8 **(a)** Show that $\frac{3}{2x-3}+\frac{3}{2x+3}$ can be written as $\frac{12x}{4x^2-9}$. [2]

(b) Hence find $\int \frac{12x}{4x^2-9}\mathrm{d}x$, giving your answer as a single logarithm and an arbitrary constant. [3]

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(c) Given that $\int_2^a \frac{12x}{4x^2-9}\mathrm{d}x = \ln 5\sqrt{5}$, where $a > 2$, find the exact value of a. [4]