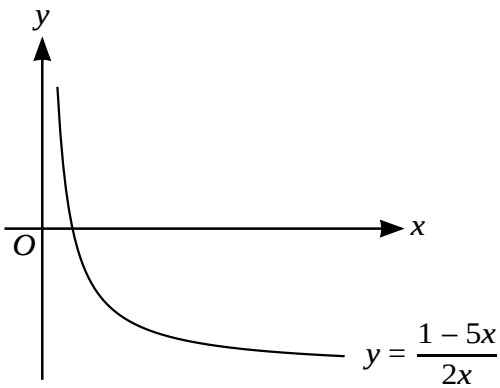
6



The diagram shows the graph of $y = \mathrm{f}^{-1}(x)$, where f^{-1} is defined by $\mathrm{f}^{-1}(x) = \dfrac{1-5x}{2x}$ for $0 < x \leqslant 2$.

(i) Find an expression for $\mathrm{f}(x)$ and state the domain of f. [5]

(ii) The function g is defined by $\mathrm{g}(x) = \dfrac{1}{x}$ for $x \geqslant 1$. Find an expression for $\mathrm{f}^{-1}\mathrm{g}(x)$, giving your answer in the form $ax + b$, where a and b are constants to be found. [2]