**9A Part 1 3D Lines Introduction**



1. Find the equation of the straight line that passes through the point A, which has position vector $\left(\begin{matrix}3\\-5\\4\end{matrix}\right)$, and is parallel to the vector $\left(\begin{matrix}7\\0\\-3\end{matrix}\right)$.
2. Find a vector equation of the straight line that passes through the points A and B, with coordinates $\left(4,5,-1\right)$ and $\left(6,3,2\right)$ respectively.
3. The straight line $l$ has vector equation:

$$r=\left(3i+2j-5k\right)+t(i-6j-2k)$$

Given that the point $(a,b,0)$ lies on $l$, find the value of $a$ and the value of $b$.

1. The straight line $l$ has vector equation:

$$r=\left(2i+5j-3k\right)+λ(6i-2j+4k)$$

Show that another vector equation of $l$ is:

$$r=\left(8i+3j+k\right)+μ(3i-j+2k)$$