1096-VN-1656 **Zachary George Pochiba*** (pochibazg@washjeff.edu), Mathematics Department, 60 South Lincoln Street, Washington, PA 15301, and **Sean Leavor**. *Aperiodic Binary Strings.*

There are 2^n possible binary strings. These strings can be either periodic, which contain repeating substrings, or aperiodic, which do not. Let a_n represent the number of aperiodic strings of length n. We showed that the number of periodic strings of length n is equal to $\sum\limits_{d|n,\, d<n} a_d$ so that a_n is given by the recursive formula $a_n = 2^n - \sum\limits_{d|n,\, d<n} a_d$. We also proved that for $n > 2$, a_n is divisible by 6, and that as n approaches infinity, the ratio of adjacent terms $\frac{a_{n+1}}{a_n}$ approaches 2. We then derived explicit formulas for a_n for specific cases of n, such as prime numbers, power of primes, and product of distinct primes. We also extended the idea to strings that contain more than two symbols. (Received September 16, 2013)