ßWhy

The relationship between the inclusion map and the identity map is characteristic of making small functions out of large ones.

ßDefinition

Let $X \subset Y$ and $f : Y \to Z$. There is a natural function $g : X \to Z$, namely the one defined by $g(x) = f(x)$ for all $x \in X$. We call $g$ the *restriction* of $f$ to $X$. We call $f$ an *extension* of $g$ to $Y$. Clearly, there may be more than one extension of a function

ßNotation

We denote the restriction of $f : Y \to Z$ to the set $X \subset Y$ by $f|X$.

ßExample

A simple example is the that the inclusion mapping from $X$ to $Y$ with $X \subset Y$ is a restriction of the identity map on $X$

Function Restrictions and Extensions

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Functions

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Relations

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Cartesian Products

Set Powers

Ordered Pairs    Unordered Triples

Pair Unions

Set Unions

Unordered Pairs    Empty Set

Set Specification

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Set Inclusion

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Standardized Accounts

↓

Accounts

↓

Deductions

↓

Quantified Statements

↓

Logical Statements

↓

Statements

Identities    Sets

Names

Letters    Objects