})\cdot\hat{n} = 0$ for some point with position vector $\vec{a}$ on the plane

$\therefore \vec{r}\cdot\hat{n} - \vec{a}\cdot\hat{n} = 0$

$\therefore \lambda\hat{n}\cdot\hat{n} - \vec{a}\cdot\hat{n} = 0$

$\therefore \lambda = \vec{a}\cdot\hat{n}$ $\forall$ point on the plane with position vector $\vec{a}$

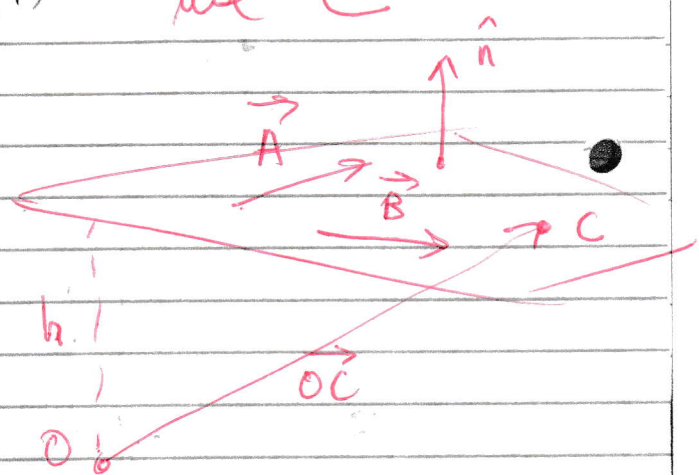
$\therefore$ w.l.o.g. take $\vec{a} = \begin{pmatrix}3\\2\\1\end{pmatrix}$

$\therefore \lambda = \begin{pmatrix}3\\2\\1\end{pmatrix}\cdot\frac{1}{\sqrt{5}}\begin{pmatrix}-1\\2\\0\end{pmatrix}$

$= \frac{1}{\sqrt{5}}(-3+4+0)$

$= \frac{1}{\sqrt{5}}$

use C



$h = \vec{OC}\cdot\hat{n}$

$\hat{n} = \frac{\vec{A}\times\vec{B}}{\|\vec{A}\times\vec{B}\|}$