1054-11-54 **Kent G Slinker*** (kslinker@pima.edu), 1033A North 3rd Ave, Tucson, AZ 85705. *An Infinitude of Primes of the Form b squared plus one.*

If $b^2 + 1$ is prime then b must be even, hence we examine the form $4u^2 + 1$. Rather than study primes of this form we study composites where the main theorem of this paper establishes that if $4u^2 + 1$ is composite, then u belongs to a set whose elements are those u such that $u^2 + t^2 = n(n + 1)$, where t has a upper bound determined by the value of u. This connects the composites of the form $4u^2 + 1$ with numbers expressible as the sum of two squares equal to the product of two consecutive integers. A result obtained by Gauss concerning the average number of representations of a number as the sum of two squares is then used to show that an infinite sequence of u for which $u^2 + t^2 = n(n + 1)$ is impossible. This entails the impossibility of an infinite sequence of composites, and hence an infinitude of primes of the form b^2+1.

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