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Origin and Equal Strength Relationships between Sentences. Necessary and Sufficient Conditions. Structure of Theorems and Their Types

Usmonov Makhsud

Tashkent University of Information Technologies, Karshi branch 3rd year student
+99891 947 13 40
maqsudusmonov22@gmail.com

Abstract: *Any comment is made with the words "means", "follows from the given comment", "follows from it". For example, A is "multiple of x" and B is "multiple of x". They are related to each other as follows: an arbitrary number multiplied by 4 is multiplied by 2, or the fact that a number is multiplied by 4 results in it being multiplied by 2.*

Keywords: the sum of the numbers of a number, the equally strong considerations, the diagonals of a rhombus are perpendicular to each other, and the sum of its numbers.

INTRODUCTION

It is said that if every time A is true, then B is also true.

The feedback from A to B can be written as A => B using the => symbol. => character represents the origin relationship between comments. A => B is read differently: A is derived from B; Derived from BA; if A, then B is colored; A boiadi, that is, B boiadi; any EU as well.

1- masala. Express the derivative relation for the statement “Since the number x is a multiple of 4, it is a multiple of 2”.

Y e c h i sh. The statement "Since the number x is a multiple of 4, it follows that it is a multiple of 2" can also be written as follows: any number divisible by 4 is also divisible by 2; if the number is divisible by 4, then it is also divisible by 2; The number x is equal to 4. So it depends on 2.

METHODS

2- masala. A is considered to be "equilateral triangle" and B is considered to have "equal angles at the base of the triangle". Find out how they are fed.

Y e c h i sh. If a triangle is equilateral, then the angles at its base are equal (ie, LA = LB), and conversely, if the angles at the base of the triangle are equal, then the triangle is an equilateral triangle (ie, LB). = LA) maium from the course of rich geometry.

If feedback B results from feedback B, and feedback A from feedback B, then feedback A and B are called equally strong feedback.

According to this definition, the statements "a triangle is equilateral" and "the angles of a triangle are equal to one side" are equally strong.

The comment “A feedback is as strong as feedback B” is written as A <=> B using the “<=>” section.

A <=> B is read differently: a) Comment A is as strong as Comment B; b) when B and only B, then A; d) If B is B, then A is.

Let's get acquainted with the necessary and sufficient conditions.

If feedback B results from feedback B, then feedback B is called a prerequisite for feedback A and feedback A is said to be sufficient for feedback B.

If feedback A and B are equally strong, then feedback A is called a necessary and sufficient condition for feedback B, and vice versa.

3- example. The notation for the number A - «x is 0; 2; 4; 6; It ends with one of the numbers 8, ”B is the expression“ x is divisible by 2 ”. Write a sign that the number is divisible by 2.

Y e c h i s h. The notation for the number x is 0; 2; 4; 6; When you end up with one of the numbers 8, you divide that number by 2. The reverse is also true. Hence, the given considerations A and B are equally strong, and each of them is a necessary and sufficient condition for the other, i.e., for the number to be divisible by 2, the notation of this number is 0; 2; 4; 6; It is necessary and sufficient to end with one of the numbers 8.

4- example. There should be six pedagogical colleges in Surkhandarya region and three more in Tashkent region. How many pedagogical colleges are there in both provinces?

Solution. It is difficult to say at once how many pedagogical colleges there are in both regions, because it is necessary to know how many pedagogical colleges there are in Tashkent region. Thus, the ability to spell the words “necessary” and “possible” correctly depends on the use of the words “necessary” and “sufficient” in the study of mathematics.

In the study of mathematics, you have to work with sentences called theorems. Although they vary in content, they are all ideas that need to be proven.

Let us try to determine the structure of the theorem using the concepts of mathematical logic enriched by maium. For example, "If a point lies on the bisector of an angle, it is painted equidistant from the sides of the angle." The condition of this theorem is that the point lies on the bisector of the angle, and the conclusion is that the point is equidistant from the sides of the angle.

The proof of a theorem is a sequence of ideas that is based on the axioms of the theory under consideration or on previously proven theorems.

Theorem 1. The diagonals of a rhombus are perpendicular to each other.

If a rectangle is a rhombus, its diagonals are perpendicular.

known to be vertical.

Prerequisite: In order for a rectangle to be a rhombus, its diagonals must be perpendicular.

Sufficient condition: four its rhombus is sufficient for the diagonals of the angle to be perpendicular.

Theorem 2. If the sum of the digits of a number is divisible by 9, then the number itself is also divisible by 9.

The inverse theorem. If the number is divisible by 9, the sum of the numbers is not even 9. Since the inverse theorem is correct, these two theorems can be combined into one: for a number to be divisible by 9, the sum of its numbers must be 9.

In addition to theorems, there are sentences that are accepted without proof, more precisely, sentences that do not require proof. For example, in white cotton, a straight line divides a plane into two half-planes, for an arbitrary straight line there are points that belong to it and those that do not, and so on. Such sentences are called axioms. The word "axiom" comes from the Greek word meaning "confession."

5- example. Write the inverse of the theorem, "If the angles are vertical angles, then they are equal angles." Is it possible to write different theorems?

Y e c h i s h. The inverse of the given theorem is: if the angles are equal, then they are vertical angles. This is a false idea.

The opposite of the given theorem is that "if the angles are not vertical angles, then they are not equal." That's a lie. Also, the inverse theorem states that "if the angles are not equal, then they are not vertical angles." This is a true idea. Thus, when theorem A <=> 5 is always true, theorem B <^> A indicates that it is true and vice versa.

RESULTS

Theorem 2. If the sum of the digits of a number is divisible by 9, then the number itself is also divisible by 9.

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DISCUSSION

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