

5. Vectors \vec{AB} and \vec{BC} are given by

$$\vec{AB} = \begin{pmatrix} 2p \\ q \\ 4 \end{pmatrix} \quad \vec{BC} = \begin{pmatrix} q \\ -3p \\ 2 \end{pmatrix} \quad \text{where } p \text{ and } q \text{ are constants}$$

Given that \vec{AC} is parallel to $\begin{pmatrix} 3 \\ -4 \\ 3 \end{pmatrix}$ find the value of p and the value of q .

(5)