Question Number	Scheme	Notes	Marks
3(a)	$\mathbf{M}^{-1}=\dfrac{1}{5k-3k}\begin{pmatrix}5 & -k\\ -3 & k\end{pmatrix}$	Attempts $\mathbf{M}^{-1}=\dfrac{1}{\det\mathbf{M}}\times\text{adj}(\mathbf{M})$ Either part correct but $\text{adj}(\mathbf{M})=\mathbf{M}$ scores M0	M1
	$=\dfrac{1}{2k}\begin{pmatrix}5 & -k\\ -3 & k\end{pmatrix}$ or $\begin{pmatrix}\dfrac{5}{2k} & -\dfrac{1}{2}\\ \dfrac{-3}{2k} & \dfrac{1}{2}\end{pmatrix}$	Correct matrix $2k$ must be seen for this mark	A1
			(2)
(b)	$(\mathbf{MN})^{-1}=\mathbf{N}^{-1}\mathbf{M}^{-1}=\dfrac{1}{2k}\begin{pmatrix}k & k\\ 4 & -1\end{pmatrix}\begin{pmatrix}5 & -k\\ -3 & k\end{pmatrix}$	Applies $(\mathbf{MN})^{-1}=\mathbf{N}^{-1}\mathbf{M}^{-1}$	M1
	$=\dfrac{1}{2k}\begin{pmatrix}2k & 0\\ 23 & -5k\end{pmatrix}$ or e.g. $\begin{pmatrix}1 & 0\\ \dfrac{23}{2k} & \dfrac{-5}{2}\end{pmatrix}$	Correct matrix	A1
			(2)
ALT **(b)**	Find **N** (ie inverse of $\mathbf{N^{-1}}$) Find **MN** $=-\dfrac{1}{5k}\begin{pmatrix}-5k & 0\\ -23 & 2k\end{pmatrix}$ Find $(\mathbf{MN})^{-1}$ $=\dfrac{1}{2k}\begin{pmatrix}2k & 0\\ 23 & -5k\end{pmatrix}$ or e.g. $\begin{pmatrix}1 & 0\\ \dfrac{23}{2k} & \dfrac{-5}{2}\end{pmatrix}$	Complete method needed Correct matrix	M1 A1
			(2)
			Total 4