

UNIVERSITY OF DR.YAHIA FARES–MEDEA/TECHNOLOGY FACULTY	
2nd and 1st years TS–Sections:01-02-03-04 J.Lecturer:Mr.keriche.I	Unit:Technical English Session:05

Mathematical Terminology Overview:

Mathematics, the language of patterns and relationships, encompasses a rich set of terminology crucial for understanding various concepts. Here are key terms:

Function: A relation between a set of inputs and a set of possible outputs, where each input is related to exactly one output.

Derivative: The rate of change of a function with respect to one of its variables; symbolized as $f'(x)$ or dy/dx .

Integral: The reverse process of differentiation, representing the accumulation of quantities. Denoted by \int .

Matrix: A rectangular array of numbers, symbols, or expressions arranged in rows and columns.

Theorem: A statement that has been proven to be true based on previously established statements or axioms.

Prime Number: A natural number greater than 1 that is not a product of two smaller natural numbers.

Probability: The likelihood of an event occurring, ranging from 0 (impossible) to 1 (certain).

Pythagorean Theorem: In a right-angled triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

Set Theory: The branch of mathematical logic that studies sets, which are collections of objects.

Complex Number: A number of the form $a + bi$, where 'a' and 'b' are real numbers, and 'i' is the imaginary unit.

These fundamental terms lay the groundwork for more advanced mathematical concepts. For further exploration, refer to standard mathematics textbooks like "Mathematical Analysis" by Tom M. Apostol or "Linear Algebra and Its Applications" by David C. Lay.

A/answer the following questions according to the text :

Question 1:

What is the Pythagorean Theorem, and how is it expressed?

Question 2:

Define a prime number and provide an example.

Question 3:

Explain the concept of a derivative and how it relates to the rate of change in a function.

Question 4:

What is the role of set theory in mathematics, and how does it define sets?

Question 5:

Describe the characteristics of a complex number and provide an example.

Feel free to answer these questions or ask for any clarifications!

The answers

Answer 1:

The Pythagorean Theorem states that in a right-angled triangle, the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides. Mathematically, it is expressed as

$c^2 = a^2 + b^2$, where c is the length of the hypotenuse, and a and b are the lengths of the other two sides.

Answer 2:

A prime number is a natural number greater than 1 that is not a product of two smaller natural numbers. An example is the number 7, as it cannot be obtained by multiplying two smaller natural numbers.

Answer 3:

The derivative of a function measures the rate of change of the function with respect to one of its variables. It is symbolized as $f'(x)$ or dx/dy , where y is the dependent variable, and x is the independent variable.

Answer 4:

Set theory is a branch of mathematical logic that studies sets, which are collections

of objects. It defines sets by listing their elements within curly braces. For example, the set of prime numbers less than 10 can be represented as $\{2,3,5,7\}$.

Answer 5:

A complex number is of the form $a+bi$, where a and b are real numbers, and i is the imaginary unit ($i^2=-1$). An example is $3+2i$, where 3 is the real part and $2i$ is the imaginary part.

Task: you need to match mathematical terms from the text with their definitions:

Match the Term with its Definition:

Term: Function A. A natural number greater than 1 that is not a product of two smaller natural numbers.

Term: Matrix B. The likelihood of an event occurring, ranging from 0 (impossible) to 1 (certain).

Term: Integral C. The rate of change of a function with respect to one of its variables.

Term: Set Theory D. A rectangular array of numbers, symbols, or expressions arranged in rows and columns.

Term: Prime Number E. The reverse process of differentiation, representing the accumulation of quantities.

Grammar Task: Identify the Error

Read the following sentences from the text and identify if there is any grammatical error. If there is an error, please correct it.

1/The square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

2/Mathematics, the language of patterns and relationships, encompasses a rich set of terminology crucial for understand various concepts.

3/The derivative of a function measures the rate of change of the function with respect to one of its variable.

4/A complex number is of the form $a + bi$, where 'a' and 'b' are real numbers and 'i' is the imaginary unit.

5/These fundamental terms lay the groundwork for more advanced mathematical concepts.

The answer

1/The square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

2/Mathematics, the language of patterns and relationships, encompasses a rich set of terminology crucial for understanding various concepts.

3)The derivative of a function measures the rate of change of the function with respect to one of its variables.

4/A complex number is of the form $a+bi$, where 'a' and 'b' are real numbers, and 'i' is the imaginary unit.

5/These fundamental terms lay the groundwork for more advanced mathematical concepts.

The end