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Marc Chamberland* (chamber1@grinnell.edu), 1116 8th Ave., Grinnell, IA 50112, and
Eugene Herman (eaherman@gmail.com). *Factoring $m^2 + 1$* . Preliminary report.

Dirichlet's Theorem on Arithmetic Progressions, an important result in prime number theory, states that any linear sequence $\{an + b : n \text{ a positive integer}\}$ with $\gcd(a, b) = 1$ contains infinitely many primes. However, very little is known about nonlinear polynomial sequences. In this talk, we look at how $m^2 + 1$ factors when m is chosen to be an appropriate polynomial. This includes the use of continuants, a tool usually seen in conjunction with continued fractions, and Keller maps, polynomial maps associated with the famous Keller Jacobian Conjecture. (Received September 14, 2018)