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John T Cullinan* (cullinan@bard.edu), Department of Mathematics, Bard College, P.O. Box 5000, Annandale-on-Hudson, NY 12504. *Algebraic Properties of a Family of Jacobi Polynomials.*

The Jacobi Polynomials are a two-parameter family of orthogonal polynomials that have many number-theoretic applications. For example, they contain as special cases the Chebyshev, Gegenbauer, and Legendre polynomials, the irreducibility properties of which are not fully known. More recently, Jacobi polynomials have proven to be intimately connected with the arithmetic of elliptic curves.

We will show that there are infinitely many one-parameter subfamilies of polynomials $P_n(x, t)$ with the property that if $n \geq 8$, then, with the exception of finitely many $t_0 \in \mathbf{Q}$, the polynomial $P_n(x, t_0)$ is irreducible over \mathbf{Q} with Galois group S_n . (Received September 20, 2007)