5 **(a)** Find the equation of the normal to the curve $y = x^3 - 7x^2 + 12x - 5$ at the point (1, 1). [5]

(b) Find the x-coordinates of the two points where the normal cuts the curve again. Give your answers in the form $x = a \pm \sqrt{b}$ where a and b are integers. [5]

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6 Find the exact value of $\int_2^3 \frac{(x+2)^2}{x}\,\mathrm{d}x$. [6]

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