1067-11-1398 **Keenan Monks*** (keenaneek@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 ${}_2F_1\left(\begin{array}{cc} \frac{1}{2} & \frac{1}{2} \\ & 1 \end{array}\middle| z\right)$ hypergeometric function. El-Guindy and Ono proved an analogous result for a different infinite family of curves with respect to the ${}_2F_1\left(\begin{array}{cc} \frac{1}{4} & \frac{3}{4} \\ & 1 \end{array}\middle| z\right)$ 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 ${}_2F_1\left(\begin{array}{cc} \frac{1}{3} & \frac{2}{3} \\ & 1 \end{array}\middle| z\right)$ and ${}_2F_1\left(\begin{array}{cc} \frac{1}{12} & \frac{5}{12} \\ & 1 \end{array}\middle| z\right)$. We prove that the supersingular λ-invariant loci of two specific families of elliptic curves are given by these functions. (Received September 20, 2010)