Integer root function

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1 Problem statement

You are asked to construct a mathematical function.

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 (addition, subtraction, multiplication, division). Specifically you cannot use exponentiation (the operator `**`), let alone calling `math.pow()`. No library calls are allowed.

Remember that you must

- Explain your approach.
- Show your code.
- Show your tests and the results of those tests.
- Prove your code correct.
- Compute the runtime. (Not guess the runtime, compute the runtime.)

Use Example of a homework solution as a template.