

name: Solution

1 (10 points). Find the inverse of the function  $f(x) = \ln(3x + 1)$ .

$$f(x) = \ln(3x + 1)$$

$$\Rightarrow y = \ln(3x + 1)$$

$$\Rightarrow e^y = e^{\ln(3x+1)} = 3x + 1$$

$$\Rightarrow \frac{e^y - 1}{3} = x$$

$$\Rightarrow y = \frac{e^x - 1}{3}$$

$$\Rightarrow f^{-1}(x) = \frac{e^x - 1}{3}$$