The function f is defined by $f(x) = \dfrac{3-2x}{x-5}$ $x \in \mathbb{R}, x \neq 5$.

(a) Find $f^{-1}(x)$, the inverse function of x.

The function g has domain $-1 \leq x \leq 8$, and is linear from $(-1, -9)$ to $(2, 0)$ and from $(2, 0)$ to $(8, 4)$. The diagram shows a sketch of the graph of $y = g(x)$.
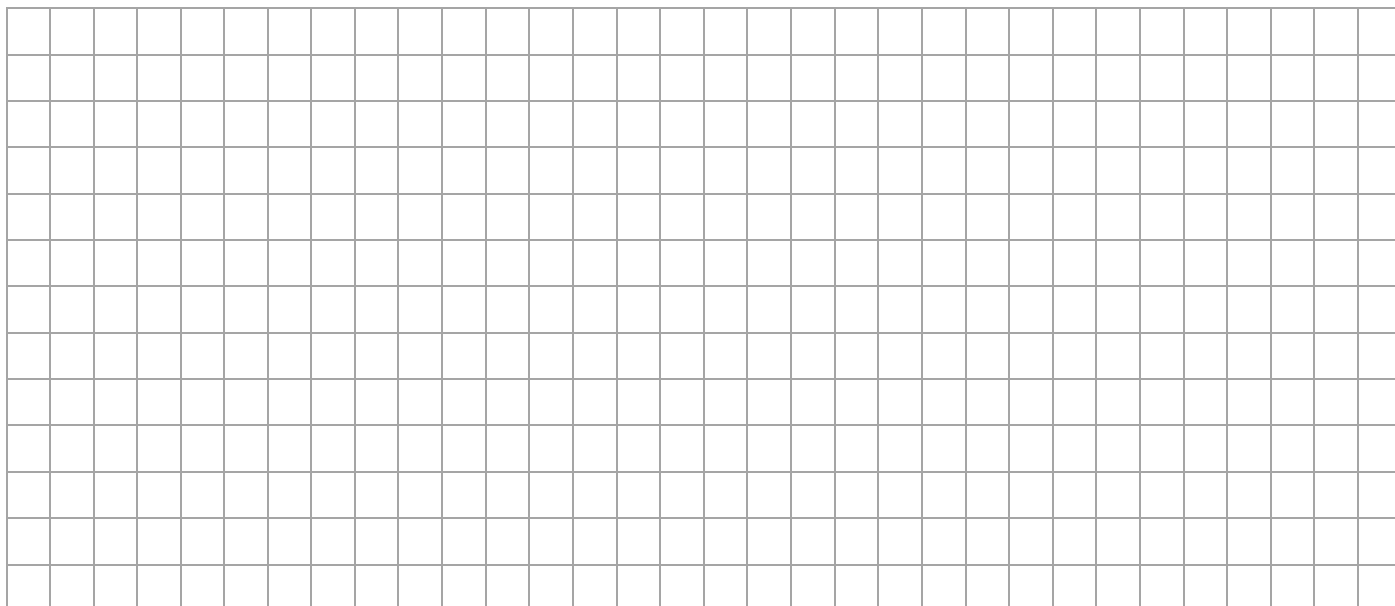

(b) Write down the range of g.

(c) Find $f(g(8))$.

(d) Sketch the graph with equation $y = g^{-1}(x)$.

Show the coordinates of each point at which the graph meets or cuts the axes.