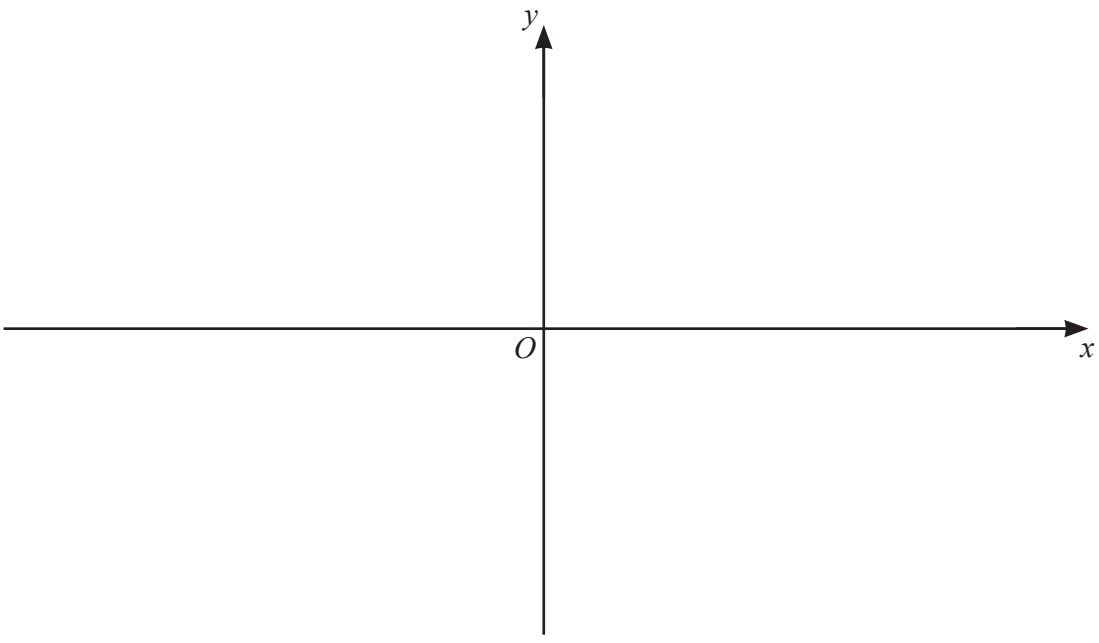
9 **(a)** The function f is such that $\mathrm{f}(x) = \ln(5x+2)$, for $x > a$, where a is as small as possible.

(i) Write down the value of a. [1]

(ii) Hence find the range of f. [1]

(iii) Find $\mathrm{f}^{-1}(x)$, stating its domain. [3]

(iv) On the axes, sketch the graphs of $y = \mathrm{f}(x)$ and $y = \mathrm{f}^{-1}(x)$, stating the exact values of the intercepts of the curves with the coordinate axes. [4]



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(b) The function g is such that $g : x \mapsto x^{\frac{1}{2}} - 4$, for $x > 0$. Solve the equation $g^2(x) = -2$. [3]