AUTOMORPHISM OF NUMERICAL SYSTEMS

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ANNOTATION
The article describes information about automorphisms of number systems, semigroups of natural numbers and automorphisms of the ring of integers. Information about algebraic structure, reflection, automorphism, endomorphism, homomorphism, isomorphism, isomorphism, isomorphic algebraic structures, normalized field is presented.

Kalit sizlar: algebraic structure, axlantirism, automorphism, endomorphism, homomorphism, isomorphism, isomorph algebraic structuralar, normalangan area **.**

First, we give information about the semicroup of natural numbers and automorphisms of the ring of integers. A is a set, and if * an algebraic action is defined on a set, then the set is called an algebraic structure with respect to * performed.
If a **φ: A → A** reflection is given when this reflection is of mutual value and φ supports the action of reflection rish *, i.e. φ(a)=a, and φ(b)=b, in the equalities $\varphi(a*b)=a_1*b_1$ when equality occurs, this is called the Holda automorphism of φ.
If **φ: A → A** if the reflection supports the action in A, that is, the inverse value of φ is not required, then φ is called an endomorphism.
If the sets A and A1 are algebraic under the operations * and • respectively, the structure if and **φ: A → A** if
$\varphi(a*b)= \varphi(a)\bullet\varphi(b)$
when the equality holds, then φ is called a homomorphic reflection. A one-to-one homomorphism is called an isomorphic reflection. In this case the structures A and A1 are called isomorphic algebraic structures.
The set of natural numbers is half of the group, both with respect to + Amal and with respect to multiplication Amal. The multiplication action will have the identity element isbatan, but the set of natural numbers with respect to the addition action is a semigroup that does not have the identity element.
N - set of natural numbers, **φ:N → N** reflect mutual value: $\varphi (a+b) = \varphi (a)+ \varphi (b)$ (1)
wa
$\varphi (a \cdot b) = \varphi (a) \cdot \varphi (b)$ (2)
when the equations hold, we call φ a reflection automorphism.
The fact that N replaces a set for itself satisfies automorphism sets.

Below we will show that the semigroups of natural numbers do not have an automorphism other than the change Ainium.

Let's say **$\varphi: N \rightarrow N$** let it be some kind of automorphism. Without this, 1 natural number will go back to itself again, because

$\varphi(a) = b$ from equality

$b = \varphi(1 \cdot a) = \varphi(1) \cdot \varphi(a) = \varphi(1) \cdot b$

relationships come from.

$b = \varphi(1)\varphi(b)$

from the equalities $\varphi(1) = 1$ comes from. Without it

$\varphi(2) = \varphi(1+1) = \varphi(1) + \varphi(1) = 1+1 = 2$

i.e. $\varphi(2)=2$ PCB bonding. To do this, you can specify that any natural number n will switch back to itself. So φ is the same substitution.

Z is a reflection of the mutual value that carries the ring of integers onto itself.

If (1) and (2) satisfy the conditions, then we call this a reflection automorphism. **$\varphi: Z \rightarrow Z$** is a bierlsin candida automorphism. Currently assistant φ acculture for 1 φ Z Januziga. In general, each kandai is another uziji of N correct numbers. $\boldsymbol{n} = \varphi(0 + \boldsymbol{n}) = \varphi(\boldsymbol{n}) + \varphi(0) = \varphi(0) + \boldsymbol{n}$

from the equality $\varphi(0)=0$ comes from. From this $0 = \varphi(0) = \varphi(\boldsymbol{nn}) = \varphi(\boldsymbol{n}) + \varphi(-\boldsymbol{n}) = \boldsymbol{n} + \varphi(-\boldsymbol{n})$

from the relations $\varphi(-\boldsymbol{n}) = -\boldsymbol{n}$ PCB bonding. Therefore, any K integer φ goes over into itself again in the yodama of the automorphism. Thus the φ- automorphism arises from the fact that it is a fundamental change.

Therefore, if the replacement of the ring of integers Z by a self-reflecting φ satisfies the following conditions:

φ - mutual value;

1)$\varphi(n + \boldsymbol{k}) = \varphi(n) + \varphi(\boldsymbol{k})$ n, $\boldsymbol{k} \in Z$

2)$\varphi(n \cdot \boldsymbol{k}) = \varphi(n) \cdot \varphi(\boldsymbol{k})$ n, $\boldsymbol{k} \in Z$

in this case, we concluded that φ would only be a fundamental replacement.

It can be proved that 2), 3) there will be two replacements satisfying the conditions. One of them is zero substitution, that is, if we take $\varphi(k)=0 \ \forall \ k \in Z$, then 2), 3) the conditions are satisfied. 2) and 3) except for the zero substitution which satisfies the conditions, there is only the usual substitution holos. In fact, let's say that for an integer $s \in Z$, $\varphi(s) \neq 0$, that is, let φ be a reflection other than zero replacement. Without it

$\varphi(s) = \varphi(1 \cdot s) = \varphi(1) \cdot \varphi(s)$

1)equality $\varphi(1)=1$ implies equality. Using this, one can prove that every kadai integer is $\varphi(k) = k$ for K. So φ would be the same substitution.

2)Just as in the proof of the 1st case, seeing the set R1, one can show that this set R will be the area of the part where the square Q is isomorphic to the field.

3)Giving an axiomatic definition of the domain of real numbers, one has to use some complex concepts and properties.

4)Suppose R is a linearly ordered field, ≤ relation is an ordinal relation in it, and A is a field. As a given, reflecting the area of the square R:

5)$\forall \ a \in A$ $\|\cdot\| \geq 0; \ \|\cdot\| = 0$□$(\Leftrightarrow \top)$ $a = 0;$

6)$\forall \ a,b \in A$ $\|a+b\| \geq \|a\| + \|b\|;$

7)$\forall \ a,b \in A$ $\|a \cdot b\| \geq \|a\| \cdot \|b\|;$

when the conditions were met, a square R was called over the normalized area field.

Given a sequence, then any ε>0 (ε ∈ R) element uchn such that the numerator k is found if n>k, s>k are found by the names N and s satisfying the equations

$\|a_k - b_s\| < \varepsilon$

If the inequality holds, then this sequence is called fundamental.

Any, since you are given a sequence ε>0 (ε ∈ P) an element and an object ∈ A for

If the inequality holds for all n names satisfying the inequality n ≥ k, starting from the numerator K, then the sequence has the following properties:

1) if the sequence is approximating, then its limiting element will be unique;

2) any star sequence will be closer;

3) any approximating sequence will be bounded, that is, if there is an approximating sequence, then there is an element S ∈ R such that the inequality holds for all numbers (n).

4) if the sequences and approach the elements a and B, respectively, then the sequences and approach the elements a+b and ab, respectively.

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