



QUESTION WORKBOOK

Determinants and inverses

Matrices · Year FM

7 questions · 24 marks

PRINT EDITION

SECTION A · Warm-up

- A1** Find the determinant of the matrix with rows $(3, 1)$ and $(1, 2)$, and state what its sign and size say about the transformation. [2]

- A2** Write down the inverse of the matrix with rows $(3, 1)$ and $(1, 2)$, and verify it by multiplication. [3]

SECTION B · Standard

- B1** Evaluate the determinant of the 3×3 matrix with rows $(1, 2, 0)$, $(3, 1, 4)$ and $(2, 0, 1)$. [3]

- B2** A transformation has matrix with rows $(3, 0)$ and $(1, 2)$. A shape of area 4 is transformed. Find the area of the image. [2]

- B3** Find the value of k for which the matrix with rows $(k, 2)$ and $(3, 1)$ is singular, and state what singular means for the transformation. [3]

SECTION C · Stretch

- C1** For invertible matrices A and B , prove that $(AB)^{-1} = B^{-1}A^{-1}$, and explain the order reversal in one sentence. [4]

- C2** N is the matrix with rows $(1, 2, 0)$, $(3, 1, 4)$ and $(2, 0, 1)$. Find N^{-1} . [7]