1 $\mathrm{f}(x) = 3 + \mathrm{e}^{x} \quad \text{for } x \in \mathbb{R}$

$\mathrm{g}(x) = 9x - 5 \quad \text{for } x \in \mathbb{R}$

(a) Find the range of f and of g. [2]

(b) Find the exact solution of $\mathrm{f}^{-1}(x) = \mathrm{g}'(x)$. [3]

(c) Find the solution of $\mathrm{g}^{2}(x) = 112$. [2]