Mo Tu We Th Fr Sa Su

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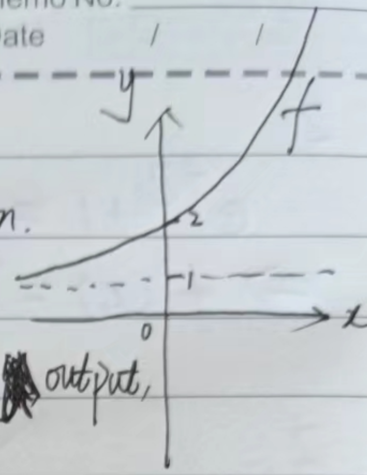
Q2

1. ① $f(x)$ is an injective function.

~~PROVE~~ (EXPLAINATION):

given a x, it map to the unique output, which is e^x+1.



PROVE:

for all $a,b \in R$, if $f(a)=f(b)$,

then $e^a+1=e^b+1$

$\Rightarrow e^a=e^b$

$\Rightarrow a=b$.

② $f(x)$ is a surjective function.

PROVE:

for all $y \in [1,+\infty)$, ~~there exist x~~

$y=f(x)=e^x+1$

$\Rightarrow x=\ln(y-1) \in R$

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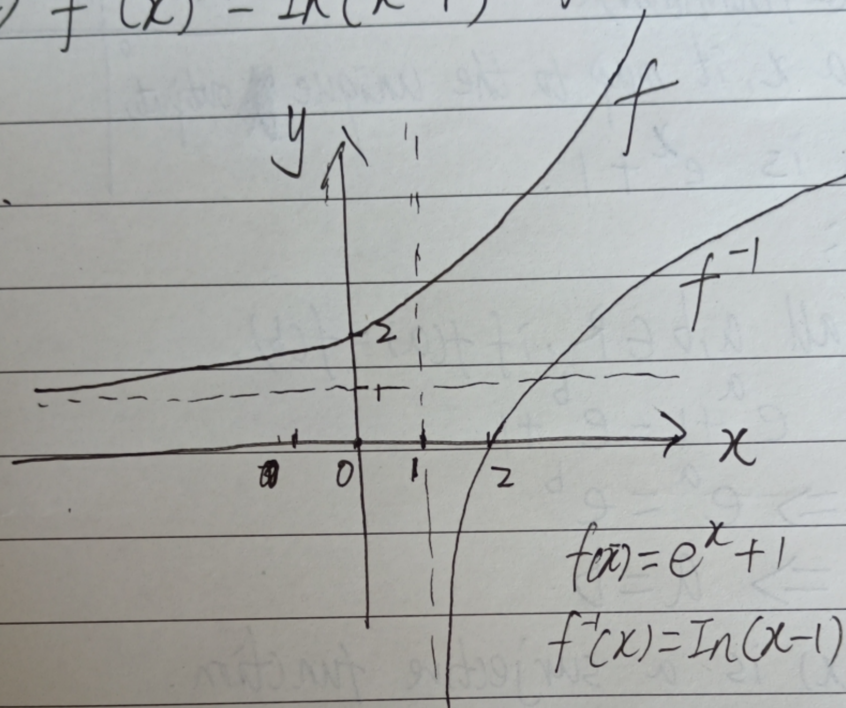
2.

$e^{f^{-1}(x)}+1=x$

$\Rightarrow f^{-1}(x)=\ln(x-1)$

So the inverse function $f^{-1}(x)=\ln(x-1)$.

3.



4. These two curves are symmetric with the line $y=x$.
It's like x and y change their stand in these two curves. So it makes sense.