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Victor A. Ocasio* (vocasiog@nd.edu). *Computability in the class of Real Closed Fields.*

The class of Real Closed Fields (RCF) is known to have very nice model theoretic properties, among them o-minimality and quantifier elimination. In our work, we consider some non-elementary subclasses of RCF and explore their computability theoretic properties. We locate the class of Archimedean Real Closed Fields using Turing computable embeddings and compare it with other non-elementary subclasses of RCF. We also explore relative categoricity and show that under some conditions one can obtain a sharp result on the complexity of the relative categoricity of a real closed field that is constructed using a linear order as an oracle. (Received September 13, 2013)