1. $\mathbf{P} = \begin{pmatrix} p-1 & p+1 \\ -3 & p \end{pmatrix}$ where p is a constant

(a) Determine det **P** in simplest form in terms of p.

(2)

(b) Hence show that **P** is non-singular for all real values of p.

(2)

(c) Determine $\mathbf{P}^{-1}$ in terms of p.

(2)

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Question 1 continued

(Total for Question 1 is 6 marks)