

Definition: Inverse Function

Inverse Function: Let $f : A \rightarrow B$ be a function. The inverse of f is another function, written:

$$f^{-1} : B \rightarrow A$$

defined by

$$\forall x \in A, \forall y \in B, x = f^{-1}(y) \Leftrightarrow y = f(x)$$

Assuming that f^{-1} is a function.

Equivalent Definition

$$\begin{cases} \forall x \in A, & f^{-1}(f(x)) = x \\ \forall y \in B, & f(f^{-1}(y)) = y \end{cases}$$