DIFFERENT FUNCTION IN MATHEMATICS

Jurayeva Nodira Yunusovna

Axmedjanov Raximjon Sunatilloyevich

TUIT branch of Samarkand Shavazi Nargiz Nuralievna1 , Umarov Otabek Abdujabbor2

ANNOTATION

The study of the properties of functions and their graphs takes a significant place both in school mathematics and in subsequent courses. Moreover, not only in the courses of mathematical and functional analysis, and even not only in other sections of higher mathematics, but also in most narrowly professional subjects. The following article is devoted to mathematical functions and their properties.

KEYWORDS: function, property, numeric function, argument, scope, range.

INTRODUCTION

The basic elementary functions, their inherent properties and the corresponding graphs are one of the basics of mathematical knowledge, similar in importance to the multiplication table. Elementary functions are the basis for the study of all theoretical issues. The article below provides key material on the topic of basic elementary functions. We will introduce terms, define them; we will study in detail each type of elementary functions, we will analyze their properties. There are the following types of basic elementary functions: Definition 1 constant function (constant); root of the nth degree; power function; exponential function; logarithmic function; trigonometric functions; fraternal trigonometric functions.

Function is one of the most important concepts of mathematics, it makes it possible to explore and model not only states, but also processes. The study of processes and phenomena using functions is one of the main methods of modern science. You will study functions in all subsequent grades and in higher education. A function is a correspondence between elements of two sets, established according to such a rule that each element of the first set corresponds to one and only one element of the second set.

In various processes that occur in nature, you can see how some quantities change depending on others. For example, the path traveled by a pedestrian depends on the time, the purchase price depends on its quantity. Way and time, cost and quantity, variables. One of these values is independent, the other changes depending on the first. So, time is an independent variable, the path is a value dependent on time, the amount of purchased goods is an independent value, the purchase price depends on the quantity. It is clear that each of the variable quantities belongs to a certain set.

If each element x from the set X, according to a certain rule, is assigned a specific and unique value y from the set Y, then such a correspondence is called a function. Here x is called the independent variable or argument, and y is called the dependent variable or function. Usually a function is denoted as *f.*

The set of values that an argument can take is called the domain of definition and is usually denoted as *D(f).*The set of values that a function can take for given values of a variable is called the set of values of a function (range of values) and is usually denoted *E(f)* .Detailed function explanation:

Recall that the dependence of a variable A function in mathematics is a definition, properties and examples with a solution on a variable A function in mathematics - a definition, properties and examples with a solution is called a function if each value of a Function in mathematics is a definition, properties and examples with a solution has a single value Function in mathematics - definition, properties and examples with a solution.

In the course of algebra and the beginnings of analysis, the definition of a number function is used.

A numerical function with a domain of definition D is a dependence in which each number *x* with a solution from the set D is associated with a single number *y.*

Numeric function concept:

A numerical function with a domain of definition *D* with a solution is a dependence in which each number *x* with a solution from a set *D,* properties and examples with a solution (domains of definition) is associated with a single number *y.*

This correspondence is written as follows:

$y = f(x)$

Designations and terms:

D(f) - scope

E(f) - range

x - argument (explanatory variable)

y - function (dependent variable)

f - function

$f(x_0)$ - the value of a function f at a point $f(x_0)$.

In mathematics, a **function** from a set X to a set Y assigns to each element of X exactly one element of Y. The set X is called the domain of the function and the set Y is called the codomain of the function.

Functions were originally the idealization of how a varying quantity depends on another quantity. For example, the position of a planet is a *function* of time. Historically, the concept was elaborated with the infinitesimal calculus at the end of the 17th century, and, until the 19th century, the functions that were considered were differentiable (that is, they had a high degree of regularity). The concept of a function was formalized at the end of the 19th century in terms of set theory, and this greatly enlarged the domains of application of the concept.

A function is most often denoted by letters such as f, g and h, and the value of a function f at an element x of its domain is denoted by $f(x)$.

A function is uniquely represented by the set of all pairs $(x, f(x))$, called the *graph of the function*. When the domain and the codomain are sets of real numbers, each such pair may be thought of as the Cartesian coordinates of a point in the plane. The set of these points is called the graph of the function; it is a popular means of illustrating the function.

Functions are widely used in science, and in most fields of mathematics. It has been said that functions are "the central objects of investigation" in most fields of mathematics.

A **function** from a set X to a set Y is an assignment of an element of Y to each element of X. The set X is called the domain of the function and the set Y is called the codomain of the function.

A function, its domain, and its codomain, are declared by the notation $f: X \to Y$, and the value of a function f at an element x of X, denoted by $f(x)$, is called the *image* of x under f, or the *value* of f applied to the *argument* x.

Functions are also called *maps* or *mappings*, though some authors make some distinction between "maps" and "functions" (see § Other terms).

Two functions f and g are equal if their domain and codomain sets are the same and their output values agree on the whole domain. More formally, given $f: X \to Y$ and $g: X \to Y$, we have $f = g$ if and only if $f(x) = g(x)$ for all $x \in X$.

The domain and codomain are not always explicitly given when a function is defined, and, without some (possibly difficult) computation, one might only know that the domain is contained in a larger set. Typically, this occurs in mathematical analysis, where "a function from*X*to*Y* "often refers to a function that may have a proper subsetof*X*as domain. For example, a "function from the reals to the reals" may refer to a real-valuedfunction of a real variable. However, a "function from the reals to the reals" does not mean that the domain of the function is the whole set of the real numbers, but only that the domain is a set of real numbers that contains a non-empty open interval. Such a function is then called a partial function. For example, if f is a function that has the real numbers as domain and codomain, then a function mapping the value x to the value $g(x) = 1/\boxed{f(x)}$ is a function$g$from the reals to the reals, whose domain is the set of the reals x, such that $f(x) \neq 0$.

The range or imageof a function is the set of the images of all elements in the domain.

REFERENCE

1. Solidjonov, D. (1990). TYPES OF READING AND WRITING SKILLS ON TEACHING. SignalProcessing, 4, 543-564.

2. Nishonqulov, S. F. O. G. L., & Solidjonov, D. Z. O. G. L. (2021). Ta’limbiznesidaraqamliinnovatsiontexnologiyalar. ScienceandEducation, 2(6), 233-238.

3. Solidjonov, D. Z. O. (2021). THE IMPACT OF THE DEVELOPMENT OF INTERNET TECHNOLOGIES ON EDUCATION AT PANDEMIC TIME IN UZBEKISTAN. In СТУДЕНТ ГОДА 2021 (pp. 108-110).

4. Solidjonov, D. Z. (2021). THE IMPACT OF SOCIAL MEDIA ON EDUCATION: ADVANTAGE AND DISADVANTAGE. Экономика и социум, (3-1), 284-288.

5. Solidjonov, D. Z. O. G. L. (2021). STEAM TALIM TIZIMI VA UNDA XORIIY TILLARNI O’QITISH. ScienceandEducation, 2(3).

6. Solidjonov, D., & Nishonqulov, S. (2021). TA’LIM BIZNESIDA YANGI INNOVATSION TEXNOLOGIYALARNING QO’LLANISHI JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH VOLUME-1. ISSUE-3 (Part-1, 18-JUNE), 1, 195-199.

7. Solidjonov, D. Z. O. G. L. (2021). STEAM EDUCATION SYSTEM AND ITS TEACHING FOREIGN LANGUAGES. ScienceandEducation, 2(3).