

Name:

Problem 1: Prove that $\mathbb{Q}(\sqrt[3]{2})$ is not a subfield of any cyclotomic field over \mathbb{Q} .

As a hint, you may assume that the Galois closure K of $\mathbb{Q}(\sqrt[3]{2})$ over \mathbb{Q} has $\text{Gal}(K/\mathbb{Q}) \cong D_3$.