2 **(a)** Write $2x^2 + 5x + 3$ in the form $2(x + a)^2 + b$, where a and b are rational numbers. [2]

(b) Hence write down the coordinates of the stationary point on the curve $y = 2x^2 + 5x + 3$. [2]

(c) Solve the inequality $2x^2 + 5x + 3 < \frac{15}{8}$. [3]

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3 **(a)** Write $3+2\lg a-\frac{1}{2}\lg\left(4b^2\right)$, where a and b are both positive, as a single logarithm to base 10. Give your answer in its simplest form. [3]

(b) Given that $2\log_c 3 = 7+4\log_3 c$, find the possible values of the positive constant c, giving your answers in exact form. [5]