Integer root function

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September 13, 2021

1 Problem statement

The integer root function: `iroot(k, n)` returns the largest integer x such that x^k does not exceed n, assuming k and n are both positive integers. (Of course, you must remain in the integer realm all the time; you are not allowed to simply call a floating point library and do `floor(sqrt(k,n))`.)

You are allowed only the four basic arithmetic operations. If you need exponentiation, then do a version with it, then replace the exponentiation with a function of your own which uses only the four basic arithmetic operations.

Remember that you must

- Explain your approach

- Show your code

- Show your tests

- Prove your code correct

- Compute the runtime

Use Example of a homework solution as a template.