

NUMBERS

Natural Numbers (N)

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NUMBERS (copy)

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SET THEORY

POLYNOMIALS

A monomial is an expression made up of a number, a variable, or the product of a number and one or more variables.
Examples: 14 a $-6x^2y^3$

A polynomial is a monomial or the sum or difference of two or more terms.
Examples: $5x - 2$ $9x^2 + 3x - 2$ $y^3 - 6y + 4$

The degree of a monomial is the sum of the exponents of the variables.
Examples: $2x$ $8x^2y^2$ -8
degree = 1 degree = 5 degree = 0

In standard form, the degrees of a polynomial's terms decrease from left to right.
Example: $4x^4 + 5x^2 - 3x + 6$

Multiplying Polynomials
FOIL is a way to use the distributive property to find the product of two binomials.

first terms inner terms
FOIL
outer terms last terms
Ex: $(6x - 4)(3x + 5)$
First Outer Inner Last
 $(6x)(3x) + (6x)(5) + (-4)(3x) + (-4)(5)$
 $18x^2 + 30x - 12x - 20$
 $18x^2 + 18x - 20$

Adding Polynomials
Ex: $(10x^2 + 2) + (4x^2 + 5x - 6)$
 $10x^2 + 2 + 4x^2 + 5x - 6$ (Remove parentheses.)
 $10x^2 + 4x^2 + 5x + 2 - 6$ (Put like terms together.)
 $14x^2 + 5x - 4$ (Add coefficients of like terms.)

Subtracting Polynomials
To subtract a polynomial, change the subtraction sign to an addition sign then change the signs of all the terms that were being subtracted.
Ex: $(3x^2 - 4x^2) - (x^2 - 8)$
 $3x^2 - 4x^2 + -x^2 + 8$ (Remove parentheses and change signs.)
 $3x^2 - x^2 - 4x^2 + 8$ (Put like terms together.)
 $2x^2 - 4x^2 + 8$ (Add coefficients of like terms.)

Types of Sets in Maths

Empty Set ϕ : The set is empty! This means that there are no elements in the set. This set is represented by ϕ or $\{\}$.

it is known as an empty set or null set or void set. For e.g. consider the set, $P = \{x : x \text{ is a leap year between 1904 and 1908}\}$

Between 1904 and 1908, there is no leap year. So, $P = \phi$.