

9 Functions f and g are defined by

$$\begin{aligned}f(x) &= x + \frac{1}{x} \quad \text{for } x > 0, \\g(x) &= ax + 1 \quad \text{for } x \in \mathbb{R},\end{aligned}$$

where a is a constant.

(a) Find an expression for $gf(x)$. [1]

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(b) Given that $gf(2) = 11$, find the value of a . [2]

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(c) Given that the graph of $y = f(x)$ has a minimum point when $x = 1$, explain whether or not f has an inverse. [1]

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It is given instead that $a = 5$.

- (d)** Find and simplify an expression for $g^{-1}f(x)$. [3]

[illegible]

- (e) Explain why the composite function fg cannot be formed. [1]

[illegible]