Keenan Monks* (keenaneeek@gmail.com). On Supersingular Elliptic Curves and Hypergeometric Functions.

The Legendre Family of elliptic curves has the classic and remarkable property that both its periods and its supersingular locus have descriptions in terms of the $\binom{1}{2} \binom{1}{2} \frac{1}{z}$ hypergeometric function. El-Guindy and Ono proved an analogous result for a different infinite family of curves with respect to the $\binom{1}{4} \binom{3}{4} \frac{1}{z}$ hypergeometric function. Both of these hypergeometric functions can also be written as elliptic integrals of the first kind. Two other hypergeometric functions that can be written as elliptic integrals are $\binom{1}{3} \binom{2}{3} 1$ and $\binom{1}{12} \binom{5}{12} 1$. We prove that the supersingular $\lambda$-invariant loci of two specific families of elliptic curves are given by these functions. (Received September 20, 2010)