Use them as an analogy

**Overview:**

“start with a simple understanding od the CF, but you prob…”

“if you guys read my abstract, this is where I’ll highlight the trick…”

“khinchin constant summarizes a bizarre phenomenon that happens when we try to write all real numbers as CFs”

**Introduction:**

Approach it intuitively

nth approximant, useful in infinite CFs

**History:**

Surprisingly, CFs intersect real analysis and integrals

Around time of infinity

, Stieltjes to express integrals, CF properties studied and extended by Hamburger, and Hilbert on matrix theory and quad form

**[1:1,1,1,1,1, …] example:**

Simplest of the simple, perfect math contest question b/c req. a trick!

\*while paused to give time to solve mention weirdness to write the fraction by hand\*

It is self similar in the sense…

\*Pause after trick 5 sec\* if 1st time, might be surprised, but don’t be, geo. Seq. summed using same techn.

Prof Lindi used technique in Keynote for the …

Foreshadowing, if taken lin alg. and fib~transformation it might be possible to connect!

**When Infinity becomes tricky:**

To fast to emphasize how bizarre the trick is

… asserting the expression converges, really big deal …

**The problem are those …**

…it’s a very unshakable contradiction, which we might be tempted to brush of lightly..

**Proof:**

\*Show the construction on paper from bottom up

Notice how we are building the cf bottom up (happens to be symmetric with top-down)

Reduce the index to 1 at the expense of the common ratio

**Conclude Part 1**

Most likely wont have this issue but good to know when you come across expressions maliciously made to cause confusion/contradictions. [meme]

**Questions:**

1. Is there a way to study various seed values and iterative definitions (despite being generally accepted way in the case of CF)

People say “its most convenient/useful” but they’d be talking about pure maths(since when is math useful)! \*insert disclaimer\* It is useful to assume these definitions of CF and convergence of CFs because it helps show results like pi is irrational, or Kinchin’s constant type of things.

(Useful def ) -------leads to -------> Pi is irrational

(different def ) -------not necessarily leads to -------> Pi is irrational

So the illogical/unpractical infinite process of CF which was dreamt into existence by some genius, molded into a theory using arbitrary yet useful definitions to prove something as practice as the irrationality of PI!!!!!

1. Is there a logical reason one method for defining convergence is more reasonable than another?
2. How does Kinchin even make sense? Or is it just something that results from our definitions?