**9D Acute Angles Between Lines & Planes**

1. The lines $l\_{1}$ and $l\_{2}$ have vector equations:

$$r=\left(2i+j+k\right)+t(3i-8j-k)$$

and

$$r=\left(7i+4j+k\right)+s(2i+2j+3k)$$

Given that $l\_{1}$ and $l\_{2}$ intersect, find the size of the acute angle between the lines, to 1 decimal place.

r.n = k for equation of a plane notes

1. The plane $Π$ passes through the point $A$ and is perpendicular to the vector $n$.

Given that $\vec{OA}=\left(\begin{matrix}2\\3\\-5\end{matrix}\right)$ and $n=\left(\begin{matrix}3\\1\\-1\end{matrix}\right)$, with O being the origin, find an equation of the plane:

1. In scalar product form
2. In Cartesian form
3. Find the acute angle between the line $l$ with equation:

$$r=2i+j-5k+λ(3i+4j-12k)$$

and the plane with equation:

$$r.\left(2i-2j-k\right)=2$$

1. Find the acute angle between the planes with equations $r.\left(\begin{matrix}4\\4\\-7\end{matrix}\right)=13$ and $r.\left(\begin{matrix}7\\-4\\4\end{matrix}\right)=6$.