The Identity Matrix

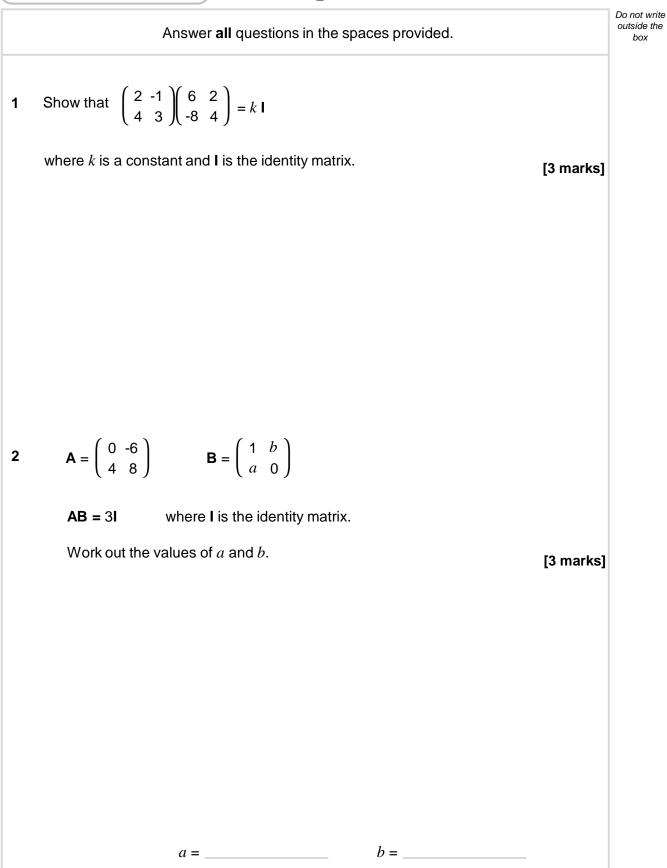## Revise this topic →

← Check your work

This booklet features original exam style questions designed by me. They do not feature in past papers but are good practice for your exams.

The content is designed to reflect the style of the AQA Level 2 Certificate in Further Maths.
It may not be suitable for other courses.

@1stclassmaths

Answer **all** questions in the spaces provided.

1 Show that $\begin{pmatrix} 2 & \text{-}1 \\ 4 & 3 \end{pmatrix}\begin{pmatrix} 6 & 2 \\ \text{-}8 & 4 \end{pmatrix} = k\,\mathbf{I}$

where k is a constant and **I** is the identity matrix.

[3 marks]

2 $\mathbf{A} = \begin{pmatrix} 0 & \text{-}6 \\ 4 & 8 \end{pmatrix}$ $\mathbf{B} = \begin{pmatrix} 1 & b \\ a & 0 \end{pmatrix}$

AB = 3**I** where **I** is the identity matrix.

Work out the values of a and b.

[3 marks]

$a = \underline{\hspace{3cm}}$ $b = \underline{\hspace{3cm}}$

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3 $\mathbf{A} = \begin{pmatrix} a+1 & b \\ 2b & a-3 \end{pmatrix}$ $\mathbf{B} = \begin{pmatrix} 3 & \text{-}2 \\ \text{-}4 & 5 \end{pmatrix}$

AB = 14**I**

where **I** is the identity matrix.

Work out the values of a and b.

[4 marks]

$a =$ _____ $b =$ _____

4 $\mathbf{A} = \begin{pmatrix} \text{-}2 & 2 \\ 2 & 0 \end{pmatrix}$ $\mathbf{B} = \begin{pmatrix} a & a \\ a & b \end{pmatrix}$

A^{2}B = I

where **I** is the identity matrix.

Work out the values of a and b.

[4 marks]

$a =$ _____ $b =$ _____

8

Turn over ▶

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Do not write outside the box

5 $\mathbf{M} = \begin{pmatrix} \sqrt{12} & 4 \\ 0 & \sqrt{8} \end{pmatrix}$ $\mathbf{N} = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$

$\mathbf{MN} = \sqrt{6}\ \mathbf{I}$ where **I** is the identity matrix.

Work out the values of a, b, c and d.

[6 marks]

$a =$ _____ $b =$ _____ $c =$ _____ $d =$ _____

6

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