1014-33-1156   **James C. Griffin*** (`jgriffin@math.ucf.edu`), Dept of Mathematics, University of Central Florida, Orlando, FL 32826. *Orthogonal Polynomials Arising from Generalized Trigonometric Identities.* Preliminary report.

The equation $P_n^2 - (x^2 - 1)Q_n^2 = 1$ where P_n and Q_n are polynomials of degree n and $n-1$ respectively, uniquely determines the P_n and Q_n for each n. The polynomials in this case correspond to the Chebyshev polynomials of 1st and 2nd kind. I will discuss the relationship between solutions to higher degree generalizations of this equation and other sequences of orthogonal polynomials. One such generalization is the equation $P_n^3 + (x^3 - 1)Q_n^3 + (x^3 - 1)^2 R_n^3 - 3(x^3 - 1)P_n Q_n R_n = 1$ where R_n is of degree $n - 2$. (Received September 27, 2005)