

quest1: Understand why there are so many functions in $S_n^2 \rightarrow S_n$ where S_n is a set with n elements such that $C_n(f) = \{f(g(x, y), h(x, y)) | g, h \in C_n(f)\}$ is all functions in $\{S_n^2 \rightarrow S_n\}$ and what classifies the functions from all of $S_n^2 \rightarrow S_n$ vs those that don't.

quest2: What does the differential identity and chain rule look like in different Fields? (for instance, in $(f(R), f(f^{-1}(x) + f^{-1}(y)), f(f^{-1}(x) * f^{-1}(y))) = (f(R), \oplus, \otimes)$ the diff identity is $f(e^x)$ and the chain rule is $D(g(h(x))) = (D(g(x)) \circ h(x)) \otimes D(f(h(x)))$.)

quest3: How do you find what f is in $g(x) = \sum_{n=0}^{\infty} c_n x^{an+b} f(x)$. (Figure out if my use of the gamma function for "non-integer derivatives" is the best choice).

quest4: Does there exist some alternative associative rule that "looks nice" for n -groups that forms something other than Abelian groups.

quest5: Understand Fully Homomorphic Encryption

quest6: Learn quantum computing