5.

$$\mathbf{A} = \begin{pmatrix} \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \end{pmatrix}$$

(a) Describe fully the single geometric transformation represented by the matrix **A**

(2)

The matrix **B** represents an enlargement with centre $(0,0)$ and scale factor $2\sqrt{2}$

(b) Write down matrix **B**

(1)

Given that

- **I** is the identity matrix
- the transformation represented by $(\mathbf{A}+\mathbf{I})$ followed by the transformation represented by **B** is represented by the matrix **C**
- the triangle T is transformed by **C** to the triangle T'
- T' has an area of $12\left(1+\sqrt{2}\right)$

(c) determine, in simplest form, the exact area of T

(4)

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Question 5 continued

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Question 5 continued

(Total for Question 5 is 7 marks)