8 The functions f and g are defined as follows, where a and b are constants.

$$\mathrm{f}(x) = 1 + \frac{2a}{x - a} \text{ for } x > a$$

$$\mathrm{g}(x) = bx - 2 \text{ for } x \in \mathbb{R}$$

(a) Given that $\mathrm{f}(7) = \frac{5}{2}$ and $\mathrm{gf}(5) = 4$, find the values of a and b. [4]

For the rest of this question, you should use the value of a which you found in **(a)**.

(b) Find the domain of f^{-1}. [1]

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(c) Find an expression for $f^{-1}(x)$. [3]

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