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Zeta Functions and the Prime Number Theorem on Dynatomic Curves

This project uses zeta functions, functions that describe the behavior of different systems that involve counting things, to determine an analog of the Prime Number Theorem (PNT) for dynatomic curves. Specifically, the properties of the particular zeta function related to dynatomic curves. The Riemann Zeta function describes the behavior of prime numbers. The properties of this zeta function are used heavily in the proof of the PNT, the same is true for this setting. Since the zeta function associated with dynatomic curves has not been studied nearly as much as many other zeta functions, this project required making some calculations with this zeta function. Using the results, important properties of the zeta function were determined. An analog of the PNT will be formulated with the proof coming from the previously derived properties of the zeta function.