



كلية العلوم

القسم : الرياضيات

السنة : الثانية

المادة : لغة تخصصية 2

المحاضرة : الثانية

{{ مكتبة A to Z }}

مكتبة A to Z Facebook Group :

كلية العلوم

2

يمكنكم طلب المحاضرات برسالة نصية (SMS) أو عبر (What's app-Telegram) على الرقم 0931497960

## 1. Polynomial (كثيرة الحدود)

Definition: A polynomial is an expression consisting of variables and coefficients, involving only addition, subtraction, multiplication, and non-negative integer exponents.

## 2. Degree of a Polynomial (درجة كثيرة الحدود)

Definition: The degree of a polynomial is the highest power of the variable in the expression.

$3x^2 + 2x - 5$  has degree 2

·  $4x^5 - x^3 + 7$  has degree 5

· 9 has degree 0

## 3. Quadratic Equation (المعادلة التربيعية)

Definition: A quadratic equation is an equation of the form  $ax^2 + bx + c = 0$ , where a, b, and c are constants and  $a \neq 0$ .

Example:  $2x^2 + 3x - 5 = 0$

## 4. Definition:

A root (or zero) of a function is a value of x that makes  $f(x) = 0$ .

Example: For  $f(x) = x^2 - 4$ , the roots are  $x = 2$  and  $x = -2$  because  $f(2) = 0$  and  $f(-2) = 0$ .

## 5. Exponent (أس)

Definition: An exponent indicates how many times a number is multiplied by itself. In  $a^n$ ,  $a$  is the base and  $n$  is the exponent.

Examples:

$$\cdot 2^3 = 2 \times 2 \times 2 = 8$$

$$\cdot x^4 = x \times x \times x \times x$$

## 6. Logarithm (لوغاريتم)

Definition: A logarithm answers the question: "What exponent do I need to raise a base to get a certain number?" If  $b^y = x$ , then  $\log_b(x) = y$ .

Examples:

$$\cdot \log_2(8) = 3 \text{ because } 2^3 = 8$$

$$\cdot \log_{10}(100) = 2 \text{ because } 10^2 = 100$$

## 7. Binomial (ثنائية الحدود)

Definition: A binomial is a polynomial with exactly two terms.

Examples:

$$x + y$$

$$\cdot 3a^2 - 2b$$

$$\cdot 5x + 7$$

## 8. Limit (نهاية)

Definition: The limit of a function  $f(x)$  as  $x$  approaches  $a$  is the value that  $f(x)$  gets

closer to as  $x$  gets closer to  $a$ . We write:  $\lim_{(x \rightarrow a)} f(x) = L$ .

Example:  $\lim_{(x \rightarrow 2)} (x^2 - 4)/(x - 2) = 4$

## 9. Derivative (مشتقة)

Definition: The derivative of a function measures how the function changes as its input changes. It represents the slope of the tangent line at any point.

Example: If  $f(x) = x^2$ , then  $f'(x) = 2x$

## 10. Integral (تكامل)

Definition: An integral represents the area under a curve. It is the reverse operation of differentiation.

Notation:  $\int f(x) dx$

Example:  $\int 2x dx = x^2 + C$  (where  $C$  is the constant of integration)