**12B ijk and unit vectors**

1. Consider the points $A(1,5,-2)$ and $B(0,-3,7)$.
2. Find the position vectors of $A$ and $B$ in $ijk$ notation.
3. Find the vector $\vec{AB}$ as a column vector
4. The vectors $a$ and $b$ are given as:

$a=\left(\begin{matrix}2\\-3\\5\end{matrix}\right)$ and $b=\left(\begin{matrix}4\\-2\\0\end{matrix}\right)$.

1. Find:

i) $4a+b$ ii) $2a-3b$

b) State, with a reason, whether either of these vectors is parallel to $4i-5k$

1. Find the magnitude of

 $a=2i-j+4k$, and hence find $\hat{a}$, the unit vector in the direction of $a$.

1. Given the vector:

 $a=2i-j+4k$, with magnitude $\sqrt{21}$, calculate the angle between the vector and the $x$, $y$, and $z$ axes

1. The points $A$ and $B$ have position vectors $4i+2j+7k$ and $3i+4j-k$ relative to a fixed origin O. Find $\vec{AB}$ and show that $∆OAB$ is isosceles.