

# Re: Types of functions and relations

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*Source:* <http://sci.tech-archive.net/Archive/sci.math/2005-04/msg04482.html>

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  - *Date:* Fri, 29 Apr 2005 07:42:47 -0500
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In article <IISdnaNxOs2spu3fRVn-qg@xxxxxxxxxx>, aboom writes:

>I seek to understand types of functions and the relation properties that  
>they obey, if there is any at all.  
>  
>Please add to the list below other types of functions. It seems that  
>designating a "type" of function means that such functions have  
>interesting properties, such as integrals over even and odd functions.  
>Note, I do not include specific groups of functions such as trigometric,  
>exponential, etc, because I seek properties that any function might have.

However, you include polynomial functions, even going to the extent of viewing them differently by degree:

>Degrees: linear, quadratic, cubic,etc.

>Composite.

Any function can trivially be written as the composite of two functions, so that's a pretty broad category.

>Inverse.

Of the two functions

$$f(x)=2y$$

$$g(y)=x/2$$

which is the "inverse" function? Do you possibly mean "invertible"?

>Monotonic.

>Injective.

I believe that, given suitable restrictions of domain and range, any monotonic or injective function is invertible, and vice-versa.

>Bijective.

Any bijective function is invertible.

Given your examples, I'm guessing that you're only interested in functions

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that map from one subset of the reals to another. Is this correct? Are you not interested in functions of:

- more than one variable
- non-real variables
- non-real (ordered n-tuples, complex numbers, vectors, matrices) outputs

>What is the name of the set whose elements constitute the pairs that the  
>function maps to. for instance, let  $f: A \rightarrow B$  be a function with  
>elements of the set  $F \subseteq A \times B$ . What is the formal name of  $F$ ?

"The function  $f$ ."

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Michael F. Stemper

#include <Standard\_Disclaimer>

Build a man a fire, and you warm him for a day. Set him on fire,  
and you warm him for a lifetime.

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- *Follow-Ups:*

- ◆ *Re: Types of functions and relations*

◇ *From:* A. Boom

- ◆ *Re: Types of functions and relations*

◇ *From:* Michael Stemper

- *References:*

- ◆ *Types of functions and relations*

◇ *From:* A. Boom

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