



Let  $f: X \rightarrow Y$  be a function and  $A$  and  $B$  be sets such that  $X \subseteq A$  and  $Y \subseteq B$ . An *extension* of  $f$  to  $A$  is a function  $g: A \rightarrow B$  such that  $f(x) = g(x)$  for all  $x \in X$ . Alternatively,  $g$  is an extension of  $f$  to  $A$  if  $f$  is the restriction of  $g$  to  $X$ .

Typically, functions are not arbitrarily extended. Rather, it is usually insisted upon that extensions have certain properties. Examples include analytic continuations and meromorphic extensions.