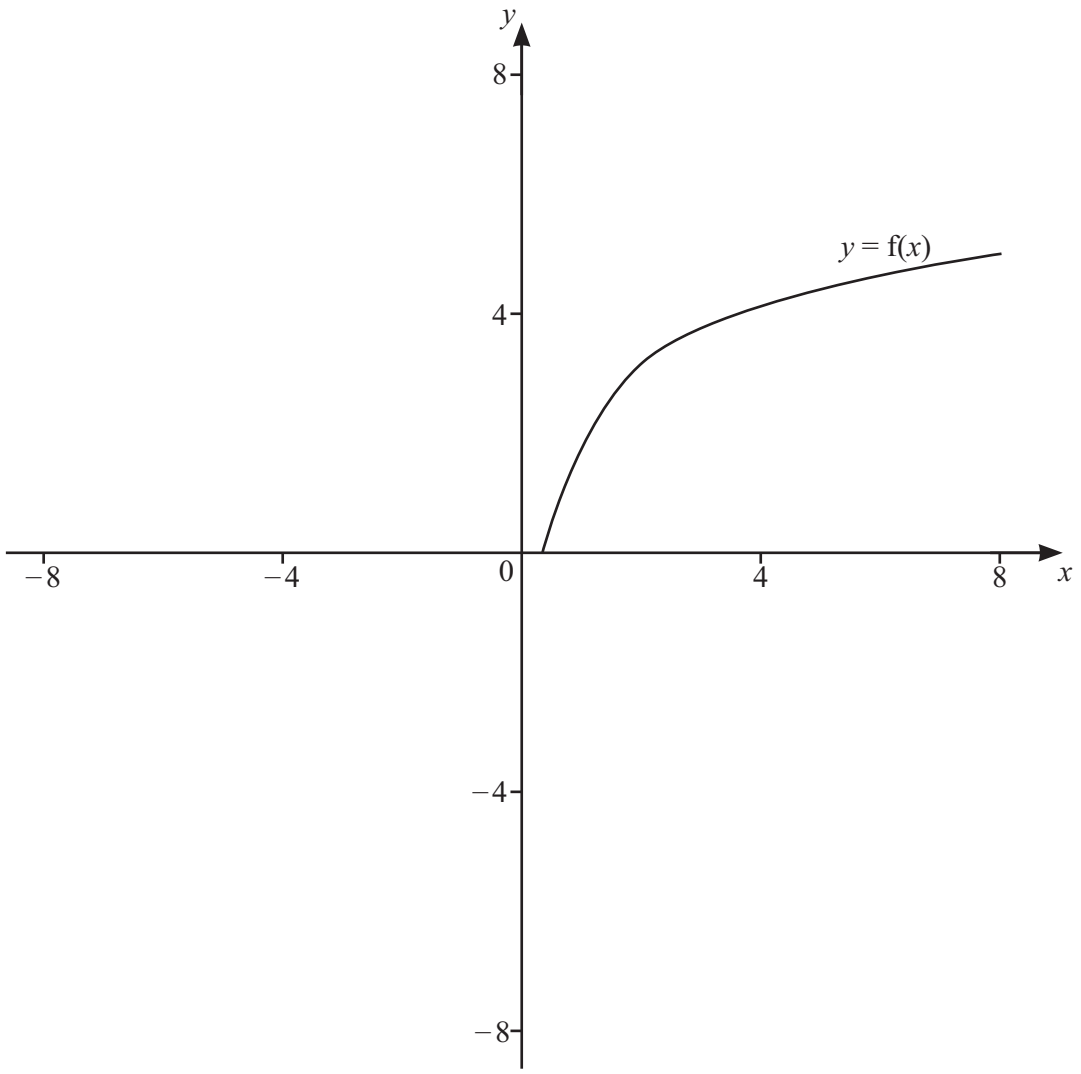
2 (a) (i)



The diagram shows the graph of $y = f(x)$.

On the same diagram sketch the graph of $y = f^{-1}(x)$. [1]

(ii) Describe the relationship between the graph of $f(x)$ and the graph of $f^{-1}(x)$. [1]

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(b) A function g is defined by $\mathrm{g}(x) = \mathrm{e}^{\sqrt{x-2}}$ for $x \geqslant 2$.

(i) Find an expression for $\mathrm{g}^{-1}(x)$. [3]

(ii) Write down the range of g^{-1}. [1]

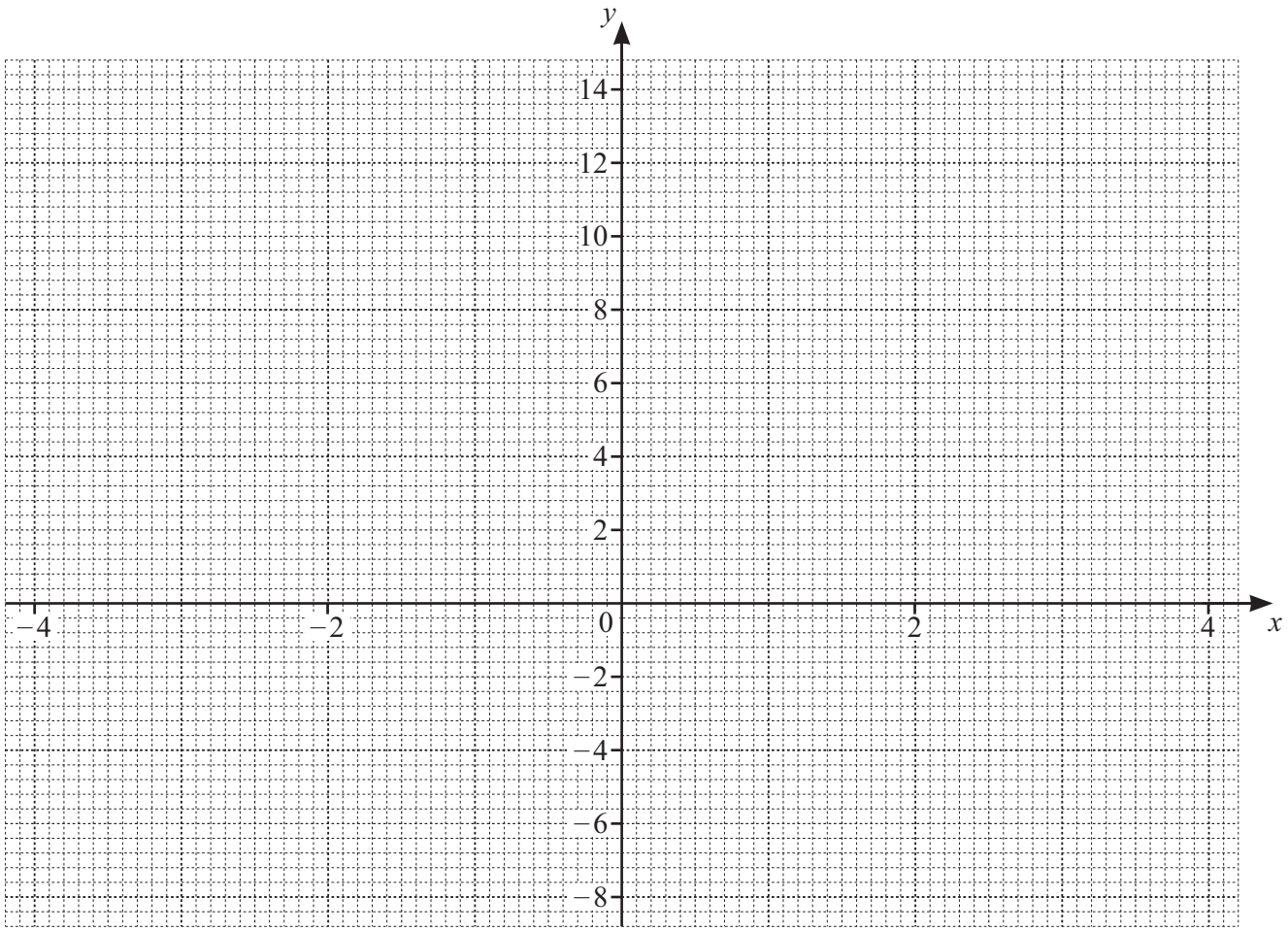
(iii) A function h is defined by $\mathrm{h}(x) = \frac{1}{x^2} + 2$ for $x > 0$.

Find an expression for $\mathrm{gh}(x)$ in its simplest form. [2]

3 **(a)** **(i)** Write $x^2 - x - 6$ in the form $(x+a)^2 + b$ where a and b are constants. [2]

(ii) Hence write down the coordinates of the stationary point on the curve $y = x^2 - x - 6$. [2]

(b) On the axes, draw the graph of $y = |x^2 - x - 6|$ for $-4 \leqslant x \leqslant 4$. [3]



(c) Use your graph to solve the inequality $|x^2 - x - 6| < 4$. [2]

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