1. The graph of a function $f(x)$ is sketched on the coordinatized plane below. Put in a careful graph of the function $f^{-1}(x)$.

2. Let $a>0$ with $a \neq 1$ be a constant. Why is the function $g(x)=\log _{a} x$ only defined for $x>0$ ? In the space below derive the formula $\log _{a} x y=\log _{a} x+\log _{a} y$.
