

## PROJECT PROPOSAL

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Both of my topics relate to Galois Theory; each topic is a theorem that uses Galois Theory in the proof. My first idea is to dig into the Abel-Ruffini Theorem — the statement that there is no “quintic formula”. I found a good document that builds towards this result with Galois theory, which is attached. My reasoning behind Abel-Ruffini is that the statement itself is elementary, and the proof appears do-able at first glance. I think this is the topic I am most excited about.

A separate proof I could focus on within Galois Theory would be Hilbert’s Theorem 90. From the research I’ve done, the theorem seems like a big deal and I found a resource that builds towards the proof in an accessible and Galois Theory focused way, which is attached. The document is fairly long, but we covered field extensions last semester, so a substantial portion will be review. Although, I believe this is a more difficult project; simply understanding the precise statement of the theorem will require some work.

One question I have is: what Galois Theory will we cover in class? What we see in class could affect the difficulty of these projects.