

Subject areas in schools, such as mathematics, science, business, etc., have different classes. For example, science has biology, geology, chemistry, etc. Mathematics has arithmetic, which covers operations on numbers, and algebra, which covers operations on variables.

Variable: A letter representing a number that can vary.

Variables are used in formulas such as the area of a rectangle, $A = LW$

where,

A is the area, L is the length and W is the width. We may measure the area of a table top and the length, L , could be 3ft. The length of a room could be 12ft. You can see that the measurements vary and that is why we use a variable or a letter.

Polynomial: An expression with one or more terms separated by a plus (+) or minus (-) sign.

Example polynomial: $-3x^2 + 10x + 11$

This polynomial has three terms. The structure of a term is very important. The first term, $-3x^2$, can be broken down into three key items. The -3 is the **coefficient**. The x is the **variable**. The 2 is the **exponent**.

A term may just have a number and that is called a **constant term**. Any term with a variable is called a **variable term**. In the polynomial, $-3x^2 + 10x + 11$, the 11 is a constant term. The other two terms are variable terms.

Degree of a Term: The sum of all the exponents on variables.

The degree of the term, $-3x^2$, is **two**. The degree of the term, $11x^2y^3$, is **five** because we add the exponents of **2** and **3** on the variables.

Degree of a Polynomial: The degree of the term with the highest degree.

In the polynomial, $-3x^2 + 10x + 11$, the first term, $-3x^2$, has a degree of **two**, the second term, $10x$, has a degree of **one**, and the last term, 11, has a degree of **zero**. The degree of the polynomial will be **two**, since this is the highest degree of any term.

We usually write polynomials with terms listed from highest to lowest degree. This form is called the **standard form**.

Example, write the polynomial, $32 - 3x^2 + 15x + 4x^3$, in standard form. The result would be, $4x^3 - 3x^2 + 15x + 32$.

The first term of this polynomial, $4x^3$, is called the **leading term**.

In addition to classifying polynomials by degree, we also classify polynomials by the number of terms.

Polynomial	Number of Terms	Name
$4x^3 - 3x^2 + 15x$	Three	Trinomial
$4x^3 - 3x^2$	Two	Binomial
$4x^3$	One	Monomial