1. The curve C has equation

$$y = 6x^2 + 3\sqrt{x} + \frac{5}{8} \qquad x > 0$$

(a) Find $\frac{dy}{dx}$ writing the answer in simplest form.

(3)

The point $P\left(\frac{1}{4}, \frac{5}{2}\right)$ lies on C.

(b) Find the equation of the tangent to C at P, writing your answer in the form $y = mx + c$ where m and c are integers.

(3)

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Question 1 continued

(Total for Question 1 is 6 marks)

2. Find

$$\int (x-3)^2(2x+5)\,\mathrm{d}x$$

writing the answer in simplest form.

(5)

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