

Polynoms

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Monom

The monom class represent monom from the form :

ax^b -> a represent the coefficient of the monom (can be double) while b represent the power of the monom (must be integer).

This class contain the following functions:

- Add – function add monom to monom
- Derivative – This function gives us Monom's derivative.
- F(x) – function calculate the value of y in a given x
- isZero – function that check if the monom is zero
- multiply – function multiply monom
- is equal – check if two monoms are equals
- equals – check if two monom is equals.
- isMonomStringValid - check if the monom contains only valid charcter.

polynom

polynom class represent polynom from the form:

- $ax^b+ax^b-ax^b$ -> the polynom contains from monom object.

This class contain the following functions:

- add – two function: first add monom to polynom, second add polynom to polynom.
- Derivative – function derivative the Polynom by the derivative function of Monom.
- f(x) - function calculate the value of y in a given x
- isZero - function that check if the polynom is zero
- multiply - function multiply polynom in polynom
- equals - check if two polynom are equals
- removeSamePower – function check if there are 2 Monoms with the same power in this case she union between them.
- substract – function that substract polynom from polynom.
- root – function that compute a value x between two given x. with two conditions.
- copy – function that do a deep copy to new polynom
- area – This function compute Riemann's Integral over this Polynom starting from x_0 , till x_1 using eps size steps.
- isPolynomStringValid – check if the polynom contains only valid character.
- removeZZeroMonoms – function that in case thrae is zero monon is remove it from the polynom

ComplexFunction

complex function class represent function from the type:

- Operation(function,function)

This class contain the following functions:

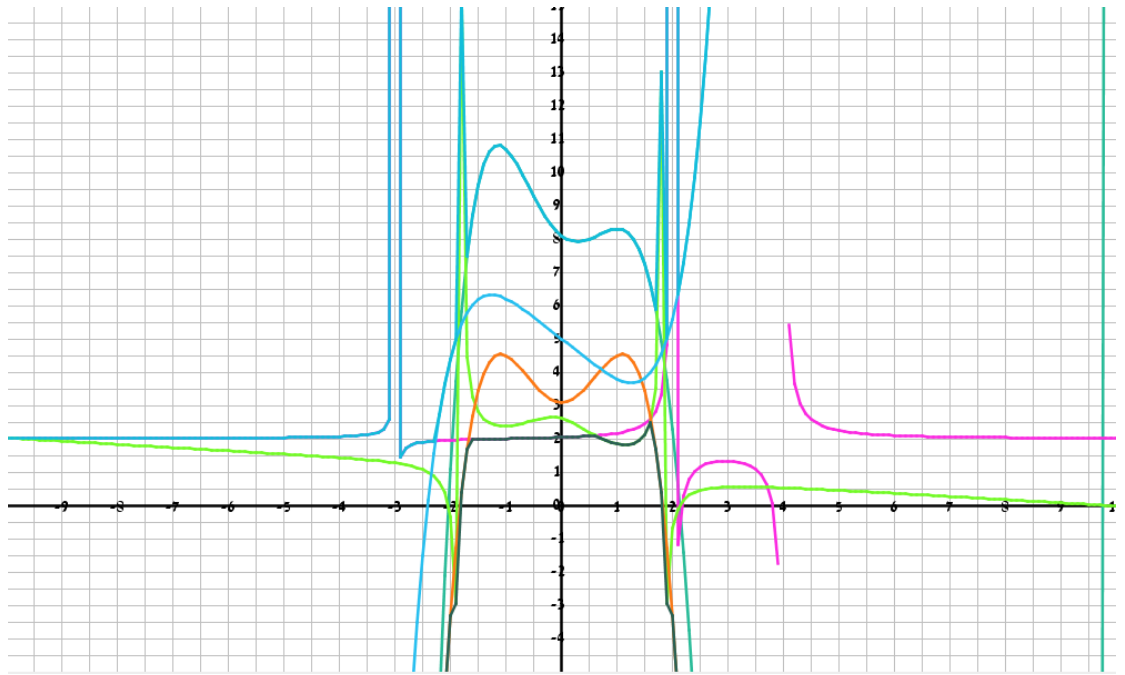
- builder:
 - default builder
 - polynom-> ComplexFunction: None(function)
 - function,function,string-> ComplexFunction: valueOfString(function, function)
 - function, function, operation-> ComplexFunction: Operation(function, function)
 - function-> ComplexFunction: Operation(function, function)
- function :
 - f(x) - function calculate the value of y in a given x
 - initFromString(String) - function that get String and build from him ComplexFunction
- copy() - copy the ComplexFunction
- calculate function - plus(function), mul(function), div(function), max(function), min(function), comp(function)
- toString() - return string of ComplexFunction
- equals(Object) - check if Object equals to ComplexFunction.

Function_GUI

Function_gui class represent geaf of function.

function :

- function from collection of arrayList that impement to arrayList of function: size(), isEmpty(), contains, Iterator(), toArray(), add(function), remove(object), containsAll(), addAll(function), removeAll(), retainAll(), clear().
- InitFromFile – initialize a new collection of functions from a file.
- saveToFile – save file.
- drawFunctions – draw functions from the arrayList of functions in a GUI window using the given parameters.
- drawFunctions – Draws all the functiona in the collection in a GUI window using the given JSON file.



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