5 $\mathrm{f} : x \mapsto (2x+3)^2 \quad \text{for } x > 0$

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

(b) Explain why f has an inverse. [1]

(c) Find f^{-1}. [3]

(d) State the domain of f^{-1}. [1]

(e) Given that $\mathrm{g} : x \mapsto \ln(x+4) \quad \text{for } x > 0$, find the exact solution of $\mathrm{fg}(x) = 49$. [3]

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