7 Given that $\mathbf{a} = \begin{pmatrix} 2 \\ -2 \\ 1 \end{pmatrix}$, $\mathbf{b} = \begin{pmatrix} 2 \\ 6 \\ 3 \end{pmatrix}$ and $\mathbf{c} = \begin{pmatrix} p \\ p \\ p+1 \end{pmatrix}$, find

(i) the angle between the directions of $\mathbf{a}$ and $\mathbf{b}$, [4]

(ii) the value of p for which $\mathbf{b}$ and $\mathbf{c}$ are perpendicular. [3]