1. Find

$$\int \left(\frac{1}{2}x^3 + \frac{3}{\sqrt{x}} - 4 \right) \mathrm{d}x$$

writing your answer in simplest form.

(4)

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Question 1 continued

(Total for Question 1 is 4 marks)

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

Solutions relying on calculator technology are not acceptable.

(a) Solve

$$5(x + 3) > 4(2x - 5)$$

(2)

(b) (i) Write

$$x^2 - 6x + 1$$

in the form $(x + a)^2 + b$ where a and b are constants.

(ii) Hence solve

$$x^2 - 6x + 1 \geqslant 0$$

(4)

(c) Hence find the values of x that satisfy both

$$5(x + 3) > 4(2x - 5) \quad \textbf{and} \quad x^2 - 6x + 1 \geqslant 0$$

(1)

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