

CoCoALib - Support #1039

Rename iroot?

06 Apr 2017 14:42 - John Abbott

Status:	Closed	Start date:	06 Apr 2017
Priority:	Normal	Due date:	
Assignee:	John Abbott	% Done:	100%
Category:	Renaming	Estimated time:	2.34 hours
Target version:	CoCoALib-0.99650 November 2019	Spent time:	2.40 hours
Description			
Some time ago we renamed lLog2 to FloorLog2, and some other similar functions.			
There is still a function iroot . Should this be renamed?			
If so, to what? FloorRoot, TruncRoot, IntRoot?			

History

#1 - 06 Apr 2017 14:46 - John Abbott

- Status changed from New to In Progress

- % Done changed from 0 to 10

Currently iroot computes the **truncated** integer part of the real root.
For instance iroot(-30,3) gives -3 as its result.

If we want to call it FloorRoot then we have to change the definition when the result is negative.

Internally, the function which does the work is mpz_root.

We could just leave things as they are. Comments? Ideas?

#2 - 06 Apr 2017 15:20 - Anna Maria Bigatti

John Abbott wrote:

Currently iroot computes the **truncated** integer part of the real root.
For instance iroot(-30,3) gives -3 as its result.

If we want to call it FloorRoot then we have to change the definition when the result is negative.

We can make a new function FloorRoot (which does what it says).
Then make iroot obsolescent saying that it may be substituted by $\text{sign}(a) * \text{FloorRoot}(\text{abs}(a), n)$.

Internally, the function which does the work is mpz_root.

does it truncate?
do you think it might be costly to convert it in "floor"?

We could just leave things as they are. Comments? Ideas?

I'd rather change iroot

#3 - 06 Apr 2017 18:04 - Anna Maria Bigatti

- % Done changed from 10 to 20

"better safe than sorry"

the easiest and safest is to give an error when the input is negative.

Even though "Floor" is pretty clear, the risk of misusing FloorRoot with negative input is high.

#4 - 10 Apr 2017 11:40 - John Abbott

There is also a fn called **IsExactroot(ans, N,r)**. It returns a bool, and puts into ans the truncated integer part of the r-th root of N.

What should this fn be called? And what should its definition be?

If we rename iroot to FloorRoot, and limit it to roots of non-negative integers then probably the same limitations should apply to this fn. The name could be IsExactFloorRoot, though that is rather ugly.

#5 - 29 Apr 2019 13:25 - John Abbott

- Assignee set to John Abbott

- Target version changed from CoCoALib-1.0 to CoCoALib-0.99700

Even though GMP allows negative inputs to its mpz_root function, I like the idea of limiting the number whose root is to be found to being non-negative... well, I do find negative numbers "antipatico" ;-)

So a combination of the suggestions in comments 2, 3 and 4 seems reasonable.

#6 - 29 Apr 2019 18:38 - John Abbott

- Status changed from In Progress to Resolved

- % Done changed from 20 to 70

I have changed the names into **FloorRoot** and **IsExactFloorRoot**.

Added **iroot** to obsolescent.H/C.

Test and examples are OK. Must still change doc.

#7 - 14 Oct 2019 15:17 - John Abbott

- Status changed from Resolved to Closed

- Target version changed from CoCoALib-0.99700 to CoCoALib-0.99650 November 2019

- % Done changed from 70 to 100

- Estimated time set to 2.34 h

This has apparently all been done (incl. doc, tests, CVS).

No complaints, so closing.