

Summary of Functions Acting on Sets

Let $f : X \rightarrow Y$ be a function. Let $A \subseteq X$ and $B \subseteq Y$.

(a) $x \in f[A] \iff f(t) = x \text{ for some } t \in A.$

(b) $x \in f^{-1}[B] \iff f(x) \in B.$

(c) $x \in A \Rightarrow f(x) \in f[A].$

(d) $f^{-1}(x) \in f^{-1}[B] \Rightarrow x \in B.$