

Readme:

The project represents the mathematical polynom,

each polynom is as a series of monoms Represented by the shape of
 $a(1)X^{b(1)}+a(2)X^{b(2)}+.....+a(N)X^{b(N)}$

where the rules of the polynom are in the format of

"a" is the coefficient and can be in the format of a real number.

"b" is the power and has to be in the format of a Integer.

The polynom rules are to have a series of monoms without any complex mixture of polynom in the form of a given String by the user the String must contain valid group of monoms .

Bad Inputs for a complex polynom:

Any polynom cannot have any characters other than '.' '+' '-' '^' 'x' 'X' and the numbers 0-9

(Polynom1) * (Polynom2)

Polynom1 * Monom1

$(2x^2+5) * (5x^3)$

$3x^2 -1$

$6x*2x$

Bad inputs for monoms:

x5

6x2

-5x^

^0-

8..x^3

$5x^{3.5}$

Those will throw a run time exception "The Monom: XXX is not Valid has to be in the format aX^b "

Those bad examples can be dealt with the polynom functions.

Good examples:

$$0-24x^2+35x-5+23x$$

$$2+0-4-0-0+2$$

$$2-x^2-4x0$$

$$24x^2+35x-5+23x+2x^2$$

$$x-24x^2+35x+5+2x$$

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

$$2-4$$

The polynom have the those mathematical operations and functions

add - adding the polynom to another polynom, also you can add the polynom to a monom.

subtract- subtracts the polynom to another polynom.

multiply - multiplying the polynom by another polynom, also you can multiply it by a monom.

equals - comparing two polynoms, returns true only if the polynom are perfectly equal.

root - with any continuous function, if there are 2 points that one of the points has a Y negative Y value and the other has a Positive Y value there must be a point X where it cross the X axis, returns this X.

copy - returns the deep copy of the polynom.

derivative - returns the derivative of the polynom.

area - calculating the Riemann integral from point x0 to point x1 using the given epsilon.

f - calculating the value of polynom with the given x.