

Advanced Higher Maths
SQA 2021 Paper 2
Question 5

A non-singular matrix A satisfies the equation

$$A^2 = 2A + 5I,$$

where I is the identity matrix.

- (a) Express A^4 in the form $pA + qI$, where $p, q \in \mathbb{Z}$. 2
- (b) Express A^{-1} in the form $rA + sI$, where $r, s \in \mathbb{Q}$. 2
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Answers:

(a) $28A + 45I$

(b) $\frac{1}{5}A - \frac{2}{5}I$