3. Given that **A** and **B** are non-singular matrices and $\mathbf{BAB} = \mathbf{I}$, where **I** is the identity matrix,

(a) show that $\mathbf{A} = \mathbf{B}^{-1}\mathbf{B}^{-1}$

(1)

Given also that $\mathbf{B} = \begin{pmatrix} 3 & k \\ -4 & -2k \end{pmatrix}$ where k is a non-zero constant,

(b) determine **A** in terms of k

(4)

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Question 3 continued

(Total for Question 3 is 5 marks)