# Mersenne Primes in Real Quadratic Fields

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The concept of Mersenne primes is studied in real quadratic fields of class number 1. Computational results are given. The field $Q(\sqrt{2})$ is studied in detail with a focus on representing Mersenne primes in the form $x^{2}+7y^{2}$. It is also proved that $x$ is divisible by 8 and $y\equiv \pm3\pmod {8}$ generalizing the result of F Lemmermeyer, first proved in \cite{LS} using Artin's Reciprocity law.

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