8 **(i)** Find the angle between the vectors $3\mathbf{i} - 4\mathbf{k}$ and $2\mathbf{i} + 3\mathbf{j} - 6\mathbf{k}$. [4]

The vector $\overrightarrow{OA}$ has a magnitude of 15 units and is in the same direction as the vector $3\mathbf{i} - 4\mathbf{k}$. The vector $\overrightarrow{OB}$ has a magnitude of 14 units and is in the same direction as the vector $2\mathbf{i} + 3\mathbf{j} - 6\mathbf{k}$.

(ii) Express $\overrightarrow{OA}$ and $\overrightarrow{OB}$ in terms of $\mathbf{i}$, $\mathbf{j}$ and $\mathbf{k}$. [3]

(iii) Find the unit vector in the direction of $\overrightarrow{AB}$. [3]