7. **In this question you must show all stages of your working.**

Solutions relying entirely on calculator technology are not acceptable.

(a) Use de Moivre's theorem to show that

$$\cos 5x \equiv \cos x\left(a\sin^4 x + b\sin^2 x + c\right)$$

where a, b and c are integers to be determined.

(4)

(b) Hence solve, for $0 < \theta < \frac{\pi}{2}$

$$\cos 5\theta = \sin 2\theta \sin\theta - \cos\theta$$

giving your answers to 3 decimal places.

(4)

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Question 7 continued

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Question 7 continued

(Total for Question 7 is 8 marks)