

**9** The function  $f(x) = \frac{e^x}{1 - e^x}$  is defined on the domain  $x \in \mathbb{R}, x \neq 0$ .

**(i)** Find  $f^{-1}(x)$ . **[3]**

**(ii)** Write down the range of  $f^{-1}(x)$ . **[1]**