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**Thomas R. Hagedorn\*** (hagedorn@tcnj.edu). *Primes of the Form  $x^2 + ny^2$  and the Geometry of Convenient Numbers.*

Euler introduced convenient numbers as a useful tool for finding large primes (for his time). He found 65 convenient numbers, the largest being 1848, but could not find another one even though he searched up to 10,000. Gauss rigorously proved that all the numbers on Euler's list were convenient. It is conjectured that Euler's list contains all convenient numbers, and it is known that there are at most two more (with at most one square-free). In this paper, we present an alternative proof that Euler's 65 numbers are convenient using the geometry of numbers. (Received September 22, 2011)