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Cory Scott* (cory.scott@coloradocollege.edu), **Liljana Babinkostova**, **Kevin Bombadier**, **Matthew Cole** and **Thomas Morrell**. *Elliptic Reciprocity*.

An elliptic curve over a finite field \mathbb{F} is the set of solutions $(x, y) \in \mathbb{F}$ to a cubic equation $y^2 = x^3 + ax + b$. Of particular interest are elliptic curves over a finite field. Elliptic curve fields of prime order are useful in a variety of cryptographic applications. We first define and investigate the properties of elliptic pairs, elliptic lists, and elliptic cycles over a square-free positive integer d . Silver and Stange address similar concepts called amicable pairs and aliquot cycles. We show that for $d = 3$ that there exists an elliptic cycle of length six. We prove some further results about elliptic lists where we derive an upper bound on the length of a list as a function of d . (Received January 28, 2013)