

Conditions

what is a value (in mathematics)

Solution

In mathematics, value commonly refers to the output of a function. In the most basic case, that of unary, single-valued functions, there is one input (the argument) and one output (the value of the function).

Example: If the function f is defined by prescribing that $f(x) = 2x^2 - 3x + 1$ for each real number x , then the input 3 will yield the function value 10 (since indeed $2 \cdot 3^2 - 3 \cdot 3 + 1 = 10$).

The function f of the example is real-valued, since each and every possible function value is real. On the other hand, it is not injective, since different inputs may yield the same value; e.g., $f(-1.5) = 10$, too.

In some contexts, for convenience, functions may be considered to have several arguments and/or several values; also cf. the discussion in the article function. However, strictly seen, this is not an extension, since such functions may be considered as having single families and/or sets as input or output.

Value is also used in other senses, e.g., to specify a certain instance of a variable.

Example: $f(x) = 0$ for two separate values of x , namely, for $x = 0.5$ and for $x = 1$.