4 **(a)** Show that $2x^2 + 5x + 3$ can be written in the form $2(x + a)^2 + b$, where a and b are constants to be found. [2]

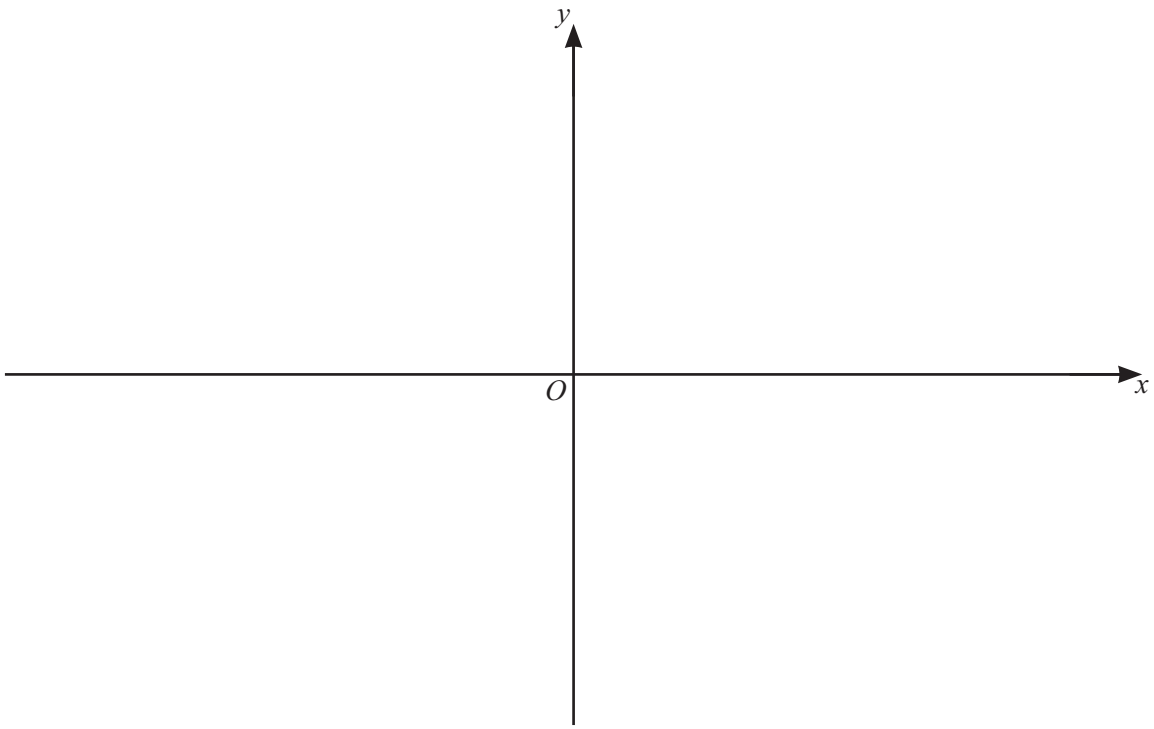
(b) Hence write down the coordinates of the stationary point on the curve $y = 2x^2 + 5x + 3$. [2]

A function f is such that $\mathrm{f}(x) = 2x^2 + 5x + 3$, for $x \geqslant p$, where p is a constant.
It is given that f^{-1} exists.

(c) **(i)** Write down the least possible value of p. [1]

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(ii) Using your value of p, sketch the graphs of $y = \mathrm{f}(x)$ and $y = \mathrm{f}^{-1}(x)$.
Label each graph.
State the intercepts of each of the graphs with the axes. [5]



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5 **(a)** Write $5\lg a - 4\lg b - 3$ as a single base 10 logarithm. [3]

(b) Solve the equation $\log_5(x+1) - \log_{(x+1)} 5 = 0$. [4]

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