9 Functions f and g are defined as follows:

$$f(x) = (x - 2)^2 - 4 \text{ for } x \geqslant 2,$$
$$g(x) = ax + 2 \text{ for } x \in \mathbb{R},$$

where a is a constant.

(a) State the range of f. [1]

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(b) Find $f^{-1}(x)$. [2]

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(c) Given that $a = -\frac{5}{3}$, solve the equation $f(x) = g(x)$. [3]

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(d) Given instead that $ggf^{-1}(12) = 62$, find the possible values of a. [5]