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Intervension Function: A Mathematical Function

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Abstract
A Mathematical concept is developed. With an intent of modifying, interfere or mediate the outcome. A type of mathematical function which gives a paradyme shift to the Domain of the function or input. Mathematical Function is designed for taking an action to improve or might help a situation.
Keywords: *Intervention function, domain*

1. Introduction
In mathematics the concept of function is given utmost importance, particularly in the ancient epochs Counting principals and 1-1 correspondence between a given set X and a sequence N of counting numbers. Leibniz was the first mathematician to use the term "function" in 1673. He also introduced the terms "constant," "variable," and "parameter." 1 Since the ancient epoch the notion of function was associated with the notion of natural law. The idea of regularity was an important constituent element. the geometrical representation was the primordial abstract idea of the association of the notions of tangent to one curve and derivative of a function, and the association of the physical world a families of functions of regularity was established. [1, 3-5]
Intervention - The act of interfering with the outcome or course especially of a condition or process to prevent harm or Improve functioning

2. Historical Evidences of Function
If A and Bare non empty Sets then the Cartesian product of AX B of sets A and B is the ordered pairs (a, b) Where a belong to A, b belongs to B, AxB= {(a, b); a A, b B} The mathematical concept of function in nineteenth century, when Function means definite formula. Such as f(x)=x2 +3x + 9 which associates to each real number another real number f(x). This understanding excluded or rather restrict that there are different formulae on different domain. As more and more research happened in mathematics, it became clear that a more general definition of function would be useful. It also became evident of that it is important to make a clear distinction between the function itself and values of function. "Let A & B be two nonempty sets. Then a function f from A to B is a setoff ordered pairs (a.b) AxB such that for each A there exists a unique B with (a, b) f. The set A is first element of function f Called Domain of f & the second element of function in called co-domain or range of f [6]. The notation of function f: A→B is often used to indicate that f is a function from an into B. or can also say f map A into 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) [1]. 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).
Diagram of a function, with domain X = {1, 2, 3} and codomain Y = {A, B, C, D}, which is defined by the set of ordered pairs {(1, D), (2, C), (3, C)}. The image/range is the set {C, D} as shown in Figure 1. Figure 2 representing the set of pairs {(1, D), (2, B), (2, C)}, does not define a function. One reason is that 2 is the first element in more than one ordered pair, (2, B) and (2, C), of this set. Two other reasons, also sufficient by themselves, is that neither

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3 nor 4 are the first elements (input) of any ordered pair therein [7-10].

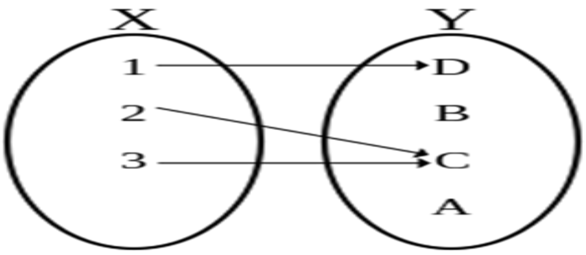

Figure 1 **Function with Domain and Codomain**

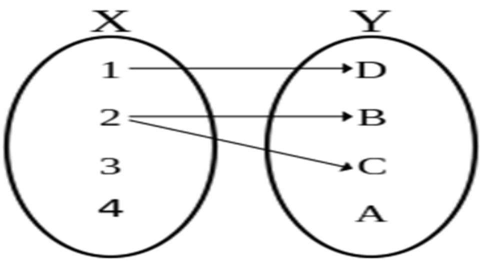

Figure 2 **Function with Set of Pairs**

A map or function from a set X to a set Y is an assignment of an element of Y to each element of 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 subset of X as domain. For example, a "function from the reals to the reals" may refer to a real-valued function 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. In the theory of dynamical systems, a map denotes an evolution function used to create discrete dynamical systems. See also Poincare map. Whichever definition of map is used, related terms like domain, codomain, injective, continuous have the same meaning as for a function.

- Functions whose domain are the nonnegative integers, known as sequences, are often defined by recurrence relations.
- The factorial function on the non-negative integers is a basic example, as it can be defined by the recurrence relation.
- The essential Condition that (a, b) f and (a, b') f. implies b= b', is sometimes Called Vertical line. In geometrical terms it says every vertical live x=a with a A intersects the graph off exactly once.

3. Transformation & Machine

Apart from using graph, it can also be visualized function as a Transformation of the set D (f) = A. into the set R(f). subset of B. when (a, b) f we think off as taking the element a form A and transforming it into element b = f(a) in R(f) subset of B. In the diagram, such as 1.1.5. ever when the Sets A + B are not subsets of the plane. Another way to vistalize a function: namely a machine" the accepts elements of D(f) = A as inputs on produces corresponding elements of R(f) subset of B as output. If we put a different element y D(f) into f, then out comes f(y) which may or may not differ from f(x). That means f is a machine and f(x) is the product of f machine i.e., if we consider grinder as machine f then f(x) will be the product or grounded material [11,12].

Types of Function

There are different types of functions like: Injunction - one to-one, Surjection - onto, Bi-jection 1-1 onto, Restricted function, extension function, etc.

Definition

Intervention function - I

Let A, B be two non-empty subsets of Universal set μ and F be a set of functions defined on A with identity fuction Ø. A mapping

I: FxA ⟶ B is said to be a fuction if Ø (x) = x; I (f, x) = I (f(x))

Where x from A and f from F.

Note: Intervention function is mapping & interfering with the outcome or course of Condition or process generally to prevent harm of domain part an or improving functioning.

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Figure 1a **Domain Part after Intervention of a Mirror**

Figure 1b **Range Part after Intervention of a Mirror**

(a)

(b)

Figure 2 (a-b) **Domain Part after Intervention of a Cylinder**

(a)

(b)

Figure 3 (a-b) **Range Part after Intervention of a Cylinder**

Source: social media [2

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Figure 1a is depicting domain part; 1b is Range part after the intervention of a Mirror to Capture the map of the domain part. Figure 2a is depicting domain part; 2b is Range part after the intervention of a cylinder to Capture the map of the domain part. Figure 3a is depicting domain part; 3b is Range part after the intervention of a cylinder to Capture the map of the domain part.

Conclusion

Symmetric function

Let X be set. d:X→X is called A bijective mapping a Symmetry of x or Symmetric function on X, if d((a), (b)) = d (a, b), a, b is in X i.e., a symmetry of a set of print x is a permutation of X that preserves the distance between every two points in x. is denoted by Sym(x) Set & all Symmetries on A.

Type 1- on introduction of Intervention function there is no changes in the domain set.

Let I: A→B. be a function and is said to be Intervention function of type-1 if the image A or the outcome I (A) C B interferes without harming the domain of I.

Type 2: - on introduction of Intervention function "there is a change in the domain of I

Let I: A→B. be a function and is said to be Intervention function of type-2 if the I image A or outcome I (A) C B. interferes with the change or harming the domain of I.

Acknowledgement

I acknowledge great perception of the painter who painted the above two painting with the Intervention of the shining Steel Cylinder.

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