2 **(a)** Show that the equation $\log_4(2x+1) = 2\log_4(3x-1) - 2$ can be written as a quadratic equation in x. [3]

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(b) Hence solve the equation $\log_4(2x+1) = 2\log_4(3x-1) - 2$. [2]

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2 It is given that $2\ln p + \ln(p-1) - \frac{1}{2}\ln(q+1) = 3$.

Find q in terms of p. [3]

1 Solve the equation $\frac{e^{x}+2e}{e^{x}-3}=4$. Give your answer correct to 3 decimal places. [5]