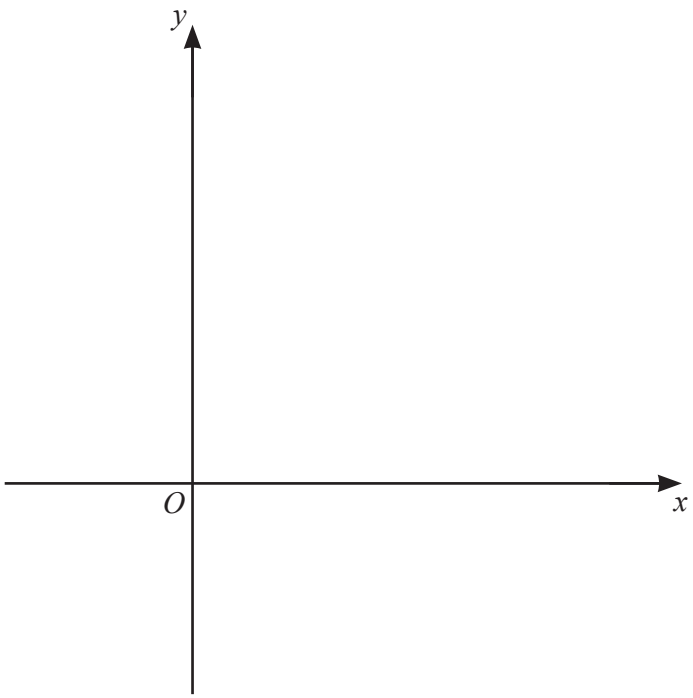
11 The function f is defined by $\mathrm{f}(x) = \ln(2x+1)$ for $x \geqslant 0$.

(a) Sketch the graph of $y = \mathrm{f}(x)$ and hence sketch the graph of $y = \mathrm{f}^{-1}(x)$ on the axes below. [3]



The function g is defined by $\mathrm{g}(x) = (x-4)^2 + 1$ for $x \leqslant 4$.

(b) (i) Find an expression for $\mathrm{g}^{-1}(x)$ and state its domain and range. [4]

(ii) Find and simplify an expression for $\mathrm{fg}(x)$. [2]

(iii) Explain why the function gf does not exist. [1]

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