Advanced Higher Maths
SQA 2023 Paper 2
Question 3

Advanced Higher Maths
Maths.scot

Matrix A is defined by $A = \begin{pmatrix} 2 & 2x & 4 \\ x & -1 & 0 \\ 1 & 0 & -2 \end{pmatrix}$, where $x \in \mathbb{R}$.

(a) Find a simplified expression for the determinant of A. **2**

(b) Hence, determine whether A^{-1} exists for all values of x. **1**

Answers:

(a) $4x^2 + 8$

(b) $4x^2 + 8 \neq 0$ so A^{-1} exists for all values of x.