1

(a) (i) $f^{-1}(x) = \dfrac{1}{2}(\ln x - 1)$ (ii) $g^{-1}(x) = e^{2x}$

2

(a) domain : $x > -2$; range : $y \in \mathbb{R}$

(b) $g^{-1}(x) = e^x - 2$

3

domain : $x > 0,\ x \neq \dfrac{2}{e}$; range : $y \in \mathbb{R},\ y \neq 0$

4

(a) What is the inverse of the function $y = e^x$? $y = \ln x$ [8 marks]

(b) Sketch the graph of $f(x) = e^x + 1$ on the grid below. Label it $f(x)$. The graph of $y = e^x + 1$

     has one asymptote. What is the equation of the asymptote? $y = 1$

(c) Sketch a graph of the inverse of $f(x) = e^x + 1$. Label it $f^{-1}(x)$. The graph of $f^{-1}(x)$ has

     one asymptote. What is the equation of the asymptote? $x = 1$

(d) Find the equation for $f^{-1}(x)$. $f^{-1}(x) = \ln(x-1)$