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

Solutions relying entirely on calculator technology are not acceptable.

(i) Determine

$$\int \frac{1}{\sqrt{5 + 4x - x^2}} \, \mathrm{d}x$$

(3)

(ii) Use the substitution $x = 3 \sec\theta$ to determine the exact value of

$$\int_{2\sqrt{3}}^{6} \frac{18}{(x^2 - 9)^{\frac{3}{2}}} \, \mathrm{d}x$$

Give your answer in the form $A + B\sqrt{3}$ where A and B are constants to be found.

(6)

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Question 2 continued

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Question 2 continued

(Total for Question 2 is 9 marks)